

> Perspective: Case of the Food Miles Footprint

> When Waste is a Resource

# FARMERS' FORUM

Vol. 16; No. 03; June-July 2016 ₹100 [www.farmersforum.in](http://www.farmersforum.in)

Issues and Ideas for Indian Agriculture



## ARE FARMLANDS TURNING TO WASTELANDS

JAYANT SINHA | ASHOK GULATI | SATNAM SINGH BEHRU | HARSH MANDER | PRASENJIT BOSE  
YOGENDER YADAV | RAHUL GUPTA AND SUMITA GUPTA GANGOPADHYAY  
BHARAT DOGRA | ARVIND SUBRAMANIAN

**Empowering  
Agriculture**

**Through global  
Practices,  
Indian values**



#### **Our solutions :**

Warehousing and Storage | Collateral Management | Trade Facilitation and Finance  
Procurement and Origination | Logistics | Star Labs | Agri Exports

- At StarAgri, we create more efficient markets by building and sustaining partnerships between farming communities and customers.
- Better realisation for producers + Lower costs for buyers = Beneficial for all stakeholders in the agri-value chain
- Today we are India's most preferred agribusiness service provider.



- Over 3,00,000 agriculturists benefitted since 2006
- Collaborations with 32 leading banks and financial institutions for Warehouse Receipt Financing (WRF)
- Over Rs.30,000 crore disbursed through WRF during the last five years

- 12 state-of-the-art Star Labs across India - NABL 17025 ISO, ISO 9001:2008 & ISO 22000:2005 accredited
- Over 800 warehouses across 16 states with over 1.2 million metric tonnes of warehousing capacity
- Employee strength of over 1,000 personnel

"For any trade related queries, please contact us at +91-7498943535"

Corporate Office : 3rd Floor, Wing B-1, NSE Building (Exchange Plaza), Plot No. C/1, G Block, Bandra-Kurla Complex, Bandra (E), Mumbai - 400 051.  
Tel: (022) 26384500 Fax: (022) 26598020, Website: www.staragri.com | Email Id: reachus@staragri.com



Volume 16; No. 03;  
June-July 2016  
RNI No. DELENG/2001/5526

**Editor, Printer & Publisher**  
Ajay Vir Jakhar

**Editorial Board**  
Prof. M.S. Swaminathan  
Dr R.S. Paroda  
J.N.L. Srivastava

**Editorial Support**  
Aditi Roy Ghatak  
Jyotirmoy Chaudhuri

**Design**  
© PealiDezine  
pealidutttagupta@pealidezine.com

**Contact us/Subscription**  
ho@bks.org.in

**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

**Cover photo**  
© Dinodia

The opinions expressed by the authors of the articles are their own and may not necessarily be endorsed by the Bharat Krishak Samaj.

All rights reserved by *Farmers' Forum*

# Yet Again; Time To Reap A Bitter Harvest

*'There are no facts, only interpretations'*

— FRIEDRICH NIETZSCHE

This is the time of the year when minimum support price (MSP) assumes centrestage. Farmers want more of it while economists constantly remind one that a 10 per cent MSP increase leads to a one per cent rise in inflation. This year, quite literally, the media is celebrating the minimal MSP rise not impacting inflation. The farmer has been obliterated from this calculation. The union agriculture ministry too has joined the bandwagon of the economic zealots, preaching alternative therapy to farmers, having given this troubled constituency the false hope that it was on its side.

To look at real numbers, the MSP for 'A' grade paddy (main crop) was increased by ₹60 (4.1 per cent increase over last year) while the average inflation rate for six years has been 7.74 per cent. Thus, on a three-year average, the MSP has been effectively reduced by 3.8 per cent. The new MSP should have been ₹1,562 to just keep up with inflation. The current ₹1,510 is, therefore, effectively a reduction! Farmers were awarded a pay cut in a drought year while the talk was about doubling incomes.

The NDA government has increased MSP by an average of 3.93 per cent in three years vis-à-vis what was obtained in the three years preceding it, when support prices went up by 9.39 per cent per year. In a hair-brained response to the clear and pressing problem of farm penury and pulse shortage, rather than incentivizing the farmer with higher MSP, the government explores possibilities of growing pulses in Africa to meet domestic demand. Yet, 'Make in India' is the national agenda!

Both journalists not deliberating on the economic cost of low MSP for farmers and economists who conspire to remain silent on socio-economic cost of controlling inflation at the expense of farmer's lives are irresponsible. If journalists are guilty of being poorly informed; economists may well be charged with malfeasance.

