Green Shoots: Back to the Future

The Sufal Bangla Story

FARMERS' FORUM

Vol. 17; No. 04; August-September 2017 ₹100 www.farmersforum.in Issues and Ideas for Indian Agriculture

INDIAN FARMLANDS
MYRIAD ISSUES; MISSING SOLUTIONS

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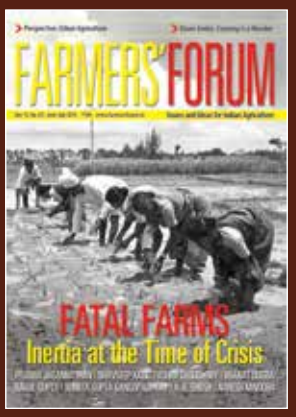

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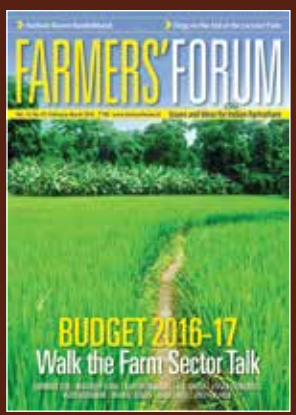

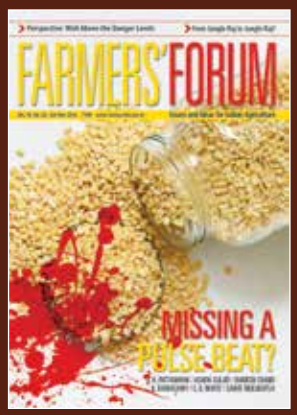

Volume 17; No. 04;
August-September 2017
RNI No. DELENG/2001/5526

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Owner
Bharat Krishak Samaj

Published at
Bharat Krishak Samaj,
A-1, Nizamuddin West,
New Delhi 110013

Printed at
Brijbasi Art Press Ltd., E-46/11, Okhla Industrial Area, Phase-II, New Delhi

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THE FAILED FARMING CLASSROOM

Lessons Not Delivered; Not Learnt

The Indian Council of Agriculture Research (ICAR) is ostensibly all about being at the helm of co-ordinating, guiding and managing research and education in agriculture, including horticulture, fisheries and animal sciences, in the entire country. One would have imagined that its primary focus would be the farmer. The perils besetting the farming community can hardly be exaggerated and the state of affairs merits introspection on the core contribution of the ICAR.

To begin with an evaluation of the ICAR's role during the most challenging years of food scarcity, there is the unquestioned green revolution that changed India from a food scarce nation to a self-sufficient food producer; but... There is a very big 'but' to this accomplishment. During the prolonged celebratory phase of India having beaten food scarcity, no one checked the abuse of fertilizer and water that the green revolution had pushed in. This failure went on to play ducks and drakes with the fortunes of Indian farming; the price for which is being paid by the generation of farmers 40-50 years down the line.

It is, therefore, time to consider if the ICAR has played its assigned role over the years or has allowed itself to be an extension of the bureaucracy, typically spawned by ministries. In this case it was the agriculture ministry. There is clearly no excuse for scientists not to have understood the environmental implications of India's triumphant green revolution or their inability to institute corrective measures. For this singular failure, the ICAR should lose its status of the holy cow and be subjected to public scrutiny.

Put to the test, the ICAR exposes its warts; the largest of which is its surrendered autonomy to what is now the Ministry of Agriculture and Farmers Welfare. This makes for a strong case for it to be transformed into a truly autonomous body reporting directly to the prime minister; much like the Atomic Energy Commission. Its functions should be restricted to farm research, education and oversight of non-ICAR agriculture institutes.

THE ICAR'S LARGEST WART IS ITS SURRENDERED AUTONOMY TO THE AGRICULTURE MINISTRY

Examine 10 areas in which the ICAR falls short though these by no means present the complete picture.

- First, the inadequate performance vis-à-vis farm extension services, which is the source of the greatest disappointment. Technology transfer or farm extension that is shared with the states collapsed once India became a cereal-secure nation. Such complacency and abdication of responsibility

NOTHING IS WORSE THAN CHARGES THAT RESEARCH IS ROUTINELY STOLEN FROM THE ICAR INSTITUTES BY PRIVATE COMPANIES, IMPACTING IPR REGISTRATIONS AND INTERNAL RESOURCE GENERATION

by the state public extension system have allowed the private shopkeepers to usurp the role of farm advisories to disastrous consequences for farmers, human health and the ecology. Extension services should be completely delegated to the state governments; they never should have been within the ICAR's ambit.

- Second — and this emanates from its historical evolution — the ICAR has a strong bias in favour of crop sciences at the cost of animal husbandry. Research that focuses on agriculture productivity with no alignment to its socio-economic consequences and farmer prosperity is passé in the least and dangerous from the perspective of balanced farm growth in all its connotations. For a primarily farming country, there is only one veterinary college graduate per 10 lakh farm animals as opposed to upwards of l0 lakh students annually enrolling for engineering.
- Third, even productivity improvements are not uniform. While yields for irrigated crops like rice and wheat are comparable with the best in the world; research on rain-fed farms, pulses, oilseeds, fruits and vegetables lags considerably.
- Four, evolving consumer preferences that are changing the narrative from farm to food, environmental impact and climate resilient agriculture require a reorientation of priorities and mindsets that the ICAR has failed to inculcate; just as it has failed to develop capacities for market intelligence and forecasting models.
- Five, the ICAR's own administration is rifled with allegations of manipulated recruitments, inbreeding and nepotism. Salary structures, based on government promotion rules of time-bound promotion, do not recognize research output and talent is ignored.
- Six, there is gender insensitivity with most farmhands being women but women not being recruited in equal numbers.

Photo: Pixabay

- Seven, the deterioration in agriculture education in India. While some state agriculture universities even conduct courses in fashion design, there are more than a thousand unregulated private agriculture colleges that have sprouted across the nation, churning out degrees like street food; many even without proper laboratories, infrastructure or farm land.
- Eight, the serious gap in inter-departmental co-ordination within the 71 agriculture universities and the 101 institutes across India. It is time to prune the numbers by as much as a third. Ironically, the Indian Agricultural Research Institute (IARI), the country's premier national institute for agricultural research, education and extension, does not have a full-time director for nearly four years.
- Nine, nothing is worse than charges that research is routinely stolen from the ICAR institutes by private companies. Thus, IPR registrations and internal resource generation, as practiced in the developed world universities, are impacted.
- Ten, not bridging the gaps in research courtesy state governments barely funding the SAUs that are forced to augment their resources by seeking research grants, irrespective of the state's priorities. If a state wants to focus on

diversification from paddy in the kharif season, for instance, when much of the co-ordinated research is for rabi crops, it has no access to funds for the specific purpose. This happens because central and state objectives differ and they will in a vastly divergent agro-climatic region like India.

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It may be argued that agriculture is a state subject but that does not absolve the ICAR of culpability for, along with the states, it exercises authority and jointly funds the SAUs. Around 700 Krishi Vigyan Kendras funded by the ICAR are designated for capacity-building along with technology refinement and transfer but are neither fully staffed nor equipped.

Similarly, proliferating profiteers masquerading as educators thrive because states have not enacted a regulatory framework. Certainly, the ICAR could have exercised its vocal chords to caution states against such blatantly wrong goings on. The Punjab government has notified a regulatory act; other states would do well to follow suit.

Much would change if the Prime Minister's Office accepted the responsibility of agriculture research and education. SAU salaries would fall under the central government basket and the KVKs could be transferred to the states. That would free up resources for states to devote exclusively to farm extension.

The larger question is whether ICAR, in its current holy cow avatar, deserves to be taken to the slaughter house? For the time being a serious warning is called for. If India is to reach the promised land of farmer prosperity, it will need more than the ploughshare. Budget allocations for agriculture R&D must be pegged at two per cent of the GDP from the less than one per cent at present.

Most importantly, a matrix to audit outcomes and establish accountability is needed to resolve the current imbroglio. Unfortunately, when decisions are made, the theoretical knowledge of policymakers supersedes the well-grounded experience of the practitioner, allowing these crises to fester indefinitely. All this in a land where the farmer is believed to be fulcrum on which the economy is balanced.

Autarky on Indian farms is, of course, a distant dream even in an India in the 71st year of its Independence. Penury-ridden farmers are still committing suicide by the thousands; a consequence of decades of short-sightedness, while economists and scientists are still equating food sufficiency with farmer sustainability. ●

AUTARKY ON INDIAN FARMS IS, OF COURSE, A DISTANT DREAM; EVEN IN AN INDIA IN THE 71ST YEAR OF ITS INDEPENDENCE

Ajay Vir Jakhar
Editor
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To the Editor

Time for professional farmer leaders

Sir,—Apropos of your editorial, "Bharatiya Kisan Ko Gussa Kyon Aata Hai" *(Farmers' Forum*, June-July, 2017), you make a very valid point about policy-making having progressed from relative ignorance to a deliberate misunderstanding of the situation on the ground. Why else would there be such devious rearranging of data? Under the circumstances, it is not difficult to understand why farmer agitations do not yield long-term tangible changes vis-à-vis their livelihoods. What bewilders is why should a country that needs food security more than anything else mete out such treatment to farmers. This is a political question and, alas, agitations that are not driven by politicians, do not lead to any solid result. This brings one to the major issue of there having been no genuinely great farmer leader at the helm of affairs for a long time. This is what farmer movements must find in their wake, professional leaders who will make an impact.

Surender Sharma
New Delhi

Personal touch to Greenfingers

Sir, — Amongst the most awaited sections in *Farmers' Forum* is Green Fingers and you have been delighting readers with valuable articles and ideas from all parts of the country. However, of late, we have been missing your personal contributions and look forward to having them back in the magazine.

Sumit Soni
Karnal, Haryana

Power of agtech

It was most exciting to read your cover story, "Can technology come to the rescue of the Indian farmer?' (*Farmers' Forum,* June-July, 2017). You have provided some light at the end of the tunnel by a showing how the disjointed agriculture value chain "within which there is a convoluted supply chain of myriad players" can possibly be impacted by technology to rid them of their inbuilt inefficiencies. It is also pleasing to learn that young technologists in India are taking to agtech. May their tribe increase.

Kushan Mitra
Kolkata, West Bengal

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

Universal neglect

Radha Sarkar and Amar Sarkar's insightful piece under Agribusiness, "From Florida (Immokalee) farm workers to India's farmhands" (*Farmers' Forum*, June-July, 2017) makes one wonder about the universality of the farmer's/ farm workers plight. Or is it the plight of the mazdoor everywhere? However, such international exposure should underscore the common elements in the fight against such exploitation and lead to global solidarity. Hopefully, some day, such exploitation will cease.

Rudra Prasad
Meerut, Uttar Pradesh

Simple measures

Subir Roy's article, "Not rocket science: simple measures to transform Indian agriculture" (*Farmers' Forum*, June-July, 2017) was interesting in that he talks of many ways to bring about changes in the livelihood of farmer. I hope someone is listening to his views. There have been some dramatic success in agricultural growth in certain states that have taken care of things like water, electricity, procurement and roads, as the article points out. The model can be replicated in other states keeping in mind the need to reduce farming's ecological footprint.

The article also leaves us worried about the inexorable uncertainty facing the farmer. Despite doing all his calculations correctly, he may well be felled by the weather!

Dinesh Tomar,
Jabalpur, Madhya Pradesh

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COVER STORY

ECONOMIC SURVEY II

The Anatomy of Agrarian Stress; or the Absence of it?

A Farmers' Forum Report

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Is it possible that India's farm stress has actually intensified despite weather conditions being more favourable than they have been in many years? The Economic Survey Volume II (released in August) focus on agriculture is informative of the government's perspective on farm stress. Farmers' Forum considers three interesting aspects:

a. Why this farm stress?
b. Macroeconomic impact of farm loans and waivers.
c. The cereals and pulses story.

The Economic Survey (ES) bases its assessment on the common sense approach of incomes and weather conditions being highly correlated. Thus when weather conditions were supporting and international demand was booming during 2006-12, farm incomes soared. The ensuing period of deficient rainfall made for poor harvests and hardship, followed by the last two years good rains. Very simply, the ES pays little attention to the farm sector being stressed even during the apparently "boom" period that was marked by a steady stream of farmer suicides that underscored a basic malaise.

Yet the ES is somewhat befuddled by the current obvious farm-sector stress, "raising the puzzle of why there is stress at a time of plenty", it says. The ES assessment of possible causes may not find much traction with the farming community but the gist of its position is that agrarian stress is difficult to measure objectively.

Its rather simplistic position that "the manifestations are easy to see—demands for loan relief and restiveness in a number of states—but it is difficult to disentangle their political and economic origins. For example, the widespread demand for loan waivers could simply be a demonstration effect from the U.P. loan waiver", seems to be looking at a complex and gravely distressing situation with remarkably easy viewing glasses.

Going into the other proximate economic causes for stress, reflected in lower prices and lower farm revenues[1] the survey uses the agriculture ministry's Agmarknet database that contains daily data on the arrivals of farm produce in the major mandis and the prices received by suppliers. For several major commodities like wheat, arhar, moong, tomatoes, potatoes and onions, estimates are provided for prices, quantities, revenues also indicating, where relevant (wheat and pulses), the percentage of crop sold at prices below the Minimum Support Price (MSP). Its database has information on an all-India basis, as well as for the individual states. All the calculations are for the agricultural year (July-June).[2]

The ES finds some broad patterns: economic distress, as measured by real revenues (prices times the quantity of arrivals deflated by the rural CPI), is not a generalized phenomenon[3]. For example, it does not afflict wheat and Bengal gram ("chana"), where market quantities and prices have risen, resulting in rising real revenues.

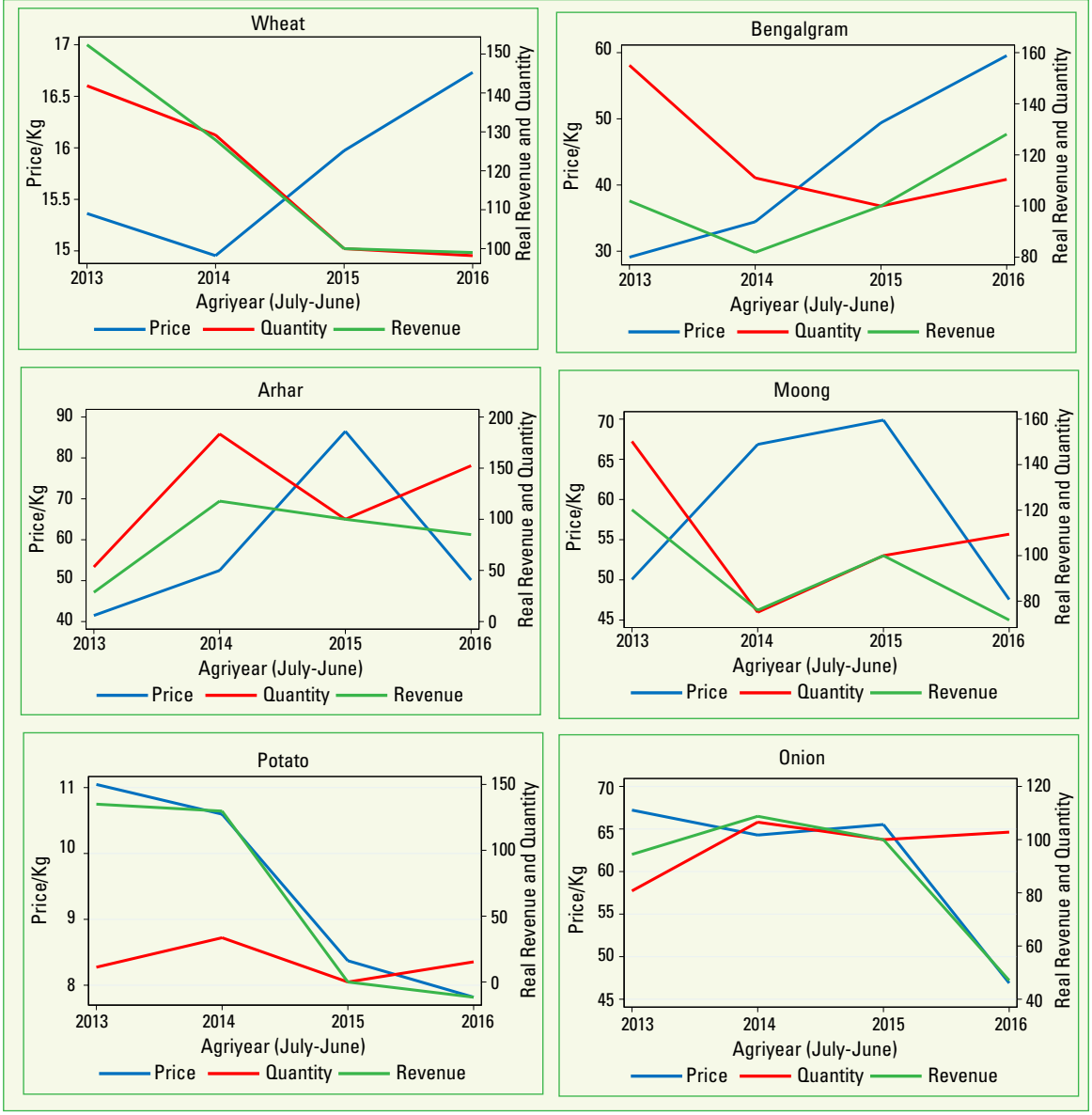
The ES assessment of possible causes may not find much traction with the farming community. The gist is that agrarian stress is difficult to 'measure objectively'

The survey, however, concedes a decline in real farm revenues in pulses and some vegetables like potato (*Figure 1*). In the agricultural year ending in June 2017, relative to the previous year, real revenues have declined the most for moong (30 per cent) and the least for potatoes (four per cent) with arhar and moong posting declines of around 10 per cent and 28 per cent, respectively. However, the prices of onion and tomato have started rising recently.

The ES notes other interesting regional variations. Uttar Pradesh appears to have done reasonably well in most crops, including wheat and potatoes. In the case of wheat, there was a substantial increase in procurement, reflected in a decline in the magnitudes sold at prices below MSP. In contrast, Madhya Pradesh, which had

1 Farm income cannot be estimated because of lack of detailed data on costs; instead revenues as the product of quantities and prices are measured
2 Data on arrivals do not account for all of production. Agmarknet covers 48.7 per cent of the regulated markets and covers unregulated markets as well. The coverage is, however, representative at both state and All-India levels. The estimates are based on a common sample of states across time.
3 If there is money illusion, nominal incomes would be the right measure to monitor. Since rural CPI inflation was lower in 2016-17 compared to 2015-16, declining real revenues would signal larger declines in nominal revenues.

Figure 1. Selected Agricultural Commodities: Real Revenues, Quantities and Prices



Notes: Agriculture year 2016 stands for 2016-17 and like wise others too. Prices are weighted averages. Real revenue and quantity are indexed with base agriculture year 2015-16=100

Sources: Agmarknet and Survey estimates

The Economic Survey is somewhat befuddled by the current and obvious farm-sector stress, "raising the puzzle of why there is stress at a time of plenty"

recently been favouring wheat, saw an increase in the amount of sale at prices below MSP. Pulses witnessed large reductions in prices over the previous year, especially moong, although the price declines were steeper in some states, for instance, Rajasthan in moong and arhar in Karnataka and Madhya Pradesh.

Clearly, increased supply led to large declines in prices. The puzzle is why it reduced prices so much that it depressed farm revenues, the ES wonders. "After all, in 2014 output surged in a number of crops including arhar, potatoes and onions without yielding revenue declines. This year appears to have been atypical in the magnitude of price decline". The ES talks of two possible explanations.

- First, outlets for farmers were narrow on account of stock limits on wholesalers and retailers and restrictions on exports whereas imports were more liberal on some commodities. Suggestive

Photo: Pixabay

evidence comes from the contrasting experiences of Bengal gram on the one hand and arhar and moong on the other. Fewer restrictions for the former may have helped shore up market prices received by farmers.

- Second, weaker demand than in previous years could have weighed on prices.

The survey then goes on to the demonetization effect to note that contrary to some expectations, demonetization did not reduce supply of the rabi crop. The cash shortages were particularly pronounced in the rural areas and reinforced by a credit squeeze, which saw loan growth slowing from 16 per cent in September to 8-9 per cent in the first quarter of 2017 and further until end-May.

This cash and credit squeeze could have reduced acreage and the use of fertilizer. Yet rabi plantings last year, which coincided with the peak period of demonetization, and output were constant at 5.7 per cent growth in area sown and seven per cent in production.

