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Issues and Ideas for Indian Agriculture

AGRICULTURE 07

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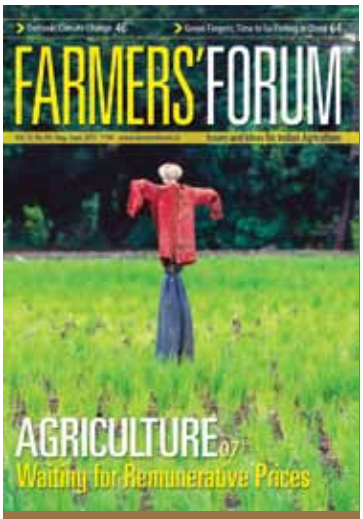

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Subsidizing Inefficiency; Not Farming

Farmers in India are now threatened on a scale without precedent in history. This is not because of apathy of any one political party but driven by the collective indifference of all parties. As population shifts from villages to urban areas or even as larger villages become census towns, the country's capacity to neglect farmers is becoming unconscionable.

There is a clear unanimity on the objectives of the Food Security Ordinance (FSO) to make the right to food a fundamental one. The debate over who qualifies to be labelled poor or the number of recipients rages endlessly. The proposed annual expenditure on the FSO will be equal to the total budget allocation for the agriculture ministry in the last decade put together. The big and rather basic question is could not the government have stepped up the allocation for agriculture instead?

Even the interest on the payout towards storing such quantities, upwards of Rs 10,000 crore a year, will be nearly 50 percent of the budget of the agriculture ministry, with the total expenditure possibly more than Rs 30,000 crore. This humungous sum, if invested more rationally in agriculture research, extension, infrastructure and accessibility of cheap credit to marginal and small farmers could make individual farmer families prosper and render India net sufficient in food. It would also lead to inclusive growth. The greater and more lucrative dividend from such investment would be the end of poverty and malnutrition, which have been so elusive.

THE PROPOSED ANNUAL EXPENDITURE ON THE FSO WILL BE EQUAL TO THE TOTAL BUDGET ALLOCATION FOR THE AGRICULTURE MINISTRY IN THE LAST DECADE PUT TOGETHER

At the recent book launch of Y. K. Alagh's 'The future of Indian Agriculture', the union minister for rural development, Jairam Ramesh, shared his experiences at the Kalahandi district of Odisha – known for its starvation deaths – becoming the most productive rice district in the state and amongst the top 15 in India, courtesy investments in agriculture infrastructure and extension work. The same approach may well be very profitably extended to other places but curiously the government refuses to learn from its own experiences.

Major cereal crops are procured exclusively by the government at minimum support price (MSP) and cost the exchequer Rs 24 per kg for rice and Rs 20 per kg for wheat. These will be distributed at subsidized rates of as little as Rs 2 per kg. This leaves no scope of any market price realization or markets itself for the farmers produce. As a


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consequence, the farmers will be forced to be completely reliant on the government declared MSP. As things stand, farmers will suffer because the government will constantly be under pressure not to raise the MSP adequately to keep the budget deficit and cost of food from soaring.

Yet, savings and gains can be had in a variety of ways simply by promoting competition and proper investments. The Bharat Krishak Samaj has been advocating that the government break the monopoly of the Food Corporation of India (FCI) in food procurement and storage. The Competition Commission of India is now examining the idea. The Bharat Krishak Samaj initially proposes that private sector players be allowed to procure grain at MSP – and take care of its storage and transportation under the supervision of the government – from centres where the FCI is currently not active and at a cost that is 20 percent lower than that incurred by the FCI.

The MSP is like a sovereign guarantee by the government of India to the farmers whereby it commits itself to procuring any commodity should its price fall below the announced price. Yet, save for crops like wheat and rice in some parts of a few states, the government has failed miserably to fulfill its promises.

Even though farmers usually find the declared MSP insufficient to meet the cost of production, they would not care less about who procures their crop as long as they get paid the price guaranteed by the government. The number of mandis or agriculture market yards across India has not increased while the total crop production has more than doubled over 30 years. The upshot is procurement is just not happening in most places.

AS A FARMER, I CAN SAY WITH ABSOLUTE CONFIDENCE, INDIA IS GOOD AT MAKING POLICIES THAT SUBSIDIZE INEFFICIENCY AND NOT FARMERS.

At the FCI, the highest paid loader received a staggering Rs 2,25,000 per month just to load a truck with grain sacks. The FCI pays its contract labour a salary that is seven times more than the rates prevailing in the market. Then again, the organized trucking industry raises rates of transport when transporting for the FCI, making the Indian exchequer pay several thousands of crore extra over the years. This preposterous loot is possible only because there exists a monopoly bolstered by an absence of accountability.

The Indian tax payer foots the cost of this inefficiency that gets added to the cost of farm subsidies. This then needs to be defended at international trade negotiations. As a farmer, I can say with absolute confidence, India is good at making policies that subsidize inefficiency and not farmers.

It is indisputable that the FSO will not be able to fulfil its objectives. If after five years of spending Rs 10,00,000 crore, India fails to deliver nutrition and prosperity to every rural family, will policymakers accept retribution and punishment or blame implementation and governance, as they are wont to, and then come up with new schemes to win the 2019 general elections? ●

Ajay Vir Jakhar
Editor
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To the Editor

Who is afraid of editorials?

Sir – Apropos of your editorial, 'Farm Policy – Time to ascertain, audit and amend' (*Farmers' Forum,* June-July 2013), I entirely agree with your position that policies are made by bureaucrats and politicians without considering the need of society and the farmers. The outcome does not serve any purpose except to serve vested interests. You have also discussed the lack of institutional credit that has been dogging the farm sector. While the government must take serious measures to resolve this problem, I do not think the government is influenced by editorials.

Nitin Kumar,
New Delhi

Wanted more in-depth studies

Sir – Your cover story, 'Agricultural credit: Whither evidence of small farmer beneficiaries?' by R. Ramakumar, supported by the finding of the study 'Agriculture credit and farm distress' commissioned by Bharat Krishak Samaj (*Farmers' Forum,* June-July 2013) have been extremely well-timed. While commending you on the study, I would, however, like to emphasize that you could have widened and deepened the scope of your enquiry to benefit a wider cross section of stakeholders in India's farm sector. What was welcome was your focus on conditions in such states and districts in which farm suicides are very high.

Satish Bhadoria,
Bharatpur, (Rajasthan)

Silent service

Sir – Ashim Choudhury's report on the outstanding Dr J. N. Sharma, 'Doctor Leaf-Fall' (*Farmers' Forum,* June-July 2013), in the "Insight" section is most interesting. There are many such unsung heroes as Dr Sharma, doing remarkable work in their respective fields but do not want to take credit. We salute them. It is very important for *Farmers' Forum* to identify such people and tell the entire farming community about their work. Hopefully, the government of India too will be forced to sit up and pay attention.

Sandeep Gosain
Dehradun, (Uttarakhand)

Farmers' Forum website www.farmersforum.in is now up and running. Log in to check out all earlier numbers.

Agriculture: the less important sector

Sir – Thank you for your interview: 'Multiple approaches to agriculture revitalization: focusing on the silver lining, with Ashish Bahuguna, Secretary, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India (*Farmers' Forum,* June-July 2013). Not just did it make for interesting reading, it provided a clear insight into the minds of bureaucrats determining farm sector policies. Mr Bahuguna has great clarity of mind but the interview clearly exposes the limitations that the agriculture ministry works under. A reading of the interview has convinced me that the importance of the agriculture ministry is clearly on the wane in India.

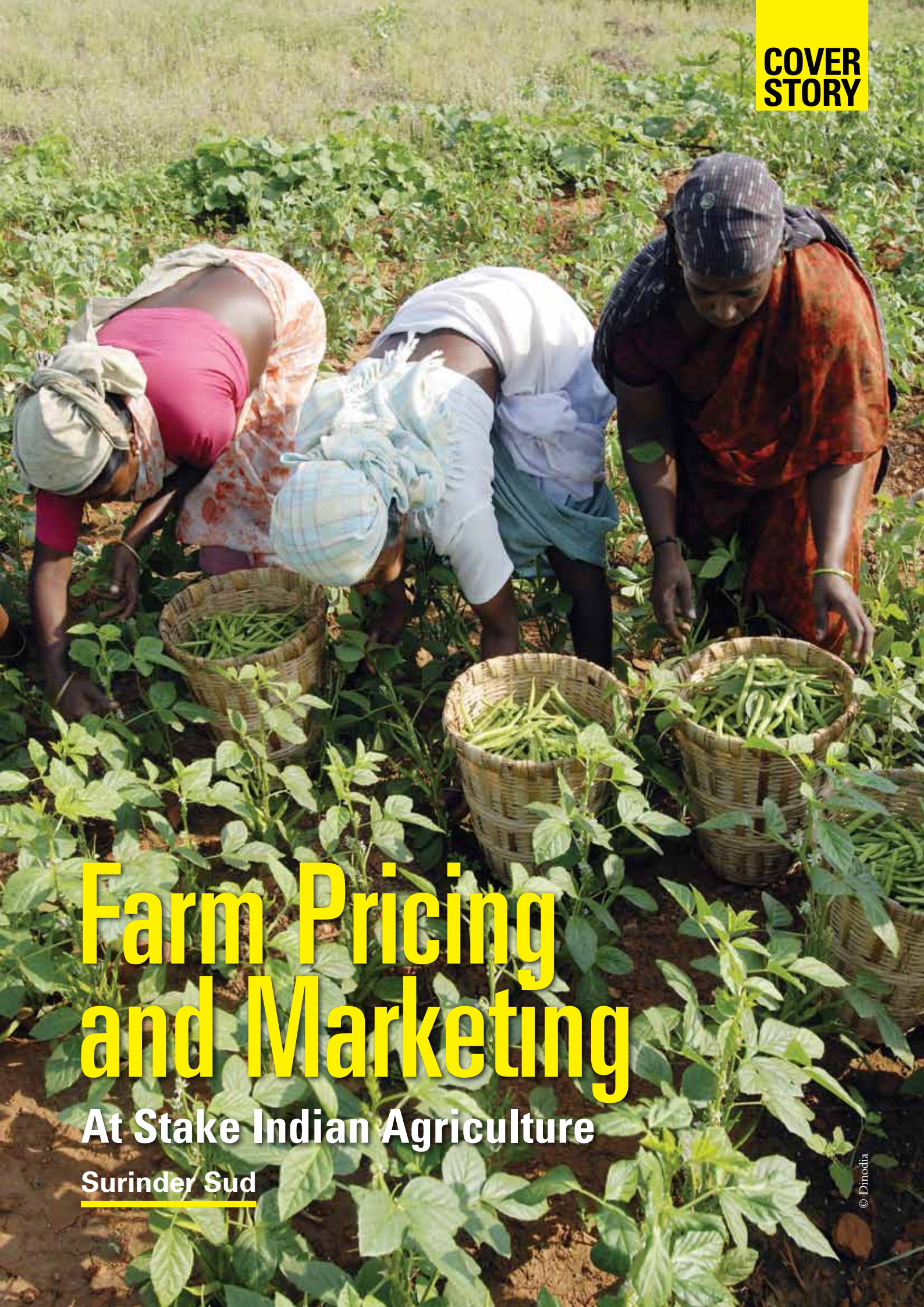
Ruchika Singh,
Kanpur, (Uttar Pradesh)

Not so fed up

Sir – Your assessment of the plight of Maharashtra farmers, 'Fed up rainfed farmers', under Greenfingers, (*Farmers' Forum,* June-July 2013) is accurate to a large measure. As a farmer in this region, however, I can tell you that we are now reconciled to the realities and are figuring a way out of this situation. We are not so "fed up" any more. There is little doubt that the government can do much more if it chooses to. On our part, we are now waiting that a good season of rain will save us for there is no option to water. We also pray for better governance because only that will ensure change at the ground level.

Gopal Bhindre,
Maharashtra

COVER STORY



Farm Pricing and Marketing

At Stake Indian Agriculture

Surinder Sud

"A major problem facing cultivators is that they do not get remunerative prices because of uncertainties caused by inadequate market information, unnecessary controls, lack of physical infrastructure and price volatility – both domestic and global".

— Planning Commission; Approach Paper for the 12th Plan.

It is not the first time that India has heard such a candid acknowledgement of the significance of lucrative agricultural prices and efficient marketing from government circles. The "National Policy for Farmers", brought out in 2007 to replace the "National Agriculture Policy" of 2000, had made similar observations.

The policy document had said, "Assured and remunerative marketing opportunities hold the key to continued progress in enhancing farm productivity and profitability". Not to leave the issue at that, both the Planning Commission now and the National Policy then had gone on to promise well intended measures to put the farm pricing as well as marketing regimes right.

The Planning Commission has said, "In order to provide adequate incentives to farmers, the 12th plan will have to focus on leveraging the required private investment and also policies that make markets more efficient and competitive". Committing the government to take similar marketing reforms measures, the National policy paper vowed to develop a single national market for agriculture by relaxing internal restrictions. "All controls and regulations hindering increase in farmers' income will be reviewed and abolished", it added without mincing words.

Sadly, these assertions have not been matched by policy initiatives. Soon after outlining this roadmap for pricing and marketing reforms in the National Policy paper, the government clamped various kinds of restrictions on agricultural trade, including stock holding limits and export bans, in most farm commodities in 2008-09 to keep the domestic prices low.

Such retrograde marketing and pricing policies that hurt the interest of the growers and prevent them from benefiting from the global price trends have continued till date. Consequently, the profitability of farming has remained low and, in many cases, in the negative domain, to the detriment of the farmers. At stake is the economic viability of Indian agriculture.

Indeed, the farm pricing and marketing policies have for a long time been oriented largely to protecting the interests of the consumers even at the cost of the producers'. The modus operandi to achieve this ill-judged objective has revolved round tinkering with the import and export duty tariff and the use of the draconian Essential Commodities Act that allows the government to put various types of curbs and controls on farm commodities and even conduct raids on the premises of the traders. Restrictions, including bans, are often put even on the futures trading of agricultural commodities, preventing market-driven price discovery.

The bids to keep the prices under check are confined not only to the main staple cereals, notably wheat and rice, for which the government has become the largest single buyer and hoarder but also to other food and non-food crops, including pulses, oilseeds, vegetables, fruits and livestock products.

Surprisingly, the price of even a non-essential and non-food item, like guar, has not been spared. Future trading in guar was barred for a long time to keep its prices under check. This step was aimed clearly at benefitting the end users of guar gum, mostly the foreign companies engaged in exploration and extraction of shale gas, at the cost of the domestic guar seed producers, who had found this crop profitable to grow in the arid regions.

The policies governing exports and imports of agricultural goods, too, generally undermine the interests of the producers giving priority to those of the consumers. This fact has been acknowledged by the government's own think tank on pricing policy issues, the Commission for Agricultural Costs and Prices (CACP) in a discussion paper put out by it in February 2013 (Discussion Paper No. 3 titled "Farm trade: tapping the hidden potential" written by CACP chairman Ashok Gulati and others).

In a veiled censure of the practice of frequent moratoriums on the export of farm commodities like rice, wheat, onions, potatoes, milk products and such others and allowing liberal imports of mass-consumed agricultural goods, this paper

A restrictive export and liberal import policy were being used to achieve equity objectives: to protect poor consumers. But it suppressed incentives to cultivators

said: "This (policy of export curbs) is based on the fears that keeping agri-trade open will lead to higher food prices at home and, given large mass of poverty, India would not be able to protect their interests. On the other hand, it opens imports of several essential commodities, especially those which are in short supply at home, at zero or very low import duty, be it pulses or edible oils or sugar, to augment domestic supplies and suppress prices".