Farmers suffer the consequences of government efforts to restrain food inflation by artificially driving down farm gate prices. The government's actions on this score are more akin to 'today we break your arm; tomorrow we apply a pain reliever' because there is no escaping the reality that as long

**RATHER THAN INCENTIVIZING THE FARMER WITH HIGHER MSP, THE GOVERNMENT EXPLORES POSSIBILITIES OF GROWING PULSES IN AFRICA TO MEET DOMESTIC DEMAND**

## INDIA'S TRAGEDY IS THAT IT ADMIRES THE SUPPORT INSTRUMENTS BUT LOSES SIGHT OF THE SUPPORT OBJECTIVE: THE FARMERS



© Dinodia

as farmers are used as the primary instrument for controlling inflation, they will need to be supported. How best to support Indian farmers should be the question; not those in Africa!

No one instrument will work, which means choosing a combination of a few interventions. After much confabulation, direct transfer of benefits has chosen itself as one of the options. India can fix an amount, for a five-acre farm for instance, and deliver it to all farmers irrespective of the size of their holdings. The smaller farmers benefit more and the solution is easier to administer. It may even replace inputs subsidies, if designed appropriately.

While better designed and expanded MSP could provide support for post-production procurement, a combination of direct purchases and price deficiency payments may work as well, with a mix and varying degrees of instruments used, depending on different geographies or crops. Similarly, demands could rise for different support amounts for irrigated and unirrigated farms. Assured irrigation reduces risk substantially by serving as a crop insurance.

The crucial point is that the policy fine print should be perfectly supportive of the main measures. Recording tenancy rights prior to revenue records/land reforms, for instance. Even if farm produce prices increase by 50 per cent, more than a third of farmers will remain below the poverty line because of their small holdings. The purpose of policy must be to reach the most dispossessed and not be limited to the better off farmers; usually the larger farmers and those with irrigated farms.

India's tragedy is that it admires the support instruments but loses sight of the support objective: the farmers. Without farmers themselves sifting, deciphering and interpreting policy, farmer prosperity remains elusive. Farmers who have allowed themselves to be manoeuvred out of policy deliberations are as much to blame as are the economists.

The bitter realization after two drought years is that India has an opposition that has let the farmers down miserably by failing to capitalize on the farm crisis and allowing the government to get away with pretentious propaganda. The dismal bottomline is hit harder by the fact that the government that inherited farm distress is not engaging in policies to provide succour or lead to resurrection of hope for sustainable farm livelihood. ●



Ajay Vir Jakhar  
**Editor**

twitter: @ajayvirjakhar  
blog: [www.ajayvirjakhar.com](http://www.ajayvirjakhar.com)

# COVER STORY

## INHERITED PROBLEM; INDIFFERENT SOLUTIONS 07

### FIVE STEPS TO RESOLVE 'KRISHI' CRISIS 10

*Jayant Sinha*

### FALTERING ON PROMISES 12

*Ashok Gulati*

### WHITHER COMMITMENT TO KEEPING PROMISES? 16

*Satnam Singh Behru*

### PROTECT INCOME TO DISPEL HOPELESSNESS 18

*Harsh Mander*

### STRENGTHEN SUPPORT SYSTEMS TO MAKE THEM DELIVER 22

*Prasenjit Bose*

### TIME TO MAKE THE FARMER MATTER 26

*Yogendra Yadav*

### POINT-COUNTERPOINT 30

#### THOUGHT LEADER

#### RESURRECTING FARMER LIVELIHOODS 38

*Arvind Subramanian*

#### PERSPECTIVE

#### CASE OF THE FOOD MILES FOOTPRINT 50

*Rahul Gupta and Sumita Gupta*

*Gangopadhyay*

#### ECOLOGY

#### SAVING TREES: PANDURANG HEGDE'S APPIKO MOVEMENT 58

*Bharat Dogra*

#### GREEN FINGERS

#### WHEN WASTE IS A RESOURCE: THE UNTOLD STORY OF A FARMER ECOLOGIST 64

*Dhrubajyoti Ghosh*

## Getting the house in order

**Sandeep Soni,**  
*New Delhi*

**Kunal Shah,**  
*Amritsar, Punjab*



**Madhukar Rao,**  
*Chennai, Tamil Nadu*

**Deepak Routela,**  
*Haridwar, Uttarakhand*

**Mohit Paul,**  
*Siliguri, West Bengal*

**COVER  
STORY**

# Inherited Problem; Indifferent Solutions

*A Farmers' Forum Analysis*

The NDA government has inherited a farm sector crisis; an unsustainable farm economy. A near catastrophe, not of its making, has been aggravated by two years of bad monsoon and low commodity prices and farmers across the board are growing restive. They are expecting solutions even as the ruling dispensation believes that things are being done.