The ES also looks at some behavioural factors at play. Increased planting of pulses last year was a response both to record high market prices as well as large increases in MSP with promises by the government of more effective procurement.

Table 1. Variability in Pulses and Cereal Production

	Mean		Coefficient of variation	
	Pulses	Cereal	Pulses	Cereal
1951-2017	2.6%	3.6%	5.88	2.69
1951-1965	2.2%	3.4%	6.86	3.19
1966-1989	2.8%	5.6%	6.03	2.04
1990-2004	0.7%	1.5%	20.35	5.01
2005-2016	5.3%	2.7%	2.42	1.64

Source: Directorate of Economics & Statistics, Ministry of Agriculture

The point is that prices at the time of marketing have been well below those last year. Despite record increases in procurement (the procurement of kharif pulses increased from negligible levels in 2015-16 to 1.5 million tonnes on 2016-17), a significant fraction of sales of some pulses has been below MSP. Thus, the distress could have been caused by received prices being lower than those last year and mostly lower than MSP prices, the ES concludes.

The second area of interest is the survey's assessment of farm loan waiver phenomenon, especially in its macroeconomic impact. Loud headlines have been talking of the farm loan

Box:1 State-wise Fiscal Assessment of Loan Waivers

What is the fiscal ability of states to implement the farm loan waivers? Assessing this requires estimating the potential cost of the waivers, quantifying the fiscal space for the states relative to their FRL limits and comparing the two. The analysis is shown in the table below. States are ranked by the extent of fiscal space. The fiscal limit for most states is three per cent of GSDP. However, six states (Odisha, Chhattisgarh, Telangana, Madhya Pradesh, Karnataka and Bihar) have higher limits of 3.5 per cent of GSDP because they have strong overall fiscal positions, as deemed by the Fourteenth Finance Commission's (FFC's) criteria. Comparing limits with the BE estimates for 2017-18, only seven states have fiscal space exceeding 0.5 per cent of GSDP. The states with the most space in rupee terms are Maharashtra, Gujarat, West Bengal, Karnataka and Madhya Pradesh. In relative terms, Jharkhand also has considerable space, amounting to 0.7 per cent of GSDP. States with no additional deficit capacity include Uttar Pradesh, Telangana, Rajasthan, Andhra Pradesh and Odisha.

State-Specific Fiscal Space for Farm Loan Waiver

State	GSD Pcurrent MP (2017-18)	FD without UDAY in 2017-18 (BE)	Fiscal Ceiling post FFC	Fiscal Space	FD without UDAY in 2017-18 (BE)	Fiscal Ceiling post FFC	Fiscal Space
	Lakh crore	In Rupee	Thousand Crore		Per cent of GSDP		
Andhra Pradesh	7.7	23.1	23.1	0.0	3.0	3.0	0.0
Uttar Pradesh	14.2	42.6	42.6	0.0	3.0	3.0 w	0.0
Rajasthan	8.3	24.8	24.8	0.0	3.0	3.0	0.0
Kerala	7.5	25.8	22.4	0.0	3.4	3.0	-0.4
Himachal Pradesh	1.4	4.9	4.2	0.0	3.5	3.0	-0.5
Odisha	4.1	14.4	14.4	0.0	3.5	3.5	0.0
Chhattisgarh	2.8	9.7	9.7	0.0	3.5	3.5	0.0
Maharashtra	25.4	38.8	76.2	37.4	1.5	3.0	1.5
West Bengal	10.8	19.4	32.4	13.1	1.8	3.0	1.2
Gujarat	12.8	23.2	38.3	15.1	1.8	3.0	1.2
Jharkhand	3.0	6.9	9.1	2.2	2.3	3.0	0.7
Haryana	6.2	16.2	18.6	2.4	2.6	3.0	0.4
Karnataka	12.8	33.4	44.8	11.5	2.6	3.5	0.9
Tamilnadu	15.0	42.0	45.1	3.2	2.8	3.0	0.2
Uttarakhand	2.3	6.6	6.8	0.2	2.9	3.0	0.1
Punjab	5.0	14.6	15.1	0.5	2.9	3.0	0.1
Bihar	6.3	18.1	22.1	4.0	2.9	3.5	0.6
Madhya Pradesh	7.4	21.1	25.7	4.7	2.9	3.5	0.6
Telangana	7.6	26.1	26.6	0.5	3.5	3.5	0.0
TOTAL	**160.6**	**411.6**	**502.2**	**94.6**	**2.6**	**3. 1**	**0.6**

Notes: Fiscal ceiling is calculated based on the 14th Finance Commission (FFC) recommendations. The necessary condition for being allowed to use additional fiscal space is a zero revenue deficit in the current and preceding years. Then, 0.25% of GSDP worth of fiscal space is available if the interest payment to revenue receipt ratio is less than or equal to 10%; and an additional 0.25% of GSDP if the debt to GDP ratio is less than 25% of GSDP. The fiscal deficit number for Uttar Pradesh, Punjab and Uttarakhand is for 2016-17 BE.

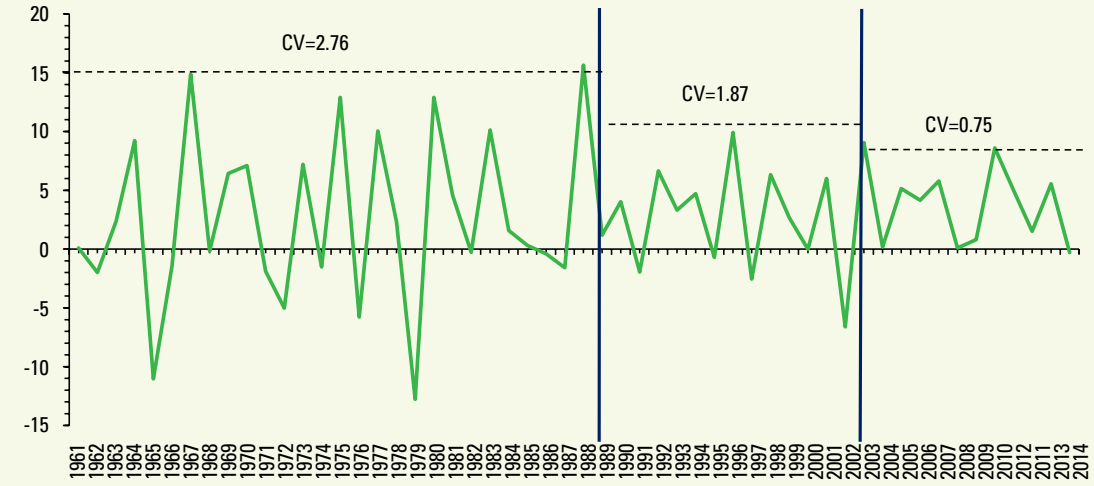
waivers with states promising such waivers in different forms in Uttar Pradesh, Karnataka, Maharashtra, Punjab and Tamil Nadu. Even the Supreme Court of India has got involved, staying the direction of the Madras High Court to provide loan waivers to all farmers instead of only to small and marginal farmers. Farmers in other states too must be expectant and the ES describes this as being indicative of a "possibility of a contagious spread to other states".

In 2007-08 when farm loan waivers were awarded across the country by the government they were generally seen as a means of helping out farmers facing repeated stress from successive shocks to agriculture. However, the Reserve Bank has frowned on them because it believes that "these waivers will have a long-term impact on the culture of loan repayments and induce moral hazard". Waivers favour those who have borrowed relative to those who have been more thrifty; those who have borrowed relative to those who have repaid their loans; and those who have borrowed from formal sources relative to those who have borrowed, often at more usurious terms, from informal sources, to quote the ES.

There have been suggestions of more efficient and targeted ways of helping farmers. The ES

The Reserve Bank has frowned on waivers because it believes that they will have a long-term impact on the culture of loan repayments and induce a moral hazard

Figure 2. Agriculture GDP Growth in India (per cent)



Note: CV – Coefficient Variation

Source: CSO

Figure 3. Annual Growth of Cereal Production (per cent)

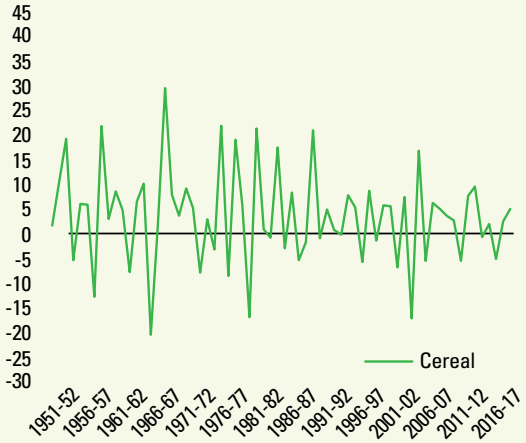
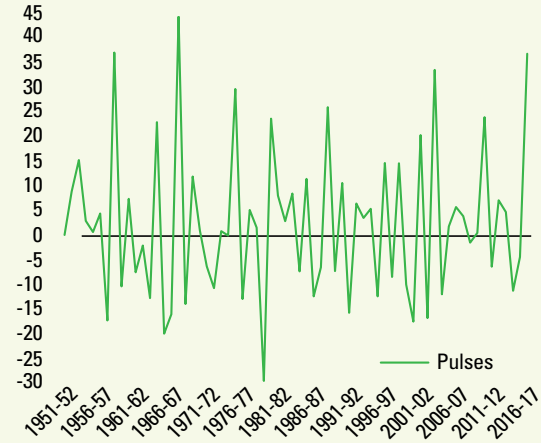


Figure 4. Annual growth of Pulses Production (per cent)



Source: Directorate of Economics & Statistics, Ministry of Agriculture

A state-wise assessment of the loan waivers shows the five states announcing their implementation will have an estimated impact of ₹1 lakh crore to ₹1.25 lakh crore

does not assess the normative dimensions of farm waivers but undertakes a macro-economic analysis to explain their immediate consequences for an economy that is yet to gather full momentum. "To the extent that the cyclical impact has been discussed, it has been presumed to be inflationary" though the ES analysis shows that the "short-term consequences are likely to be quite deflationary". Consider some facts:

- Demands for farm loan waivers have emerged at a time when state finances have been deteriorating. The UDAY scheme has led to rising market borrowings by the states expected to soon overtake central government borrowings. As a result, spreads on state government bonds relative to g-secs have steadily risen by about 60 basis points in the last six months.
- In turn, spreads on corporate bonds are estimated by J.P. Morgan to have risen by about 40 basis points, which could lead to reductions in corporate spending. Estimating the macro-economic impact requires assumptions about the magnitudes of waivers.
- Three states have been specific about the waiver

Photo: Pixabay

schemes: U.P. has announced waivers of up to ₹1 lakh for all small and marginal farmers; Punjab's limit is ₹2 lakh for small farmers without defining who they are; Karnataka has limited the waiver amount to ₹50,000; and Maharashtra's waiver terms were still unclear at the time of writing the ES. The waiver announcements also do not clearly say whether the amounts would apply to households or loans: typically, a household has more than one loan.

- It is assumed that waivers will apply at the loan rather than household level, since it will be administratively difficult to aggregate loans across households. It is also assumed that other states will follow the U.P. model. On this basis, an upper bound of loan waivers at the all-India level would be between ₹2.2 lakh crore and ₹2.7 lakh crore.
- A state-wise assessment of the loan waivers shows that the five states that have made the announcement to implement it alone will have an estimated impact of ₹1-1.25 lakh crore.
- As far as the macro economic impact is concerned, basically, farm loan waivers simply transfer liabilities from private sector to public sector balance sheets. The impact on aggregate demand will then depend on which sector has the greater propensity to consume out of wealth.
- While states do not actually have a propensity to consume out of wealth, there is a link between the two because their spending is influenced by their need to respect their Fiscal Responsibility Legislation (FRL) targets.
- If they assume higher debt, they may need to cut other spending (or increase taxes). Once these spending changes take place, there will be second-round effects.
- The analysis assumes that the farm loan waivers spread throughout the country could total ₹ 2.7 lakh crore.

The ES then goes on to assess the fiscal ability of states to implement the farm loan waivers. Assessing this requires estimating the potential cost of the waivers, quantifying the fiscal space for the states relative to their FRL limits and comparing the two as analysed in Box 1 where states are ranked by the extent of fiscal space.

The fiscal limit for most states is three per cent of their GSDP but six states, Odisha, Chhattisgarh, Telangana, Madhya Pradesh, Karnataka and Bihar have higher limits of 3.5 per cent of GSDP because they have strong overall fiscal positions, as deemed by the Fourteenth Finance Commission's (FFC's) criteria.

Comparing limits with the BE estimates for 2017-18, only seven states have fiscal space exceeding 0.5 per cent of the GSDP. The states with the most space in rupee terms are Maharashtra, Gujarat, West Bengal, Karnataka and Madhya Pradesh. In relative terms, Jharkhand also has considerable space, amounting to 0.7 per cent of its GSDP. States with no additional deficit capacity include Uttar Pradesh, Telangana, Rajasthan, Andhra Pradesh and Odisha.

Since the centre has said that it will not foot the bill, the states will have to take responsibility for financing the waivers. The waivers will then have four effects on aggregate demand:

- Private consumption impact via increases in private sector net wealth
- Public sector impact via changes in government expenditure/taxes
- Crowding out impact via higher borrowings by state governments
- Crowding in impact via higher credit availability as bank NPAs fall.

Assessing each separately, the ES says that private consumption impact will mean an increase in the net wealth of farm households. Wealth data is not available, it is assumed that net income will increase by the amount of loans waived off (whereas in fact this year's disposable income rises by only the debt service forgiven). Using cross-sectional data on farm households, a consumption elasticity out of (temporary) income of about 0.25 is estimated. This might seem a low number because marginal propensities to consumer are, typically, high, the ES explains. Behavioural economics, however, suggests that a reaction to an actual increase in income might be very different from a notional increase based on an expenditure avoided.

Since loan waivers are assumed to increase aggregate income by 28 per cent, consumption is estimated to increase by seven per cent or about ₹55,000 crore. This estimated consumption impact is on the higher side. As a World Bank study on the "Agricultural Debt Waiver and Debt Relief Scheme" of 2008-09 found, consumption did not rise after the loan waivers.

The public sector impact, the ES says, will depend upon the extent of fiscal space that state governments have under their respective FRLs. The key intuition is that loan waivers involve spending that does not add to demand (because these are liability transfers to the states' balance sheets) but the actions taken to meet FRL targets (higher taxes and/or lower expenditure) will reduce demand.

The ES estimates that for states with fiscal space, waivers would add about ₹6,350 crore to demand via the additional interest costs. For states without space, waivers could reduce demand by about ₹1.9 lakh crore. The net effect of aggregating over the two cases state by state yields a reduction in aggregate demand of close to ₹1.9 lakh crore.

As far as the second round effects are concerned, there will be the crowding out impact, says the ES. "Loan waivers will result in higher borrowing by the states with fiscal space. This could squeeze out private spending by firms". J.P Morgan suggests

that yields on corporate bonds have already risen by about 40 basis points post UDAY.

There is also the crowding in impact because bank balance sheets will improve to the extent that non-performing farm loans are taken off their books. So they might be able to provide additional financial resources to the private sector, leading to greater spending. "The World Bank study found that lending increased following the 2008-09 waiver even if not in the districts with greater exposure to the waiver". The ES estimates that these two effects would almost cancel each other.

Adding up these effects yields an impact on aggregate demand of minus ₹1.1 lakh crore already estimated to be around ₹57,900 crore for the states

Photo: Pixabay

that have already announced farm loan waivers.

In other words, loan waivers could reduce aggregate demand by as much as 0.7 per cent of GDP, imparting a significant deflationary shock to an economy yet to gain full momentum. Note, however, that this is an upper bound. The actual impact will depend on the number of states that actually decide to grant waivers and how they distribute them over time.

The third story worth pursuing in the ES is the cereals story. The ES says that "assessed over longer spells of time (decades), Indian agricultural performance has been moderately successful. One achievement is that production, especially of cereals — the major item of consumption — has become

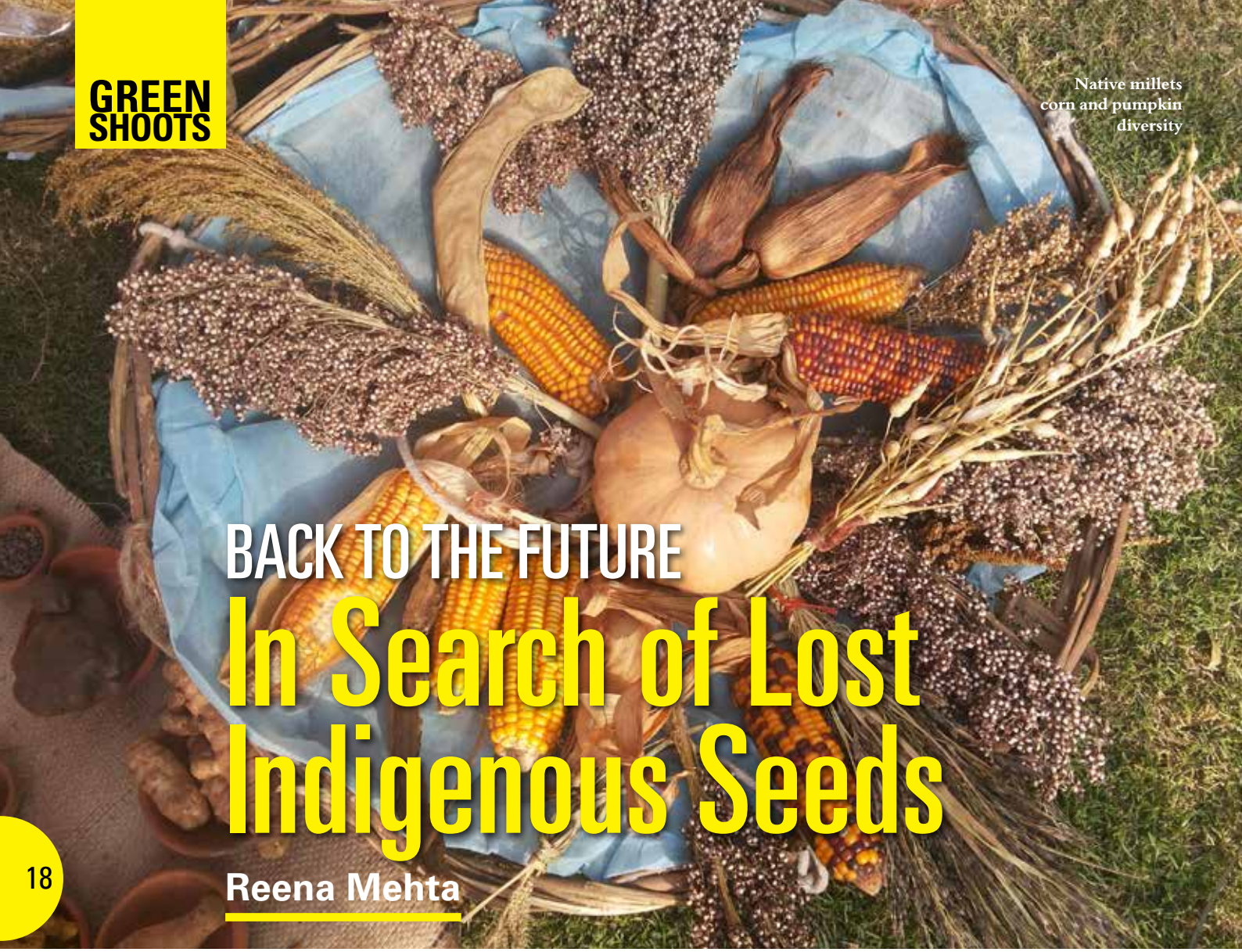
The government has rationalized MSP awards, liberalized agricultural marketing arrangements and institutionalized the inflation targeting-cum-Monetary Policy Committee framework

less volatile and more resilient to poor monsoons. *Figure 1* plots real growth in the agricultural GDP. The average growth has remained in the three per cent range but the volatility of output growth as measured by the coefficient of variation has declined from 1.87 per cent in the period 1988-2004 to 0.75 since.

Figures 2 and 3 plot the growth of cereals and pulses production respectively, again showing declining volatility (*Table-1*). The coefficient of variation has declined dramatically in the last decade. What is striking is that there are fewer troughs (growth rates of one per cent or less) in the key periods of inflation threat. High support prices combined with effective procurement in the high-production, irrigation-intensive states (Punjab, Haryana, Uttar Pradesh and recently also Madhya Pradesh) have contributed to stability in cereal production.