The point was that a restrictive export policy and liberal import policy were being used to achieve equity objectives, which were to protect poor consumers. "In the process, it suppressed incentives to cultivators", the discussion paper said. Short-sighted policies of this kind have, predictably, proved counter-productive in that the farmers have not been able to respond to growing demand of non cereal foods in the wake of the rise in population and consumers' income.

The cropping pattern has remained inclined towards cereal production though the country is net surplus in these staple foods. The distorted cropping pattern has perpetuated supply crunch of various farm commodities, especially high-value and nutrient-rich commodities like pulses, vegetables, fruits, milk and its products, eggs, meat and fish.

Besides, the gulf between the prices received by the farmers and those paid by the consumers has steadily worsened to the advantage of the middlemen but, at the same time, hitting both the producers and consumers alike. The net result is that while the consumers have been paying high prices for securing daily necessities, the producers have been denied a reasonable share of what the consumers pay for these items. The poor are usually most adversely hit as retail price inflation affects them disproportionately.

Latest estimates indicate that, in the case of perishable items like vegetables and fruits, growers generally get only half to one-third of what consumers pay for them

The latest estimates indicate that, in the case of perishable items like vegetables and fruits, the growers generally get only half to one-third of what the consumers pay for them. In other crops, including the not so perishable grains, too, the producer share in the consumer rupee falls down to 50 to 60 percent during the peak marketing season.

The producer's share often dips even below the MSP levels in the markets not covered under the procurement operations. The meagre share of the producers in the consumer spending extends even to the crops, which have an export market. This has been borne out by an earlier World Bank study on the export competitiveness of Indian horticultural produce. It had found that the farmers' share in a typical horticultural product was just 12 to 15 percent of what a consumer paid at a retail store at the import destination.

Unfortunately, agricultural pricing in India suffers from some inherent conceptual limitations as well. These prices are viewed primarily as "inflation" and also measured with that yardstick in the form of wholesale price index, retail or consumer price index or food inflation index. There is hardly any instrument that realistically captures the prices actually received by the farmers not only in the proper, regulated markets but also in the unregulated informal markets.

The wholesale prices, as recorded in the wholesale price index numbers, are generally presumed to be the prices realized by the producers. This is, indeed, not always the case. Even in many regular wholesale markets, farm products are sold through the commission agents or other middlemen, keeping the farmers in the dark about the real prices at which their produce was finally transacted. Besides, a sizable part of the

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farm produce, especially of the small producers who have only tiny marketable surpluses to sell, is disposed of in the informal markets at throwaway prices as these are essentially the buyers' markets. Distress sales are fairly common at these markets.

This fact has been highlighted even in the report of the National Commission on Farmers (NCF). It said, "Distress sales by small/marginal farmers to square off their debts or for immediate consumption purposes soon after the harvest are quite common. It is normal for a farmer to get a 10 to 15 percent discounted price for spot payment for his produce. According to reliable sources, about 50 percent of the marketable surplus of the small/marginal farmers is disposed of in this manner". Lack of vital market intelligence is the most formidable bane of the farmers, big and small alike. They know little as to where and when to sell for maximizing their returns.

Indeed, fixation of MSPs has remained the mainstay of the official agricultural pricing policies since the mid-1960s. All is not well though even with this exercise, despite considerable widening of the terms of references for the CACP. While determining the MSPs, the CACP is now required to take into account not only the factors that have a direct bearing on the production costs and profit margins but also those not related directly to the costs but concern essentially the impact of the suggested prices on consumers and the economy.

Computation of the cost of cultivation or production takes into account all paid out costs, such as those incurred on hired human labour, bullock labour and machine labour (both hired and owned), rent paid for leased-in land, cash and kind and the expenses on the use of material inputs like seeds, fertilizers, manures and irrigation (including cost of diesel or electricity for operation of pump sets). It also takes into account the imputed value of wages of family labour and rent for owned land, depreciation for farm machinery and buildings, transportation and insurance charges. This list, undoubtedly, is quite comprehensive and covers not only actual expenses in cash and kind but also imputed values of owned assets and family labour.

However, along with these, the CACP is also supposed to keep in view the possible impact of mooted prices on the general domestic and international price situation and the people's cost of living besides their fiscal implications for the government in terms of subsidy outgo. In other words, the CACP must not only suggest the prices that are remunerative for farmers but also safeguard the interest of consumers by ensuring the supply of farm goods at reasonable prices and those of the government by endeavouring to keep its fiscal burden under control. Such conflicting requirements make the CACP's job difficult and ultimately tilt the scales in favour of the consumers and against the producers.

The problem, however, also is that the CACP does not directly collect data on cultivation costs. Nor does it have the liberty to suggest different MSPs for different regions keeping in view the wide variations in cultivation costs and market levies in different states. Cost data is gathered from various states by the agriculture ministry and is made available to the CACP with a time lag of at least two to three years. The actual costs can, obviously, change substantially during this period. It goes to the credit of the CACP that it has now begun applying a correction factor to the estimated costs. The CACP has, in fact, already recommended to the government that the needful should be done to make the cost data available to it expeditiously, within about six months of gathering it.

The other problem relates to averaging of the cost numbers for arriving at a single cost of production figure for the purpose of computing the MSPs, which would apply uniformly to the entire country. This creates some anomalies in the cost of production figure that the CACP finally takes into account for basing its price recommendations. This has been pointed out in a recent discussion paper titled "Pricing, costs, returns and productivity in Indian crop sector during 2000s" issued by the CACP in June 2013.

The paper says, "If these costs (weighted average production costs) were to be normally distributed, about 50 percent of production of a particular commodity would have cost of production less than the weighted average, while the other half would have costs higher than this weighted average". In 2010-11, the percentage of production that got covered at the weighted average cost in case of maize, for instance, was low at 42 percent. Thus, the major portion of the maize output (58 percent) was produced at costs higher than the weighted average cost, the paper adds.

It is also worth noting that in the same year (2010-11), the weighted average cost considered by the CACP for MSP fixation covered only 32 percent production of lentil, 50 percent of tur (pigeon pea) and 36 percent of sunflower. This explains why farmers in the agriculturally progressive regions, where the cultivation cost is inherently high due to the use of irrigation and fertilizers, costly labour and relatively higher value of land, do not prefer to grow pulses or oilseeds – crops whose MSPs do not protect their production costs, leave alone yielding some profit.

Equally significantly, this also explains why wheat and paddy growers in high cultivation-cost regions like Punjab, Haryana, west Uttar Pradesh, Andhra Pradesh and similar others invariably remain dissatisfied at the MSPs fixed by the government on the recommendation of the CACP. Paddy growers of Andhra Pradesh, it may be recalled, observed a crop holiday a few years ago to draw attention to the fact that their production costs were not fully covered by the MSPs and that paddy cultivation had become a loss-making proposition for them.

For the government, agricultural pricing, unfortunately, begins and ends with the fixation of the MSPs. This is regardless of the fact that these MSPs have little relevance for commodities other than wheat and rice and, to some extent, cotton, which are procured by the official agencies in a handful of states. For other produce, as also in areas not effectively covered under the government's market support/procurement operations, these prices have only notional significance. Though, the MSPs are generally deemed to become the benchmark prices for the market, that is true largely in the case of products covered under procurement operations.

Even in the case of oilseed and pulses, for which the government generally designates Nafed or some other organizations as nodal agencies for providing price support, most growers do not get these prices because of limited marketing and procurement networks of these bodies. Prices of most goods, including those 25 crops for which the MSPs are announced, usually drop to unremunerative levels in the peak post-harvest marketing season and rise substantially in the off season regardless of what the MSPs of these commodities are.

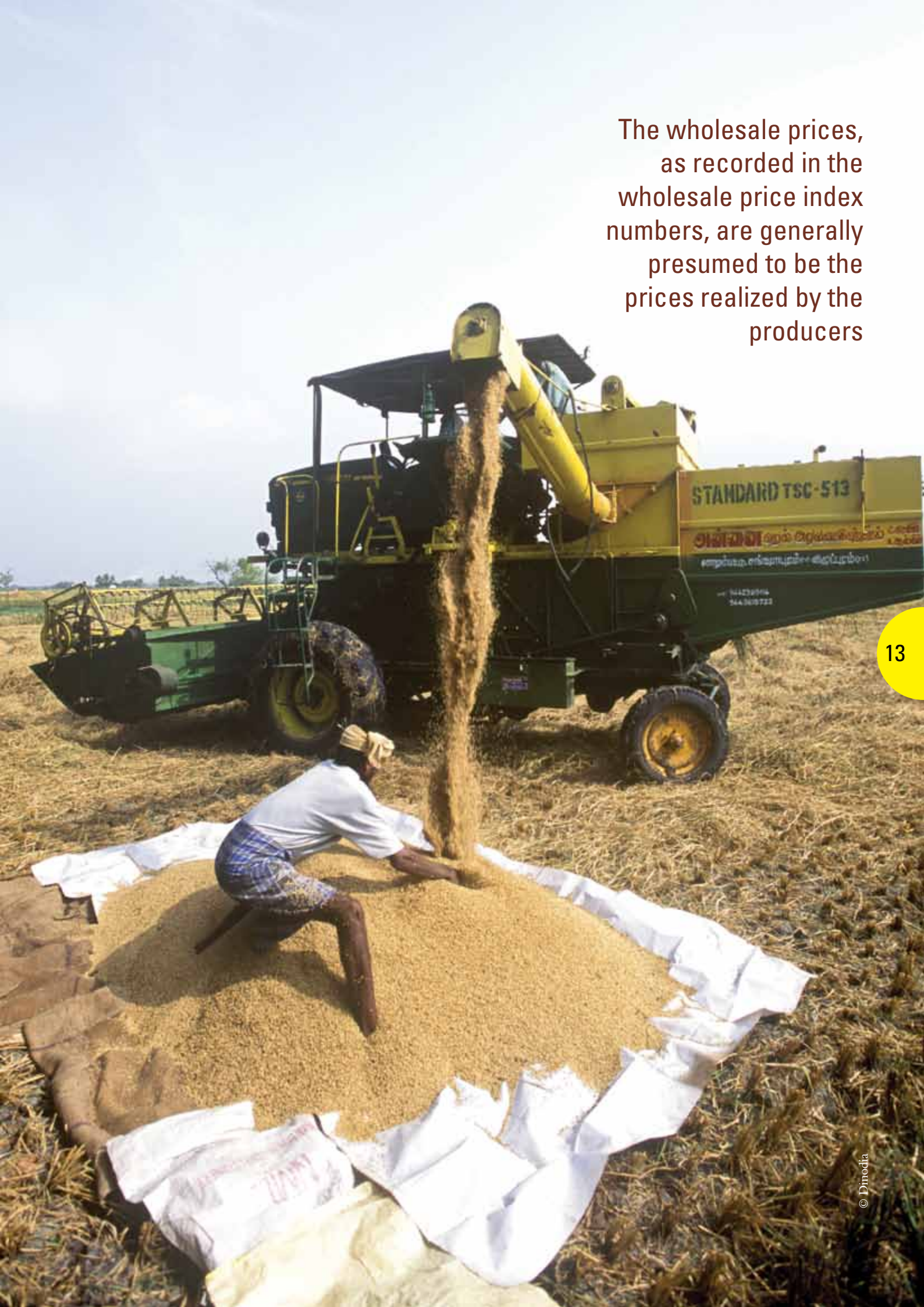
The government has recently launched a Market Intervention Scheme to provide price support to perishable horticultural items but this is of little benefit to growers

Rice and wheat, too, are traded at rates far higher than the MSPs in the off season even in surplus producing areas. Price fluctuations are most wild in the case of perishable produce like vegetables and fruits. The farmers are invariably the losers, whether the crop is good or bad. During years of bumper output, prices dip to below production costs, and in low production years, growers do not have much surplus to sell in the markets.

No doubt, the government has recently put in place a Market Intervention Scheme for providing price support to perishable horticultural items but this, too, is of little benefit to the growers of these commodities. The expressed objective of this scheme is to protect farmers from going in for distress sales in the event of a bumper harvest during the peak arrival period when prices tend to fall below economic threshold or below the production cost.

A significant reason for the ineffectiveness of this centrally-sponsored scheme is the numerous conditions laid down by the government for it to

The wholesale prices, as recorded in the wholesale price index numbers, are generally presumed to be the prices realized by the producers



come into force. It is mooted to be implemented only if prices of a commodity drop by over 10 percent from their previous normal year's level or if the cost of production spurts by over 10 percent and also if the state government is willing to bear its share of 25 percent of the losses incurred on market intervention operations. By the time official formalities for the approval and launching of the price support operations are completed, the marketing season for perishable crops usually comes to an end.

What the policy planners often tend to disregard is that the agriculture sector cannot grow to its potential, despite the use of modern technologies, unless the farmers are assured of good returns over their investment and effort. The success of the green revolution in the late 1960s and 1970s was, in part, the result of assured marketing at pre-determined lucrative prices through the mechanism of public procurement, thus making wheat and rice virtually the cash crops for the farmers. Also noteworthy is the fact that this green revolution could not expand to other crops like oilseeds, pulses and coarse cereals because of lack of assured marketing and remunerative prices in their case apart from other reasons.

This lesson has not been learnt even six decades after the green revolution. Though the government now fixes MSPs for crops like oilseeds, pulses and coarse cereals as well, these prices have only notional value for growers for want of worthwhile marketing support. Consequently, growth in output of these crops has remained low despite the development of new high-yielding varieties and better production technology.

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Even in a progressive state like Punjab, there is just one regulated market in an area of around 118 square kilometres. The situation is far worse in backward states

That said, the truth also is that the government's role in providing price and market support would not have remained as critical as it is today if a fair, transparent, efficient and competitive marketing network, adequately backed by the needed supporting infrastructure of warehouses, logistics, value addition and the like, had come up throughout the country. Unfortunately, neither the agricultural marketing infrastructure nor the legal regime governing agricultural marketing and trade have managed to keep pace with the changing circumstances.

The woeful inadequacy and pathetic state of the marketing infrastructure in India emerges starkly from the report of the empowered committee of the states' ministers in charge of agricultural marketing, headed by the cooperation minister of Maharashtra, Harshvardhan Patil, presented to the agriculture ministry in July 2013. It reveals that there are only 7,190 regulated markets and about 22,500 primary rural markets in a country as vast as India.

On an average, one proper market exists in a large area of 115 square kilometres. In the case of regulated agricultural markets, the area served by one market is as large as 457 square kilometres. Even in an agriculturally progressive state like Punjab, just one regulated market exists in an area of around 118 square kilometres. The situation is far worse in backward states, such as Meghalaya, where the average catchment of a regulated mandi is a whopping 11,214 square kilometres.

Ideally, there should be a proper agricultural market available to the farmers within a distance of

five kilometers; or a market for an area of around 80 square kilometres. This norm was mooted way back in 1976 by the National Commission on Agriculture that was set up soon after the advent of the green revolution.

The report of the state ministers' panel has also highlighted the paucity of needed facilities in mandis. About one-third of the regulated markets do not have proper platforms for open auction of the produce brought there for sale. Besides, as many as two-thirds of the markets do not have proper facilities for grading and drying of the produce to enhance its market value. Electronic weighing bridges exist only in a few markets.

Thus, the system of regulated agricultural markets, which was conceived and put in place chiefly to ensure an orderly growth of farm marketing infrastructure and to introduce fair trade practices to end exploitation of farmers, has miserably failed to achieve these objectives. In fact, the regulated markets and mandi committees – called the Agricultural Produce Marketing Committees (APMCs) – set up under the APMC Acts of the states to operate these markets in a fair and transparent manner, actually have become abettors to exploitation.

They have also turned monopolistic and denied farmers the choice to sell their produce outside the mandis. In the process, the markets run by these committees actually led to further erosion of much needed competition in agricultural marketing. Besides, by doing so, they prevented producers from getting market-determined prices.