The UPA II government was decimated in the last elections even though it believed that it was rolling out excellent programmes for poverty mitigation. This mindset is reminiscent of ‘delusions of objectivity’, brought into focus by Tim Harford in his column in the *Financial Times*. People seduce themselves into believing that they perceive the world without bias or error and, confronted with a conflicting view, they instinctively believe that the other viewpoint is deluded.

Seldom is it realized that there is something in the contrary position that is worth appreciating. “That is the problem facing Indian farmers. The government, the elected members of Parliament and the bureaucracy, when briefed about the grim farm sector reality, believe that the farmers are the deluded ones”, said Ajay Vir Jakhar, chairman, Bharat Krishak Samaj (BKS) and editor, *Farmers’ Forum*, flagging off discussions on the Crisis of Rural Farming, organized by the BKS at the India International Centre, New Delhi on April 5, 2016.

“Unfortunately, it is not the programme that the government of the day announces but what the programme delivers that makes for voter satisfaction. It is not the government’s belief that something is beneficial for the people that is of critical import. Popular conviction that the action is beneficial for people is what matters. People are looking for positive, transformative change. That change in farming is not possible without involving farmers in making policy or involving farmers in working out the fine print”, the BKS chairman asserted.

Given the need for greater debate and understanding, the BKS has been holding regular



© Dinodia

conferences for five years to raise awareness amongst policy makers — and even within the farming community — to put together the real farm sector story. Its forthcoming seminars will include one with the Indian Meteorological Department on predicting the monsoons that affect the lives of farmers and crops.

“Farming is not just about farmers and has so many other facets”, said the BKS chairman. This is why the Samaj has been inviting important speakers to address various seminars. India’s chief economic advisor, Arvind Subramanian, made a speech which appears under Thought Leader in this issue. There will be another seminar on

**NOT WHAT THE  
GOVERNMENT  
ANNOUNCES BUT WHAT  
ITS PROGRAMMES DELIVER  
THAT MAKES FOR VOTER  
SATISFACTION**





the need for commodity and futures markets for farmer prosperity, followed by one on water wars.

“Punjab has a dispute with Haryana, Tamil Nadu has a dispute with Kerala and Karnataka, Telangana has a dispute with Andhra Pradesh, India is in dispute with Pakistan and Bangladesh. Everybody is in a state of dispute over water. There will be one event in June on water wars within India and another outside its borders”, the BKS chairman said.

The speakers at the April seminar were Jayant Sinha, Minister of State for Finance, Ashok Gulati, Infosys Chair Professor of Agriculture, ICRIER, Satnam Singh Behru, president, Bharatiya Kisan Manch, Harsh Mander, director, Centre for Equity

Studies, Prasenjit Bose, economist and political activist and Yogendra Yadav, member, Swaraj Abhiyan National Coordination Committee and National Convener, Jai Kisan Andolan.

The BKS chairman reiterated that the present government does consult farmers and is defining its objectives with greater clarity. He claimed that the presence of the Minister of State for Finance, an IITan and MBA from Harvard Business School at the BKS seminar, proved as much — that professionals of such calibre representing the government at such discussions demonstrated the commitment of the establishment. Edited transcripts of the discussions follow. ●

# Five Steps to Resolve 'Krishi' Crisis

Jayant Sinha

© Dinedia

**T**he crisis of India's farm sector faced by our farming brethren demands urgent resolution if the country is serious about its economic prosperity. The agrarian crisis will severely impact the country's economy and the speed of development. The finance ministry is critically involved with the well-being of the farming sector because without growth in this space, the country cannot progress and that is the finance ministry's primary concern.

Apart from being an engineer who has worked in the investment sector, I am also a farmer. Nearly 25 years or so ago, my father owned a farmland in Hazaribagh, Jharkhand and the family has a six-acre farm with a fabulous mango garden where a lot of farming activity takes place. The farm grows vegetables, wheat and paddy, garlic and ginger and much more. I am, therefore, conversant with issues related to the agriculture sector. What bothers this audience today is a matter of first-hand experience for me. Attending today's meeting is, therefore, important for me from both a personal point of view and on behalf of the finance ministry and the government.



**JAYANT SINHA**  
Union Minister of  
State for Finance

Agriculture presents a long-term challenge vis-à-vis enhancing productivity and there are multiple reasons for India not having the desired productivity levels in the sector. A crisis in the making was aggravated with the rainfall deficit in the last two years. Climate change concerns globally have underscored the importance of urgent action.