How does one explain the 2007-2011 surge of food inflation? The ES attributes it to "a combination of a surge in global oil and agricultural prices combined with domestic agriculture policy" and argues that the current government has responded on prices by changing the framework in which agricultural prices are determined. "It has rationalized Minimum Support Price (MSP) awards, liberalized agricultural marketing arrangements and institutionalized the inflation targeting-cum-Monetary Policy Committee framework".

In a final assessment of falling food prices that have driven inflation down to historically low levels (1.5 per cent in June), the ES cautions that it is "surely temporary; soon, food prices will normalize". However, even then they will not revert to the pre-2014 levels. The ES predicts that "the deep, technology-driven shifts in international energy markets and improvements in domestic policy and agricultural markets may be heralding a new era of low inflation in India". ●



Native millets corn and pumpkin diversity

BACK TO THE FUTURE
In Search of Lost Indigenous Seeds

Reena Mehta

Subhash Palekar, a farmer from Vidarbha, is practicing 'Zero Budget Natural Farming' (ZBNF) since 1990. He uses only local seeds. He harvests a good crop season after season; his approach applauded by peers and environmentalists alike. Parlekar was awarded the Padma Shri in 2016 for his outstanding contribution to sustainable agriculture. This year, the Andhra Pradesh government appointed him as an adviser and he was allocated a substantial purse to promote ZBNF in the state.

REENA MEHTA is a freelance writer and researcher

The community driven nature of several such small attempts has facilitated the movement of taking traditional knowledge forward to have a transformative impact on Indian agriculture. These are good examples to showcase how farmers and ecologically conscious researchers have worked together to analyze and advance practices leading to agricultural biodiversity security. Not all of this can prevent the inexorably growing crisis in Indian agriculture however.

The farm sector debacle and death and destruction in rural lives is assuming menacing proportions in the country. This is underscored by the extremely distressing phenomenon of farmer suicides that tells the story of the widespread agrarian tragedy. Alongside there is a predatory commercialization of agriculture and things once exchanged on the basis of human relationships have been converted into matters of commercial transactions. Farmers now have to depend on external sources for all their farming inputs, including seeds.

After the Green Revolution of the 1960s, Indian farmers fell into the trap of using high input intensive techniques to increase productivity that meant new seeds of high-yielding varieties supported by a range of chemical pesticides, fertilizers and other external inputs. Introduction of hybrid and exotic seeds laid the foundation of corporate-controlled, industrial, petrochemical-dependent monocultures.

The biggest casualty in this race of modernization of agriculture was the traditional system of sustainable

agriculture accompanied by the rapid loss of India's agricultural biodiversity. High-yielding seeds had to be bought and farmers lost the practice of saving and exchanging seeds. This meant destruction of several indigenous seed varieties; at least 75 per cent of the genetic diversity of agricultural crops had been lost by the beginning of this century, to go by the Food and Agriculture Organization estimates.

Then the technology came crumbling down with yields dropping amidst the realization that something invaluable had been lost in the form of highly diverse indigenous seed varieties. The high-yielding seeds, developed for monoculture over very vast areas were highly susceptible to pests and diseases. Indigenous seeds, on the contrary, were well acclimatized to local conditions and could withstand various stress conditions relating to adverse weather. The biggest price was paid by rice.

Rice farmers in India have been pushed into the cultivation of exotic, narrow genetic base monocultures while discarding the highly diverse traditional varieties, which would give adequate yields at very low cost, using locally available manures and other inputs and keeping the land free from expensive killer chemical pesticides and insecticides.

Eminent agricultural scientist R.H. Richharia had collected nearly 17,000 traditional rice varieties. He was a strong propagator for spreading indigenous rice varieties for cultivation that, according to him, had been developed by the wisdom and hard work of several generations of rice farmers. This traditional wisdom was been systematically devalued by the propagators of modern agricultural technology and seeds. The control of agriculture gradually started shifting from farming communities to a handful of multinational corporations.

Then came the WTO agreement when the Indian government liberalized trade policy around agriculture. This adversely impacted on farmers' incomes. Farmers found themselves exposed to the mercurial rise and fall of world prices of farm produce. More recently, the world was introduced to the new technology of 'genetically modified' (GM) seeds that have become a focus of much debate, resistance and protest over a period of time. In India these seeds were introduced in 2002 in the form of GM cotton following a long drawn-out regulatory approval process.

GM seeds are patented seeds that means that it is illegal to save them. The aim is to destroy local self reliance of food systems and create dependence on expensive seeds and related even more expensive inputs and technologies. There is an on-going debate in the country where one side favours the use of GM seeds insisting that they are the only means of ensuring food security. The other rebuts their contention time and again for its weak scientific basis as they urge governments to go in for sustainable agriculture solutions. They are handicapped by a shortage of research funds for agro-ecology, which protects biodiversity while GM is backed by the world's largest moneybags.

The biggest casualty in the race for modernization of agriculture was the traditional system of sustainable agriculture, accompanied by the rapid loss of India's agricultural biodiversity

Pumpkin diversity

Many small-scale efforts over a period of time have successfully showcased the benefits of agricultural biodiversity and the benefits of seed saving. The Beej Bachao Aandolan is one such effort to save traditional seeds in the hills of Uttarakhand. The movement started in late 1980s against the monoculture and to save the traditional practice of multi-cropping (cereals, legumes, millets) farming locally called 'baranaja' (twelve grains).

Under the Baranaja system, villagers intercropped a dozen or more cereals, legumes, millets and oil seeds in such a way, on rain fed land, that even from

The contemporary campaigns of farmers have successfully showcased a participatory method that acknowledges and prioritizes local, indigenous knowledge and local needs

such land they could get a very balanced mix of nutrition. The planting is not haphazard but a very well planned mix of crops in which the nutrients depleted from the soil by one crop are made up by another crop.

The nitrogen consumed by a grain crop is compensated by nitrogen fixed by a legume crop, for example. Creepers of some of these crops can obtain the support of stalks of some other crops. The kidney bean and lobhiya can obtain the support of amranth and urad pulse can obtain the support of mandua. Thus, a number of very supportive crops can be grown together. This is a traditional system that involves knowledge and skill in practicing scientific agriculture.

The Beej Bachao Aandolan (BBA) opposed efforts to uproot this system and carried out a campaign amongst villagers so that they continued to have faith and confidence in their proven traditional practices and systems. BBA members travelled from village to village to collect traditional seeds. A senior member, Vijay Jardhari, says, "When we visited a village we told people about the importance of protecting traditional seeds as the entire farming system of our hills is closely integrated with our traditional seeds and crops. Without protecting these seeds the entire farming system of our hills as well as the food security based on this can break down. Most of the time, people, particularly women and elders, welcomed our message. They were also willing to exchange some of their seeds with the seeds that we had taken for them".

Jardhari continues; "After several years of our sustained campaign the government also started listening to us. Earlier the government was ignoring local hill crops like gahet, jhangora and mandua but after our campaign the government announced support price for some of these crops and even announced a bonus. This happened during the time of the previous Congress government. I hope that the present government of Uttarakhand will continue this policy".

Another senior BBA activist, Dhoom Singh Negi (also called Guruji) says: "On the one hand we have been taking the message of saving traditional seeds directly to farmers. On the other hand, we have held several exhibitions at which a large number of people come and discuss the importance of saving the rich biodiversity of our traditional farming system with us. People visiting our exhibitions are generally very impressed by the vast diversity of crops they see. They asked questions about the benefits of saving this diversity and then pass on the message to a larger number of people."

Kunwar Prasun, a very dedicated BBA activist, documented as many as 328 rice varieties and 26 wheat varieties of Uttarakhand with details of their main characteristics including productivity, taste, nutrition and growth pattern. His writing on this movement and its necessity helped to spread the message of the movement widely.

There is also the Navdanya network that has collected and distributed local varieties of cereals, pulses, oilseeds and vegetables. The organization is also developing a network to support other centres working on conservation of indigenous

Photos: Ajay Mahajan

Red Amaranthus

seeds but the onslaught of the GM lobby is oppressive. Nevertheless, the contemporary campaigns of farmers have successfully showcased a participatory method that acknowledges and prioritizes local and indigenous knowledge as well as local needs and conditions.

Amongst all these developments the role of government becomes most crucial. The government with its wide reach has a special responsibility for protecting traditional seeds. It should allocate adequate funds for this. The diverse seed varieties should not be confined to gene banks but be made available to those farmers who need these the most and these farmers should be encouraged to grow diverse indigenous seed varieties in their fields as per the needs of various field conditions. The government should give incentives to those farmers who make an important contribution to collection of traditional seeds.

Collection, exchange and growing of diverse traditional seeds should be made an integral part of the existing Parampragat Krishi Vikas Yojana and the allocation for this scheme should be increased in a big way. The huge and extremely harmful loss of genetic diversity in agriculture has taken place largely due to government policies and it is now for the government to follow policies that can repair this damage.

The Navdanya network has collected and distributed local varieties of cereals, pulses, oilseeds and vegetables. The organization is also developing a network to support other centres working on conservation of indigenous seeds.

Sahabhagi Vikash Abhiyan (SVA) is yet another organization that has devoted considerable attention to protecting traditional seed varieties. Based in the Kalahandi region of Odisha, SVA conducted and published a study on traditional rice varieties in which 117 traditional varieties of rice were listed. SVA encouraged attempts to collect improved seeds based on selection method and establish seed banks in villages. This yielded some good results but follow up studies reveal that some varieties were still getting lost.

Jagdish Pradhan, the SVA co-ordinator says: "We have a system of establishing farmer's clubs in various villages that arrange for training in organic farming. Along with this we emphasize protection and collection of traditional seed varieties. Many of these are been grown successfully by our members. However, we have limitations and the government should come forward to help this effort in a big way so that the farmers have more economic incentive for this work of conserving and protecting traditional seeds. For us this work is an integral part of our wider thinking on gram swaraj. If we want to improve the self-reliance of rural communities, then self-reliance in seeds becomes a very important component".

In Chhattisgarh, there is Rupantar that collected and grew nearly 270 varieties of rice on a farm in the outskirts of Raipur. These varieties were then taken to the fields of farmers. Two demonstration plant-cum-seed multiplication centres were set up in Nagri-Sihwa region. In this effort clonal propagation technology was used to increase the availability of good quality seeds, particularly during shortages at the time of prolonged drought and floods. Unfortunately, this promising effort could not progress after a time due to adverse circumstances.

This underscores the need for the government to step up support to these grassroots efforts of collecting and protecting traditional seeds and growing them to enrich the biodiversity of Indian agriculture.

The huge and extremely harmful loss of genetic diversity in agriculture has taken place largely due to government policies and it is now for the government to follow policies that can repair this damage. ●

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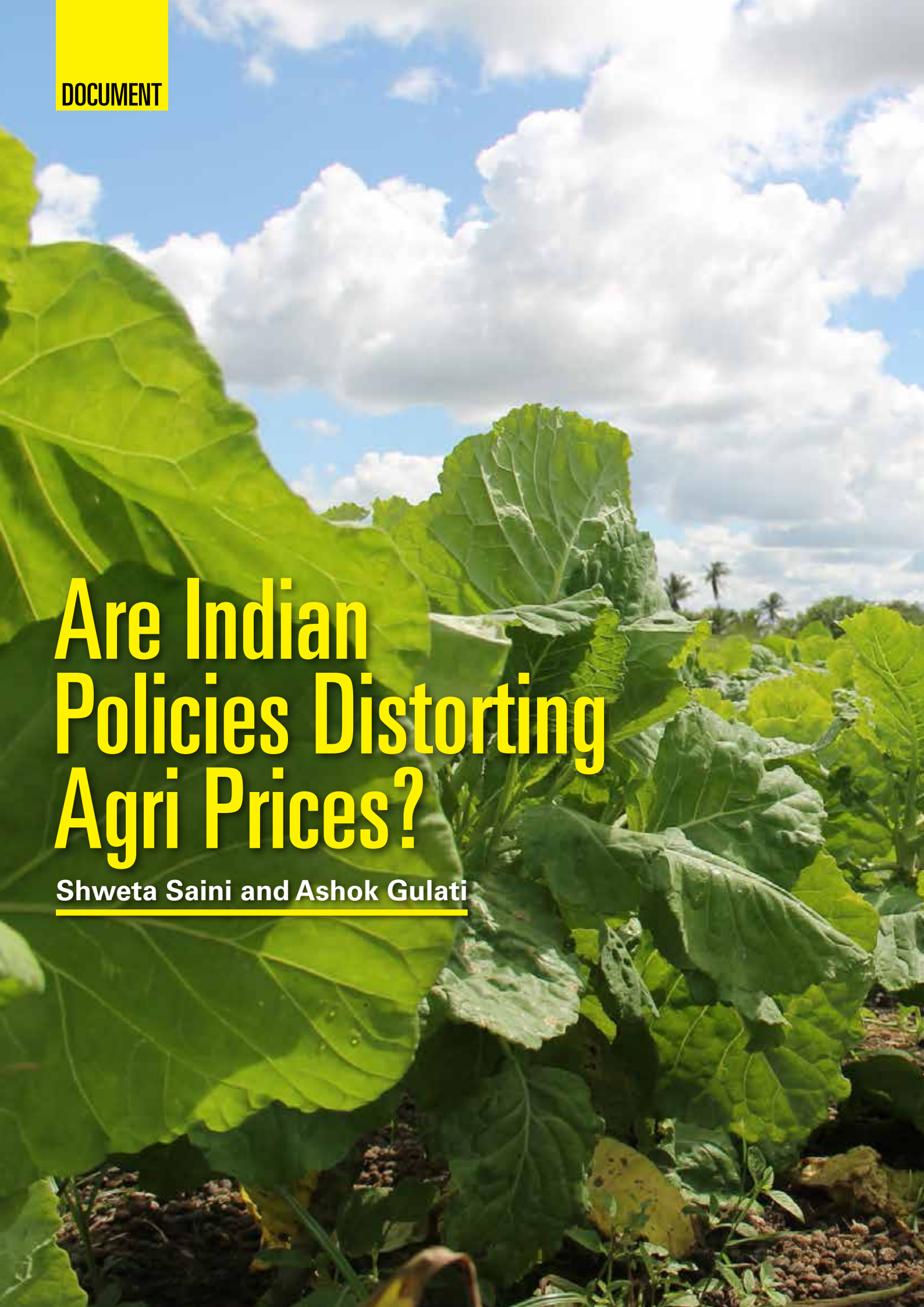

Are Indian Policies Distorting Agri Prices?

Shweta Saini and Ashok Gulati

Indian agriculture's future intertwines with India's quest for its twin goals of food security and self-sufficiency. Not surprisingly, the policies governing the food and agriculture sector are also subservient to the twin goals.

Despite its agriculture's success, the country holds indelible impressions of bitter experiences from its historical past as inherent fears of a food crisis influence many of country's policy designs and reforms. The perversely high levels of India's poverty and malnutrition deepen these fears and country's policy drive to address it.

A study on 'Price Distortions in Indian Agriculture' by Shweta Saini and Ashok Gulati offers insights into India's complex set of policies that have caused distortions in farm prices and in the incentives for farmers. The report highlights the extent of the taxation that the farmers of some agri-commodities have been subjected to on account of these policies.*

* http://icrier.org/pdf/Price_Distortions_in_Indian_Agriculture_2017.pdf

Photo: Pixabay

Indian agriculture has come a long way since its days of famines and droughts (the Bengal Famine of 1770, when close to 10 million people starved to death and the Orissa famine of 1866, when more than a million people died of hunger (Sen 1981 and Mohanty 1993) and the days when, under food-aid programmes, India had to import food. The biggest food aid that the country received was during the 1960s under the Public Law 480 (or PL480) from the USA, to feed its people. India is food surplus today.

Even so, more than 21 per cent of the country's 1.2 billion-plus population still lives below $1.9/day/capita. India is home to the world's largest number of poor and malnourished children. About 68 per cent of Indians live in rural areas and 58 per cent of these households are still agricultural. Almost 85 per cent of Indian farms — cultivating around 44 per cent of the country's area — are small and marginal or under a couple of hectares. The food supplies are still highly vulnerable to weather and climatic conditions and the demand pattern is still largely cereal-centric.

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Almost 85 per cent of Indian farms, cultivating around 44 per cent of the country's area, are small and marginal and food supplies vulnerable to weather and climate

Compelled by these factors, the Indian government has always assumed a central role in the food and agricultural management in the country. However, recent global and domestic experiences and impact assessment of various government policies, interventions and programmes have highlighted inefficiencies in government systems and processes.

'Price Distortions in Indian Agriculture', a study by Shweta Saini and Ashok Gulati, says that Indian policy makers have been pursuing of relative self-reliance in food and almost complete self-sufficiency in the basic staples, rice and wheat. The reasons were threefold.

- First, bitter experiences of the country from famines and food imports (under PL480).
- Second, perpetual shortage of foreign exchange, at least until 1991, which restricted country's ability to import food to feed its growing populations.
- Third, India being a populous country, policymakers felt that its entry into the global food market as a big buyer would harden prices globally that would eventually be transmitted into domestic markets.

Indian agri-trade policy has fluctuated in the past. With a motivation to stall transmission of volatile global prices into domestic markets, Indian policy makers have been oscillating the policy between bans and restrictions on one side and free trade on the other.

However, experience during and post the 2007-08 global food crisis and recent research (Saini and Gulati 2015) unveiled the fallacy in this line of thinking. Irrespective of trade bans/restrictions, the Indian domestic prices converged with their global counterparts in the medium to long run and the only purpose served by these bans and restrictions was to smooth this convergence process.

Excessive government intervention within the domestic food and agricultural markets was also identified as inefficient and fiscally unsustainable. When the government encourages production and yields of commodities, it must also ensure deep and wide markets for the final produce. If the exports are restricted and private participation is limited, because of restrictive policies like the ECA and APMC, the final burden of adjustment falls on the government that then has to become the buyer-of-last-resort and incur huge costs of expanding stockholding in the country.

Even India's tariff policy was observed to be counter-cyclical across commodities and across time for same commodities. There are three examples:

- One, edible oil, a major import item in the overall agri-trade, whose import duties are observed to be moving negatively with its global prices. In other words, duties are reduced when global prices rise and increased when global prices fall.

Photo: Pixabay

This reflects the deep influence of the domestic edible oil players on the policymakers.

- Two, rice or any other highly exportable Indian commodity, the imports of which are subject to high duties. It is a rather confounding and a counter-intuitive policy to follow by India where import of a highly export-competitive commodity is restricted by high import duties.
- Three, sugar, where apart from being counter-cyclical the trade policy is highly ad hoc and reactive. Import duties are reduced when mills need raw sugar to sustain and duties are increased when global prices fall. The domestic suppliers are hugely protected much to the detriment of the scarce fiscal resources, which are spent on them for their survival.

Indian trade policy's intrinsic consumer-bias is another important aspect highlighted in this study. Such policies more often than not harm the farmers' interests. their scope of getting higher returns globally, is curbed at the prospect of the trade translating into rising domestic prices. Over the 10 years (2004-05 and 2013-14), the study researches the impact of trade and price-policies on 15 commodities, namely rice (common), wheat, maize, gram, sugar (refined), cotton (lint), buffalo meat, skimmed milk powder (SMP), onion, potato, mango, banana, soybean, rape and mustard seed and groundnut (shelled).

Upon comparing their domestic wholesale price with an estimated reference price (often estimated from an international competitor's price), the study evaluates if the commodity has been price-

Indian Agriculture Today

India is not only grain-surplus but also net grain exporting, especially during 2011-15. From subsistence farming, the country's cultivation methods today are intensive and technology-led. The production base is reasonably strong and growing. The country exported 62 MMT of cereals in the three years since 2012–13. It is today globally the largest milk, cotton, banana and chickpea producer and the largest groundnut, rice and buffalo meat exporter.

competitive globally. The results reveal that in the 10 years, these 15 commodities, on an average, were exportable 72 per cent of the time, import-competing 11 per cent of the time and were in the non-tradeable zone 17 per cent of the time.

The estimated nominal protection coefficients (NPCs) of the 15 commodities were examined under two broad headings:

1. NPCs under the exportable and importable hypothesis and
2. Trade-adjusted NPCs based on the endogenously determined trade status.

The estimated NPCs for the 15 commodities, separately under the exportable and importable hypothesis, are examined in *Table 1*. Except for a few cases, NPCs for all commodities are lower than or equal to 1, suggesting a tendency towards taxation of the agricultural sector. In particular, these estimated NPCs appear to fluctuate immensely around their trend lines (for all commodities, linear trend lines are added in the respective NPC figure).