What is worse, the entire farm marketing system is bogged down by outdated legal regime, excessive marketing fees and levies and restrictive curbs and controls on storage, movement and trade of farm commodities. Such drags push farm trade out of sync with marketing of other goods in a free market economy. Its repercussions extend much beyond just the farmers. Exporters, agri-processors and retail chain operators do not get direct access to the desired quality and quantity of agricultural produce for their businesses in many states.

"Such weak integration of the production system with the post-harvest value chain leads to an increase in the cost of marketing, with the farmer getting a low price for his produce", said a

report of the sub-committee set up by the National Development Council during the peak period of farmers' distress and a spate of suicides in the middle of 2000s. The report laid the blame for the monopolistic tendencies on the outmoded APMC laws of the states and also held them responsible for shutting out the options for private investment in agricultural marketing.

Some of these shortcomings in the regulated marketing system have, of course, been addressed by several states by amending their APMC Acts. Many states have, however, neither amended their statutes nor have they framed the rules under their amended Acts to put them into force. Moreover, the amendments carried out in many states are not entirely on the lines of the Model APMC Act drafted by the centre and circulated to the states in 2003 to serve as a guide for enacting the new laws. The legal environment is, therefore, yet far from conducive for ensuring efficient and competitive marketing of farm produce.

The centre's model APMC Act provides for allowing establishment of private market yards; direct buying and selling transactions between producers and end-users; and regularizing contract farming. The idea is to attract private investment in developing not only new wholly privately-run markets but also in logistics and other supportive infrastructure, including warehousing and cold storage facilities for high-value and short shelf-life products, which are currently contributing to high food inflation. Backward and forward linkages are sought to be developed to promote farm-firm linkages.

As pointed out in the 12th plan approach paper, however, the permissions granted for opening up the marketing system to private players in most states under the new laws are subjected to restrictions and conditions most of which are unacceptable to prospective investors. "Vested interests in maintaining the existing mandi system intact are very strong", the Planning Commission paper has frankly observed. This apart, market fees charged on various farm commodities have remained unduly high, up to 15 percent in some states, against the desirable level of a maximum of 0.50 percent of the value of the traded produce.

The centre has, over the years, set up several committees to go into the issue of agricultural marketing and suggest ways and means to revamp and expand the agricultural marketing system and infrastructure. The first such committee

was headed by Shankerlal Guru. Though this committee outlined several measures to bring agricultural marketing in India on a par with global standards, the economics of implementing its recommendations was unnerving: it required an almost impossible investment of Rs 268,742 crore.

The panel had expected much of this investment to come from the private sector but this was unfeasible without first creating a favourable environment for this purpose. That has not happened. Subsequently, the agriculture ministry appointed an inter-ministerial task force, headed by R.C.A. Jain, to review the Guru committee's report. This panel, while broadly endorsing the report, fine-tuned and pruned the figure of required investment to a more realistic level of Rs 12,230 crore, including the contribution from the private sector.

This task force also laid stress on reforms in several aspects of agricultural marketing, maintaining that the marketing framework should have flexibility to enable alternative systems of operation, depending upon the requirement of the commodities. The areas identified by this panel for reforms and focused

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- Encourage electronic trading in the mandis at least at the district level to ensure transparent trade.
- Exempt contract farming sponsors and direct marketing licensees from stock limits up to six months of their requirement.
- Set up district level authorities for contract farming registration.
- Abolish market fee under the contract farming system.
- Waive off market fee for vegetables and fruits even in regular mandis.
- Constitute a centre-sponsored 'corpus fund' for the development of marketing infrastructure.

Most of the well-conceived suggestions made by these committees have remained confined to their reports without any concrete follow-up action. The few recommendations, taken up for implementation, have failed to yield the desired results for want of a conducive overall environment for free and transparent marketing. The want of political will to take the process of marketing reforms to its logical end has also come in the way of reaping full benefits from whatever initiatives have been taken in this field.

The warehouse receipt system can be a notable case in point. These receipts have now been declared as legal tenders. This enables

The want of political will to take the process of marketing reforms to their logical conclusion has come in the way of reaping full benefits from the initiatives taken in this field

action included the legal regime governing farm marketing, direct marketing, market infrastructure, pledge financing, warehousing receipt system, forward and futures markets, price support policy, use of information technology and training and research in marketing systems.

The Harshvardhan Patil-led empowered committee of states' ministers in charge of agricultural marketing has been the latest in this series of committees that went into the vital issue of farm marketing reforms. This panel came out with some fresh suggestions in its final report in July 2013 for creating barrier-free markets. These included the following:

- Create a single window facility for issuing a unified single registration for traders and market functionaries.
- Charge market fee only for the first transaction between farmer and trader.

the farmers to sell their produce kept in the safe custody of the warehouses at a later date at higher prices and, at the same time, secure fresh bank loans against these receipts to meet their immediate cash needs. What makes this useful system ineffective is that not many banks have yet begun to honour these documents for disbursing loans to the farmers at low rate of interest. The ones that honour them do so reluctantly after imposing several daunting conditions.

Similarly, though futures trading has technically been allowed in a large number of agricultural products to serve as an instrument of price discovery and hedging of price risks various kinds of hurdles are yet to be removed to allow this mode of trading to serve the intended purposes.

- These markets need to operate under totally free marketing conditions, without any government control or price-distorting move like fixation of

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Agricultural pricing and marketing are in a state of disarray despite many well-meaning suggestions from the many committees for reforming and revamping this vital field

MSPs, to effectively discover prices. This is not so at present.

- Hardly any attempt has been made to link the farmers, essentially small producers, with these markets directly or indirectly through the aggregators.
- Moreover, the trading of several farm goods on the platforms of futures exchanges is frequently banned or subjected to deterrent norms to discourage the traders.
- Above all, options trading, which allows farmers to hedge their risks by giving them the right but without the obligation, to sell their produce at the contracted price at a later date, has not yet been allowed.
- The Bill to amend the forward markets Act to allow derivatives trading in commodities, which will pave the way for the launch of options trading at futures trading floors has been pending with the government for several years.

Thus, agricultural pricing and marketing continue to remain in a state of disarray despite a plethora of well-meaning suggestions from various committees for reforming and revamping this vital field. What is needed is the will to act not only at the central level but more so at the state level. Otherwise, neither will a vast majority of farmers get remunerative prices for their produce nor will Indian agriculture be able to respond effectively to changes in the demand pattern and high consumer prices of farm goods. ●

The author, a veteran agricultural journalist, is consulting editor of the Business Standard.

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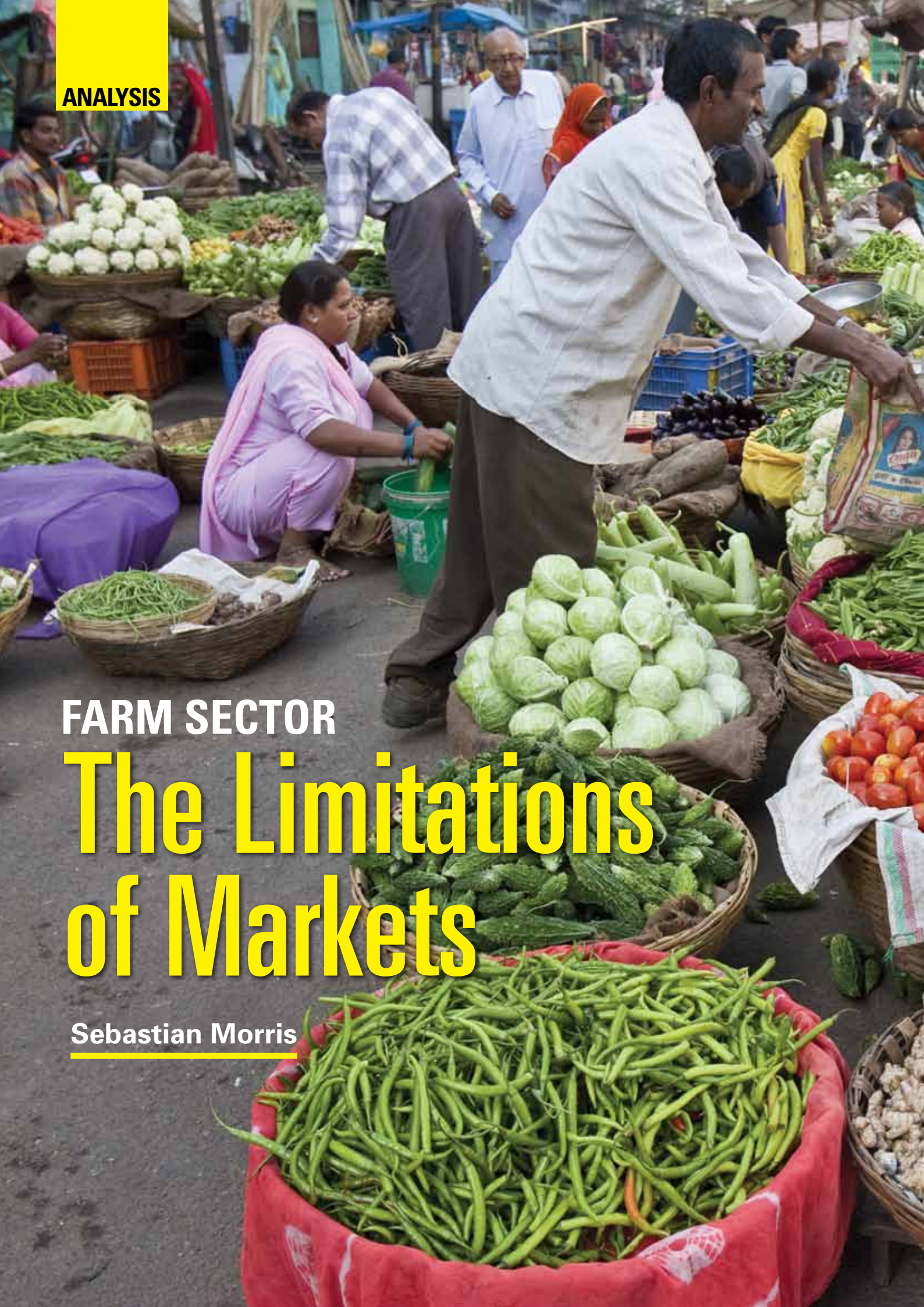
ANALYSIS



FARM SECTOR

The Limitations of Markets

Sebastian Morris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Influential multilateral agencies and economists have for long been urging laissez-faire in agriculture that has met with limited success even in the rich countries. This is despite commitments under the WTO. Worse, many poor countries with great agricultural potential have been coaxed to adopt near free trade in agriculture with disastrous results, especially for the poor in these economies. There are fundamental problems in achieving global (or even national) optimality through world trade in agriculture given the immovability of land.

What makes matters difficult is that poor countries start their transformation process with much of their population engaged in agriculture, imposing special requirements on farming. Incomes have to rise in agriculture to overcome poverty and to constitute rising domestic demand for modern manufactures and, therefore, the infant industry argument holds with additional force.

It is interesting to consider the historical experience of agricultural development, the relationship between economic development and agriculture, trade in agriculture, the role of state action, especially in the late industrialization context along with the differences between land endowed and land poor countries.

India's initial state led investments allowed the Revealed Comparative Advantage (RCA) to be "high" and rising, which stabilized with the income growth in the eighties. In the nineties, when high growth prevailed, the RCA tended to decline though not as rapidly as in the East Asian countries typified by either China or Thailand. Structural RCA had, of course, declined earlier as the incomes grew in the eighties. The mid-sixties to the end of the seventies, when Indian growth was much slower than the world average, saw both the structural RCA and the observed RCA rise, helped by the development of minor irrigation over the period. In less than another decade of rapid growth, much over world average growth rates, the logarithm of the RCA of India will fall below zero, which would be the "Corn Law" point in India's transformation. (A Logarithm of a number is the exponent to which another fixed value or the base must be raised to produce that numbe. A Corn Law is a law that was enacted in the United Kingdom in the 19th century to protect domestic farmers from competition from cheap imports.)

China

In China the "Corn Law" point would well be in the late nineties or the first decade of this century itself, although this is masked by major changes in China's trade balance on account of fuel, principally oil. Although the observed LNRCA has fallen dramatically with the rapid growth of income over the eighties and the nineties, the structural RCA has remained stable after its rise in the eighties. Clearly the pursuit of export-led growth has resulted in a stupendous increase in manufactured exports, enhancing China's RCA in manufactured exports allowing its RCA in agriculture to fall, despite the steady aspect of its structural RCA. The structural RCA rose and kept steady due to a fall in the RCA of fuels as China's imports of fuel ballooned.

Agriculture is marked by certain peculiarities. It is somewhere between being a natural resource and a produced good. It is both a resource and a produced good. Manufacturing is usefully considered as a produced good unconstrained by land. Agriculture is dependent upon land but land is immobile across countries as is labour. With only one of the factors being mobile – namely capital – the trade in agricultural goods alone cannot bring about global level optimality in the use of land to produce agricultural goods.

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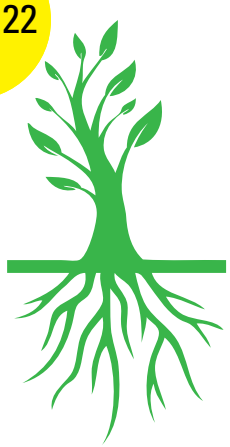

Agriculture is marked by certain peculiarities. It is somewhere between being a natural resource and a produced good. It is both a resource and a produced good

However, in a global sense, with free trade in manufactures, manufactures would show a tendency, even if weak, to get located in the least cost places, if there is openness to foreign capital flows too. The need to use technology though would limit the ability of poor countries to house manufacturing in a continually deepening manner without strategic action to create the basis for its workers to engage with modern machinery and processes.

Nations with low-cost oil wells and in quantities far above their needs, for example, would generate vast rents. In manufacturing though, since there are no scarce inputs, rents that are not whittled away are rare. Only the market power resulting from intellectual property and trade secrets would generate "rents". Even these are constantly under attack through competition. In a more dynamic sense these could (when not excessively protected) be treated as profits necessary to create the incentives for innovation.

In fully developed countries, agriculture constitutes between a mere one percent and three percent of the GDP and between two percent and six percent of employment. Hence it is possible for such countries to subsidize their agriculture if agriculture is not competitive without imposing too large a cost on the rest of the economy. Since labour productivity in agriculture is typically lower (sometimes as low as half that of the manufacturing and commercial services sectors), relative to that in the rest of the economy, protecting agriculture also happens to be pro-labour and especially pro-poor, more so when farms are not large.

The so-called aggregate measure of support, which in such countries could range from 30 percent to 80 percent (Japan), is a measure of the total transfers to the sector. The deadweight losses to the country are much less however. This ability and the relatively

low social cost are at the core of the resistance to giving up support of agriculture in rich countries.

In poor countries, with industrialization not having begun or in a nascent stage, agriculture could constitute as much as 50 percent or more of the GDP. More importantly, the proportion of people employed in (more correctly dependent upon) agriculture would constitute around two-thirds of the population. Substantial subsidization of agriculture especially via budgetary measures would be out of question and agriculture may have to be the sector from which resources have to flow out to form the initial capital required for industrialization.

In countries that have created a modern industrial sector but have much of the transformation ahead of them. Agriculture, while constituting a low 25 percent of the economy, could be the source of livelihood for as much as 50 percent or more of the population. Such countries typically have dense populations (and are land scarce). A case in point is India. Late industrializing countries could have substantial dependence upon agriculture because agriculture in these economies is the residual sector holding much of the disguised unemployed that await their engagement in the expanding modern sector via the onset of a Lewisian process of growth.