As traditional farming practices are disrupted due to changes in the rainfall pattern, adapting to new conditions becomes difficult. This is more so when the country is facing an acute water deficiency, especially in states like Jharkhand that are suffering from inadequate irrigation, which is worsening the situation. The challenge is to find appropriate solutions backed by budgetary plans.

The plan that has been drawn up and the agrarian policies and financial rules formulated give prime focus to the rural sector. The question of agricultural productivity and climate change crisis needs to be examined along with the crucial aspect of the farmer's income. It is the government's belief that if India were to adopt a single goal, it should surely be doubling the farmer's income.

Basing the analysis on "what you count, counts"

with regard to the farmer's income — against which all policy initiatives are measured — one has to move towards the one goal of helping the farming community increase its income. Policies have been drawn up with this end in mind. The government has faith that the adoption of five or six important policies, focused on increasing the farmer's income, will surely be effective.

First, the government is looking at implementing the Pradhan Mantri Fasal Bima Yojana (PMFBY) to secure the farmer's income should it get depreciated on account of some unfortunate natural disasters. The PMFBY will secure the farmer's monetary loss caused by sudden drought or flood.

Second, comes the Pradhan Mantri Krishi Sinchayee Yojana (irrigation plan) to help address the reality that only 47 per cent of India's farming area is under irrigation. This is not something that can be achieved overnight and one will have to adopt several technologies, including ground water extraction through deep boring and other known techniques to aid with the irrigation of the farmed lands. If about 80 per cent of agricultural land (from 47 per cent now) is irrigated, it will surely increase farmer incomes by enabling the production of

can diversify and raise livestock, set up a fishery, using a pond, develop a horticulture area or get involved in some agri-processing activity with government support it will help to increase incomes. These are the five key schemes to increase farmers' income.

The other aspect of the farm income is the Minimum Support Price (MSP). While the five policies/schemes outlined will improve income, there is a need for further flexibility with the MSP. The approach has to be dynamic and flexible so as not to increase inflation, which is the other end of the problem that affects consumers, especially amongst the middle classes in big cities, who become vocal during elections.

The government wants to increase farmer income through support prices but keep a balance between inflation and the farmer's income. MSPs can help with a short-term fix at a critical hour of need but the long-term focus must be on structural reforms to improve the productivity as well as farmer incomes.

Changes are also being made for improved credit agriculture accessibility in terms of increasing absolute quantity — providing ₹900,000 crore credit facilities — while also weighing options to provide credit through Mudra loans for agri-processing and

## Pradhan Mantri Krishi Sinchayee Yojana is designed to address the gap in India's irrigation reach — 53 per cent of farming area does not have provision for irrigated water

more than one crop. This is why there is such great focus on irrigation.

Third, soil health cards can inform and educate the farmers about the suitability of the soil for good yields of specific crops. Should a vegetable farmer grow potato, onions, tomatoes, ginger or garlic? Soil health cards that will create awareness among farmers were distributed even at the recent Krishi Mela with demonstrations on how farmers could use it to choose the right crop for their soils.

Fourth, the Pradhan Mantri Gram Sadak Yojana will hasten the transfer of the yield to the market or warehouses and farmers can benefit from using cold storages, particularly for tomatoes and other perishable produce. The government will assure easy connectivity to the market so that the sale and purchase of the final product is easier. Besides, programmes like the Kisan Channel and Kisan Call centres have been launched to improve both connectivity and communications.

Fifth, the focus on diversification. If every farmer

a subsidy for food processing. The government is trying to strengthen the credit facilities through its financial inclusion programmes of using payment banks and opening more credit facility branches through post offices. Credit will also be available at lower interest rates with the Reserve Bank of India cutting rates.

This is how the government seeks to deal with the *krishi* (farming) crisis. It is open to all good suggestions or proposals that can help improve productivity in the farms to drive development. It is conscious that policies alone will serve no purpose unless executed properly with adequate awareness generated among people. This is where this audience can help. The government will try to implement all worthwhile ideas and India's farming brethren must support these efforts by efficiently using the techniques to implement policies by creating self-awareness. Without this concerted effort, it is difficult to resolve the agricultural crisis. ●



# Faltering on Promises

**Ashok Gulati**

**I**t is excellent that the government accepts that there are problems with India's agriculture sector where the growth rate in the last two years (since the new government came in), has been less than half per cent. Meanwhile, the population growth in the rural areas is around 1.4 per cent. If income grows by half a per cent and the population grows at close to 1.4 per cent, it means that the per capita income is declining.