Summary of the Observed Trends

During the period studied, of the 15 commodities, the trend lines sloped negatively for 10 (rice, wheat, maize, gram, cotton, sugar, buffalo meat, banana, mango, and potato), positively for one (SMP) and parallel to the x-axis for four (onion, groundnut, R&M and soybean). A negatively sloping trend line indicates falling NPCs over time, perhaps resulting from falling domestic prices and/or rising global prices. Trend lines parallel to the x-axis indicate to lesser fluctuations in the price ratio through the studied period.

A positive sloping trend line refers to a situation of rising domestic prices vis-à-vis stable or moderating global prices. However, more than the direction of change, when the average value of NPC for any commodity is away from one in the longer run, the role of trade and market-distorting policy becomes evident. Next, consider the average NPCs for all commodities. The 10-year average NPCs in *Table 1* shows that six out of the 15 studied commodities had NPCs closer to or greater than one under the exportable hypothesis. These were wheat, maize, SMP, soybean, sugar and mango.

Comparing between years, another point about the impact of the global food crisis of 2007-08 is very clear. Rising global prices made many Indian products very export-competitive. In cases of commodities like rice and wheat, the restrictive trade policy prohibited the exporters from fully exploiting the trade opportunity but for other agri-commodities like buffalo meat, onion and groundnut, the crisis translated into greater export opportunities.

Photo: Pixabay

Combining the endogenously determined trade-status of each commodity for each year, with the estimated NPCs under exportable and importable hypothesis, one can determine the trade adjusted NPCs (NPC TA), as summarized in *Table 2*.

The average NPC figures for these commodities (Figure 1), shows that only one commodity (sugar) had an average NPC greater than one. Mangoes had an NPC exactly equal to one. For three more commodities, maize, soybean and SMP, the 10 year average NPC TA was quite close to one. Wheat, with an average NPC of 0.93 was only lightly taxed by trade policy.

Of the other key staples, rice (common) was taxed by 20 per cent and potatoes by 21 per cent.

Buffalo meat was taxed an average of 23 per cent, while groundnuts were taxed by 33 per cent. Bananas were taxed by 39 per cent on average and onions by a staggering 56 per cent. These results, of general taxation of the agricultural sector, are much closer to the picture for developing countries than the picture of generally positive support.

As was also highlighted in individual commodity sections, if one compared NPC estimates with the actual trade flow, one finds that for some years and some commodities, exports have grown despite NPC estimates being greater than one (like maize and sugar) and for others, exports have not grown despite low NPC estimates (like common rice, potato, banana and onion).

The answer probably lies in two factors: the freight advantage that India has over global competitors in some products in supplying to neighbouring countries and the impact of prevailing policies. Overall, Indian policies governing trade mainly for crops like rice, wheat, onion and potato has oscillated between free trade and restrictions/bans. Because of this, these commodities are frequently not available for export. Then there are commodities like sugar that are exported despite high NPCs mainly because of the incentives and support that exporters receive from the government.

Common rice was taxed by 20 per cent; potatoes by 21 per cent; buffalo meat at an average of 23 per cent, while groundnuts were taxed by 33 per cent

In case of some commodities, geographical location of an Indian port gives economic legitimacy

Table 1: Average NPC (Nominal Protection Coefficient)*

Three Year Average

Mable Hypothesis	Wheat	Common Rice	Maize	Gram	Soybean	Groundnut	R&M	Buffalo Meat	SMP	Cotton	Sugar	Onion	Potato	Mango	Banana
2004/05–2006/07	0.78	0.85	0.80	0.90	0.94	0.61	0.71	0.75	0.84	0.78	1.14	0.37	0.50	1.04	0.61
2007/08–2009/10	0.78	0.71	0.77	0.80	0.94	0.61	0.74	0.68	0.93	0.86	1.05	0.41	0.61	0.87	0.57
2010/11–2012/13	0.70	0.67	0.82	0.89	0.67	0.72	0.68	1.19	0.61	0.97	0.37	0.49	1.15	0.63	0.85
2013–14	0.69	0.95	0.93	0.74	1.01	0.64	0.80	0.63	0.77	0.75	1.04	0.46	0.46	0.54	0.29
Xable Hypothesis	**Wheat**	**Common Rice**	**Maize**	**Gram**	**Soybean**	**Groundnut**	**R&M**	**Buffalo Meat**	**SMP**	**Cotton**	**Sugar**	**Onion**	**Potato**	**Mango**	**Banana**
2004/05–2006/07	1.11	0.88	1.31	0.96	1.19	0.66	0.86	0.87	0.86	0.88	1.39	0.43	0.81	1.11	0.65
2007/08–2009/10	0.98	0.75	1.11	0.84	1.11	0.65	0.87	0.74	0.95	0.95	1.24	0.46	0.95	0.92	0.61
2010/11–2012/13	1.13	0.74	0.84	0.85	1.01	0.70	0.83	0.73	1.21	0.65	1.08	0.42	0.72	1.20	0.66
2013–14	0.80	0.90	1.21	0.77	1.12	0.68	0.93	0.67	0.78	0.80	1.19	0.51	0.64	0.55	0.30

Five Year Average

Mable Hypothesis	Wheat	Common Rice	Maize	Gram	Soybean	Groundnut	R&M	Buffalo Meat	SMP	Cotton	Sugar	Onion	Potato	Mango	Banana
2004/05–2008/09	0.78	0.81	0.77	0.87	0.92	0.59	0.72	0.75	0.82	0.81	1.10	0.39	0.54	0.97	0.63
2009/10–2013/14	0.80	0.74	0.75	0.79	0.94	0.67	0.74	0.65	1.11	0.69	1.01	0.39	0.52	0.97	0.51
Xable Hypothesis	**Wheat**	**Common Rice**	**Maize**	**Gram**	**Soybean**	**Groundnut**	**R&M**	**Buffalo Meat**	**SMP**	**Cotton**	**Sugar**	**Onion**	**Potato**	**Mango**	**Banana**
2004/05–2008/09	1.05	0.84	1.20	0.92	1.14	0.63	0.86	0.84	0.84	0.91	1.33	0.45	0.87	1.03	0.68
2009/10–2013/14	1.04	0.77	1.00	0.82	1.07	0.71	0.86	0.70	1.13	0.74	1.13	0.44	0.75	1.02	0.54

10 Year Average

	Wheat	Common Rice	Maize	Gram	Soybean	Groundnut	R&M	Buffalo Meat	SMP	Cotton	Sugar	Onion	Potato	Mango	Banana
Mable Hypothesis	0.79	0.77	0.76	0.83	0.93	0.63	0.73	0.70	0.97	0.75	1.05	0.39	0.53	0.97	0.57
Xable Hypothesis	1.05	0.80	1.10	0.87	1.10	0.67	0.86	0.77	0.99	0.82	1.23	0.44	0.81	1.02	0.61

*NPC is nominal protection coefficient that is estimated by dividing domestic wholesale price of a commodity with its estimated reference price. An NPC value less that one implies that the domestic price of that commodity is less than its estimated international reference price and thus India is export-competitive globally in that commodity. Similarly, an NPC value greater than 1 implies that the commodity is competing with cheaper imports.

Table 2: Commodity Wise NPC Trade-adjusted Estimates

	Wheat	Common Rice	Maize	Gram	Soyabean Seed	GN–shelled	R&M Seed	Cotton (Lint)	Sugar–Refined	Buffalo Meat	SMP	Onion	Banana	Mango–Aplhanso	Potato
2004–05	1.00	0.89	1.00	1.00	1.00	0.67	0.95	0.84	1.29	0.80	0.89	0.48	0.35	1.41	0.74
2005–06	1.00	0.94	1.00	1.00	1.00	0.68	0.87	0.95	1.20	0.81	0.91	0.42	0.77	0.99	0.83
2006–07	0.98	0.82	1.00	0.78	1.00	0.64	0.76	0.85	1.00	0.98	0.79	0.39	0.83	0.83	0.86
2007–08	1.00	0.86	0.94	0.81	0.97	0.56	0.81	0.88	1.05	0.96	0.60	0.64	0.74	1.01	1.00
2008–09	0.68	0.70	1.00	0.90	1.00	0.61	0.89	1.00	1.02	0.65	1.00	0.32	0.68	0.77	0.72
2009–10	1.00	0.70	1.00	0.81	1.00	0.78	0.90	0.95	1.09	0.61	1.22	0.42	0.41	0.93	0.96
2010–11	1.14	0.86	0.89	0.73	0.96	0.69	0.84	0.58	1.00	0.67	1.21	0.38	0.59	1.73	0.47
2011–12	0.76	0.67	0.86	0.82	1.00	0.41	0.76	0.51	0.99	0.79	1.25	0.48	0.81	1.00	0.80
2012–13	0.98	0.71	0.78	0.99	1.00	1.00	0.90	0.86	1.01	0.74	1.10	0.40	0.57	0.78	0.88
2013–14	0.80	0.90	1.00	0.77	1.01	0.68	0.93	0.80	1.04	0.67	0.78	0.51	0.30	0.55	0.64

to growing exports of a commodity with otherwise high NPCs. For example, in the case of fresh fruit and vegetable and livestock such as buffalo meat, trade is highly sensitive to transport and handling costs. Also, increased export opportunities to neighbouring countries have triggered Indian exports despite a positive market price differential.

Even for foodgrain and bulk commodities, the players were found to be competing more on freight difference than on the inherent commodity price differential. Commodities like sugar competed due to the massive rates of export subsidization given by the government to its sugar millers. Thus, despite NPCs of many studied agri-commodities being close to or greater than one, exports of these commodities continued.

Additionally, the depreciating Indian rupee vis-à-vis the dollar during the studied period played an important role in making Indian exports competitive globally. From 48.4 INR/$ in 2002-03, the Indian currency traded at 60.2 INR/$ in 2013-14.

Indian policy makers are now increasingly acknowledging the futility and unattainability of aiming for complete self-sufficiency in food. Therefore the debate is very rightly moving toward ways to attain self-reliance instead. However, Indian policy-making is very sensitive to consumer sentiments, mainly with regard to food prices.

Thus, no political party wants to allow any significant increase in food prices, least of all from global forces. The experience during the 2007-08 global food crisis raised questions on this deep-rooted thinking of policy-makers and about role played by trade restricting policies in insulating domestic markets from global price volatility.

Figure 1: Commodity Wise NPC Trade-adjusted Estimates

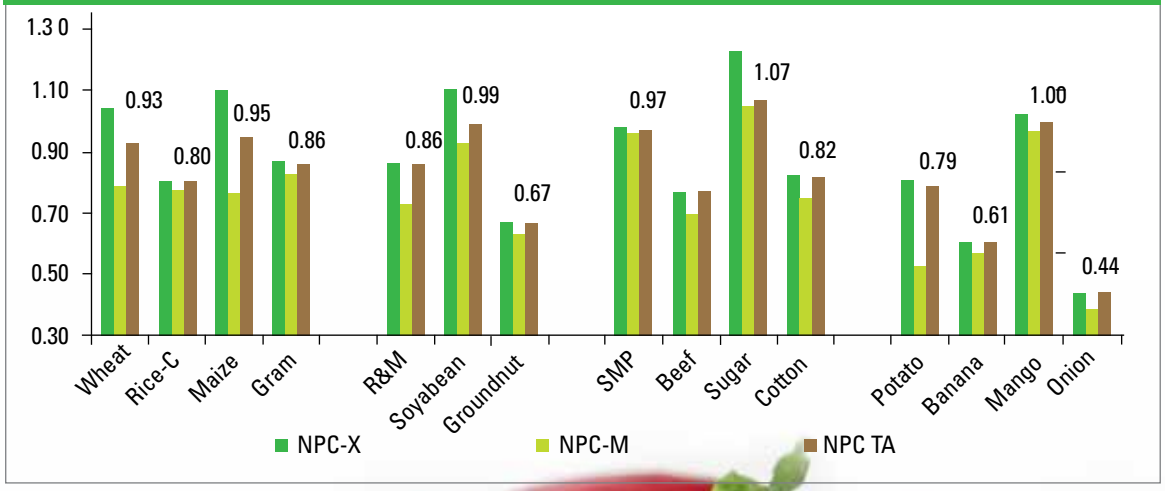


Photo: Pixabay

Today, the country understands that in the present global times, the global price trends are in fact, transmitted into domestic boundaries through multiple conduits. Bans and restrictions can surely defer the transmission but there is no denial about the global and domestic prices converging in the medium to longer run.

Evaluating reports of the Indian government's largest food-based welfare system, PDS, which distributed highly subsidized rice and wheat to identified Indian vulnerable consumers (under NFSA, 81.3 crore individuals are distributed 62 MMT of rice and wheat annually) shows the system to be marred by perverse inefficiencies.

Research (Saini and Kozicka 2014 and Saini and Gulati 2015) identifies the system as highly ineffective, inefficient and unfeasibly expensive. Farmers in not more than five states benefit from this procurement system and 40-50 per cent of the grains meant for poor never reach the real poor (Gulati and Saini 2015 and HLC 2015).

In the light of the evaluation reports and the ongoing financial inclusion drive, the current debate is moving towards replacing PDSs or the NFSA's physical distribution of grain with a direct cash transfer. However, it is a long way yet to this transition. In the short to medium run, greater government involvement is to continue at least in the rice and wheat markets. This in fact is enough to lend a flavour of uncertainty to India's ongoing and future agricultural trade policy in general and to rice and wheat trade policies in particular.

India is one of the most populous, influential, and transformational economies in the world today. The IMF tags it as the world's fastest-growing major economy and its agriculture is not far behind. However, it needs to take some actions to be able to tap its full potential. The government needs to reorient its role in the

Indian policy-making is sensitive to consumer sentiments with regard to food prices. No political party wants to allow any significant increase in food prices, least of all from global forces

Photo: Pixabay

Limitations of This Study

The current study estimates distortions at the wholesale market level rather than at the farmgate level. Gaps in the available time-series and differences between commodity varieties and qualities were the two main reasons why price series at the farm gate could not be used for the current purposes. In addition, this study looks at the output prices and adjusts for freight, port-handling charges, domestic transportation, marketing and trading margins, among others, to work out distortions in incentive structures. However, it neglects the story on input prices (subsidies) on fertilizers, power, irrigation, credit and others. In order to complete the full story on India's agricultural price distortions, there is a need to estimate effective protection coefficients (EPCs) and effective subsidy coefficients (ESCs), as well as a need to move to producer support estimates to capture the full gamut of distorting policies.

agrisector and foster an environment conducive for private players; invest in creating valuechains and storages; improve access to better technology and inputs; and, most of all, create a seamless national market. There is also almost a concurrent need for the country to have a stable, predictable and liberal agricultural trade policy.

Notwithstanding the fact that protecting its poor and malnourished at all times from the fluctuating global prices will be an over-arching goal of the Indian policy makers, in summary, the research reveals that it will pay the policy makers if following set of policies is pursued:

- Phase out an in-built consumer bias (and anti-farmer) in agri-trade policies.
- Create business space for private players to have integrated markets across space and time, which would involve reforming the Agricultural Produce Market Committee Act (APMC) and pruning the Essential Commodities Act (ECA) and allowing futures markets to operate freely.
- Use the income policy approach to protect the poor consumers (and small farmers) through direct cash transfers.
- Create a predictable and stable agri-trade policy.
- Streamline high customs duties on some of India's highly export-competing products like rice. ●

Edited excerpts from 'Price Distortions in Indian Agriculture'

AGRIVISION

TOWARDS INCOME AND LIVELIHOOD MULTIPLICATION

The Corporate Connect

A Farmers' Forum Report

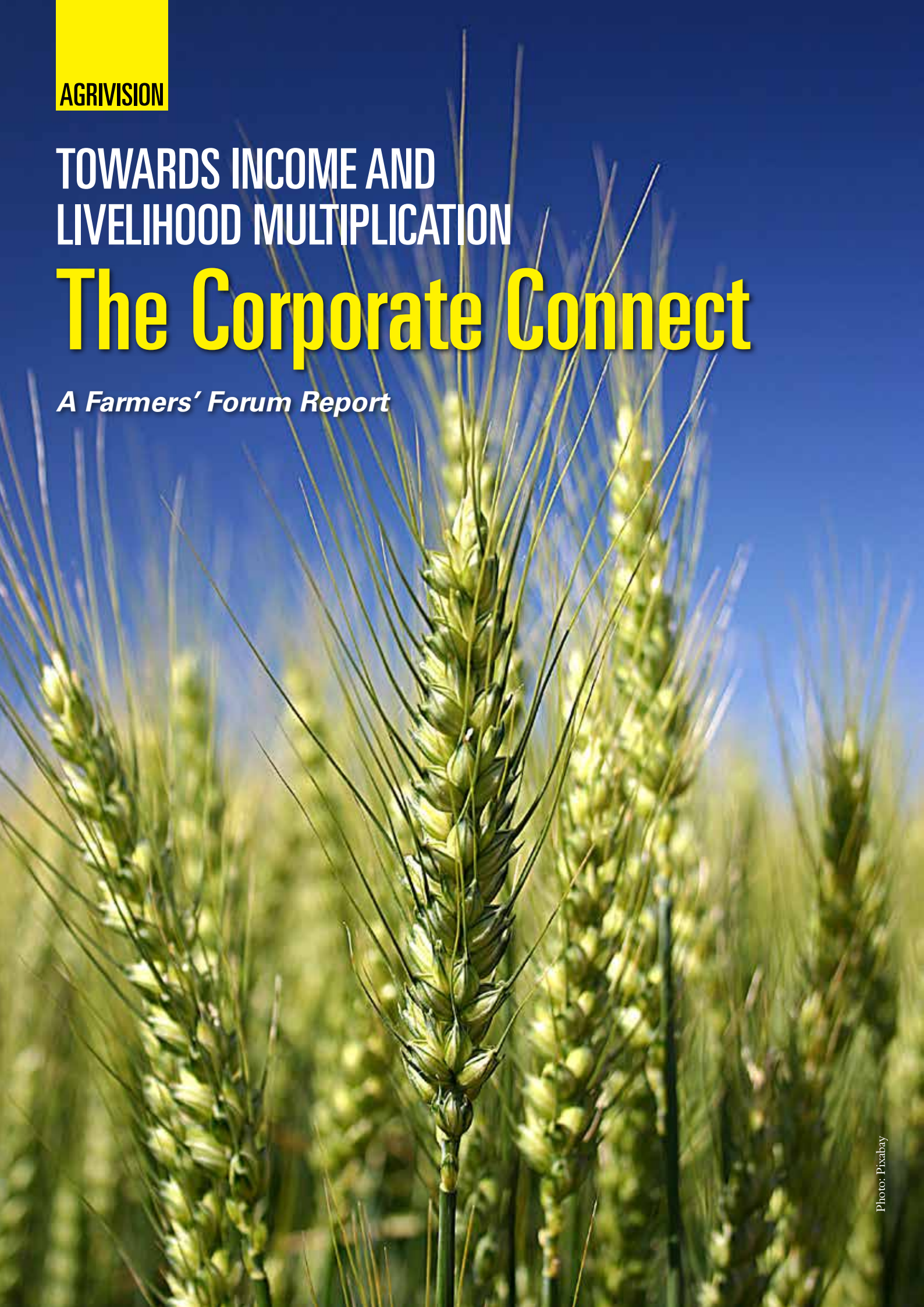


Photo: Pixabay

"Given the various pressures on finite land for food, fibre, forest, fodder and factories, the per capita availability of arable land in India has been declining over the years and at a much sharper pace than that of Brazil and China. Most alarmingly, as the Government's Economic Survey has pointed out, the agricultural sector's consumption of renewable freshwater far surpasses the 60 per cent level in Brazil and China. Productivity of the main foodgrains, such as rice and wheat, is substantially lower than that of these countries. Multiple levels of intermediation in the regulated markets have also led to a much smaller share of consumer spend reaching the farmer. The cumulative impact of all this is that farmers continue to be trapped in a vicious circle of low growth in income and productivity. More often than not, they accumulate huge loans, which they are in no position to repay".

— Chairman, ITC Limited

In its mission to "Put India First", the Indian multinational ITC places the farmer and agriculture on top of its agenda. At the 106th Annual General Meeting of the company, on July 28, 2017, chairman Y. C. Deveshwar talked of ITCs aspirations and its array of enterprise strengths built and nurtured over decades that would provide competitive advantage, enabling it to make an even larger contribution to the national economy.

"One such enterprise strength … relates to ITC's century-old relationship with farmers and agriculture. This relationship has substantially deepened over the years with ITC's large and growing presence in businesses such as Packaged Foods, Paperboards & Paper, Education and Stationery Products and other Fast Moving Consumer Goods. Your company's businesses in these segments add significant value to agriculture, a crucial sector that provides livelihoods to half of India's workforce" and are aligned to the Prime Minister's Vision to 'Double Farmer Incomes by 2022'.