The agriculture question in these countries is important for an additional reason that the sector should shed labour only at the rate that the modern sector can absorb. This may well mean that agriculture is required to be protected since, being land scarce, it may not be competitive enough globally as incomes rise. The continuation of poverty (slow growth) could of

An examination of the nature of agricultural products over several dimensions – the long lead in production, the perishability in some cases, the storability in others but above all the grouping of many agricultural products into low price and income elasticity – provides insights that can usefully inform the content of state intervention and trade policy, especially from the point of view of a country like India, which is likely to lose its comparative advantage in many agricultural products as incomes rise.

Land rich middle-income countries would be the most important exporters of agricultural products without subsidization where it would be developed to its full potential

course keep agriculture competitive but that is a competitiveness built on the back of hungry peasants, who have no other opportunities. Capital additions have limited scope especially if the land enhancing investments (irrigation and reclamation) have already taken place.

State failure in land rich poor countries that should be very competitive in agriculture creates another category of economies. Agriculture here should flourish if even a modicum of modern agricultural practice is in place. This category as such exists because war and political strife have prevented investments in agriculture and land improvements from taking place. A lot of the initial investments in agriculture to allow land endowments to be exploited have to be made by the state, being public in character, so that the importance of the state cannot be overstated.

The most important external factor compounding the problem is, of course, the distortion of global agricultural prices caused by the subsidization of agriculture by rich countries, especially when poor land-endowed countries are persuaded to be open to imports by, inter alia, multilateral institutions, which often have the power to determine policy.

Land rich middle-income countries would be the most important exporters of agricultural products without subsidization. There agriculture would be developed to exploit much of the potential of the land since the incomes are not too high to prohibit all but large firms to operate, unlike in rich land rich economies. Unlike in land scarce middle and low-income countries, too much public and private capital per unit of land is not required to expand output.

While markets in agriculture are free from fundamental market failure, there are many perversities that need to be recognized. Their impact in poor countries can be severe both on the ultimate producer of agricultural products (typically peasants and small farmers) and on consumers. Much of the perishables in trade

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The immobility of land can only be compensated in part by public investments that enhance land productivity – principally irrigation and land reclamation investments. Land rich countries competing with land poor countries would be able to generate rents that are not eroded if the output from the land rich countries alone is not able to serve global demand. These rents are akin to rents in natural resource products in high demand that accrue to the endowed nation.

Typically a surplus for a country like India would almost inevitably lead to a large price drop (sometimes even to below costs) in the global markets. Similarly, a significant shortfall will lead to large rise in prices. It is only when there is significant buffer stocking in India that international trade can be taken advantage of since the stocking agency has the ability to punish private stockers when they speculatively bid up prices beyond what is considered desirable.

are outputs of agriculture in the broader sense; therefore requiring processing, refrigerating and special care in transportation. This per se is not the problem since many other products could involve significant costs in transportation and storage.

For perishables from agriculture though, they tend to be high and interact with the long lead in production (that at the minimum could range from a season to many years, as in the case of horticulture). The high storage costs act to reduce speculative possibilities and the length of the lead tends to enhance the same. Price elasticities could vary considerably in perishables and those with low price elasticities would be subject to larger volatility than those with high price elasticities. The scope for traders and speculators to extract value would be limited though since speculative storage is expensive.

The advantage in these products, therefore, goes over to the processing, aggregation or retailing segments of the business. Producers and consumers being in very large numbers and intermediaries being few (which is the case in most agricultural products) would allow the intermediary (and in this case the processor-retailer-aggregator) to extract value above costs and thus rents from dominance of the entire value chain.

Consider non-perishables such as food grains, cotton, oilseeds and other fibres, whose storage costs are not too large. If the lead is also large as in the case of most grain and seed crops (unlike storable tubers, cheese), price elasticities are again low, leading to high volatility that would tend to get enhanced due to the intermediary's speculative stocking behaviour. The wholesale trader, rather than other elements in the supply chain, would be able to extract value above costs and hence rents from the production to distribution chain.

Consider the income levels of the ultimate producer. If these are closer to subsistence levels, the ability of the producer to hold on to stocks is limited so that large inter-seasonal variation in farm gate prices result out of the inability to hold out against low prices post harvest vis-à-vis the buyer (aggregator or trader). This would make farmers even more vulnerable to losses when there are sudden increases in production because they could lead to price crashes locally, with the farmer having few mitigating measures such as storing his own output.

The capacity of the local farmer level grain elevators in the USA and Canada, while small relative to the capacities of aggregators, served

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to moderate the inter-seasonal and inter-year variations in prices and hence acted as a check on the ability of intermediaries to extract out too much rent from the chain.

Shifting the attention to the consumer, when the income and price elasticities are not small (flowers, non-basic fruits, cotton, processed fish, exotic grains and seeds) the perversities arising from the structure of the value chain and long lead need not be large. When the income elasticities are small (food grains, pulses), however, the perversities would be damaging at low levels of income. To illustrate the point, consider a poor household in a poor society with about 80 percent share of its income being normally spent on food.

Imagine a 20 percent shortfall in food production over the usual with limited possibilities of imports and no public storage. Given low income and price elasticities, the adjustment would take place at price levels, which would be very high over the current price; even as high as twice the current level. At this price while the well-to-do could still maintain their consumption of food, the poor would necessarily have to reduce their consumption of food; in other words, to starve; to adjust; so that there is "market failure", since consumption of food cannot be either advanced or postponed (unlike durables or luxuries for instance) and survival itself is now at stake.

Small firms when free of incentive incompatible systems like share-cropping or insecurity of tenure, can greatly expand output even when they are "not profitable" in a capitalist calculation. These aspects of small firms are at the core of the rapid agricultural growth of Korea (1963-1974), China (since the re-peasantization of collectives in 1979) and Taiwan (1960 to 1975) and Japan (1950-1964), and West Bengal after Operation Barga (1983).

Of course, the final solution to this problem is to ensure that all people have incomes high enough to cover such basic consumption many times over. Obviously, therefore, it is this failure more than the 'failure' of the trade being able to extract rent out of the chain per se that gives credence to market intervention operations (buffer stocking) as a public activity that can mitigate such risks of starvation. Similarly, a rise of 20 percent in output suddenly could result in steep price fall to hurt the farmer, and the inter-temporal moderation aspect in the activity of the trader would come about only at much value loss to the producer and the consumer.

Consider next global markets in food grains. Wholesale trade would be dominated by players


Two years ago the Ministry of Agriculture finally got its act together and at least its production estimates of cotton were brought on an even keel

Falling IT costs and the development of the world wide web can with state support and with cooperation make a quantum jump in the ability of very small farmers to access such information. The e-choupal, a network of information on prices and practices for farmers initiated and managed by the ITC as part of its extension services to farmers is an important development and could result in similar developments by corporates having an interest in procuring agricultural products. ITC having diversified itself from tobacco to vegetable oil and other products, has found in the e-choupal a way to improve the lot of farmers by reducing the role of middlemen.

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from advanced countries simply because they were the early starters and relevant exchanges would be located in early developed countries. Over a long period of evolution, players from these countries would also have consolidated themselves. Another factor is the closeness to large markets that are also willing to pay a premium (typically large and rich countries) for the products of agriculture, especially food.

The earliest of the agricultural surpluses resulting in significant exports arose in the U.K. and USA, France and Germany and local traders from these countries, especially the latter, grew to dominate international trade and exchanges in grain. Late producers and especially those whose comparative advantage is temporary being based on low cost and subsistence labour would not have the basis (not even in the future) for challenging the dominance of global players, in the crucial segment of the value chain namely in global trade and speculation.

As a result the ability of the farmer to gain out of 'free-trade' per se, when unsupported by measures such as public (or cooperative) buffer stocking or state (cooperative) processing and marketing, would be very limited, since the ability of global traders and processors to extract value out of poor country agricultural producers would be considerable. This leakage of value in grain trade is an added reason for state initiated buffer stocking and support of processing, and cooperatives. Hence the urgings of laissez-faire economists that countries like India should give up or greatly reduce buffer stocking and instead use imports and exports to manage inter temporal variations rings hollow.

When there is no shortage as such (averaged over time) buffer stocking would be sustainable and even profit earning. It is this economy and the need to bring the collective power of producers in international trade to counter the role of established private players often acting in conjunction with the states of their own countries that has given rise to a significant role for state trading in agricultural products even in countries like Canada.

Even when perishables are involved, the established processor located closer to the markets of developed countries would be in an advantageous position vis-à-vis the producer and the small scale aggregator or packer in Less Developed Countries – particularly those whose comparative advantage in agriculture is newly found – and is more on account of low cost of labour. Amplifying this asymmetry are the phyto-sanitary conditions imposed by rich importing countries, which not only have the effect of protecting domestic high cost producers but also of knocking off considerably the benefit that poor countries could have had out of their exports and indeed of being a factor in the advantage of multinationals (from importing rich countries) vis-à-vis exporting firms from poor countries.

Physical inputs like irrigation development (especially those based in storage) can have positive externalities, sub-additivity of costs and large scale, pushing investments

Many inputs required for agriculture suffer from excludability problems being nearly public in nature – better practices, inoculation of animals, better breeds of plants and animals for instance – so that the state's support of extension, research and development of new varieties and of better practices is beyond doubt. Countries successful in agriculture have all made these efforts. Since latitude is an import determinant of the specificity of local plants and animals, not all R&D can be borrowed or imported. Therefore, the state's actions, in directly carrying out R&D and extension and supporting private players, in buying out technology from large MNCs for common and unrestricted use (very much like site licenses for software that educational institutions use) are very critical to the process of agricultural transformation today.

Similarly, other physical inputs like irrigation development (especially those based on storage) can have large positive externalities, sub-additivity of costs and large scale, pushing investments in these areas to either natural monopolies or to suffer appropriability problems. These necessitate state regulation and support if not direct intervention. Other modes of provisioning, such as user participation in development and management, would also have to be coaxed out and engineered by appropriate policy and regulation.

Extraction irrigation, while privately feasible, can lead to subtractability problems especially when ground water resource is scarce, necessitating property rights innovations besides regulation and control. The conjunctive use of water is another factor that renders the provision of unregulated water and irrigation services problematic. Similarly,

investments in watershed to enhance ground water retention, while socially profitable but hardly privately possible, would not happen without state intervention or support. Where enhancement of ground water is critical (when rainfall is bunched for a few days or months in the year) the role of the state even in appropriable extraction based irrigation cannot be overemphasized.

When farm sizes are small there are many additional operations that become problematic and need the state's attention. Thus deep ploughing when farm sizes are not large enough for a tractor to be economically employed may have to be given up (which is a social loss) till such time as markets in tractor hire services develop. Land shaping, land bunding and drainage management investments are fully appropriable only at larger farm sizes so either norms or practices that are socially accepted to maximize such benefits have to emerge or they have to be supported by the state through both rules and institutions (including common property institutions) and extension and investments.

Information tends to be valued when credible and new practices (and crops) carry with them risks. Thus, the mere availability of information that a particular crop, say button mushrooms would be lucrative along with detailed information on the practice alone, would not on that count make many farmers try out button mushrooms. A demonstration would be necessary in most cases and the smaller the farmer the larger is this need. Hence smaller farmers can be expected to experiment with a much lower probability than farmers who operate at a very large scale.

Experimentation in practice on the basis of new information available in land rich economies is realized through a certain degree of asymmetry in farm sizes. This makes the system efficient in a dynamic sense. When even the largest farms are too small to "experiment", which is the case in much of Asia, the role of demonstration to allow for the unfolding of dynamic economies and allocative efficiencies cannot be overemphasized.

Information tends to be valued when credible and new practices (and crops) carry with them risks. A demonstration would be necessary in most cases

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Poverty in societies such as in India, which has overcome its agricultural problem on the supply side can and should be addressed through transfers and such other direct measures. Since the problem in India is really of insufficient demand due to poverty, the logic of parallel distribution and rationing are not justified and need to be given up forthwith. They are the dysfunctional vestige of the past. Thus buffer stocking needs to be completely unbundled from rationing and subsidization, rationing and parallel distribution abolished and subsidization put on the direct (transfer) mode. The resulting savings can be stupendous.

This does not mean that small firms are not functional or that there is a need for farms to merge or consolidate etc. The arguments in favour of small owner managed farms in a situation of large disguised unemployment are many. In such situations, peasant farms that maximize "value added" rather than profits and, therefore, use labour maximally would result as the dominant form of production. They would also have higher yields per unit of land. Both features are socially optimal, given the land scarcity and the labour surplus. Also, small farms in distributing incomes more evenly improve the purchasing power of the population, limitations in which can be a major retardant to industrialization especially in the early expansionary stage of growing out of industrial enclaves.

When the socially correct measure of total yield per geographical hectare is used, small firms are significantly more efficient than large farms in India. (These large farms are themselves small by any international comparison and are more like small household enterprise rather than capitalist enterprise.) However, continuous attempts at redistribution indulged by the Indian state through "programmes" such as the Integrated Rural Development Programme (IRDP), or the Public Distribution Systems (PDS) have had the worst record.

These dimensions of market inadequacies necessitating state intervention in some manner are widely recognized but the dimensions of failure arising out of the nature of agricultural commodities, price and income inelasticity in low income societies are not adequately recognized in much of the current, especially laissez-faire literature. It is to these that we now turn.

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One has seen the need for buffer stocking in poor societies that are still undergoing agricultural transformation. Poor societies could also have a problem of poverty, which would need the poor to be subsidized to access such basic services as primary health care and basic nutrition. In situations marked by food shortages the need for rationing and parallel distribution present themselves. Parallel distribution and rationing, however, have a role only during shortages, while the role of buffer stocking is justified generally given the vast inter year variations in output and the inter-seasonal variations in price against which poor farmers have little recourse.

Shortages in the early stage of agricultural development when it is still an infant industry are quite likely even in land abundant countries. It is only after a certain rather longish period of production, over and above subsistence, that agriculture achieves a degree of stability and is able to deliver an increasing surplus per person. If the standard practice, in response to the shortage, is to use imports, in most cases major damage would be done to the economy and to agricultural development. This is because in most cases agriculture is a livelihood for a large part of the population, whose incomes (already at subsistence) can never rise with such non-intervention or laissez-faire. Unless manufacture-export led growth can realize vast foreign exchange to import agricultural goods from day one, the management of shortages, through rationing and buffer stocking and in a way that does not destroy the incentive to produce locally, is important.

This can be ensured by "market intervention operations" (MIOs) that integrates imports (and exports) into it. Such strategies are known to have paid rich dividends in India (wheat, rice, milk, and oilseeds) and China (wheat and rice), and was instrumental in these countries reaching self sufficiency with significant productivity gains.

In contrast, dispersed farmers would not be able to pressure governments unless they are politically mobilized as farmers. Vast numbers of small producers at low levels of incomes even in 'large' supplier countries in products like pineapples, bananas, fish, cashew, cacao continue to labour at a pittance with wages no higher than the average in the country, while the value chain from production to final sale in the supermarkets generates vast rents to the processor and dominant players in the chain.

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- The role of the state even in surplus countries in buffer stocking to facilitate exports from a position of strength is obvious enough given the discussions in the earlier section. Such intervention when carried out from clearly stated objectives by well-managed state-owned trading enterprises, working without interference in their everyday functioning, can act to effectively curb or counter the market power of global and multinational trading and aggregating firms. This is true in areas like grains, coffee beans, tobacco and such storables; more so those with low price elasticity.
- For the state to effectively intervene in processing related investments is more difficult since here the technicalities, the marketing and retailing interfaces can be daunting for state enterprises. Assuming that they wanted to, would it have been easy for the Central American governments to be able to compete to reduce the monopoly power of the banana MNCs – the trio of Dole, Chiquita Brands International (earlier United Fruit) and Del Monte, all American companies?
- Processing support by the state to counter entrenched multinationals have relevance for poor countries with much agricultural potential in the future. Questions around motivation and state capacity remain though. It is in the land poor manufacturing orientated countries where we see efficient and growth orientated states. Industrialists and importers turned manufacturers can come together to put political pressure to demand state support to industry, and the setting up of public enterprise in areas of market failure to lead developments cannot be overemphasized.