It may be argued that this has been going on for the past two decades and the sector has always had problems. An analysis of the past five years or those before the last 20 years — the 11th Plan, for instance — shows that the agriculture growth rate was 4.1 per cent. There is thus a major collapse in the agrarian sector not only on account of the government but because of the almighty's will as well.

The BJP manifesto promised to give 50 per cent more than the input price in minimum support price (MSP). No BJP leader wants to talk about it today. The point is that even though the farmers claimed that they had no profits, the government numbers — I was in the government then —



**ASHOK GULATI**  
Infosys Chair  
Professor of  
Agriculture, ICRIER

suggested a 20-30 per cent profitability in most commodities. This has come down to less than five per cent today and is negative for many crops and BJP does not want to talk of electoral promises.

Over the last two years, however, things have been such that farmer association supporters were first disillusioned, then disappointed and have now gone into the agitation mode. The ground situation is that 70 per cent of the peasantry is angry and unhappy with this government. When the ruling party realized that it was losing state elections one by one and the political support was becoming weak, Prime Minister Narendra Modi started addressing farmer rallies — five in the last two and a half months.

The central message was that the Prime Minister had dreamt of doubling farmer incomes by 2022, when India celebrates the 75th year of its Independence. This sounds like a really nice dream. As a professional, with no party allegiance, it was important for me to assess whether the prime minister was talking about real income or nominal income. Some farmer's think real income would



© Dinodia

13

## For farmer incomes to double, there is a need for a Compound Annual Growth Rate of 12 per cent for six years in the agricultural sector

mean neutralizing inflation and then calculating the increase. If inflation is included, sectoral growth should be seven to eight per cent to capture the real income.

If farmer incomes have to be doubled, there is a need for a compound annual growth rate (CAGR) of 12 per cent for six years in the agricultural sector. How will the government achieve this growth rate, which has never been achieved before? Some available indicators (could be fact or fiction): Madhya Pradesh and some other states like Gujarat (9.6 per cent) have a growth rate of between eight per cent and 10 per cent.

To achieve a growth rate of 12 per cent in agriculture in India is near impossible. One thus believes that this is not a feasible target and perhaps the government is talking about nominal income that it aims to double in the next six years. This has been achieved in the last five years under the UPA, at above the 14 per cent per annum nominal. It is

important to get clarity on what the government is talking about. If the government keeps inflation within five and six per cent, it will have to increase real income by six per cent and the nominal income by 12 per cent.

The current initiatives are commendable but not new. Improving and increasing irrigation is a good idea. The situation is most critical in Marathwada and Maharashtra is in the midst of a crisis even though it has the maximum number of dams in the country. The earlier government had spent ₹121,000 crore that led to irrigation increasing by 5.1 per cent.

The cost of public irrigation for one hectare is ₹21 lakh in Maharashtra while it is ₹4.5 lakh in Madhya Pradesh and ₹2.67 lakh in Gujarat. The cost of irrigation in Maharashtra is such that if the farmer is given just the interest on the cost, ₹21 lakh at between eight or nine per cent, interest is around ₹2 lakh. The expenses were incurred but



what was the outcome? Thus allocating a huge budgetary sum for irrigation projects is not the answer because the money spent gets lost like water in a desert. This is a governance issue.

The Pradhan Mantri Krishi Sinchayee Yojana too is a peanuts approach with an investment plan of ₹5,700 crore. Even at the state level ₹100,000 crore is required to irrigate land, all statistics included. A ₹5,700 crore budget to irrigate all farmlands in next 20 years also is a pipe dream; one that cannot be achieved through slogans. The government must spend sizeable sums but where will the money come from?

The government also needs hundreds of thousands of crores to tap the untapped irrigation areas. Production can surely increase in India within the gross cropped area. China has half the acreage but double the production. Achieving increased production needs two things: technology, through irrigation or seeds and through incentive prices.

To deal with MSP, when I was in the government there was much criticism over increased MSP and its inflationary impact, amongst others. In 2014-15, India's MSP for wheat was \$226 per tonne in international terms but it was \$385 per tonne in China. For rice, the MSP was \$320 per tonne in India and \$440 per tonne for Indica rice and \$500 per tonne for Japonica rice in China. Unless incentivized, farmers will not adopt new technology nor invest anywhere.