In any event, the chairman says that ITC creates sustainable livelihoods for over 60 lakh people and "it is within the realm of possibility today to envisage that ITC will be able to support over 100 lakh sustainable livelihoods by 2030, coinciding with our aspiration to register a revenue of ₹1,00,000 crore from the new FMCG Businesses". The focus, however, is "Agriculture: India's Livelihood Lifeline" because there is no other sector that is as critical for the country's development and at the same time so besieged by its myriad challenges. The numbers are worth reiterating.

- Agriculture engages nearly half of India's workforce
- It provides food security to the nation's 1.3 billion people
- It provides livelihoods to more than 70 per cent of rural households
- Agrarian distress can cripple the lives of millions.
- Agriculture is most vulnerable to the vagaries of nature and the threat of climate change
- Agriculture consumes around 90 per cent of the country's renewable freshwater
- Agriculture consumes around a fifth of total electricity
- Agriculture consumes a significant part of government subsidies
- Agriculture contributes less than 15 per cent to GDP
- It is, therefore, not surprising that the farmer's per capita income is less than one-fifth of the country's average.
- The Green Revolution cannot be banked on to take the country to the next level of progress on the farm front.

"The context for food and agriculture has changed quite radically. So have the ground conditions in terms of a tiring public infrastructure, serious water stress and a growing threat of global warming. This reality necessitates new thinking, new research, new institutions and, most importantly, a market-driven approach that will support sustainable agriculture and ensure remunerative returns to farmers". The mission to double farmer incomes by 2022 provides an "unparalleled opportunity to usher in the next agricultural revolution".

How can the corporate sector help in a situation where farmer incomes will need to be doubled without unduly raising consumer prices even as input costs continuously rise and without depleting India's natural resource base and extreme weather events? "This increases the complexity manifold and quite clearly requires the bandwidth of a mutually reinforcing partnership among the government, corporates, farmers and other stakeholders", says the ITC chairman.

"The vision to double farmer incomes provides a great opportunity for extensive corporate participation in agriculture and rural development. The corporate sector can add a unique dimension, given the power of private entrepreneurship, its capacity to innovate, its wide variety of skill sets as well as its ability to reach markets more efficiently. Winning brands representing products and services linked to the agri and rural sector provide the anchors that can drive the competitiveness of the value chains for the ultimate benefit of farmers".

Greater corporate involvement in agriculture is imperative given the changing context of the food and agricultural sector with globalization informing consumer behaviour.

- Increased purchasing power leads to demand for superior nutritional and taste benefits, better hygiene and convenience.
- The share of cereals in diets across socio-economic strata is falling in favour of fruits, vegetables, meat and milk.
- Demand for value-added processed foods is on the rise.
- Increasing awareness of health and wellness is also generating demand for a wider variety of grains.

Addressing these changes would mean a fundamental farmer transformation from selling whatever is produced to producing what the consumer wants. "Such demand-driven value chains can bring enormous benefits to the farmers if they are able to align production to market signals. Increasing crop productivity alone is not sufficient to raise farmer incomes if market signals do not support such production. Therefore, huge investment is required for creating an eco-system that, among others, involves infrastructure that spans post-harvest logistics, processing, packaging, retailing and information systems. Such investments with larger corporate participation will create a win-win opportunity and enhance farmer incomes".

India's colossal agri-wastage is a good place to start with. Estimated at ₹92,000 crores, a large part of this wastage is in perishables. The increasing consumer demand for fruits, vegetables and other perishables can benefit farmers, given the higher remuneration in these value-added categories. In addition, a higher level of food processing in the economy can create a much larger pull for quality agri-commodities, thereby reducing farm wastage and raising farm incomes.

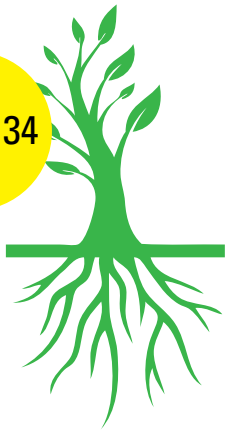
"This calls for investment in product-specific climate-controlled infrastructure as well as branded products that can win consumer franchise. In addition to crop expansion, diversification into off-farm activities such as animal husbandry and livestock can also supplement farmer incomes. Corporate participation is essential not only to invest in requisite infrastructure but also to provide assured and value-added markets to farmers", Deveshwar says.

'Tree to Textbook Value Chain'

Under the afforestation initiative, ITC worked with farmers to green more than 6,20,000 acres, generating upwards of 113 million person-days of employment, among tribals, marginal farmers and farm workers. Alongside, its agro-forestry initiative is being expanded to ensure food, fodder and wood security.

Agro-forestry also helps in de-risking the farmer through additional production of crops within the same land area, ensuring alternative sources of remuneration. This fibre value chain, linked to ITC's Paper, Packaging and Education & Stationery Businesses, also anchors the supply chain to a secure source of demand, thereby encouraging farmers to adopt a longer-term approach to agro-forestry.

The afforestation initiative contributes to the carbon sequestration and soil conservation objectives of India and constitutes a significant part of ITC's environmental stewardship.



Demand-driven value chains can bring enormous benefits to farmers if they can align production to market signals. Increasing crop productivity alone is not sufficient

Photo: Pixabay

Water Stressed Farms

More than 54 per cent of agriculture is now under significant water-stress and this motivates ITC to engage in Soil and Moisture Conservation programmes with local agricultural communities to develop and manage local water resources, particularly in water stressed areas. This large-scale intervention in water stewardship covers 45 districts across 12 states and has brought the area under watershed to over 7,76,000 acres through more than 10,000 water harvesting structures. In addition, four large-scale river basin regeneration projects for aquifer recharge are underway in select areas in Maharashtra, Tamil Nadu, Telangana and Karnataka to strengthen water security. Several private-public-people partnerships are being implemented in collaboration with state governments for Watershed Development interventions. These projects are also aligned to the outcomes envisaged in the Pradhan Mantri Krishi Sinchayee Yojana and will help in supporting the 'Per Drop More Crop' mission.

The role of technology comes into critical play in raising farm yields, enhancing nutritional quality of food, climate-proofing agri production and conserving natural resources. Drought and flood-resistant seeds can de-risk farmers from the impact of climate change. Partnerships leveraging the corporate sector, research institutions and governments can significantly accelerate the introduction of new technologies for sustainable agriculture. "Preserving natural resources, particularly water and top soil, is critical in ensuring the sustainability of agriculture. Corporate involvement in spreading best practices and know how, apart from creating common infrastructural assets will go a long way in securing the future for farmers".

Food processing apart, ITC's wood-based value chains are a powerful means of creating livelihoods and rural prosperity. "From construction industry to fibre for the paper industry to furniture, sports goods, home and office interiors, accessories and even bio-mass energy, wood-based industries have tremendous economic potential apart from being an employment multiplier. The agro-forestry sector, as a source of raw material for wood-

Value in the Wood Chain

India currently imports a significant part of its demand for wood and wood-based products, given a regime of near zero import duties. Taken together with a policy framework that does not permit corporate farming, it leaves the hapless farmer to compete with automated farms overseas. Such a policy regime makes imported wood far more competitive than growing trees in India. Consequently, jobs are exported to countries that grow trees and sell wood-based value-added products. By providing crucial policy support, the entire wood-based value chain can substantially support rural livelihoods and create new opportunities for farmers and skilled artisans that add value to wood.

based industry, is woefully constrained by policies that not only prevent job creation in India but promote avoidable imports". ITC has significant interventions along these lines. These include:

- Sophisticated food processing to create a premium for value-added agriculture as well as reduce agri-wastage, thereby building the sustainable competitive capacity of agricultural communities.
- Innovative interventions to preserve and replenish environmental resources.
- Developing markets for higher-value produce and through grassroots capacity building, your Company enables the creation of larger-scale sustainable livelihoods.

Photo: Biswadev Roy Ghatak

The e-Choupal system enables efficient transmission of market signals helping farmers align their produce with the market. Over four million farmers have benefitted from this initiative

The e-Choupal has been amongst the more innovative interventions. The market-led business model embedded with social goals in 2000, the e-Choupal "empowers farmers and triggers a virtuous cycle of higher productivity and higher income through a multitude of interventions". It came before the internet became prevalent in rural areas and leveraged the power of digital technology to empower small and marginal farmers with a host of services related to know-how, best practices, timely and relevant weather information, transparent discovery of prices, access to quality agri-inputs at competitive prices and so on. By connecting farmers to markets and enabling price discovery, they are liberated from exploitative middlemen.

The ITC chairman says: "The e-Choupal system also enables efficient transmission of market signals helping farmers align their produce with the needs of the market. To date, over four million farmers have benefitted from this initiative enhancing rural incomes. The ITC e-Choupal has been a case study at the Harvard Business School for many years and is taught in more than 400 universities across the world. Going forward, the ITC e-Choupal will continue

to engage with farmers in innovative ways, creating new opportunities to progressively raise rural incomes".

Small farmers are extremely vulnerable to the threat of climate change and ITC's Sustainable Agriculture initiative aims to mitigate the risks arising from erratic and extreme weather events through the promotion of climate smart agricultural practices. Farmer Field Schools in 60 districts across 16 states have disseminated advanced agri-practices. Promotion of efficient agri-practices such as zero-tillage, broad-bed furrow together with adoption of appropriate mechanization have contributed significantly to farm productivity. ITC has identified 900 core villages where an integrated programme will build capabilities to help transform the future of the surrounding rural communities.

Choupal Pradarshan Khet

e-Choupal promotes sustainable agricultural practices among small and marginal farmers through multiple demonstration farms (Choupal Pradarshan Khet). The initiative provides agri-extension services that are qualitatively superior and helps farmers secure value-addition and productivity gains. The services are customized to meet local conditions, ensure timely availability of farm inputs, facilitate insurance and credit, and provide know-how through a cluster of farmer schools that capture indigenous knowledge. Over time, these interventions have contributed to raising productivity and diversification of the portfolio of crops.

Essentially ITC believes in building a competitive farm-to-consumer chain that can have a transformative impact on the farm sector and contribute to rural prosperity. In ITCs case, the synergy derived from its agri-sourcing capabilities, together with its deep consumer insight, cuisine expertise, manufacturing excellence, branding, trade marketing and distribution infrastructure has provided it with unique sources of competitive advantage. Within a decade or so, ITC's foods business has become the third largest in the country and is well on its way to occupying the leadership position in the not too distant future alongside anchoring competitive agri-value chains from farm to the consumer, making a meaningful contribution to farmer empowerment.

ITC's "agri-sourcing capabilities, together with the expertise resident in ITC Hotels' Chefs, have been a source of competitive advantage in the successful launch of your Company's 'Fabelle' brand of luxury chocolates and the 'Sunbean' brand of premium coffee", says its chairman. Besides, the company has launched the 'ITC Master Chef' brand of Super Safe Spices, "which are tested for over 470 contaminants as per the highest and most stringent international standards. These spices have been developed in a unique partnership with farmers through an Integrated Crop Development programme, creating new standards of safety and excellence, thereby bringing to the Indian consumer the world's finest standards of safety", Deveshwar says.

True transformation of the agricultural sector will require a larger role to be played by market-based institutions driven by changing consumption patterns

India's massive agri-wastage has deprived farmers of a potentially large income source and ITC is foraying into the fruits, vegetables and other perishables segment with investments in climate-controlled infrastructure for an efficient supply-chain to unlock the potential latent in this area. Such fresh, frozen and dehydrated agri-products will provide high quality options to consumers, creating an agri-value chain that will help farmers diversify crop production as well as manage wastage. Investments have also been made in farming for aromatic and medicinal plants, keeping in mind ITC's focus on agri-based health and wellness products, says the company's chairman.

The ITC Master Chef Frozen Prawns have recently been launched in select markets and will shortly be rolled out nationally. These high quality 'Super Safe' prawns leverage ITC's 45-year legacy in exporting to the most exacting markets of the world.

There is also a strong case for strengthening the farming communities' capability in securing alternative and sustainable livelihoods and ITC has spearheaded many programmes to help farmers diversify in livestock development programme, for instance, to enhance sources of income to farming communities.

- This intervention has covered over 15 lakh milch animals.
- The Women Empowerment programme, focussing on Ultra Poor Women, enables development of entrepreneurial skills, besides making available assets for income generation.
- Over 46,000 women were linked to individual bank accounts under the Pradhan Mantri Jan Dhan Yojana and life insurance schemes under the Pradhan Mantri Jeevan Jyoti Bima Yojana and the Suraksha Bima Yojana.
- ITC's Skilling & Vocational Training Programme, spread over 29 districts in 17 states has enrolled over 43,000 youth to provide them with market-linked skills.

Photo: Pixabay

Obsolete Information

More often than not, farmers rely on obsolete demand-supply information of prior years. As a result, they are extremely vulnerable to price volatility, given changing demand patterns at the time of harvesting. Commodity Derivatives, particularly "Options" are good safeguards as they can assure farmers a post-harvest price even before a decision is taken on what to sow. Options help align production to market signals, enabling income security and better price realisation, whether they transact directly or through aggregators. It is heartening that recent reforms have now permitted Options. I must congratulate SEBI for this positive step forward and hope that in due course, several commodities will be transacted through the designated exchanges.

— Y. C. Deveshwar

- ITC's Primary Education Programme is also providing children from weaker sections access to education with focus on learning outcomes and retention. More than 5,00,000 children have benefitted from this programme.

Investment in a globally benchmarked Life Sciences & Technology Centre in Bengaluru means that 350 scientists are helping shape a new future in agri-sciences and bio-sciences, contributing to value addition in the agricultural sector. Besides, around 20 state-of-the-art Integrated Consumer Goods Manufacturing and Logistics facilities are under various stages of development and will, over time, create food processing and manufacturing centres of excellence to support the scale-up ITC's agri-based businesses. The collective power resident in all the initiatives will make a substantial and growing contribution to developing the potential in the agricultural sector.

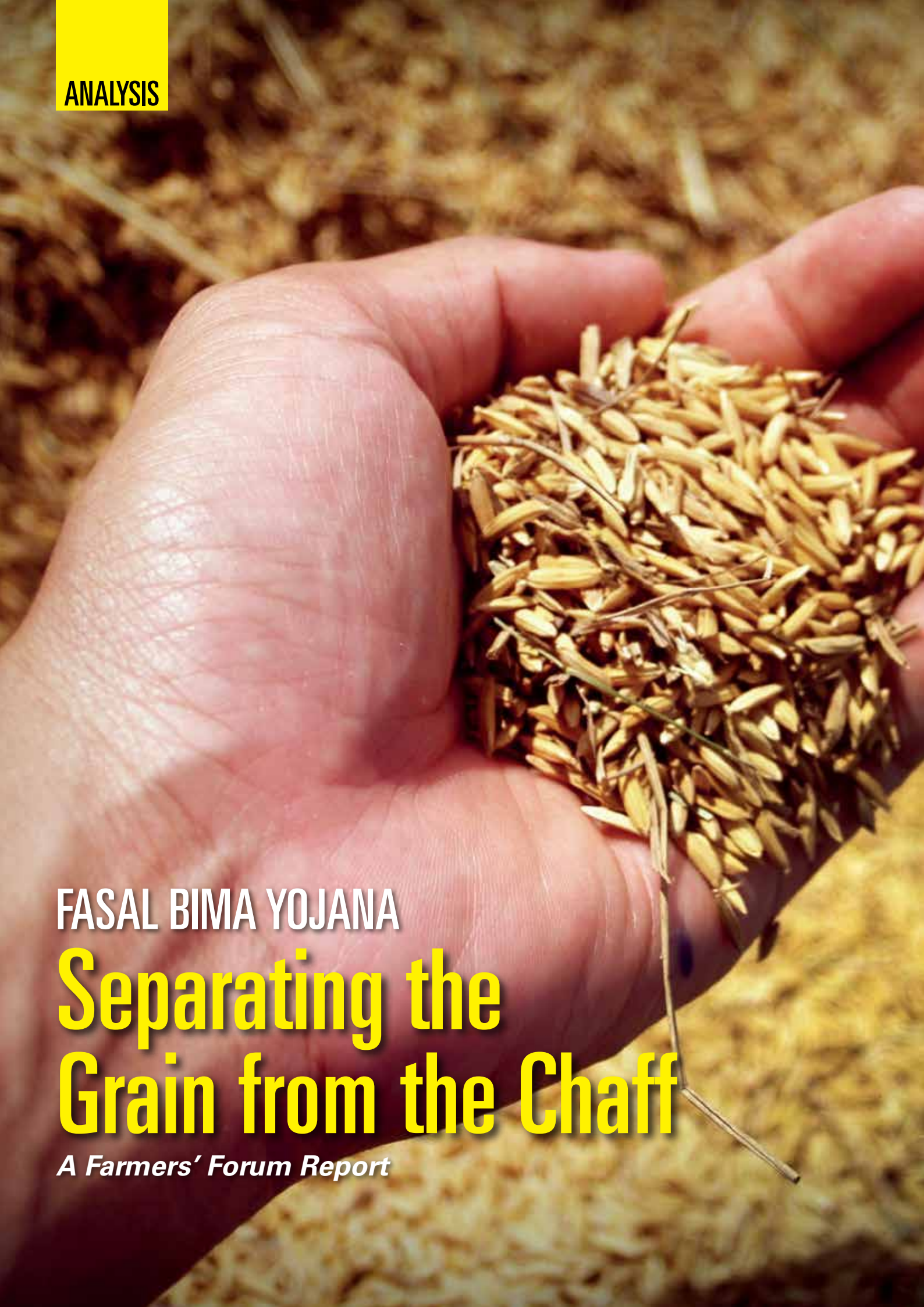
The bottomline depends on a conducive policy framework and true transformation of the agricultural sector will require a larger role to be played by market-based institutions driven by changing consumption patterns. A far larger number of agricultural items are to be brought under the purview of institutions and instruments that seek to provide food and farmer security. It may not be pragmatic to expect the MSP framework of yore to alone deliver today's dynamic requirements, especially given the huge cost involved and the avoidable market distortions.

Meaningful investments by the corporate sector in agriculture have been constrained by the uncertainties inherent in several market-restrictive policies. The Essential Commodities Act with its power to impose stock limits and curb movements is a case in point. A new model APMC Act has been unveiled and states are yet to implement its recommendations. "Unless such reforms are readily adopted, it will constrain corporate participation in this sector. That will indeed be unfortunate, as it will deprive the rural economy of a major force multiplier".

Given the tremendous potential of the food processing industry to transform the future of the agricultural sector and create jobs, it is critical that this sector be allowed to grow faster with strong policy impetus. The current levels of processing of less than 10 per cent is way behind that of major food producing countries. Unfortunately, there seems to be a view that packaged branded food is a source of elitist consumption. Therefore, the tax structure does not treat them as providing impetus to the agricultural economy.

The tax incidence on food processing must be viewed from the perspective that it adds tremendous value to farmers and helps in ameliorating huge agri-wastage. A conducive taxation regime for the processed food industry will be crucial to multiplying farmer and rural incomes, besides creating large-scale jobs at the intersection of agriculture and industry. ●

ANALYSIS



FASAL BIMA YOJANA

Separating the Grain from the Chaff

A Farmers' Forum Report

Massive profits for insurance companies: Data released by the Insurance Regulatory and Development Authority of India (IRDAI) indicates that Pradhan Mantri Fasal Bima Yojana (PMFBY) played a significant role in the growth of non-life insurance industry in the financial year 2016-17. Literally, what obtains is that profits under the scheme are private but liability is public. How much did it help the farmers for whom the scheme was designed? A Centre for Science and Environment (CSE) report says it all.

Photo: Pixabay

The headlines are arresting! The gross direct premium of general insurance companies grew by 32 per cent, from ₹96,376 crore in 2015-16 to ₹1.27 lakh crore in 2016-17. Nearly half of this growth came from crop insurance, courtesy the PMFBY.

The rise in non-loanee farmer coverage prompting the government assertion that the scheme was universally accepted in the farming community across the country was negated by facts. Indeed, most farmers had not opted for PMFBY!

The well-intentioned scheme was mired in implementational howlers and provided little support to farmers in vulnerable areas. The list goes on.

To come to the real beneficiaries, the insurance companies made huge profits on crop insurance during kharif 2016. During kharif 2016, they made some ₹10,000 crore as 'gross profits' minus the administrative and marketing charges.