Even a state like India, which has been able to play an important role in non-perishables in their imports, has not been successful with exports. In processed agriculture the parastatal role in MIO has been minimal or entirely absent. Roles in these areas have been purely promotional and regulatory

It is not surprising that there are many examples of land rich poor countries failing to exploit their agricultural potential. Similarly, the very fact that much of the surplus from agriculture can arise in the form of rents, the danger of income inequalities and latifundia kind of development context cannot be ruled out. Hence the importance of land reforms that eliminate overlordship in land.


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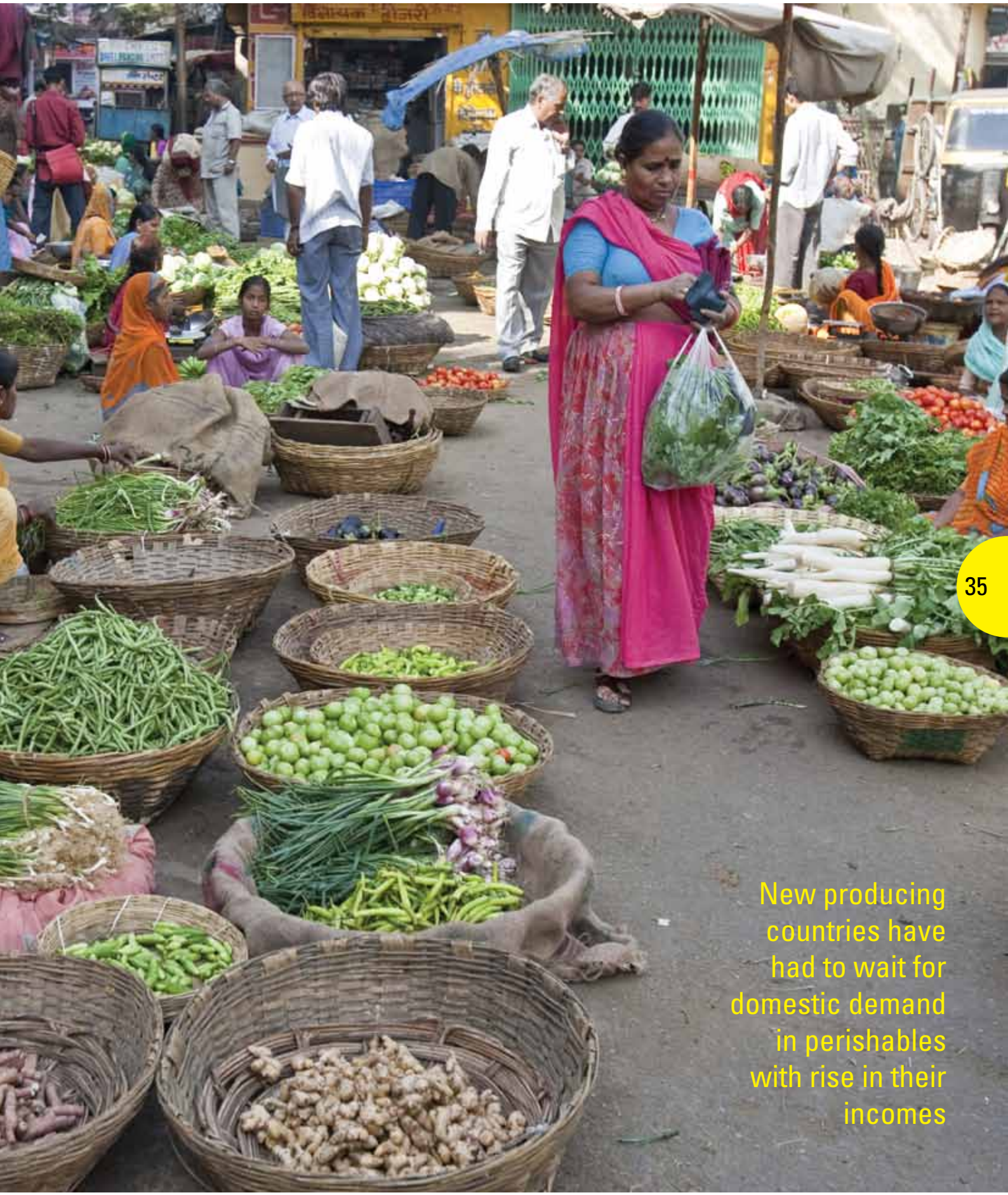

New producing countries have had to wait for domestic demand in perishables with rise in their incomes

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Laissez-faire, without reference to stages of development and state failure to compensate for market perversities, underlie the disastrous agricultural situation for poor nations

as for instance in implementing standards and phyto-sanitary conditions specified by individual importing countries.

Typically, new producing countries have had to wait for domestic demand in perishables with the rise in their incomes before the ability of local processors and marketing firms to retain value could take place. In other words the ability of the domestic economy to retain values is higher for countries with larger domestic markets. Surprisingly, there are as yet no models for either efficient state enterprise, or for public private partnerships in this area. The commodity boards of many African countries typically did not cover perishables and were not particularly successful, even in storables like coffee, sisal, timber and such others.

In India cooperatives have been important in a few cases as for instance in milk and sugarcane to deliver much value to the farmer. Farmers in India, since the green revolution, have much collective political power and have been able to exercise the same in the area of storables, through instituting state procurement and support prices. In the area of perishables though, despite the political pressure to do something, success has been elusive because the value created by investments in processing in the early days is poorly appropriable so that private capital would be shy. Tasks are sufficiently complex for a parastatal working to simple rules and procedures to contribute in the area of perishables, especially when markets are non-local.

Laissez-faire policies in agriculture when without reference to the stage of development and state failure to compensate for market perversities underlie the disaster that agriculture has been for poor countries with much agricultural potential. ●

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This article has been prepared on the basis of a paper, Agriculture: A Perspective from History, the Metrics of Comparative Advantage and Limitations of the Market to Understand the Role of State in a Globalizing World by Sebastian Morris W.P. No.2007-02-02, February 2007, which was based on a study of the same name (November 30, 2006) sponsored by the U.K. High Commission in India.

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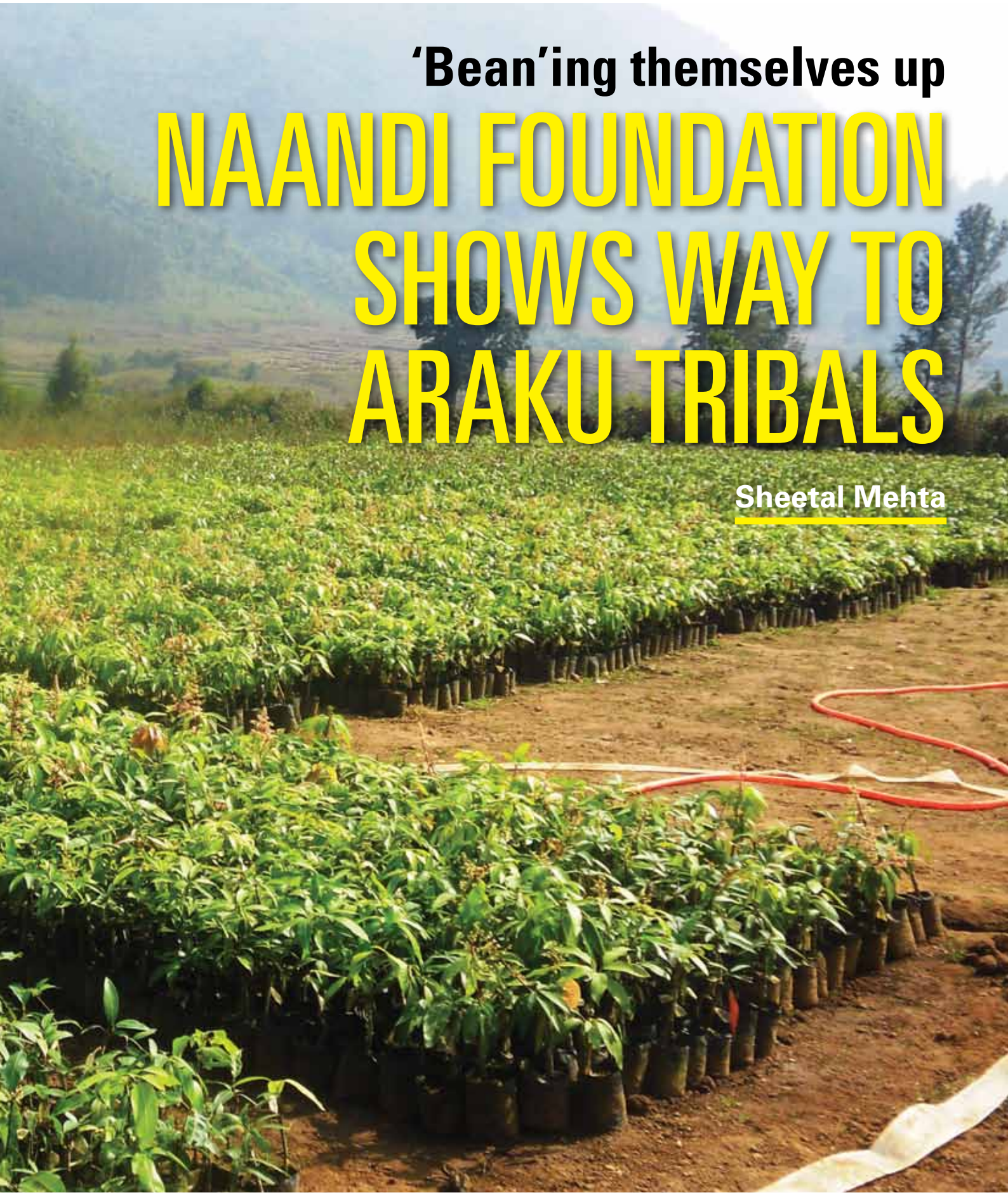
CASE STUDY



‘Bean’ing themselves up

NAANDI FOUNDATION SHOWS WAY TO ARAKU TRIBALS

Sheetal Mehta

CASE STUDY

The Naandi Foundation began its work in the Araku Valley Tribal Region (in north-east Andhra Pradesh) in 1999 with a single-minded focus on eradicating poverty there. Its first concern was providing education and maternal health care and thereafter turned its attention to agriculture. Naandi realized that coffee farmers in Araku had no access to the coffee market and were exploited by traders and money lenders, who paid them a fraction of the market price.

Naandi's Livelihoods initiative started in two mandals (Araku and Dumbriguda). The initial support comprised supplying bio-fertilizers and conducting village level compost training for farmers. The first coffee procurement of 6,000 kgs from 110 farmers started in 2003. Farmers from 50 villages in two mandals were formed into groups and federated at the cluster level. Naandi's interventions took better shape by 2004. In order to enhance incomes generated from coffee, Naandi worked with farmers on four major issues:

- Improving quality of coffee production through farmer capacity building
- Federating farmers into a strong cooperative and building their capacities to sustain it
- Improving quality by constructing and managing a central coffee processing unit
- Facilitating organic and fair trade certification, collective coffee processing, branding of the coffee and its sales to international markets.

The Naandi team worked extensively towards building capacities of farmers in LEISA – Low External Input Sustainable Agriculture – practices. This resulted in quality coffee fruit, increased average yield and production of better quality coffee. Then followed the setting up of a state-of-the-art central processing unit with 500 MT capacity at Thuraiguda village in Araku Valley over five acres of land donated by the farmers.

In 2007, Naandi expanded operations to two more mandals and the Small and Marginal Tribal Farmers Mutually Aided Cooperative Society was registered under the Andhra Pradesh Mutually Aided Cooperative Society Act 1995 to ensure sustainability of the project. The society helped decrease the role of money-lenders-cum-middlemen in the region and farmers started getting better prices for their produce. Today, farmers can sell coffee fruit directly at their door step and save on labour and transportation cost.

Naandi also got each of these farmers fair trade

Widows Takes Forward Her Husband's Legacy

Boi Ravi Kumar was a farmer and a member of the Kondadora adivasi tribe. He passed away in February 2012 leaving behind a half-constructed home, a distraught wife and six children (aged 5 to19 years). Kalyan, his college-going elder son dropped out of college to help his mother, Sundaramma, run the household and tend the family coffee field. "We finally have got some money with which we began making our own home. In his (Ravi Kumar's) absence I will complete what we started", Sundaramma says.

What gives her the courage is the coffee the family is growing.

Every day Sundaramma walks several hours to her farm to tend to the coffee bushes and make sure every organic farming protocol is followed in her field. These plants helped her family earn Rs 80,000 plus in 2011-12; a windfall, compared to the days (four years ago) before the family started growing coffee and earned a mere Rs 3,000 a year cultivating millet. Membership in the coffee farmers' cooperative for Sundaramma in 2009 was a game-changer for it meant improvement in the coffee quality, guaranteed buy back and the growth of the cooperative year-on-year. The family income has seen a fairy tale rise from growing coffee.

- 2008-09: Rs 1,410
- 2009-10: Rs 13,616
- 2010-11: Rs 23,166
- 2011-12: Rs 82,450

Even after Ravi's death, Sundaramma is saving Rs 7,000 a year. She has life insurance for her family through the cooperative; has invested in gold earrings for the first time in her life; and also bought a calf for the family. Distraught though she was at Ravi's death, helpless she was not.

"I think being a member of this cooperative gave me a lot of confidence and security to continue. I know the work and I know now that coffee cares for you if you care for it well". This year, Sundaramma will be the leader of a Women's Coffee Group. Asked what she would like to name the group, she replies, "I will call it the Jhansi Group".

Articles and further information on Naandi/Araku

1. http://www1.dailymaverick.co.za/opinionista/2012-05-17-araku-the-truth-the-inspiration
2. http://www.hindustantimes.com/News-Feed/ColumnsOthers/A-cup-full-of-beans/Article1-949111.aspx
3. http://www.deccanchronicle.com/130319/commentary-op-ed/commentary/pillion-ride-dr-reddy%E2%80%99s-fair-trade

and organic certification that helped in increasing the demand for their coffee and also fetched higher prices in the international market. Apart from these backward linkages, Naandi worked proactively to identify niche international markets, ensuring greater returns. In the process, Araku Originals Limited, a company that focuses on selling the coffee in the international markets, was established. The coffee is now being sold under the brand name "Araku" in specialty coffee markets around the world.

A coffee cupping event christened "Gems of Araku" was started to increase brand visibility and enhance value among international vendors. The annual event invites coffee experts and vendors from around the world and has provided a forum without precedence for small and marginal tribal farmers to interact with international coffee experts.

Extending the initiative Naandi took up a

Adivasis in Araku

S.No.	Name of tribe	Population	% of total population
1.	Bhagatha	1,04,114	20.66
2.	Konda dora	82,651	16.40
3.	Valmiki	71,096	14.11
4.	Kondhu (PTG)	52,994	10.52
5.	Konda kapu	50,605	10.04
6.	Kotia, Benthuria	36,671	7.28
7.	Yandia, yarukula Nooka dora	34,330	6.81
8.	Gadabha (P.T.G.)	17,276	3.43
9.	Porza (P.T.G.)	6,700	1.33
10.	Others	27,907	5.54

Coffee cultivation in Araku

Year	Coffee Area (Ha)			Coffee Production (MT)		
	Arabia	Robusta	Total	Arabia	Robusta	Total
2009-10	47109	268	47377	5000	85	5085
2010-11	51813	268	52081	5425	65	5490
2011-12	54763	268	55031	5885	85	5970

huge challenge in 2010, through the 'Araku Valley Livelihoods Project'. It partners the adivasi community to create its own portfolio of fruit and forest trees to sustain a healthy carbon rich ecosystem and new-found prosperity. This horticulture project sustains more than 75,000 persons in 300 villages on 15,000 acres where six million trees (three million fruit and timber trees and three million coffee saplings) are being planted.