Incentives can either be given by markets or by the government. Whenever farmers export, prices rise and the government imposes a ban. There was a ban on wheat for four years, which amounted to taxing farmers. It is not the duty of a farmer to protect the poor; the government should use its income policy to protect the poor. What governments have done, in the name of saving the poor, is taken away farmers' incentives, pulled them down completely and made them poor.

Surely, if the poor needs to be saved, the government can use the taxation money to directly support incomes of the poor and let the market forces work. If markets forces are to be avoided, MSP has to be increased. MSP has been announced for 23 commodities and if it is made available in Bihar or Varanasi (U.P.), the Prime Minister's constituency, a paddy revolution could take place.

Regrettably, market prices fall at least 15 per cent to 20 per cent below MSP year after year. The prime minister has been apprised of this and several

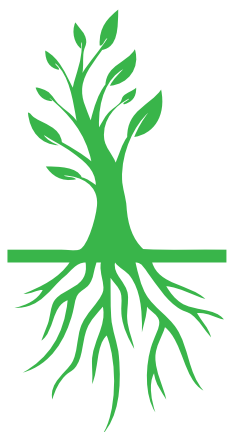


© Dinodia

representations have been made to erect some protection in these states but the centre and the states are happy to trade responsibilities. If the prime minister ensures MSP in his own constituency, the country can witness a second green revolution in the eastern belt. That does not happen though. If the government cannot ensure MSP for two commodities, rice and wheat, announcing MSPs for 23 commodities becomes a big joke.

The leaking irrigation system is thus not working properly, nor is MSP being ensured for even two commodities in more than five states. Meanwhile the markets are not allowed to function on the other. They are being strangulated in the name of the poor. Where is the scope for incentives for the farmers? How are farmers expected to adopt technology?

There is also the controversial issue around seed that needs to be resolved. Which seed does India need? What is the technology? Without the seed, fertilizers and water, all important components of technology, changing things are difficult. If Jaivik





## Diversification needs a comprehensive approach that is not confined to the farms but connects with the entire value chain

of the total irrigation money being spent in the country where is a 50 per cent leakage.

Soil Health Cards are like advising every house to get testing done or writing 'Drinking alcohol is injurious' on the bottle but making it available at ₹2. The results are obvious. There are other issues around distortion – the urea prices vs NKP also need consideration.

The Pradhan Mantri Gram Sadak Yojana is also a very good scheme, as is diversification. However, diversification needs a comprehensive approach that is not confined to the farms but connects with the entire value chain. This is not an easy job. The white revolution for milk created the entire value chain but though India produces 145 million tonne of milk, not even 20 per cent of it is processed through the organized sector (nine per cent by the private and nine per cent in the co-operative space).

Livestock diversification is needed but with the creation of a value chain as was done for milk. Bananas, grapes and 20 other commodities need massive investment for value chain creation. Just focusing on one horticulture mission will not help. Most policies made in the agriculture ministry were production based but need to be connected with the markets. Unless production and marketing are treated as two sides of the same coin, achieving success is impossible.

Whenever the farmer overproduces a commodity, say potatoes or tomatoes, it ends up being sold at ₹2. What will the farmer save and earn from it? Processing and storage facilities are, therefore, essential and all these rules of the game need to be changed. The bottomline is that the target of doubling income for farmers by 2022 in nominal terms was achieved five years back; there is nothing new in it. If the government achieves it in real terms however — or even bring about a 70 per cent increase — one will salute it. ●

**Ajay Vir Jakhar:**

*My comment on your address as a farmer, not as an economist, is that given the opportunity and with policies that farmers want, income can be doubled even in real terms.*

cropping is being considered, the country must be told whether it would increase the production to a level that the population can be fed at lower prices. If that is the chosen model, it is necessary to inject clarity on the road map.

There are good steps that this government has highlighted like the Pradhan Mantri Fasal Bima Yojana that should be supported because of the short-term crisis faced by farmers who need some money to be able to survive and not be forced to commit suicide. Thus far, it is just an announcement and there is no infrastructure to deliver it. This involves a means to quickly assess crop damage via a proper satellite system, drones and science-based crop assessment techniques rather than the dependence on archaic methods. All accounts need to be locked in with the Aadhar system and all plots need to be digitized. This essential infrastructure is missing.

The Pradhan Mantri Krishi Sinchayee Yojana too is important and a very good step in the right direction but does not add up to even five per cent

# Whither Commitment to Keeping Promises?

**Satnam Singh Behru**

**T**here are a couple of issues that are particularly critical for Indian agriculture — apart from the general realization that the country's agriculture policy is not working — that have led to the farm situation becoming explosive. Without getting into specifics, most commissions set up to address the farm crisis have betrayed the farming class.