Under the PMFBY, if premium-to-claim ratio at the national level in a crop season exceeds 1:3.5, or percentage of claims to sum insured exceeds 35 per cent, whichever is higher, the government will provide protection to insurance companies. The losses exceeding the aforementioned level in the crop season would be met by equal contribution of the central government and the concerned state/UT governments. However, there is no mechanism to share profits. Even if companies make huge profits, there is no mechanism through which certain parts of the profits can be given back to the farmers or the concerned governments. So, under the PMFBY, profit is private but liability is public.

There is more. On December 7, 2016, a Union Ministry of Agriculture press release claimed that Pradhan Mantri Fasal Bima Yojana (PMFBY) had made impressive progress in 2016 with a quantum jump of more than six times in the coverage of non-loanee farmers from 14.88 lakh in kharif 2015 to 102.6 lakh in kharif 2016. This was touted as an indication that the scheme has been well received by the non-loanee segment'.[1]

Supporting the assertion regarding coverage of non-loanee farmers were numbers showing increases in their ranks in Maharashtra, Jharkhand, Madhya Pradesh and West Bengal. In other states the numbers had changed marginally.

1 All figures in this report are from the CSE assessment of the PMFBY

- In Maharashtra, the number of non-loanee farmers availing agriculture insurance increased from nil in kharif 2015 to 71 lakh in kharif 2016.
- In West Bengal, the increase in non-loanee farmers in kharif 2016 was 12.8 lakh compared to kharif 2015.
- In Jharkhand and Madhya Pradesh, the increase was 2.9 lakh and 3.9 lakh respectively.

With only four states accounting for the rise in non-loanee farmer coverage, the government assertion that the scheme was universally accepted in the farming community across the country stood negated. Indeed, most farmers had not opted for PMFBY!

While there are some positives that the PMFBY has secured (see box), there are grave areas of concern. The Centre for Science and Environment (CSE), released the first detailed independent evaluation and analysis of the Pradhan Mantri Fasal Bima Yojana, on July 21, 2017. The CSE deputy director general, Chandra Bhushan said: "The Pradhan Mantri Fasal Bima Yojana is a far superior scheme than the previous agricultural insurance schemes. However, at the state level, its vision is diluted and at the district level, its implementation is seriously compromised. PMFBY is a classic case of poor implementation of a good scheme".

The scheme covers loanee farmers (those availing of institutional loans through Kisan Credit Cards and such others), non-loanee farmers (those availing of insurance cover on a voluntary basis), sharecroppers and tenant farmers (those who farm on rented land). PMFBY is compulsory for loanee farmers and came into operation from April 1, 2016 with the centre making a budget allocation of ₹5,500 crore for 2016-17. It also plans to bring 40 per cent of agricultural area under PMFBY in 2017-18 and, provided for ₹9,000 crore in the 2017-18 budget.

The CSE report sought to separate the facts from fiction around farmers finding the PMFBY an unadulterated blessing and examined the reality of the loanee farmer coverage. The supposedly largest increase of 70.88 lakh in the non-loanee farmer coverage was in Maharashtra, which was "clearly a mistake" said the CSE. In 2005, the Bombay High Court had directed the state government to make agricultural insurance scheme voluntary in Maharashtra, which meant that banks had to take permission from loanee farmers to deduct premium from the loans or that non-loanee farmers purchased insurance from the banks directly. Thus in Maharashtra a large majority of farmers (over 90 per cent) buying insurance are counted in the non-loanee category, which means showing nil non-loanee farmers in kharif 2015 is incorrect, the CSE has inferred.

What is the West Bengal story? The increase in non-loanee farmers followed the state government's waiver of premium contributions of farmers, which meant that farmers had not voluntarily bought insurance. The Jharkhand data also seemed suspect because it appeared that insurance issued by the co-operative banks had been put under the non-loanee category. This called for a closer scrutiny.

Exclude the Maharashtra and West Bengal data and"there is virtually no increase in non-loanee farmers. The percentage of non-loanee farmers availing insurance remained less than five per cent during kharif 2016 and kharif 2015" is the CSE's reasoned conclusion.

PMFBY Positives

All-India coverage of agricultural insurance has gone up by 30 per cent in kharif 2016 over kharif 2015. The agriculture ministry says that the number of farmers insured is upwards of 4.0 crore (about 3.09 crore in 2015).

Area insured has increased by about 16 per cent in kharif 2016 from kharif 2015 though the average area insured per farmer has dropped by about 11 per cent: 1.1 ha/farmer in kharif 2015 to 0.98 ha/farmer in kharif 2016. This meant that either many smaller landholders were insured or farmers were taking insurance for only a small part of their land. Many smaller farmers taking loans were obviously coming under the mandatory insurance coverage.

Sum insured has almost doubled, from ₹69,369 crore in kharif 2015 to ₹1,35,006 crore in kharif 2016. During kharif 2015, the average sum insured per hectare was about ₹20,500. During kharif 2016 the number has gone up 68 per cent, to ₹34,370.

Coverage has increased significantly in states like Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal. In Maharashtra, about 21 lakh more farmers took insurance during kharif 2016 compared to kharif 2015. In West Bengal, about 20 lakh more farmers did so. In Gujarat, farmers insured during kharif 2016 more than tripled those insured during kharif 2015. Significant increases were reported in Haryana,Karnataka and Madhya Pradesh as well.

— Centre for Science and Environment

Photo: Pixabay

The National Crime Record Bureau data shows farmer suicides increasing in 2015 by 41.7 per cent over 2014 and it was clear that farm stress levels would get worse

The report places the farmer case in perspective given India's grave agrarian crisis featuring indebtedness, crop failures, non-remunerative prices for crops and poor returns over cost of cultivation. The National Crime Record Bureau data shows farmer suicides increasing in 2015 by 41.7 per cent over 2014 and it was clear that the stress levels would exacerbate given the increasing frequency and intensity of unseasonal and extreme weather events due to climate change.

In its 2015 report, Lived Anomaly: How to Enable Farmers in India to Cope with Extreme Weather Events, CSE had called the existing relief and compensation mechanism for farmers against crop loss "ad hoc, chaotic and politicized" and said that it had failed to bring timely and adequate help to affected farmers.

"This study and subsequent consultation drew attention to the urgent need for financial safety nets for farmers to overcome vulnerabilities induced by frequent weather anomalies. A universal crop insurance mechanism, with various safeguards, was recommended as a key component of the safety net".

The government launched its new flagship scheme Pradhan Mantri Fasal Bima Yojana, from the kharif season of 2016 with the PMFBY replacing the National Agricultural Insurance Scheme and the Modified National Agricultural Insurance Scheme. The Weather-Based Crop Insurance Scheme (WBCIS) remained in place, though its premium rates were made the same as for PMFBY. State governments could decide whether they wanted PMFBY, WBCIS or both (See box chronology of crop insurance schemes in India).

The CSE holds that the PMFBY is an improvement over earlier schemes. Its salient features also include an area-based approach for insurance purposes. An insurance unit (IU) at the village/village-panchayat level or equivalent unit for major crops is notified in the state government notification; for other crops the insurance unit could be of a size above the village/village panchayat. For localized calamities

and post-harvest losses, IU will be taken as the affected insured field of the individual farmer.

Risks covered for notified crops within a notified IU fall in four categories (See box). Besides, individual-farm-level assessment for post-harvest losses against cyclonic or unseasonal rains for crops kept in fields to dry for up to 14 days has been provided throughout the country. What are some of the other salient features?

- PMFBY fixes a uniform premium of two per cent of the value of sum insured to be paid by farmers for all kharif crops,1.5 per cent of sum insured for all rabi crops, five per cent of sum insured for annual commercial and horticultural crops or actuarial rate, whichever is less.The balance premium is payable by the government to provide the complete insured amount to farmers against crop loss on account of natural calamities. The subsidy is divided equally between the state and central governments. There is no upper limit on government subsidy for actuarial premium.
- There are three levels of indemnity (level of protection against a loss) 70 per cent, 80 per cent and 90 per cent corresponding to high-risk, moderate-risk and low-risk areas for all notified crops by respective state governments. This means that farmers are themselves to bear the loss of 30 per cent, 20 per cent or 10 per cent respectively. The threshold yield of a specific crop is to be calculated based on average yield of the last seven years excluding up to two calamity years and the corresponding indemnity level.
- The scheme is to make use of innovative technology to assess losses and process claims and make payments electronically within three weeks from receipt of crop yield data by the insurance company.
- The scheme provides for payment of claims resulting from mid-season adversity, prevented/ failed sowing and prevented planting/germination and post-harvest losses within a definite time frame.

Three levels of indemnity 70, 80 and 90 per cent means that farmers bear the loss of 30 per cent, 20 per cent or 10 per cent respectively

Table 1: The Bundi Story

Crop	Scale of finance as per DLTC meeting (Rs/ha)	Sum insured (Rs/ha) as per Rajasthan State PMFBY notification	Sum insured as a percentage of scale of finance (per cent)
Soya bean	50,000	16,539	33
Paddy	65,000	17,096	26
Urad	30,000	21,750	72.5
Maize	40,000	26,110	65

Source: District Level Technical Committee meeting report dated 14 March 2016 related to calculation of scale of finance at the Bundi Central Cooperative Bank Limited, Bundi district, as received from Brij Mohan Sharma, Chairman, Gram Seva Sahkari Samiti, Arnetha, Bundi, Rajasthan

Chronology of Crop Insurance Schemes in India

- Comprehensive Crop Insurance Scheme (CCIS): 1985 to summer 1999 (yield index)
- National Agricultural Insurance Scheme (NAIS): Winter 1999–2000 to winter 2015–16 (yield index)
- Pilot Farmers Income Insurance Scheme (FIIS): Summer 2003 to winter 2003–04 (yield index)
- Pilot Weather Based Crop Insurance Scheme (WBCIS): Summer 2007 to summer 2013 (weather index)
- Pilot Coconut Palm Insurance Scheme (CPIS): 2009–10 to summer 2013 (specific crop-based)
- Pilot Modified NAIS (MNAIS): Winter 2010–11 to summer 2013 (yield index)
- National Crop Insurance Programme (NCIP) with component schemes of MNAIS, WBCIS and CPIS: Winter 2013–14 to winter 2015–16
- A glimpse of cumulative facts on NAIS, MNAIS, WBCIS, CPIS (Winter 1999 to winter 2015–16):
  - Total farmers insured: 36.9 crore
  - Total area insured: 51.3 crore ha
  - Total premium collected: ₹3,13,00.8 crore
  - Total claim paid: ₹5,87,11.4 crore
  - Total farmers benefited: ₹13.5 crore
- Pradhan Mantri Fasal Bima Yojana (PMFBY) and restructured WBCIS: April 2016 to the present

- The scheme also promises a tehsil level presence of the insurance company for effective administration.

While all this is welcome, there is a rub that takes away from the transformative character of PMFBY. At the state level, its vision — of being a universal subsidized agricultural insurance scheme that is farmer friendly and fair — gets diluted. At the district level, its implementation is seriously compromised making PMFBY is a classic case of poor implementation of a great scheme.

On its field visits the CSE found considerable dissatisfaction among the farmers with regard to PMFBY implementation on the ground. Farmers in Haryana and Uttar Pradesh opposed the deduction of premium with farmers protesting against this scheme. Some farmer activists of Haryana have even approached the court to dismantle PMFBY

Table 2: The Bundi Story

Year	Average yield of moong (kg/ha)	Remarks
2009	801.7	
2010	1,153	Highest yield in past seven years
2011	664.2	
2012	84	Drought year
2013	571.7	
2014	167.5	Drought year
2015	13	Drought year
Average yield	672	Excluding data for 2012 and 2015
Threshold yield	470	At 70 per cent indemnity level

Source: Department of Agriculture, Government of Maharashtra, Beed district, Maharashtra★

that, they allege, does not represent their concerns. In Haryana, PMFBY is referred to as Jabri Fasal Bima Yojana, the CSE found.

The promises of a tehsil level presence of the insurance company is belied. In Haryana, it seems that one private insurance company has only five to six employees to manage crop insurance-related issues at the state level. The point is that the scheme has been poorly communicated amongst farmers by banks and insurance companies and the department of agriculture making it a "top-down compulsory one for farmers availing loans", the CSE says.

The examined challenges in the implementation of scheme during kharif 2016 revealed that state-level policy has been at odds with the scheme and many states have diluted PMFBY guidelines as per their own convenience, against the spirit of PMFBY.

Inadequate Protection

"The concept of threshold yield, based on the average yield of the previous seven years excluding two state-declared calamity years, does not provide adequate protection to farmers in vulnerable regions. This is because, first, these regions generally experience frequent calamity years. So, even if the number of calamity years is more than two in the past seven years,only the worst two years are taken into account.This reduces the average yield significantly. On top of this, the lower indemnity levels make the threshold yield even lower, ensuring very little compensation to farmers".

— CSE

Table 3: Claims at Different Levels of Crop Loss

Parameters	As per Maharashtra State Kharif 2016 Notification on PMFBY	Remarks
Threshold yield in kg per ha (at 70 per cent indemnity level)	313	This is 50 per cent lower than the threshold yield estimated by CSE
Sum insured (Rs/ha)	18,000	50 per cent lower than the cost of cultivation
Cost of cultivation (Rs/ha)	34,147	Maharashtra State Agriculture Price Commission for 2015–16
Premium paid by farmer (Rs/ha)	360	
Claim received at 50 per cent crop loss (Rs/ha)	No claim as average yield is more than threshold yield	Even if the farmer loses half of his crop, he will not receive any compensation
Claim received at 60 per cent crop loss (Rs/ha)	1,898	Claim amount is 5.6 per cent of the cost of production
Claim received at 70 per cent crop loss (Rs/ha)	5,923	Claim amount is 17.3 per cent of the cost of production
Claim received at 100 per cent crop loss	18,000	This is 50 per cent of the cost of production

Source: Estimated by CSE

Table 4: All-India Average Actual Premium Rate Under Different Insurance Schemes

Year	Average actuarial premium rate under NAIS (per cent)	Average actuarial premium rate under MNAIS (per cent)	Average actuarial premium rate under WBCIS (per cent)	Average actuarial premium rate under PMFBY (per cent)
2011	3.3	9	9.9	
2012	3.6	11.5	10.1	
2013	3.9	11.2	10.1	
2014	3.7	9.9	11.8	
2015	4	Data not available	11.6	
2016			11.6	12.55

Source: Estimated by CSE from data collected on different schemes from AIC and Ministry of Agriculture

Some states did not even issue notifications on time. (*See box Delayed Notification*)

There were issues with threshold yield that governments were required to notify for notified crops for every insurance unit. Most states (excluding states such as Haryana) have not mentioned threshold yield in the state notification. Gujarat, Himachal Pradesh, Madhya Pradesh, Rajasthan, Tamil Nadu, Maharashtra and Uttar Pradesh did not mention threshold yield and it was unclear how claims will be processed and compensation paid.

In Haryana, where threshold yield was notified, farmers showed CSE researchers that the yield numbers in the state notification is significantly lower than the actual yield for many crops. If the threshold yield is lower than the actual yields in the farmers field, farmers are not likely to get adequate claim against the crop losses.

Some issues observed by CSE regarding estimation of threshold yield:

- Historical average yield mentioned in state government records, provided by patwaris, lekhpals or local government officials over many years, are generally not reliable.Threshold yields determined in many cases are so low that even if half the crop is damaged, farmers would not get any compensation because even the damaged crop yield might be higher than the threshold yield of that particular crop.
- Many individual farmers use high-yielding crop varieties. Even the worst yield of such high yielding varieties are generally above the threshold yield mentioned in state notifications. In such cases, farmers are not likely to be compensated even if they have lost a significant part of the crop. This is one of the biggest concerns for farmers.
- The insurance unit under PMFBY has been reduced to the village level. But average historical yield data is not available for many villages, as previous yield records are available for the block/ taluka level. In such a scenario, it is not clear how government and insurance companies will calculate average yield values. Yield varies greatly from one village to another.
- The CSE also found that the sum insured was lower than the scale of finance. Though the sum insured under the PMFBY is higher than in the previous schemes, in many states the sum insured is still far lower than the scale of finance (SoF). It seems

Historical average yield mentioned in state government records, provided by patwaris, lekhpals or local government officials over many years, are generally not reliable

Risks Covered for Notified Crops

Prevented sowing/planting risks: The insured area is prevented from sowing/planting due to deficit rainfall or adverse seasonal conditions (loss assessed at IU level)

Loss to standing crop (sowing to harvesting): Comprehensive risk insurance is provided to cover yield losses due to non-preventable risks, i.e.drought, dry spells, flood, inundation, pests and diseases, landslides, natural fire and lightening, storms, hailstorms, cyclones, typhoons, tempests, hurricanes and tornadoes (loss assessed at IU level)

Post-harvest losses (up to a period of 14 days): Coverage is available for up to a maximum of two weeks from harvesting for crops eligible for drying in cut and spread condition in the eld against specific perils of cyclone and cyclonic rains and unseasonal rains after harvesting (loss assessed at the individual-farmer level).

Localized calamities: Loss/damage from the occurrence of identified localized risks of hailstorms, landslides or inundation affecting isolated farms in the notified area (loss assessed at the individual-farmer level).

Varying Scales of Finance

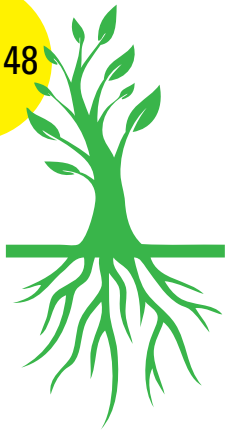
In Madhya Pradesh, the scale of finance for same crops varied widely between districts even though the cost of production in these districts were more or less the same.The scale of finance for soya bean crop was just ₹10,000 for Chindwada district, ₹18,500 in Harda district and ₹56,000 in Neemach district. However, the actual cost of production, estimated by CSE on the basis of a farmer interview,was around ₹50,000 per hectare in these districts.

that states have intentionally reduced the value of sum insured to decrease their part of subsidy to be paid for the premium.This significantly reduces the claim received by farmers, as only a fraction of the cost of cultivation value is insured.

The scale of finance and sum insured in Bundi district, Rajasthan (*See Box and Table 1*) implies that with such a low sum insured, the farmers are not likely to get any compensation even if they lose a significant part of their crop. For instance,if a farmer in Bundi loses two-thirds of his soya bean crop or three-fourth of his paddy crop, he will receive a paltry compensation from the insurance company.

If farmers in Bundi lost their entire crop, the maximum claim amount they would receive would still be just a fraction of the cost of production. At a 90 per cent indemnity level for soya bean crop,their claim amount would just be 28 per cent of the cost of production; for paddy it would be less than 25 per cent; for urad it would be about 65 per cent and for maize less than 60 per cent. (*Table 1*)

Travel from Bundi to Beed (Maharashtra), where the moong case is informative. In the Beed district, the cost of moong cultivation in 2015-16, given by the Maharashtra State Agriculture Price Commission, was ₹34,147 per ha. However, Maharashtra's State Kharif 2016 notification for PMFBY kept the value of sum insured at just ₹18,000 per ha; at about 53 per cent of the cost of production.



Trouble Galore

Insured farmers receive no insurance policy document or receipt and farmers are often unaware if their premiums have been deducted and crops insured and most farmers would like the bank to take consent from them before deducting the insurance premium. The problem is compounded by the non-existent grievance redressal mechanism and a clear lack of coordination between banks, insurance companies and nodal government departments.

Mismatch in the premium amount record is reported between banks and insurance com-panies in Haryana. Banks have deducted ₹184 crore from 6.96 lakh farmers' accounts in Haryana while insurance company have received only ₹121 crore. Farmers do not know whom to go to for redressal because such mechanism were promised but not provided.

Delayed Notification

The PMFBY requires a gap of at least one month between notification issuance and date of risk inception but some states issued the PMFBY notification after the sowing season had begun. Banks, therefore, started deducting premium in the middle of the sowing season.

The date of premium deduction by banks (August–September 2016) in Haryana was after the date of kharif crop sowing (June 2016). The normal sowing period for kharif in Madhya Pradesh is June-July but premium was deducted generally in August 2016. Similar situations prevailed in other states as well. Bihar and Gujarat issued PMFBY notification in mid-July.

Delayed notification meant that farmers could not avail claims for prevented sowing. The Report of the Committee to Review the Implementation of Crop Insurance Schemes, Department of Agriculture and Cooperation, Ministry of Agriculture, May 2016 found that there was no occasion when claims due to prevented sowing and post-harvest losses had been paid under MNAIS. The experience was the same during kharif 2016 in PMFBY.

"If the sum insured is lower than the scale of finance or the scale of finance established by the District Level Technical Committee is lower than the cost of production, the insurance scheme has little value for farmers as they are not likely to get adequately compensated for their losses", the CSE says.