A diverse portfolio of plants per acre was selected in collaboration with the adivasi community. Some 19 varieties of fruits, vegetables and timber (as future bio banks) will be planted per acre. It is this template that can be showcased as a livelihood and nutritional security panacea. Thus far, more than one lakh lives have been impacted upon positively and the Naandi girl child programme has allowed more than 10,000 adivasi girls to thrive and educate themselves.

The Global Livelihoods Fund, Mahindra & Mahindra and Naandi Foundation and Community social enterprise initiative aims to demonstrate and develop this template in the tribal communities of Araku and elsewhere. Designed so that minimal external inputs are required and locally available materials are used to produce high-quality products, the programme encourages a holistic approach to farming that is more diverse and resistant to external pressures. With nutritional crops assured, support for coffee production and marketing and a robust agro-forestry component; the community is developing a wide portfolio of agri-options that derisks it from economic vulnerability.

Milestones:

Adopted a 'household approach' to development, addressing needs of tribal families impacting to date 24,750 farmers plus 120,000 family members and 11,000 ha of farmland:

CASE STUDY

With nutritional crops assured, support for coffee production and marketing the community is developing a wide portfolio of agri-options that derisks it from economic vulnerability

Education & Health

- **1999-2000:** Started building of hundreds of community schools and handed them over to the government.
  Initiated a safe motherhood programme with the Swedish International Development Agency (SIDA)
- **2001-04:** Village creches set up for children of working women
- **2005:** Project "Nanhi Kali" initiated for education support to girl children impacting over 10,000 girls as of today

Sustainable Livelihoods

- **2002:** Partnered with 900 tribal farmers for coffee cultivation: had government assign one acre to each farmer
- **2003-05:** First coffee procurement with farmers from 50 villages in two mandals in an agro capacity building initiative
- **2007:** Cooperative society registered and the central processing unit of 500 MT capacity with 10,000 farmer members, 12,795 acres, 598 villages, in seven mandals, processed 8,76,560 kgs coffee 2012.
- **2008:** Established Araku Originals Limited to manage coffee sales in international markets. Began Forest Festival programme for quality awareness
- **2009:** Initiated 'Livelihoods360' technology enabling real time access to agro/marketing information via mobile telephones
- **2010:** Initiated Araku Haryali Project, a social enterprise initiative with tribal communities to create a fruit forest covering 6,000 ha
- **2011:** Livelihood Project adopted and approved by the Ministry of Environment
- **2013:** 2.45 million trees planted on 6,000 ha in 300 villages, 3.55 million saplings to be planted by 2015. ●

The author is Chief CSR, Mahindra & Mahindra. She has been instrumental in organizing the national *Nanhi Kali* programme

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Climate Change, Cost Hike and Chinese Competition for Himachal Apples

Pramod S. Bhardwaj

The hill state of Himachal may have sprawling views of fruit orchards but its sounds are no longer heart warming. Climate change has visited the valley leading to uncertain yields, says the National Bureau of Plant Genetic Resources (NBPGR). The changing weather coupled with the unexpectedly soaring temperature has not only affected the Himachal apple and stone fruits badly but rendered it less idyllic in appearance, say farmers across the state.

Matters have been confounding because after a disastrous 2009, farmers sensed a bewildering increase in output with some areas reporting bumper crops even after the prolonged dry spell. Such a trend has been building for years but 2013 may well be the tipping point for better yield; unfortunately with lower financial gains. Horticulture scientists say that climate change is expected to alter the yield potential in fruits and nuts dramatically as tree crops such as pistachios and cherries struggled in the rising temperatures.

There are other factors too: the emergence of cheaper apples from China and the USA; worsening growing conditions and costs at home; amidst the government, slowly but surely, withdrawing subsidies. There were 360,000 farm producers in 1995 and fewer than 175,000 now because of unremunerative returns, with rising cost of material, dry weather and increased competition from American and looming potential contest from Chinese farmers who can undercut them.

This year, however, hopes of better crops have been dashed with hostile weather conditions and it is estimated that the fruit, set to arrive in various markets of the state after a couple of months, will be less than half of what normally arrives.

Mounds of rubbish and dropped callow fruits, strewn across the land after couple of sultry weeks, bear testimony to the looming woes for the local farmers. The prolonged dry spell did not totally parch the land but temperatures were well and truly searing.

The state horticulture department has estimated fruit yields across the state to be less than the estimates due to climate change. Fruit production across the state has not increased in tandem with the recorded gargantuan spread in area under plantation. While production estimates for 2012-13 are around 4,12,395 tonnes, the yield recorded in 2011-12 was 2,75,036 tonnes and that in 2010-11 was 8,92,112 tonnes. Such is the range of variation in yields.

Apple production is expected to be significantly below estimates of 4,12,395 tonnes. Plum production is estimated at 12,107 tonnes, peach at 11,276 tonnes, apricot at 3,263 tonnes and pear at 412 tonnes in 2012-13. In 2011-12, plum production was 9,842 tonnes, peach at 5,101 tonnes, apricot at 2,437 tonnes and pear at 11,760 tonnes. These swings in the production of fruits may be attributed to weather fluctuations, the head scientist of NBPGR, J.C. Rana, says.

"The steep fluctuation, rise or fall, in production of fruit across the state may be attributed to vagaries of weather that was rough for most of the time", horticulture scientists lamented. "Were I growing wheat or maize, the situation could be a little easier to handle but not for trees. Once you have made a decision to plant a fruit crop, you are locked in for 15 years", explains Dheeraj Bhaik, a farmer from the Kotgarh area.

Drained out plastic bags, earlier put on apple trees to support pollination, are dangling across the densely leafy branches. Tin cans and empty containers were left scattered over fields, like dead fish on a beach after the tide has departed, by Sunil Dutta, a farmer at Rohru tehsil, in Shimla district, as soon as he learnt that half of his apple crop had been damaged. The longer than expected dry

While farmers have just about been managing to deal with the effects of bad weather, the past couple of months have been most testing as orchards seem to have reached the brink

weather was not supposed to nurture the residual crop. The shocked farmer cut down estimates of harvest and apprehends a crisis. Huge sums have to be invested to get quality fruit. When crops fail because of unpredictable weather, disaster strikes the farmer, Sunil Dutta said.

"You could see the mounds of dropped fruit", says Rohit Sood, a farmer from Sarahan in Rampur Bushahar area. Indeed, in this drought-like situation one is in ankle deep fruit in all orchards. The worst affected parts of the farms were more than one-third ruined in both the high or lower belts of Rohru, Jubbal, Kotkhai, Kullu and Mandi, including few areas of Uttarakhand that are being hit by climate change effects for many years. While farmers have just about been managing to deal with the effects of bad weather, the past couple of months have been most testing as orchards seem to have reached the brink.

Dinesh Sharma from Jubbal says that all this was "not an unheard of occurrence and farmers are accustomed to embracing such situation due to the climate change". In 2004, the hills saw temperatures soar to 31.70 celsius; last year the

Stonefruit bloom facts

Trees in temperate regions need a period of chill to grow in spring. Rising temperatures pose a special problem for temperate but comparatively warm areas where the period of winter chill is short. The study, published in May, 2013 by the Y.S. Parmar University of Horticulture and Forestry expected fruit and nut trees to be greatly affected in areas that had experienced the worst losses in duration of the winter chill. Farmers making long-term investments realized that fruits and nuts are more vulnerable than many other crops.

Production of major fruit crop for 2012-13 vis-a-vis final estimates for the previous three years

Crop (Metric tonnes)	2009-10	2010-11	2011-12	2012-13
Apple	280105	892112	275036	412395
Plum	10413	13717	9842	12107
Peach	5162	9527	5101	11276
Apricot	2200	3341	2437	3263
Pear	17381	32075	11750	25212
Cherry	419	1039	433	412
Kiwi	154	112	150	555
Pomegranate	475	622	749	1351
Olive	7	9	13	15
Persimon	196	335	199	209
Strawberry	447	466	284	248

Temperature and monthly rainfall variation in past years

Years	Highest	Lowest	Monthly Rainfall (mm)
2012	31.9	9.5	13.8
2011	28.7	10.1	93.7
2010	32.4	11.9	40.3
2009	29.4	10.5	39.6
2008	28.7	9.5	146.8
2007	26.2	9.6	42.2
2006	28.8	9.8	115.7
2005	28.1	10.5	28.8
2004	31.7	6.1	96.4
All time record	32.4	1.4	277.4

Increase in area (hectares) under various fruits

Crops	2010-11	2011-12
Apple	101485	103644
Plum	8877	8530
Peach	5182	5181
Apricot	3483	3556
Pear	3770	7333
Cherry	480	492
Kiwi	123	120
Pomegranate	1422	1709
Olive	48	48
Persimon	420	421

2007 forecast that the world would heat up by 1.8 to 4.0 degrees Celsius (3.2-7.2 degrees Fahrenheit) by 2100 compared with pre-industrial levels and that some damages are irreversible.

mercury touched 31.90 celsius. Indeed, crops can survive the short, light drought situations but when vagaries last from the buds-to-bloom stage, it is hard for the fruit to survive". The constant dry spell is damaging residual crop, says Sansar Chand, another farmer from Jubbal area. "The land has never really been allowed to get drenched properly to carry moisture forward", he explains.

All small and medium farmers, who have been farming since the early 80s, will bear the brunt of the latest drought-like situation, while other farmers like Neeraj, who lost 75 percent of the crop will surely be at the receiving end due to spiralling input costs.

Some farmers are locked in supply contracts to contactors and are better off. Those with agreements with local commission agents apprehend more trouble. Many have raised money from them either to manage orchards or meet other expenses but have no way to repay them in the wake of crop failure, points out Dunichand, a local apple contractor.

The grim reality of this summer is now becoming more and more apparent for farmers, particularly those in the little higher or middle belts with fruit yields falling drastically; the peach crop at its lowest since 1976. The grape and apricot harvest is also dismal. Stone fruit farmers suffered too, says the directorate of state horticulture.

The dry weather conditions are anticipated to linger leading to further fruit dropping. Recent figures from the department of horticulture paint a bleak picture of the three-month long fruit season. Farmers saw their income plunge by 22 percent. Apple and pear farmers have seen their incomes as much as halved. There would be double-digit decrease for kiwi and strawberry farmers, too. Many have seen their profits completely wiped out. The only way they can survive is by borrowing from the banks.

"We are seeing increased levels of borrowing this year", says a farmer from the Chaopal region, where the crop has been wiped out by the hailstorm. In a normal year some types of crops are affected by

As the harvest season gets closer the orchards are bracing themselves to deal with the spawning of the fatal virus that bites into the leaf or leaves the fruit stained

adverse weather conditions. "It might be fruit or other crops but in the recent past every aspect of farming was affected. It has been relentless".

Farmers are incredibly optimistic people but are juggling the variables, most of which are beyond their control, said a senior scientific officer of the HP Science and Environment Council. The situation is damaging for all farming but especially for fruits that will suffer a huge decline in output.

The orchards are also bracing themselves to deal with the spawning of the fatal virus that bites into the leaf or leaves the fruit stained. As the harvest season gets closer, the threat is so potent that the government is considering issuing bulletins through the horticulture universities or its own departments.

"Some have lost between 30 percent and 50 percent of their crops due to the dry spell, coupled with cascading effect of climate change". Losing even the remaining crop will see many smaller farmers plunge into the great adversity, the farmer cooperative societies say.

In any case, the market was becoming difficult for a while and farmers started feeling that they were not competing on a level playing field since the advent of apple from China and Washington, even as subsidies in India saw a gradual retreat.

"If farming is not remunerative, we need to ask ourselves: where will our food come from in the future? We need food security", asks Jia Lal a farmer with an orchard at Choupal, adjacent to the peach bowl of Himachal, Rajgarh in Sirmour. That is a question to which there is no ready answer. ●

The author writes on agriculture issues

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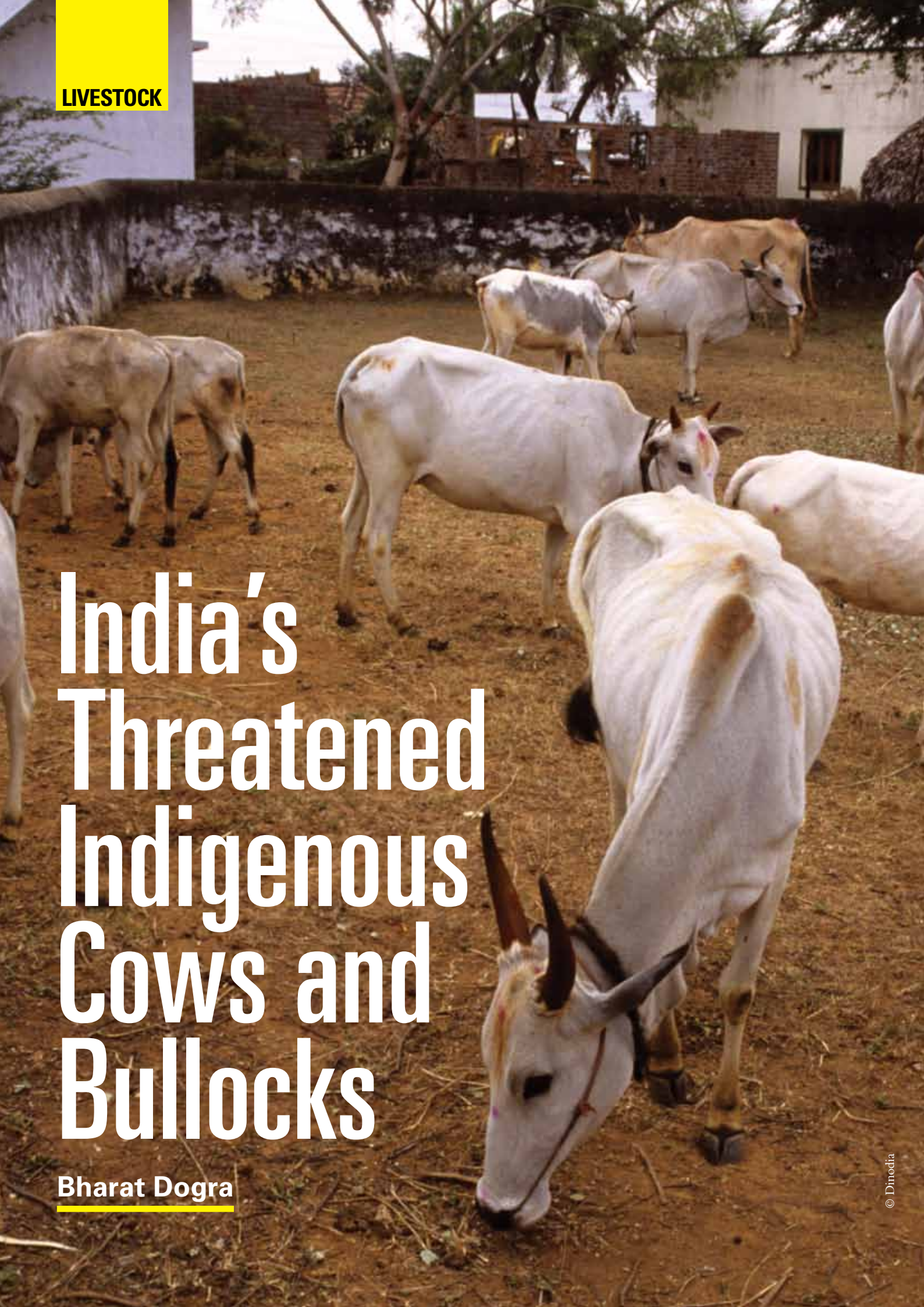

India's Threatened Indigenous Cows and Bullocks

Bharat Dogra

A recent visit to Vrindavan to attend a meeting on protection of endangered local breeds of cows provided me with the shocking revelation that despite India's mythology being replete with tales of Lord Krishna, his companion cowherds and their cows from Vrindavan, indigenous cows are threatened even here. Yet, this should have occasioned no such surprise because one has read reports about the threatened status of desi (indigenous) breeds of cows and bullocks from most parts of the country.