One of the most respected agriculture economists, M.S. Swaminathan, headed a commission in 2004 and released its report in 2006. The entire farming community agreed that it was an honest and a tremendous job. He met leading bureaucrats, university professors and agriculturists and suggested that his report be adopted to resolve the farm crisis. When the report was tabled in Parliament in 2007, the then prime minister, Manmohan Singh, had said that it would be implemented in six months. Though many discussions were held, its recommendations were never implemented.



**SATNAM SINGH  
BEHRU**  
President,  
Bharatiya Kisan  
Manch

In 2011, I approached the Supreme Court to get the report implemented. Two judges of the apex court allowed my plea. The government was issued a notice and it became a burning issue because the Supreme Court got involved. There was also the matter of the BJP not keeping its promise — made in its manifesto — of implementing the report if it came to power. When the government failed to move on the the report, I was advised by my lawyer to submit the BJP manifesto before the Supreme Court.

The central government was ordered to submit an affidavit within four weeks stating when it would implement the report. The government has not submitted the affidavit in the two hearings that have taken place. On further prodding by the apex court, the government submitted an affidavit stating that if the Supreme Court orders were followed — that is if the Swaminathan Commission Report was to be implemented



© Dimodia

### AJAY VIR JAKHAR

Satnam Singh Behru has filed the case in the Supreme Court and the Bharat Krishak Samaj (BKS) fully supports it. There is another law, initiated during former agriculture secretary, Ashish Bahuguna's time, about pesticides shops being mandated to employ BSc graduates, which has come into effect.

BKS proposed it three or four years ago. Medicine shops must have a pharmacy licence and qualified salesmen or farmers should be able to buy pesticides from those who are trained to deal in them. This is one step in the right direction.

It will be compulsory for pesticides sellers to have BSc degrees for them to procure and keep their licences. Those with earlier licences must employ BSc graduates within a year, failing which there will be no licence renewal. It is the BKS' case that if selling alcohol in Bihar gets a 10-year jail term, those selling pesticides without a licence should get an equivalent punishment.

A doctor giving wrong medicine leading to a patient's death may be charged for unintended murder. Similarly, the pesticides seller — a principal source of bad pesticides sold in this country — who sells wrong, spurious or outdated pesticides, should be imprisoned for 10 years. Farmers and all the logical persons in the country are likely to agree with this position.

— there would be a law and order situation in the country.

Significantly, the BJP had not considered the law and order issue when making the promise in the manifesto just for securing crores of farmer votes. The law and order problem dawned on it only when the Supreme Court ordered the implementation of a promise in its pre-election manifesto. There is little left to be said after this.

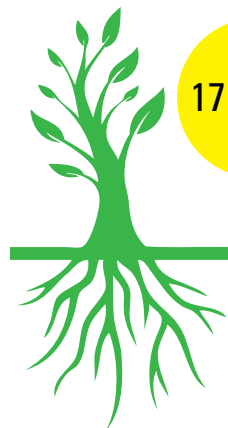
Most people did not know that the government had submitted such an affidavit and some were even curious to know who had challenged the union government over the non-implementation of the report in the Supreme Court. Later, I was contacted and there were detailed reports in the press. Farmers are grateful that intellectuals are supporting their cause because farmers across the country are struggling to have the crisis plaguing them resolved.

If an expert like M.S. Swaminathan has supported the farmer's cause, his recommendations in the report need to be addressed. It has been incorrectly

said that 70 per cent of farmers are facing trouble on account of this failure; 95 per cent of farmers are affected. The court is considering the entire report.

The Modi government would be well advised to submit an affidavit seeking some time to implement the Swaminathan Commission Report. Only then will the farmer's issues be resolved. This is not a political issue. We are a non-government organization and have filed our case on behalf of thirteen active farmers' unions. We will struggle, fight legal cases and create political awareness among the farmers.

This brings one to the need to identify and send good farmer representatives to state assemblies and Parliament so that effective laws are framed to safeguard farming interests and justice is delivered to all. Farmers are committing suicide by hanging themselves and all that we are doing is creating public awareness by raising their issues. Our only friend is the one who accepts our demands and addresses our concerns. ●



17

# Protect Income to Dispel Hopelessness

Harsh Mander

Going by the concerns of popular media one can hardly believe that more than half of India's population, living in the countryside, has been in serious crises for a long time, with 11 states facing droughts, superimposed on a chronic and profound agrarian crisis. The rest of the country seems to be unaware of how these people are surviving; the nature of their crisis or how it could be the resolved.