The CSE says that if it is assumed that the yield obtained by farmer is 700 kg/ha (the average yield), the claim amount received by a farmer of moong crop at different levels of crop loss is depicted in *Table 3*: Claims at different levels of crop loss. Claim is calculated as threshold yield (actual/ threshold yields) x sum insured.

This case study clearly shows that factors like low indemnity levels, low threshold yields and low sum insured make PMFBY a poor scheme to safeguard farmers of vulnerable regions against extreme weather events. Table 3 shows that even if a farmer loses 70 per cent of his crop, his claim amount can only compensate 17 per cent of his cost of production. Even if the sum insured is made equal to the cost of production, farmers will receive very low insurance claims because of low indemnity levels and historical average yields.

Two other areas need focus. Inclusion of small farmers and the reality around sum assured. The

Photo: Pixabay

CSE Case Study 1: The Bundi Story

On the basis of cost of cultivation, the district-level technical committee (DLTC) in Bundi district, Rajasthan, had determined the scale of finance for soya bean, paddy, urad and maize crops respectively as ₹50,000/ha, ₹65,000/ha, ₹30,000/ha and ₹40,000/ha. However, the sums insured for soya bean, paddy, urad and maize were ₹16,539/ha, ₹17,096/ha, ₹21,750/ha and ₹ 26,110/ha, as per the Rajasthan State PMFBY Kharif 2016 Notification. This meant that sum insured was just 33 per cent, 26 per cent, 72.5 per cent and 65 per cent of the scale of nance for soya bean, paddy, urad and maize crops respectively. For scale of finance and sum insured in Bundi district, Rajasthan (see *Table 1*).

The implication of such a low sum insured is that the farmers are not likely to get any compensation even if they lose a significant part of their crop. For instance,if a farmer in Bundi loses two-thirds of his soya bean crop or three-fourth of his paddy crop, he will receive a paltry compensation from the insurance company.

average area insured per farmer has decreased in every state except Assam, Rajasthan, Tamil Nadu and West Bengal. The number of farmers insured in Assam and Tamil Nadu is relatively small. Hence it is difficult to make any judgement about the inclusion of small farmers. What is the reality in West Bengal and Rajasthan?

In West Bengal, the average area insured per farmer has increased from 0.4 ha to 0.5 ha. "Thus, even though the area insured per farmer has increased, the average area insured is just 0.5 ha. This indicates that largely small farmers are availing of agriculture insurance", says the CSE.

In Rajasthan, the average area insured has gone up from 1.1 ha to 1.2 ha—an increase of about six per cent. The CSE explains that "this does not indicate inclusion or exclusion of small farmers. Overall, it seems that large numbers of small farmers have taken insurance under PMFBY. The reason for this seems to be that small farmers are taking loans and are hence getting covered under the mandatory insurance coverage".

As far as the sum assured per hectare story is concerned, significant increases in all states are noted with Chhattisgarh, Goa, Jharkhand, Meghalaya and Rajasthan, reporting a doubling of sum insured per hectare. In Madhya Pradesh, Maharashtra and Uttar Pradesh, the increase has been between 50 per cent and 80 per cent. The all-India average increase is about 67 per cent.

The CSE survey shows that while "the sum insured under PMFBY is closer to the scale of finance (that

Loopholes

An insurance company official confirmed on the condition of anonymity that in drought-hit Tamil Nadu, CCEs were conducted at the block or district level and not at the revenue village level for kharif 2016 leading to a lot of confusion.There was consequently a great deal of confusion and delay in disbursing claim payments. Another official in Haryana said that in one Haryana district some 3,500 CCEs were to be carried out but only around 40-50 per cent were conducted. This is attributed to a manpower crunch. Also, farmers use combine harvest machines to harvest paddy and wheat and the CCEs are not able to cope with their requirements for want of trained manpower. This results in unfair and corrupt practices as was earlier confirmed by India's Comptroller and Auditor General of India in earlier crop insurance schemes. An insurance officer suggested that CCE data in some parts of Maharashtra seemed manipulated for kharif 2016 as very little claim was paid by a specific insurance company despite significant crop losses. Matters are made worse by the unpreparedness to use technology, developed by the National Remote Sensing Centre, meant for recording geo-coordinates, uploading CCEs photos and such like.

is equal to cost of cultivation plus some profit) than previous schemes like MNAIS and NAIS. In many states, however, the sum insured under PMFBY is still significantly lower than the scale of finance".

In Rajasthan the sum insured is substantially lower than the scale of finance at just ₹13,400/ha during kharif 2016 or just about one-third of the Scale of Finance. Sum insured is also lower in Madhya Pradesh, though better than Rajasthan's, says the CSE.

These issues are compounded by some states not including important crops in the list of notified major crops; states not being able to pay their part of subsidy to insurance companies on time; Negligible coverage of sharecropper and tenant farmers; Mixed cropping and crop diversification discouraged; Panchayati Raj Institutions not being involved in most states at any stage of implementation of the scheme that is contrary to the promise and absence of a concerted effort to build awareness of farmers on PMFBY.

Finally, there are implementing errors galore. These include wrong and double premium deduction; Poor capacity of insurance companies; Farmers not provided policy documents; No direct linkage with insurance companies; Lack of coordination and non-existent grievance redressal mechanism; Loopholes in assessment of crop loss; Inadequate and delayed claim payment to farmers; Very high actuarial premium rates.

To deal with incorrect deductions, banks deduct premium as per farmer claims or reports given by patwaris/lekhpals/local government officials about the notified crop sown. In many instances, premium was deducted by banks for non-notified crops. Insurance companies receive premiums from farmers who are not insured for non-notified crops and do not get compensated for the loss.

- Farmers of Chhichdana village and nearby villages in Sonipat district, Haryana said that premium was deducted for sugar cane crop from many accounts, even though sugar cane is not notified in Haryana. Protesting farmers did not get their money back.
- Farmers from Bhuwankhedi,Harda district, Madhya Pradesh had sown urad during kharif 2016 but the bank deducted premium for soya bean crop.They have no hope of recovering the money.
- Many farmers in Badheri village, Sonipat district,

Farmers in Badheri village, Sonipat district, had grown bajra and cotton crop but their premium was deducted in the name of paddy

had grown bajra and cotton crop but their premium was deducted in the name of paddy.

- A farmer in Malendi village, Shamli district, Uttar Pradesh had poplar plantations in his field but premium was deducted for other crops.

Finally, no innovative technology was used for kharif 2016. The CCE application, developed by the National Remote Sensing Centre,meant for recording geo-coordinates, uploading CCE photos and such like was not utilized properly by officials in many states for reasons such as absence of internet network and no smartphone with officials. Ground staff in many states like U.P. lacked technologies (smartphone with CCE app) to record CCE-related data. CCEs have been captured partly on mobile only in a few states such as Karnataka, Odisha, Chhattisgarh and Haryana. The remaining states are still in the process of purchasing smartphones … to be used for capturing CCE.

Further, photographs of CCEs have been uploaded partially at the crop insurance portal only by one or two states for kharif 2016. "Overall, there are too many loopholes in the CCEs. Unless they are fixed, crop insurance will not be able to help farmers get their legitimate claims", the CSE says.

There were plenty of loopholes in assessing crop loss including bogus cropping experiments. States have to conduct the requisite number of crop cutting experiments (CCEs) at the level of notified insurance unit area (village/village panchayat or equivalent for major crops; for others a unit of size above this level). CCE-based yield data would then be submitted to insurance company within the prescribed time limit. The process was to be digitized with geo-coding, stamping of date and time and furnishing photographs (of the CCE plot and CCE activity) by the state of registered 'professional' agencies. However, with too few CCEs, they failed to capture the scale and diversity of crop losses or

even the 'average' loss. Farmers believe that the loss figures do not reflect the actual losses and hence they are not adequately compensated. In a village of 600 farmers, even if the crops of 200 farmers are completely destroyed but the affected fields do not fall in the selected samples in the village, no one in the village will get any claim.

There have been bogus crop-cutting experiments too, thanks to a shortage of competent workers in government offices to conduct CCEs. In Haryana, agriculture development officers went on strike to protest against the burden of conducting massive CCEs. CSE's interviews with farmers of Kohla village, Sonipat, Haryana showed that no CCE was conducted by state officials in their village and no farmer would get compensation because there was no recording of losses.

In Bundi district, Rajasthan, CCEs for soya bean crop during kharif 2016 have not been conducted by the government officials, as revealed by the RTI and there was no question of compensating affected farmers. The Agriculture Insurance Company of India Limited (AIC) had paid the claim of 25 per cent of expected crop loss for flood-affected paddy

Delays/non-Payment for Localized Calamity

CSE came across cases where the insurance company did not investigate losses due to localized calamity and therefore did not pay for the losses. Despite repeated reminders for inundation to the Oriental Bank of Commerce by paddy farmers of Brahmanwas, Ghamar and Makraulikalan villages of Rohtak district of Haryana, after 48 hours of the calamity, the insurance company had not surveyed the fields. As a result,farmers in these villages did not get any claim even after approaching the bank, government officials and insurance company. There are also delays in settling claims vis-a-vis the promise to pay within three weeks from January 31, 2017, the date of receiving CCE yield data by insurance companies. In April 2017, claims for kharif 2016 were not paid or were partly paid in 14 out of 21 states. Many insurance companies cited delay in receiving the state and Central government subsidies as the main reason for delay in reimbursing claims. However, CSE research shows that claim was delayed in even states where subsidy had been given. As of April 2017, only 32 per cent of the claim reported was paid by insurance companies.

Photo: Pixabay

Meaningless Moong Insurance

The moong crop in Ashti Taluka, Beed district, Marathwada, Maharashtra has faced frequent droughts in last few years. Moong is an important crop for Ashti taluka in the district. The Maharashtra State Government Kharif 2016 notification on PMFBY gives the following parameters for moong in Beed district:

- Indemnity level: 70 per cent
- Threshold yield: 313 kg/ha
- Sum insured: ₹18,000/ha
- Premium paid by farmer: ₹360/ha.

As per the Maharashtra State Agriculture Price Commission, the cost of cultivation of moong in 2015-16 was ₹34,147/ha. So, the sum insured under PMFBY was slightly more than 50 per cent of the cost of cultivation. The threshold yield under the Maharashtra State Kharif 2016 Notification is lower than that estimated by CSE.

The Agricultural Department of Beed district says that the average yield for the moong crop for the past seven years, excluding two calamity years, was 672 kg/ha.The threshold yield at 70 per cent indemnity levels was 470 kg/ha.This is 50 per cent higher than the threshold yield mentioned in the Maharashtra State Kharif 2016 notification. "The sum insured is hence 50 per cent lower than the cost of cultivation and threshold yield is 50 per cent lower than the actual threshold yield", the CSE says.

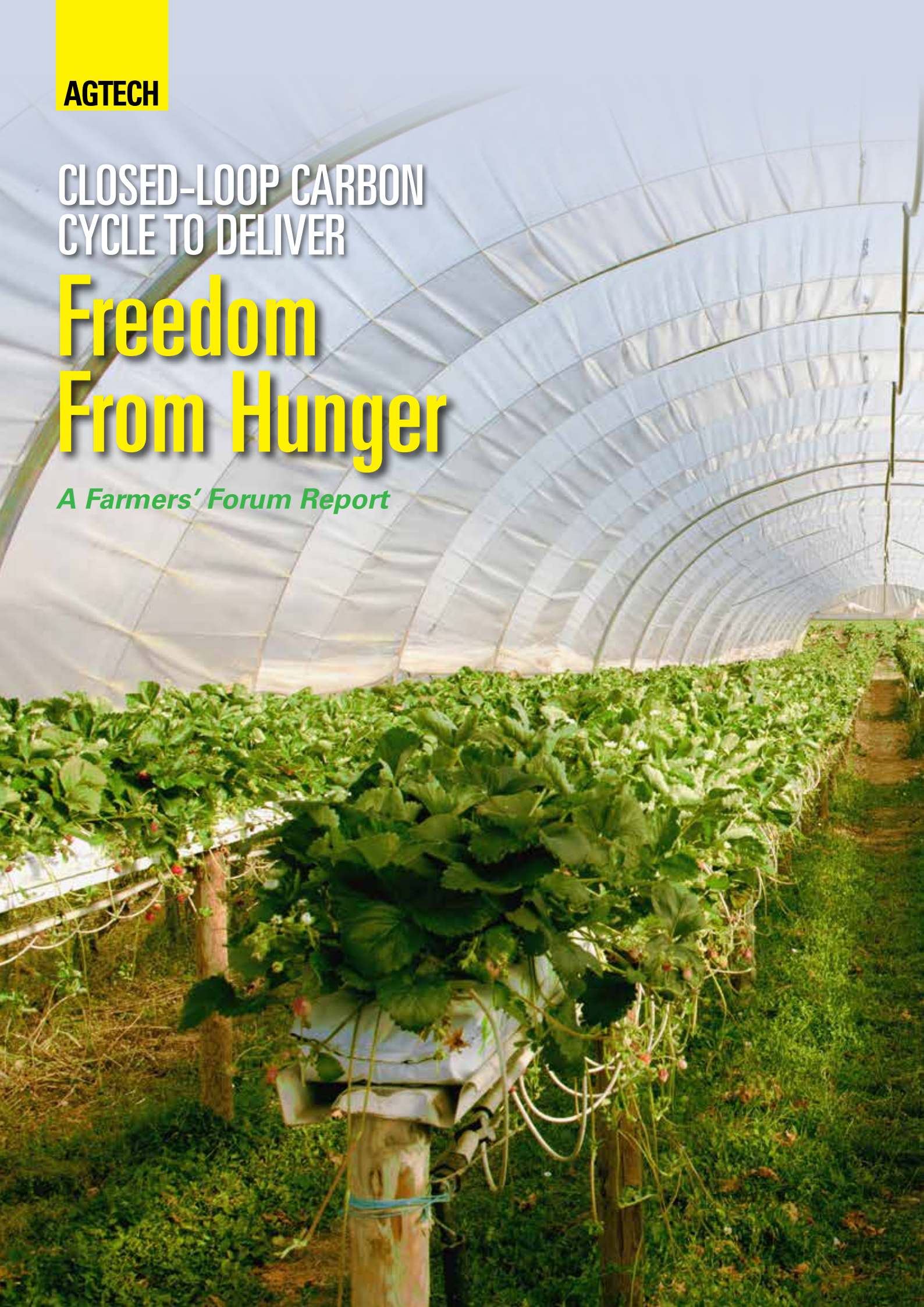
in Ghazipur,Uttar Pradesh, as per the survey under mid-season adversity in kharif 2016 but CCE data submitted by government officials was completely incorrect and did not reflect any losses. "Overall, there are too many loopholes in the CCEs. Unless they are fixed, crop insurance will not be able to help farmers get their legitimate claims", the CSE says.

Finally, insurance companies charged very high actuarial premium rates during kharif 2016 at around 12.6 per cent. CSE collected data on actuarial premium rates for the National Agriculture Insurance Scheme, Modified National Agriculture Insurance Scheme and Weather Based Crop Insurance Scheme and estimated rates for 2011 onwards to reflect similarity in weather-related risk profiles. The average actuarial premium rates under MNAIS, WBCIS and PMFBY for the kharif season (Table 4) shows the all-India average actuarial premium rate during kharif 2016 under the PMFBY was the highest. ●

AGTECH

CLOSED-LOOP CARBON CYCLE TO DELIVER Freedom From Hunger

A Farmers' Forum Report



"Imagine you are a part of a crew of astronauts traveling to Mars or some distant planet. The travel time could take a year or even longer. The space on board and the resources would be limited. So you and the crew would have to figure out how to produce food with minimal inputs. What if you could bring with you just a few packets of seeds and grow crops in a matter of hours? And what if those crops would then make more seeds, enabling you to feed the entire crew with just those few packets of seeds for the duration of the trip?"

— Lisa Dyson[1]

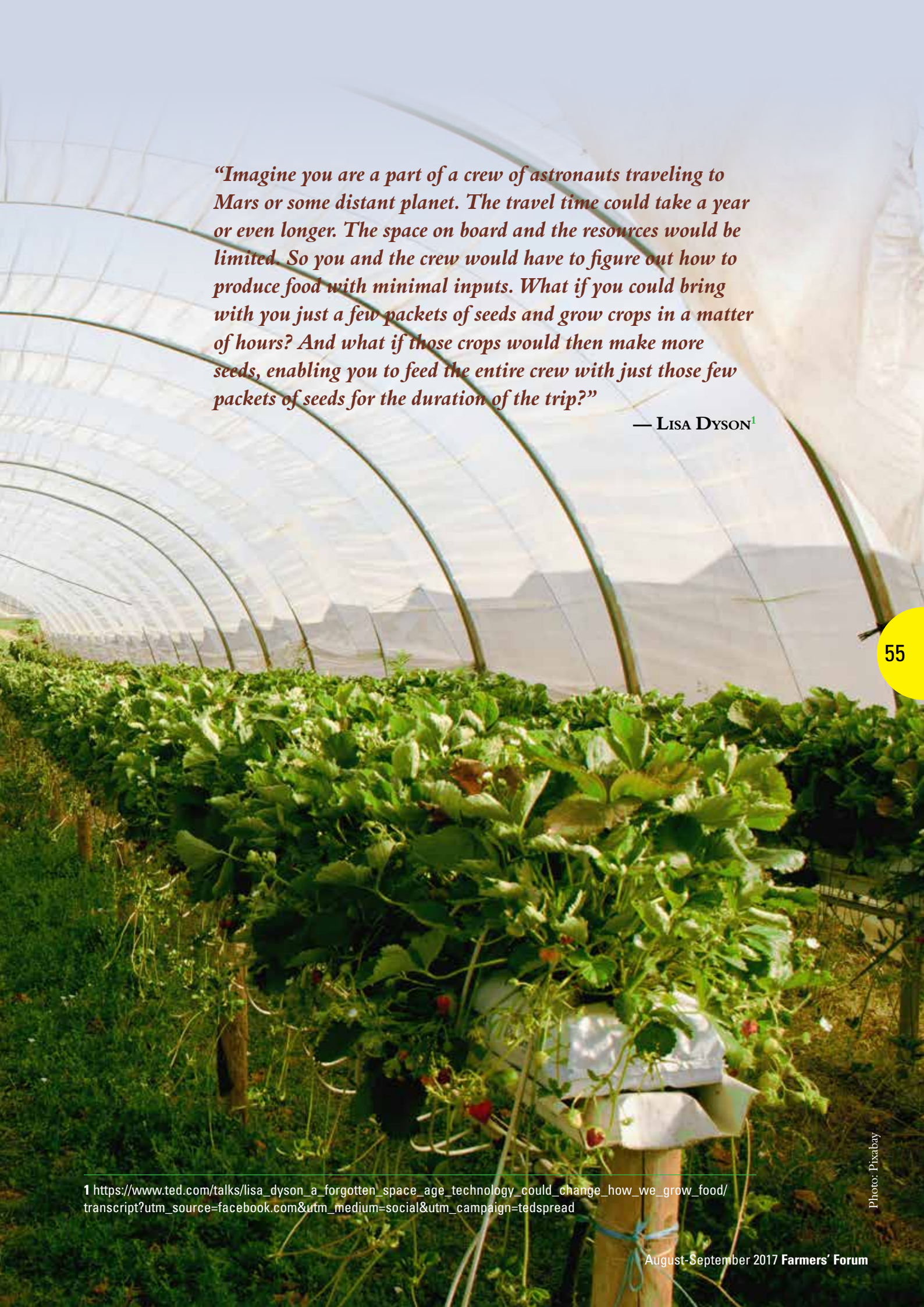


Photo: Pixabay

1 https://www.ted.com/talks/lisa_dyson_a_forgotten_space_age_technology_could_change_how_we_grow_food/transcript?utm_source=facebook.com&utm_medium=social&utm_campaign=tedspread

Imagine this. Bio-processes, the same as those used for sustenance and to power industry, using natural microbes to convert CO2 into the proteins and oils, emerging as the ultimate solution to the challenge of feeding a 10 billion population that the world will have in the foreseeable future.

Yet this is in the realms of possibility and this is the solution that has been presented by Lisa Dyson, the CEO of Kiverdi, a technology company that seeks to develop innovations going beyond traditional agriculture to help feed a populous world; one that will include three billion more people by 2050. Kiverdi's bio-process does just that.

In her Ted Talk, presented in July 2016, Dyson explained how a Nasa developed technology could be harnessed to deliver food solutions. What the Nasa scientists did is involve micro-organisms (single-celled organisms) and hydrogen from water, using microbes called hydrogenotrophs. Essentially these hydrogenotrophs were conceived of to create a virtuous carbon cycle that would sustain life on board a spacecraft.