India is a land of cattle breeds of outstanding quality – the Sahiwal, Red Sindhi, Rathi, Tharparkar, Hariana, Ongole, Kankreji, Gir and such others. Unfortunately, preservation of these breeds has been neglected in official policies and some of them are being driven towards extinction. An elderly villager of Chitrakut district (Uttar Pradesh) says tearfully: "I cannot imagine *gaon* (village) without *gai* (cow)".

There has been a huge decline in the number of cows and bullocks in his village. A report by the Akhil Bharat Krishi Goseva Sangh (ABKGS) says: "We possess some wonderful time-tested breeds of cattle, capable of yielding under severe Indian conditions, even by mere grazing, up to 10-12 seers of milk a day. There are, of course, better breeds that, under better methods of upkeep and special feeding, yield as much as 30-35 seers".

Some breeds have been especially developed for drought purposes, the Amrit Mahal for instance. They have won world wide acclaim for their traction power. On natural foraging alone, Indian cattle "are able to maintain themselves in good bodily condition and health. These are being purchased at fancy prices by foreigners only for two basic qualities: viz. economic maintenance and disease resistance", the report says.

The overseas demand of Indian cattle and buffaloes for breeding purposes goes back a long time. Commenting on this, Shanti George, an expert on dairy sector, has written, "The result of this export can be seen in the 'Indubrazil' strain that is more disease resistant than the 'Brahman' breed now entrenched in the warmer chimes of the U.S. and in Southern Africa. Abroad, pure lines of these breeds are carefully maintained: In Australia, fairly recently a pure Indian bull changed hands for $75,000. In their native land, however, their fate has been quite different. Whilst other tropical countries import Indian cattle to breed their animals stronger and hardier, India herself is frantically importing European breeds to make her zebus more delicate and demanding".

The indiscriminate pursuit of crossbreeding technology has led to the neglect of high quality indigenous breeds. Several experts have expressed regret at this neglect and the threat it poses to indigenous breeds but this has not changed government policies.

Cattle play a very important role in India's rural life. Those not familiar with the Indian rural scene are sometimes surprised how, subsisting on (what by western standards is regarded as a very low quality diet) roughages and crop residues, the Indian cattle are able to perform manifold services in conditions of climatic stress (heat and humidity). This is possible because Indian cattle breed have evolved over a long period to perform these roles in difficult conditions.

Subsisting on what by western standards is regarded as a very low quality diet, Indian cattle are able to perform manifold services in conditions of climatic stress

It was keeping in view this importance and special qualities of Indian cattle that the cross-breeding policies of the government had been opposed for several decades by several experts. ABKGS has been very critical of the official policy, "Exotic crossing was foisted with utter disregard to work achieved by animal husbandry directors in pursuance of the state's cattle breeding policy. This ruined whatever systematic and sensible 'Samvardhan" had been accomplished. Thus, if an area was earmarked for pure Thaparkar, Malvi or Sahiwal upgrading or selective breeding for some years, the dairy department felt no hesitation in ruining the good work already done by superimposing exotic crossing in what they considered their milk-shed area for intensive hybridization work".

Worse, the crossbreeding work has often been done very carelessly further increasing the dangers arising from this work. According to a paper by B. Sivaram titled 'Crossbreeding in Cattle', "The exotics selected for the programme were originally gathered unscientifically. The criterion was the willingness of foreign countries to gift the bulls to

Scientists with extraordinary zeal have been changing the breeding design at the slightest occasion without considering the lingering impact on the cattle

us. Barring certain honourable exceptions, the bulk of the material so imported was without a proper pedigree. There was no science in the programme".

As the decision of large scale crossbreeding policies had been taken in a hurry, much confusion persisted over how exactly the work was to be taken further. According to a paper by P. N. Bhat, "Scientists with extraordinary zeal have been changing the breeding design at the slightest occasion without considering its lingering impact". These apart, some inherent problems in crossbreeding work in India (for instance the lowerability of the crossbreeds to adapt to Indian conditions) led to a high incidence of diseases in the crossbreed cattle.

The debate goes back to well before Independence when the Royal Commission on Agriculture said that the government's agricultural department should not take up experiments on crossbreeding and should instead concentrate their efforts on improving the milking qualities of indigenous breeds like Sahiwal and Sindhi or specially selected strains of breeds like Hariana. In 1938, Col. Oliver, animal husbandry expert of the Imperial Council of Agricultural Research, wrote that it was unsound to introduce European breeds in India and that it would be a better policy to effect systematic improvement in the indigenous stock through selective breeding, better feeding and improved management.

Around the same time another expert, O. Norman Wright, referring to the attempts that were being made to improve size and productive quality of small country-based stock by supplying large-sized and high-potential breeds, warned that such attempts might do more harm than good unless they were accompanied by measures to improve on the environment including the feeding. In 1944, the government of India invited another expert, R. A. Pepperall, to survey the dairy situation in the

"By what would in retrospect appear to be total brainwashing if not downright corruption, at various levels, we fell prey to the temptation and accepted, nay welcomed with profound gratitude exotic breeds from any and all 'kind-hearted' donor countries without considering whether the gifted specimens, or even herds, were really of a distinctly superior type or that they will withstand the Indian soil and climate to maintain the performance at the pail, or that we would not be importing serious disease hazards. We have seen for example that some of the exotic breeds (Brown Swiss in Kerala) were definitely heavy beefy type, with ulterior 'long range motive". Some herds (Red Dane in Karnataka) had to be destroyed due to tuberculosis and the imported semen of some of the breeds in Tamil Nadu carried an infective virus. We have also seen instances where the performance of the imported breeds kept under very expensive lordly care was not at all markedly superior or encouraging and the same had deteriorated sufficiently in a few years to come on par with our much maligned 'non-descript" desi cow. Also the problems of new diseases crop up generation after generation".

– Akhil Bharat Krishi Goseva Sangh

country. While stressing the need for increasing milk production, he warned against embarking on a policy of crossbreeding with European bulls.

One of the first official documents on Indian dairy development had emphasized, "There is no doubt that the general adoption of a policy of crossbreeding to raise the milk yields of a country stock would be fatal to the development of sound dairying in India". Such voices of caution continued to get reasonable attention till the mid or late sixties but this concern was completely set aside with the advent of Operation Flood. Since then the government's animal husbandry policy has been obsessed with crossbreeding of cows to the relative neglect of almost everything else.

An Expert Committee, coordinated by the ABKGS, said, "It seems to be the greatest tragedy in India, that although all those who mattered – bureaucrats, scientists and politicians – have never had any doubt that some of the prize winning Indian cattle breeds (Gir, Kankrej, Sahiwal, Tharparkar, Hariana, Red Sindhi etc. to name a few) should be developed into giving much more milk than they do at present, no effort has been made, not even after gaining Independence, in that direction. On the contrary, every one of them seems to have fallen prey to the gifts and loans from abroad, to take to exotic crossbreeding... Most of those who are front rank supporters of exotic crossbreeding... today, have been silent spectators of, if not actual participants, in the systematic degeneration, downfall and near extermination of our best breeds through neglect, boarding on callousness, through the past decades".

Shanti George has summed up the milch stock policy, "The intention of this policy was to streamline the bovine population in the interests of economy and efficiency. Yet this is attempted – most uneconomically and inefficiently – through concentration on the wrong bovine, bypassing the already specialized and more promising buffalo and subverting the zebu from primary drought power production to specialized dairying and substituting a relationship of competition between buffalo and crossbreed cow for the present complementarity between buffalo and zebu cow."

Further, the official policy makers have ignored the adverse consequences that their policies have had on fodder and feed availability. Shanti George asserts that strategies with respect to breed have

been such as to aggravate the problems of feed. "For, instead of breeding to enhance the capacity of native cattle to operate on inferior fodder (itself in shortsupply) they follow crossbreeding methods that produce milch animals which require large quantities of superior nutrients".

A. R. Rajpurohit, an expert, after examining critically the performance of crossbreed bullocks as drought animals, pointed out that the physical efficiency of the bullocks should not be confused with the economic efficiency. According to him, as a crossbreed bullock required at least 50 percent more feed than a bullock of indigenous breed, its economic efficiency for the same unit of work output turns out to be only two-thirds that of the latter.

It is possible that crossbreed cows may have given satisfactory results on the fields of a few rich farmers in some selected climatic areas, which are very suitable to them. These, however, are the exceptions rather than the rule. According to A. R. Rajapurohit's widely-quoted paper on crossbreeding of Indian cattle, "Such areas are quite few in the country and the scope for the extension of crossbreed cattle is thus highly limited".

At one stage there was considerable enthusiasm for crossbreeding as it was supposed to be the only available path for spectacular improvement in milk yield. In the craze for big gains, the slow and steady path of development based on improvements of local breeds and giving them better nutrition and care was ignored. This has proved to be counterproductive, especially from the longer-term point of view as the very existence of several good local breeds is now threatened.

It is still not too late to remedy the distortions and our animal husbandry planners will do well to follow Shanti George's suggestion that "speed and spectacle are less imperative in development planning than soundness and sustainability and those who crave drama in animal life should visit the circus". ●

Do not neglect traditional breeders

It is important to understand the role of groups traditionally involved in the breeding of milch and draught animals. In 1928, the Royal Commission on Agriculture talked of the existence of very good breeds of cattle in India. "If an inquiry were to be made into the history of such breedings... we believe it would be found, in most cases, that their excellence was due to the care bestowed on them by the professional cattle breeders, usually nomadic... they usually worked under unfavourable conditions but their skills in selecting and tending cattle was considerable...." Further, the Royal Commission emphasized that the official cattle development programmes should strive to make good use of the traditional skills of the breeding castes/groups.

Yet another expert, G. F. Keatings, wrote in a 'Note on Cattle in Bombay Presidency' in 1917, "The professional breeders pursue their business with considerable skill and knowledge. They are most careful about mating, practice early castration, herd their animals separately and take them to the best grazing grounds at the best seasons, producing excellent cattle with an expenditure that could hardly be lowered... and sold at a very moderate price".

Shanti George has written about pastoral groups: "Although these castes usually produce milk only subsidiarily to their main business of breeding drought cattle for the use of cultivators, the stock raised by them include high yielding milch buffaloes (like the Jaffarabadi that is in considerable demand by dairymen). Many of the cattle breeds they rear are superior milch animals as well as powerful draught stock e.g. the Kankreji breed tended by the Rabaris of Gujarat".

Unfortunately, the groups or communities that made such important contribution to the breeding of good quality cows, buffaloes, bullocks and other domestic animals have themselves fallen on very difficult times. The grazing lands available to them are steadily shrinking. At many places obstacles are being placed on their grazing rights and even on their entry. The establishment of a network of national parks and wild life reserves where their entry is likely to be resisted has also added to their problems.

The government, by emphasizing only cross-breeding, has further contributed to marginalizing these groups instead of integrating them into the official animal husbandry programme. Another setback to the indigenous breeds is in the deterioration of cattle fairs, which have been organized all over the country for several centuries.

The author is a veteran New Delhi based journalist

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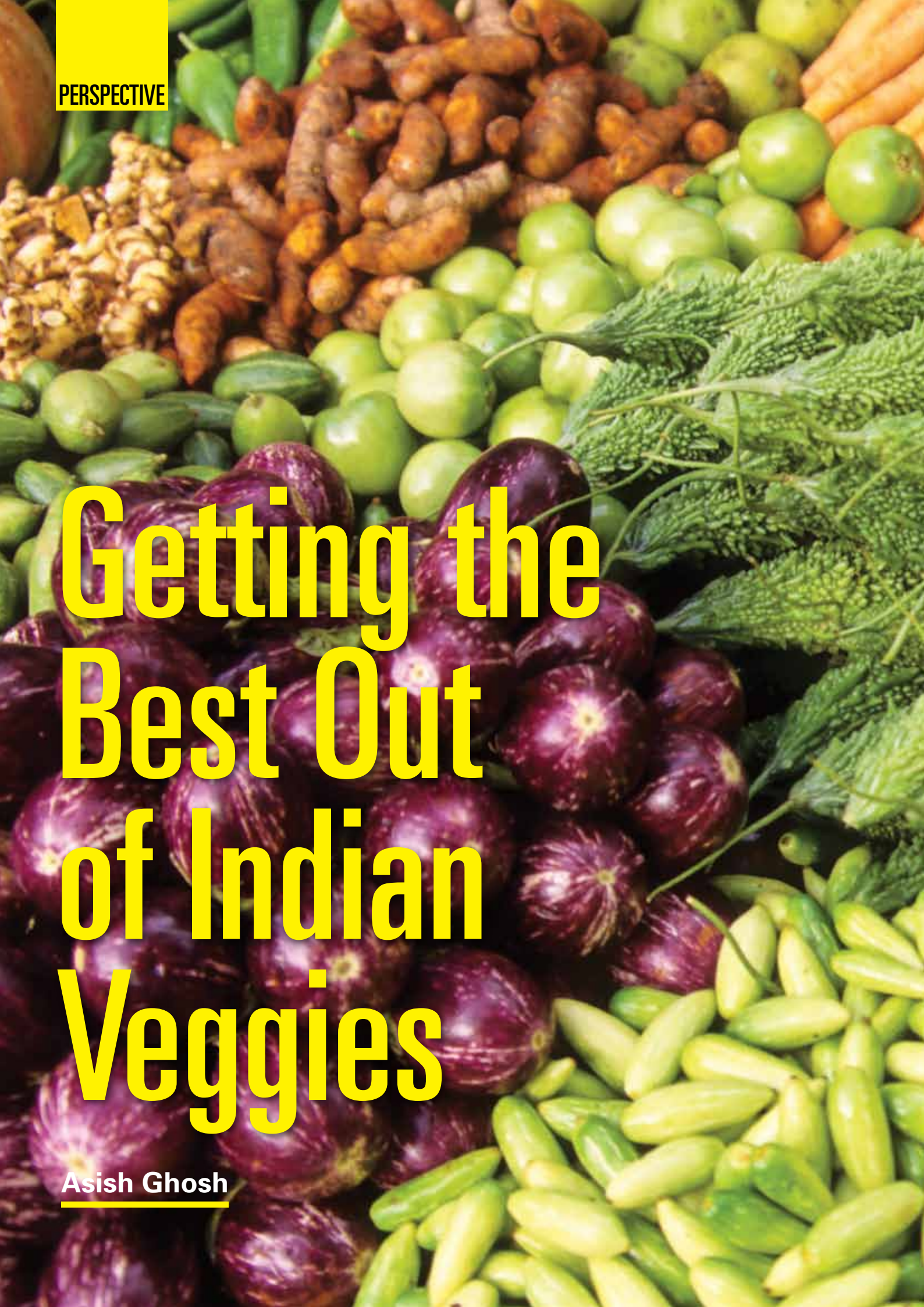

Getting the Best Out of Indian Veggies

Asish Ghosh

India, where agriculture is the mainstay for billions of farmers, has witnessed a drastic reduction in farm size. It is estimated to have reduced by nearly 50 percent from 2.28 hectares to 1.22 hectares in the last 40 years. Small farms fail to attract farmers to cultivate cereals that require high cost input and irrigation. With 60 percent of farmland still being rain fed, farmers are prone to switch over from cereals. The question is: to what?

Recent data shows a perceptible change in farming, from cereals to vegetables. Returns from vegetable farming are said to be double, according to Indian Council for Research on International Economic Relations. Data from National Sample Survey Organization (NSSO) also indicates a clear shift from cereals to fruits and vegetables, fisheries and other dairy products. NSSO data reveals that while fruits and vegetables constituted 37.3 percent in 1983-84, they showed an upward trend to 41.3 percent in 1993-94 and to 47.4 percent in 2007.08, at a 10 percent rise in 25 years.

A report in Down to Earth (Mahapatra, et.al., April 1-15, 2013) indicates a 30 percent to 40 percent increase in vegetable consumption in India between 2005 and 2010. The National Horticulture Board estimates that in many states from Jammu and Kashmir, Himachal Pradesh to Bihar, Odisha, West Bengal and the north-east, vegetables and fruits contribute to more than 30 percent of overall agricultural produce. India produces 11 percent of global vegetables but contributes only 1.7 percent to the global market. (Planning Commission, 2011)

International figures indicate that India perhaps has the largest percentage (31 percent) of its population depending entirely on a vegetarian diet. In Europe, the percentage of pure vegetarians is estimated to vary between 0.3 percent (Portugal) to 10 percent (Italy). In North America, the vegetarian population varies between 3.2 percent (USA) to four percent (Canada). Figures from South America are not easily available but the data from Brazil indicates that five percent of the population can be termed as purely vegetarian. (http://en.wikipedia.org/wiki/Vegetarianism_by_country) Needless to say, in every country across the world, vegetables along with annual proteins and fruits offer the most balanced diet.

India has a long tradition of growing vegetables in its backyards especially in the rural households. Often such a set up is called the 'kitchen garden'. A *http://www.agefotostock.com/0071tl74p5/ingles/enim01.asp?foto=27451418&light=&foto_clave=DPA-SHI-175467* careful selection of vegetables from the homestead land or from croplands can prevent malnutrition through a 'nutrition garden' and lead to a healthy population. It is now well recognized that vegetables contain a host of vitamins and minerals and they are rich sources of calcium, magnesium, potassium, iron, beta-carotene, vitamin B-complex, vitamin C, vitamin A, and vitamin K.

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It is also recognized that vegetables can provide anti-oxidants, preventing human body from oxidant stressed diseases and cancers; intake of vegetables can help to develop a better immune system. Additional benefits of vegetables can be obtained from soluble and insoluble dietary fibres known as non-starch polysaccharides such as cellulose, mucilage, hemi-cellulose, gums, pectin and such others. These fibres help in absorbing excess water from the digestive system especially from the colon and also help a good amount of moisture in the fecal matter facilitating smooth passage out of the body. Such fibres are known to offer protection from conditions like

Vegetables are recommended as a part of balanced diet, providing not only necessary caloric value but also ensuring a healthy immune system and growth in the earlier years

hemorrhoids, colon cancer, chronic constipation and rectal fissures.

Vegetables are, therefore, always recommended as a part of balanced diet providing not only necessary caloric value but also ensuring a healthy immune system and growth during the earlier period of development.

It is reported that one cubic meter of water can produce 330 grams of cereals. In other words, one kg of cereal will need three cubic meters of water but the same amount of water can be used to grow 54 kgs of vegetables. Vegetables are seasonal and can, therefore, be grown on rotation to the extent of four to five crops. In the East Kolkata Wetlands, for instance, the local farmers have developed a unique crop calendar of producing 12 vegetables in 12 months.

Across India, production of vegetable has soared by 65 percent within last 10 years, reaching a scale of productivity of 16.7 tonnes per hectare from 12.2 tonnes per hectare. The National Horticulture Mission set up in 2005-06 has initiated the 'National Vegetable Initiatives for Urban Cluster' with a recent support funding of Rs 300 crore. Such mission-oriented initiative witnessed a major change in vegetable production in some states like Sikkim in the Eastern Himalayas with the advantage of a temperate climate. Sikkim has intelligently invested in exporting off seasonal winter vegetables to the plains like cauliflower, cabbage, tomatoes and such others.

The demand is ever growing though. Even with spectacular growth in production, vegetable prices seem to be continuously rising up, as much as 22 percent in one year. The Reserve Bank of India has identified soaring vegetable prices as a key factor for high inflation.

India is recognized as one of the 12 centres of origin of crop plants (Vavilov, 1951) but for long remains least served by this excellent resource. Globally, around 400 plant species contribute to the

vegetable scenario. About 20 percent of this resource base or 80 species is believed to have originated in India. These include such common ones from pumpkin to melon, cucumber, watermelon, bottle gourd and bitter gourd. India is said to be only next to China in area and production of vegetables. This is at a time when 17 percent of global population lives in 2.4 percent of global space in India and per capita land stands at less than 0.45 hectare, against 4.14 hectares in the USA, 8.4 hectares in the Russian Federation and 0.98 hectare in China.

India accounts for nearly 14 percent of world vegetable production and occupies the fourth position in cauliflower, stands third in cabbage and second in onion, in the world. (Rajasekharan and Sane, 2009)

The agro biodiversity in India is now well recognized. Discussions largely veer around the rice germplasm and others but the status of vegetable germplasm collections at the Indian Institute for Horticultural Research (IIHR), Bangalore will show its enormous richness; with as many as 1,500 chilli and capsicum germplasm and 26 types of cauliflower germplasm. (*Table1*)

Regrettably, research on vegetable germplasm diversity has, perhaps, not been fully utilized by the farmers. Vegetable seed banks with indigenous, traditional varieties are hard to come by; hybrids have taken over the market.

Tuber crops are regarded as the third most important food crop for human society after cereals and legumes. With low impact, they provide rich source of nutrition. Both the Western Ghats and Eastern Himalayan hotspots offer a rich assemblage of tropical root and tuber crops. The tuber crops include cassava, sweet potato, ipomoea, yams and aroids, besides a wide variety of minor tuber crops, which have also medicinal value.

India has a wide range of tuber crop germplasm collections; more than 11,000 (Edison and Sheela, 2009) in the collections of the Central Tuber Crop Research Institute, the National Bureau of Plant Genetic Resources and in the centres under All India Coordinated Research Project on Tuber Crops.

Even in the arid zones of India, vegetable crops such as cucurbits (10 species), legumes (four species), solanaccous (three species), cole crops (species), bulbous crops (two species), root crops (two species), leafy vegetables (five species), perennial vegetables (six species) and okra provide an array of diversity; vegetable germplasm collections of melon, gourd, cucumber, chilli, brinjal, bean and peas have an impressive total of 1,478 (Dhandar, et.al., 2002). (*Table 2*)

Despite such enormous resources, the current status of diversity of these valuable resources, remains poorly known. National collections are not easily available to the farmers in their hour of need. The question is how many varieties actually survive in the fields?

Table 2: Status of Germplasm Collections in Central Institute for Arid Horticulture, Bikaner

Crop	No. of Germplasm
Watermelon	217
Snapmelon	114
Muskmelon	74
Round Melon	26
Kachari (Cucumis olossus)	591
Bottle Gourd	47
Ridge Gourd	05
Sponge Gourd	02
Bitter Gourd	10
Cucumber	32
Chilli	214
Brinjal	78
Indian Bean	42
Cluster Bean	15
Cow Pea	07
Peas	04
Total	**1478**

Source: Dhandar, et.al., 2002

The vegetable germplasm collections at the Indian Institute for Horticultural Research (IIHR), Bangalore, show its enormous richness:1,500 chilli and capsicum

Table 1: Status of germplasm collections at IIHR, Bangalore

Crop	Germplasm Collections
Tomato	500
Eggplant	200
Chilli and Capsicum	1500
Okra	176
Cucurbits	637
Legumes	240
Onion	254
Leafy Vegetables	154
Carrot	115
Cauliflower	26

Source: Rajasekharan and Sane, op.sit.,

Vegetable resources can provide a significant economic gain especially for small and marginal farmers, with proper planning in available land. But over production, in the absence of any support price, can cause price-fall and frustration, especially in remote, ill-connected areas of the country. The lack of storage facilities and systematic marketing can lead to serious loss of income for the primary producers, while middlemen along the chain continue to reap benefits.

A kilo of tomato at Raidighi, Mathurapur, in south Bengal, which can be reached in three hours by road from Kolkata, costs Rs 5 per kg at the time when market price in Kolkata remains at Rs 12/ kg. Profit for the farmers can best be assured by establishing a market linkage between primary producers and bulk buyers in the nearest urban centre. Unfortunately, the cooperative movement in the sector still remains weak or absent. So while production booms, farmers in rural areas continue to be deprived of benefits from such a scenario. Only local storage facility under controlled temperature and market connectivity based on a cooperative model can perhaps offer the real benefit to the millions of farmers producing vegetables in rural India. ●

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The leased fish ponds

Time to Go Fishing in China

Ajay Vir Jakhar

The last time I was in China, I went on a three-week trek in Tibet around Mount Kailas and Lake Mansarovar. That was 25 years ago. I went back to China to visit Guangzhou, Foshan and Hangzhou. Foshan is incidentally the largest furniture market in the world. To give you a perspective, more than 10 kilometres of shopping malls, which would probably be comparable to having all of India's shopping malls on one street, sell just one item: furniture. The sheer scale boggles the mind.

In my free time, I went driving into the outskirts of town. There I met her: a proud Chinese farmer, Mrs Jain He of village Dazha. I did not intend it to be a formal interview; just a friendly chat. On my return to India I realized that the conversation was too interesting not to share with our readers. Since it was not formally recorded, I may have got some names a little wrong for which I hope both my readers and interviewee will forgive me.

Jain He farms bass fish and has leased a fish pond, around 4,000 square meters with a depth of two to three metres, from the government for four years at the cost of RMB 25,000 a year (RMB 1 = Rs 10). Every April, she buys 48,000 bass babies to raise. The fish need to be fed four times a day. Being a citrus farmer, I had no idea that fish can be fed fish and was aghast at the very idea of feeding raw chopped fish to the bass. That is the way things are though and one lives and learns. Every trip within the country or overseas is a revelation for me; exciting and enriching.

Each day Jain He buys 22 bags of 20 kgs of frozen fish as feed. The cost of feed (small fish) is 80 cents a kg. The quantity increases as the bass grow in size. The process is simple: she cuts open the sack and pushes the frozen lot through a shredding machine that is similar to what one could use in India for chopping green fodder. The chopped fish is then thrown to the bass.

One is dealing with a very high density of fish in these fresh water ponds, where the water needs

to be aerated constantly to increase the oxygen supply in the pond so that the fish stay alive and healthy. Jain He has four machines to do so. The machines basically comprise inverted fan blades that churn the water at the surface of the pond, much like a kitchen mixer. These are simply kept afloat with large sealed empty cans for buoyancy. The machines work round the clock.

The high fish density in the pond also makes them vulnerable to disease and a constant vigil needs to be kept throughout the season. The village has a veterinary doctor from the fisheries department. If a farmer suspects a problem he takes a sample of the pond water to the vet who prescribes medication, if required. Fish, when dead, float on the water and need to be removed immediately lest they spread disease.

The harvesting of fish begins in October and continues for more than four months. Each fish that Jain He sells is about six inches long and weighs between 0.4 to 0.6 kgs. Last year she sold 20,000 kgs of bass at an average price of RMB 18 per kg. She probably earned a profit of RMB 1 lakh. Normally, the family labour suffices but, if required at the time of harvest, she hires workers for RMB 100 to RMB 150 per day. The monthly salaries in Foshan would be RMB 4,000. The same worker would get RMB 5,000 to RMB 7,000 in Guangzhou, a much bigger town just an hour away.

I asked Jain He where she sold the fish. She said that the agents came to buy from her pond site every day. The same fish sold in the market in Foshan at double the price at RMB 40 per kg. The price varies on the size of the harvest; quite consistent with practices in India.

I am relieved for reasons that I do not fathom when I learn that not all fish are bred non-vegetarian. Jain He's neighbour breeds eel fish, which is fed prepared fishmeal in basket loads lowered in the water in the middle of the pond. Unlike the bass, the eel does not come to where the feed is dropped.

Pollution levels have increased in the rivers due to commercial farming and farmers have been using nets stitched on top open boxes kept afloat with help of empty bottles. This practice is now discouraged.

Jain He's electricity bill is RMB 2,000 per month and for the full year it is RMB 20,000. The cost of electricity for fish farming is half the cost of power supplied to residential houses in the village. Consistent power supply is available round the clock. China has made enormous investment in infrastructure, which has translated into prosperity and higher GDP growth that appears to be more equitable than in most other countries. On cursory observation, it appears that every house in the village is brick lined. In the city there are no plotted houses at all; only high rise buildings. Dazha has cemented roads, pavements and road dividers that are lush with greenery.

Some farmers use gas bottles for cooking and others use electric stoves. A small family could use a bottle per fortnight. Each gas bottle costs RMB 120. I figured that the cost of cooking is more expensive than in India. Most people boil water before they use it at home.

Jain He lives in a three storey house like most of her peers in the village and has two children; a boy and a girl. She drives an electric scooter. Normally, parents live in the same house with their children in the village. Only when children go to work in the city do they live separately. Even marriages are usually arranged, as in India. Divorce is rare. Children are in junior school till they are 12 years of age. English and maths are compulsory in the middle school though some kindergarten schools also teach English.

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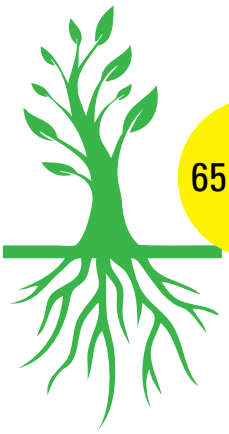

Farmers in the village usually live on one floor and supplement their income by leasing other portions to migrant people working in Foshan for around RMB 500 to RMB 1,000, depending on the size of the room. The size of the plots for homes normally varies between 80 square meters and 200 square meters. The cost of land in the village could possibly be RMB 5,000 per square meter and building a home could cost RMB 3,50,000.

We eat in ordinary street restaurants, which are without frills but serve a delicious fare. At places it is difficult to explain why one would not want to eat fish and meat but the staff is courteous and the vegetarian dishes delicious. Sometimes the chefs are requested to prepare dishes mentioned


Village Dazha

The fish need to be fed four times a day. Being a citrus farmer, I had no idea that fish can be fed fish and was aghast at the very idea of feeding raw chopped fish to the bass

in the menu without the meat or fish ingredients. All menus have photographs of dishes offered. All tables have prepared set of dishes sealed in plastic foil. Once the green tea kettle arrives, we wash our dishes with the tea and pour the contents in a big bowl that is removed from the table later. We then refill our small cups to drink the same tea.

I do not see youngsters loitering around town or villages at any time of the day. I asked about Hollywood movies in town and am told that they are common and the price of a movie ticket is RMB 25 to RMB 30. The nation is, however, perpetually working it appears. The Chinese are meticulous; it is a way of life that would be worth getting used to; a world apart from the comfort of the chaos that prevails on Indian streets.

Jain He has no complaints. This could be out of deference to the fact that I am a foreigner. I have not had the opportunity to visit parts other than south east China but they may not be as developed as the Dazha village. How this nation has developed over the years and how the inclusive growth translates into the creation of a proud, hardworking farmer is an experience worth a life time.

Could Indian policy makers, who head for western countries for their summer breaks, head towards the hinterland of China for a change? ●

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