The process was simple. The carbon dioxide that the astronauts would breathe out would be captured by the microbes and converted into a nutritious, carbon-rich crop. "The astronauts would then eat that carbon-rich crop and exhale the carbon out in the form of carbon dioxide, which would then be captured by the microbes, to create a nutritious crop, which then would be exhaled in the form of carbon dioxide by the astronauts".

In essence, this meant the creation of a closed-loop carbon cycle. This was not a recent development but done some time in the 1960s-1970s. How is that relevant for the astronauts? Dyson explains: "We need carbon to survive as humans and we get our carbon from food. On a long space journey, you simply wouldn't be able to pick up any carbon along the way, so you'd have to figure out how to recycle it on board".

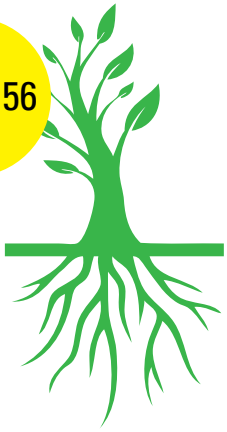
While the Nasa research had indeed come up with a spectacularly intelligent solution, the point was that it was really of little use because space travel currently undertaken did not call for such measures. At some point of time, if interplanetary travel became a reality, the technology could be put to worthwhile application.

It is at this point that Dyson and a colleague John Reed got interested in carbon recycling on earth. "We wanted to come up with technical solutions to address climate change". That is when their research took them to wade through published papers decades ago and they came upon this work and were quick to grasp the import.

Their logic went thus: the "Earth is actually like a spaceship. We have limited space and limited resources and... we really do need to figure out how to recycle our carbon better". Thus began their effort to apply ideas like those that Nasa had come up with and apply them to the earth's carbon problem; to cultivate such Nasa-type microbes to develop products that would be useful on earth. Thus was formed Kiverdi, which eventually discovered that these hydrogenotrophs or "nature's supercharged carbon recyclers" are a powerful class of microbes, by and large "overlooked and understudied", which could help make some really valuable products.

Kiverdi started cultivating these microbes in its laboratories and found that it could make essential amino acids from carbon dioxide using these microbes. "We even made a protein-rich meal that has an amino acid profile similar to what you might find in some animal proteins".

The company cultivated them even further and found that it could make oil. "Oils are used to manufacture many products. We made an oil that was similar to a citrus oil, which can be used for flavouring and for fragrances". However, the oil could also be used as a biodegradable cleaner or even as a jet fuel. Kiverdi then made an oil that's

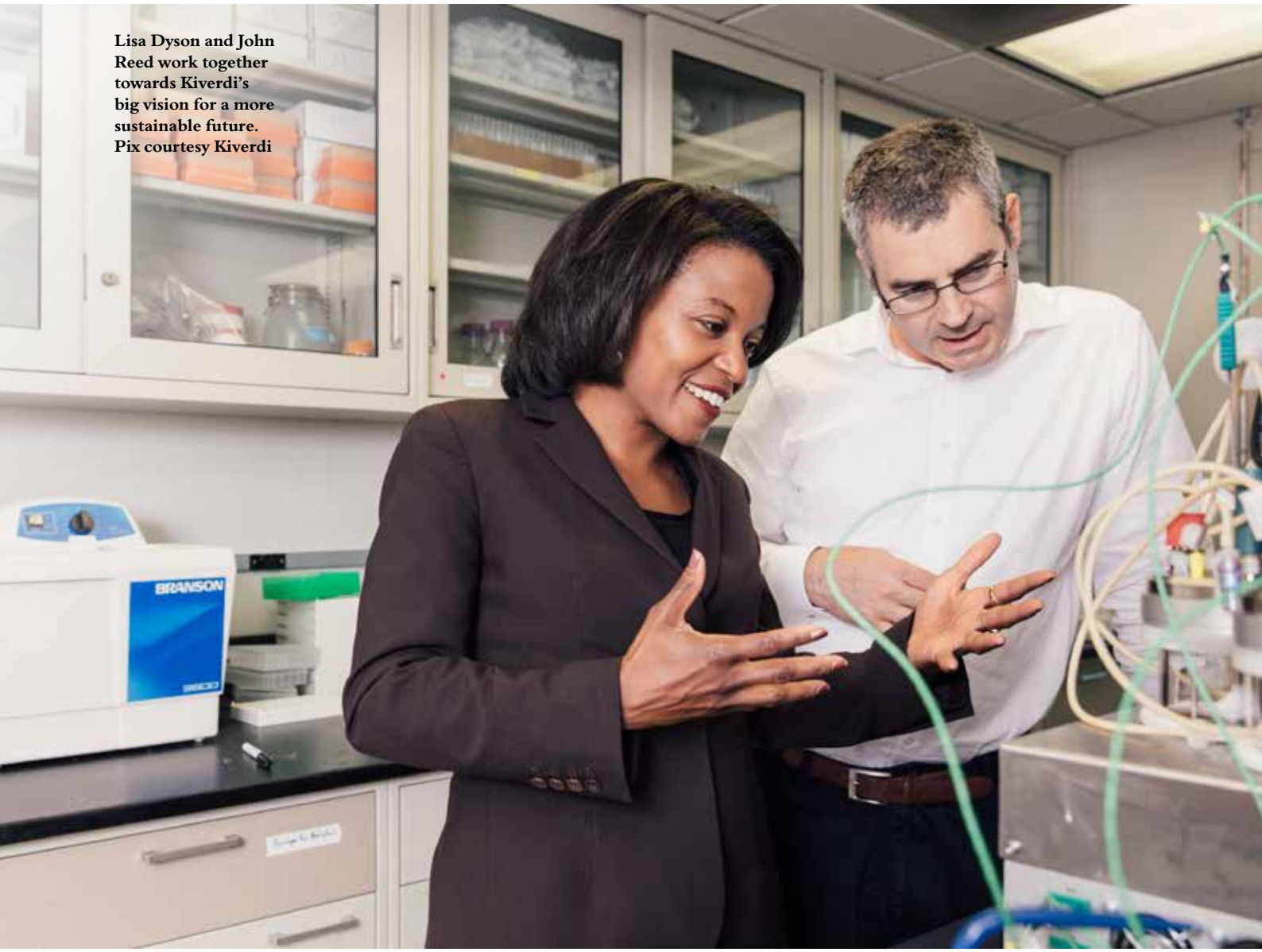


Hydrogenotrophs or "nature's supercharged carbon recyclers" are a powerful class of microbes, "overlooked and understudied", which could help make valuable products

Linking Sustainability and Profitability

At Kiverdi, we are commercializing a technology that uses a special class of chemoautotrophic microbes, we call them nature's Super Charged Carbon Recyclers, to transform carbon dioxide and other gases into protein, high-value oils, and bio-based products, which can be used in a variety of consumer and industrial applications. By recycling carbon dioxide, we are bridging the gap between sustainability and profitability, enabling a future of abundance.

— http://www.kiverdi.com/#recycle-1



Lisa Dyson and John Reed work together towards Kiverdi's big vision for a more sustainable future. Pix courtesy Kiverdi

similar to palm oil that is used to make a range of consumer and industrial goods.

Next, it was time to collaborate with manufacturers to scale up this technology, which Kiverdi is currently doing. In February 2015, the U.S. Department of Energy announced $10 million to Develop Innovative Bioenergy Technologies and Kiverdi Inc, in collaboration with the National Renewable Energy Laboratory, was granted up to $2 million to "further develop processes and genetic tools to produce hydrocarbons in previously un-engineered bacteria that directly utilize biomass-derived syngas for growth". XPRIZE, a global leader in designing and implementing innovative competition models to solve the world's grandest challenges, also recognized Team Protein Power that used the Kiverdi solution (*See Box, page* 58).

Kiverdi is currently working with companies

Protein-Rich Meal

The world needs more protein. Due to a population increase to 10 billion by 2050 and an increasing demand for protein-rich diets, it is estimated that we will need to almost double food production. Modern agriculture cannot sustainably expand to meet this demand. Why not? 19 million sq. miles of land has already been cleared for crops and livestock. This is equivalent to an area the size of South America and Africa combined. Modern agriculture is also one of the largest polluters, emitting more greenhouse gases than our cars, trucks, planes and trains combined. Kiverdi's protein-rich meal can provide solutions. It has 50 per cent greater protein content than soy meal and an amino acid profile similar to an animal protein.

— http://www.kiverdi.com/#recycle-1

Marriage of Beer and Climate Change

What do we do when our methods of obtaining the food we need to live, significantly impacts the world that we cannot live without? How do we live sustainably today while also implementing new practices to ensure that we have a healthy planet as our population continues to grow to nearly 10 billion people by 2050.

We, at Team Protein Power, asked ourselves this question and, through Kiverdi, found an answer. Using the beer industry as an example to help illustrate the Kiverdi method, here is our solution to the challenge.

The 2014 global consumption of beer was 189 million kilolitres, which is equivalent to nearly 300 billion bottles! All this beer is distilled at breweries (over 5,000 of them in the U.S. alone) and breweries also produce carbon dioxide through their processes (about 8.8 MM tons/yr of CO_2 from all that beer). That is where we come in.

Our process provides a disruptive and innovative technology to collect the carbon dioxide produced from brewing beer and, with a few other inputs, convert it into protein. Even better, the protein created contains all of the essential amino acids needed for a healthy diet. In fact, our complete protein, has 50 per cent or greater protein content than other vegan-based proteins.

Now, imagine pairing one of our facilities with every brewery across the globe, strategically aligned to capture that food-grade CO_2 for protein production, creating over 4.5 million metric tons of protein per year. Not only does this directly address the challenge of meeting our protein demands but it also supplies an accessible conversion process to help alleviate some of our atmospheric dilemmas. Problem solved.

We and Kiverdi are on a mission to provide a new way to responsibly and sustainably manufacture protein. With this approach, one can imagine the grand goal of surpassing the world's protein demands with nutritious products (like vegan burgers, protein bars, enriched flour, protein shakes and more). We aim to be a leader for the environmentally conscious supply chain of tomorrow. Our goals span generations to come and our multifaceted approach has the capacity for significant global impact.

— XPRIZE; April 11, 2017; Team Protein Power

to bring innovative products to market using its technology, profitably recycle carbon dioxide into valuable products. "Tomorrow, this type of technology and using these types of microbes actually could help us do something even greater if we take it to the next level. We believe that this type of technology can actually help us address an issue with agriculture and allow us to create a type of agriculture that's sustainable, that will allow us to scale to meet the demands of tomorrow", says Dyson.

The arithmetic is easy. For an estimated population of 10 billion by 2050, the world will need a 70 per cent increase in food production apart from other resources and raw materials to make consumer goods and industrial goods. That is the challenge that Kiverdi is seeking to address because modern agriculture simply cannot sustainably scale to meet that demand, if not for any other reason, simply because it cannot sustain itself and its enormously greenhouse gas-emitting ways. Agriculture emits more greenhouse gases than cars, trucks, planes and trains combined.

Agriculture also makes humungous demands on land. In Indonesia alone, between 2000 and 2012 the size of the virgin rainforest cleared was around the size of Ireland. "Just think of all of the species, the diversity, that was removed in the process, whether plant life, insects or animal life", points our Dyson; not to speak about the removal of a natural carbon sink.

Making things real, as it were, Dyson says: "This

clearing happened primarily to make room for palm plantations... palm oil is used to manufacture many products. In fact, it is estimated that over 50 per cent of consumer products are manufactured using palm oil... that includes things like ice cream, cookies... It includes cooking oils. It also includes detergents, lotions, soaps. You and I both probably have numerous items in our kitchens and our bathrooms that were manufactured using palm oil. So you and I are direct beneficiaries of removed rainforests".

All this even as modern agriculture needs urgent scaling up. Microbes can be a part of the answer, specifically, these supercharged carbon recyclers. "These supercharged carbon recyclers, like plants, serve as the natural recyclers in their ecosystems where they thrive. And they thrive in exotic places on Earth, like hydrothermal vents and hot springs. In those ecosystems, they take carbon and recycle it into the nutrients needed for those ecosystems.

The products of this new type of agriculture could include a protein meal — a soybean meal, cornmeal or wheat flour; oils such as coconut oil or olive oil or soybean oil

And they are rich in nutrients, such as oils and proteins, minerals and carbohydrates", says Dyson.

Microbes are already an integral part of our everyday lives. "If you enjoy a glass of pinot noir on a Friday night, after a long, hard work week, you are enjoying a product of microbes". A beer from the local microbrewery; bread, cheese or yogurt; these are all products of microbes and the "beauty and power associated with these supercharged carbon recyclers lies in the fact that they can actually produce in a matter of hours versus months".

This means that crops can grow much faster than today; grow in the dark — season and geography do not matter; can grow in containers, requiring minimal space; can get into vertical agriculture — scaling vertically and producing much more product per area. On a large scale, "you can actually make 10,000 times more output per land area... if you planted soybeans on that same area of land over a period of a year. Ten thousand times over a period of a year". This is Dyson's vision for the new type of agriculture; a system that empowers sustainable scaling up to meet the demands of 10 billion.

The products of this new type of agriculture could include a protein meal — a soybean meal, cornmeal or wheat flour; oils such as coconut oil or olive oil or soybean oil. "This type of crop can actually produce the nutrients that would give us pasta and bread, cakes, nutritional items of many sorts. Furthermore, since oil is used to manufacture multiple other goods, industrial products and consumer products, you can imagine being able to make detergents, soaps, lotions, etc., using these types of crops", Dyson says.

Talking on a philosophic note she concludes: "Not only are we running out of space but, if we continue to operate under the status quo with modern agriculture, we run the risk of robbing our progeny of a beautiful planet. But it does not have to be this way. We can imagine a future of abundance. Let us create systems that keep planet Earth, our spaceship, not only from not crashing but let us also develop systems and ways of living that will be beneficial to the lives of ourselves and the 10 billion that will be on this planet by 2050". ●

PROCURING QUALITY: DELIVERING VALUE

The Sufal Bangla Story

Dhruba Das Gupta

A handful of rice is placed on the testing tray of a sophisticated looking computer and I wait for a split second. Before me is a neatly numbered physical analysis of every grain of rice that is spread on the tray. The legend on the computer screen gives me details that I need to know about the quality of rice that I want to purchase and consume at home.

DHRUBA DAS GUPTA
Researcher, Society for Creative Opportunities and Participatory Ecosystems

I am looking at Annadarpan, one of the instruments that permit rapid, real time and non-invasive means of assessment of physical quality parameters of a number of foodgrains and pulses produced in India using image processing techniques. At this laboratory, the technology used serves as 'electronic vision for quality analysis of rice.' This has been made by the Centre for Development of Advanced Computing (CDAC). Manager Partha Sarathi Biswas demonstrates the quality analysis procedure before me.

There is more. e-Quality Veg is another software that detects the firmness of vegetables using vibration analysis for a clutch of vegetables — potato, pointed gourd (palwal), tomato, ridge gourd (jhinga), radish, carrot, capsicum, bitter gourd, cucumber, bottle gourd, pumpkin, green banana, brinjal, hyacinth beans and yard long beans. The quality parameters have been framed in consultation with experienced farmers and once

the vegetables come in lots, they are tested for physical parameters, sorted and graded. Then they are sent out to be delivered — farm fresh — into the kitchen of many a home in the city of Kolkata.

The venue here is the quality control laboratory of Singur's Tapashi Malik Krishak Bazaar, which serves as the procurement centre for farm fresh vegetables from five gram panchayats around Singur and other adjoining areas in Hooghly and Nadia districts, one of the most fertile and productive agricultural areas in West Bengal. The laboratory serves a key function in ensuring the reputation of the product quality of Sufal Bangla, a successful agri-marketing venture of the Government of West Bengal running since 2014.

Sufal Bangla seeks to create an effective and long lasting relation between the farm producer and consumer that rests on assurances of quality and good health. To this end, its effort has been to encourage the farmers to sell their produce at the procurement centre, with a message that the produce will be monitored for quality and, if found satisfactory, it will fetch a fair price. The farmers, seeing the promise of an assured market, punctually come here at 5.30 pm every day with their produce from even as far as Ranaghat of neighbouring district Nadia, 53 kms away.

"We mainly aim to avoid use of post-harvest chemicals that are damaging for human health and up to now, we have been able to take only the first step to physically ascertain the quality of the vegetables and rice and pulses. However, our quality testing system is coming up on land that we have been given at Rajarhat (near Kolkata) and where we are also planning an organic market. Once that is complete, we will say with complete quality assurance that our products are fully organic. This will be equivalent to following ISI methods and standards of quality assurance", says Gautam Mukherjee, agri-scientist and head of the project marketing unit of the agri-marketing department, of which the Sufal Bangla initiative is an important part.

The costly process of organic certification makes it difficult for individual farmers to sustain certified organic products. So a government initiated effort promises to be a welcome step in this initiative where certification, price rationalization at both producer and consumer level and profitability are aimed at and brought about. "We are looking to improve the set up at Singur to ensure farm fresh quality. With help from the Japan International Cooperative Agency, we are putting in place a solar powered cold storage system that will enable us to store vegetables up to 4-5 days, enhancing the shelf life", says Mukherjee. "Other steps are also on the anvil. Once the necessary technology is in place, we will also look at export possibilities of the farmers' produce. Let us see how it goes". Mukherjee is optimistic.

What happens at the procurement centre? Farmers, farmer producers companies and self help groups, willing to supply to Sufal Bangla, have to enrol their names and get an enrolment number from the Sufal Bangla's procurement hub. They are entitled to certain facilities such as free weighing of their produce and extra procurement of a particular vegetable on a given day, provided no procurement of that vegetable is made on the next day. Every morning, between 9 am and 11.30 am, farmers willing to supply phone in and get their names, enrolment numbers and product names recorded. At 5.30 pm the collection process starts. Every farmer's produce is weighed, the price agreed upon and the payment made.

"The price is fixed on the basis of comparative analysis of prices prevailing in the nearby markets during the day and one of my tasks is to obtain these comparative prices and send them up to the Sufal Bangla Project Management Unit for follow-up and procurement price calculation", says hub manager Mahaprasad

Sufal Bangla seeks to create an effective and long-lasting relation between the farm producer and consumer that rests on assurances of quality and good health

Photo: Pixabay

Farmer unloading vegetables

Chatterjee. Charged with various responsibilities, he is a crucial human resource in ensuring quality of products procured. On the day of my visit, I see his alert eyes scan the vegetables and reject a suspicious-looking water melon as soon as it enters the quality-checking arena.

After the procurement, the products are sorted and graded before going for sale via 17 vehicles of the PMU (there are 45 vehicles in all) to various retail points. The vegetables are sold at various points in Kolkata and outside from 7 am to 11.30 am. The unsold produce comes back to Singur and gets sold out through a reduction sale. Once the cold storage is in place, the volume of this follow-up selling is expected to go up manifold.

"The volume of farming has gone up substantially after this procurement centre started functioning fully", says Chatterjee. He should know, having been here since inception. His day starts at 8.00 am and ends at 10.00 pm.

The figures speak for themselves. July 2016 saw ₹77.53 lakh of sales while December 2016 saw ₹51.44 lakh of sales.

Are there no problems of oversupply? "Of course", says Prabuddha Guha of the Kolkata PMU. "This is something that we have been facing during our procurement effort but we are trying to persuade the panchayats to do production planning and optimize the variety of the vegetable choice available to the consumer. After all, this is what will drive them to the Sufal Bangla outlets. We have figures to prove what we are saying about crop diversification driven by market demand", Guha points out.

What do farmers have to say about the procurement system? The quality message seems to have reached them in no uncertain terms. "We have no objections to the way quality is demanded here in Singur. I supply mainly lemons here and the price I get takes care of my labour and transport cost. I am from Ranaghat and when we sell lemons at the Sheoraphuli market the price may vary from ₹1.50 to ₹2.00 a piece. There is no quality specification. Here, I will get an assured rate of ₹1.80 a piece if I bring lemons according to their quality requirements. This is more secure", says Pradip Biswas, a farmer producer who has been supplying lemons this procurement centre for a year and a half.

How will the Sufal movement go forward? All the 41 retail stores, both static and mobile, in Kolkata and other districts are getting shaped into integrated selling points whereby they will be one-stop shops for buying fruits, vegetables, milk and milk products, livestock products and even honey. For a retail customer, there can be no better boon.

To add to that, Sufal Bangla has introduced a mobile app whereby producers and consumers can get to know the price of the product of their choice at their own convenience on any given day. According to C-DAC's Biswas; "Farmers have already begun to get initiated into this mobile app. This is very user-friendly and should soon show benefits". ●

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