The Socio-Economic Caste Census-2011 — the largest such survey in the world, to determine the economic and financial status of people — on India's rural areas shows that 56 per cent of the



**HARSH MANDER**  
Director, Centre for  
Equity Studies

rural families are landless and entirely dependent on the labour work for their daily earnings amidst pathetic conditions. Ninety per cent of the rural families have a total income of less than ₹10,000 and, in this 75 per cent, not a single member earns more than ₹5,000 a month.

Between one and two thousand people are leaving *krishi* (farming) forever; every day; as India's rural sector is fast becoming a wasteland of despair. Farmer suicides are like an epidemic of hopelessness that Indians are unable to face and fight. Those depending on farm labour are more vulnerable.

Jan Breman, an international thinker, has called them hunters and gatherers of work, who will



reach out for any type of work, in any part of the country, available on any terms. Whether it is in the farmlands in Punjab, brick factories in Hyderabad, factories in Chennai, high-rise construction projects in Mumbai or ports in Gujarat, they manage to reach there.

At a very young age, they are pressured to move out to strange places without any concern about the human cost of distress migration. Often they lose their families, health, miss out on education and lose their childhoods because they must work in this manner. Of the nearly 1.5 lakh people who sleep on Delhi streets, most are migrants who work and sleep here because they have to support families back home, in their villages.

They find jobs in the city with much difficulty

but cannot afford to rent a room. If they did, there would be nothing left to send home. This is an enormous human cost. There are other costs too; hunger is one of them. Nearly 230 million people sleep hungry in this country even today; most of them in rural areas. The burden of debt, wage labour and malnutrition are the consequences.

P. Chidambaram was once asked in an interview, during the tenure of UPA II: "What is your dream for India?" He replied: "My dream is to see 80 per cent of India's population residing in cities". That dream, which the former finance minister spoke of, for India, should be seriously considered and debated by every Indian. The people of India need to decide whether that it is the future that everyone wants and whether it is even possible?

The bigger question is about the current economic policies that will generate no jobs that are being backed by the government with funds, incentives and its FDI-led economic policy. If the young are being pushed out of the 'krishi' sector, they should at least be welcomed into the city. They should get assured work in cities and not have to sleep on the footpaths or the slums without means of earning an adequate livelihood. The migrant into the city is, however, treated as an unwelcome even illegal interloper, even though they build and clean the city. These are strange circumstances for children born into a 'kisan' family in India's villages. Where should these children look for their future and destiny?

If this be the plight of the landless and small and marginal farmers, the slightly better-off farmers, families in the middle strata, are grappling with the suicide epidemic. Even in agriculturally-developed states, there is a rising number of farmer suicides that are assuming epidemic proportions. There are many such crises.

## Farming is a risky means of livelihood today, thanks to both the weather and market prices. A farmer can be destroyed in one year with increasing input cost and decreasing output costs

Farming is a risky means of livelihood today, thanks to both the weather and market prices. A farmer can be destroyed in one year. The cost of inputs, including pesticides and seeds, is increasing while that of output, including that of pulses, is decreasing. The internal returns in farming for most crops is negative; it is impossible to earn through farming even if the weather is favourable and the market price is good.

The critical concern is that there is no assured return in farming. Facilities for loans from the government and marketing assistance are decreasing. In the ecological context, the water table is declining and the soil is becoming poisonous. The government's extension system is broken and, if the land reforms are not feasible, the entire burden falls on the female family member, as men migrate to the cities.

This crisis is afflicting more than half of India's population is known to the government that turns its face away. It has not taken any ameliorative measures. It is true that more than 50 per cent of the population depends on agriculture that contributes a meagre 15 per cent to the country

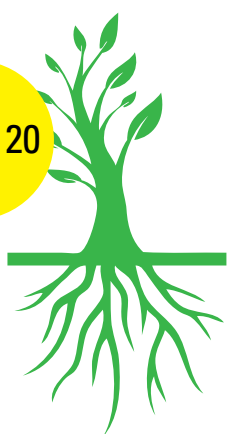
GDP but it is equally true — as any analysis of the expenditure and budget of the previous and the present governments will show — that only four per cent of the government's expenditure is being spent on farming that provides for more than 50 per cent of the population. Of this four per cent, most of the expenditure is on fertilizer and pesticide subsidies that benefit small numbers of large farmers in prosperous regions.

What are the solutions? The first is on the lines that Satnam Singh Behru is fighting for: for the MSP that featured among the BJP manifesto promises. It is for the cost of production plus 50 per cent being the basis for MSP for all crops, which should have legal sanction. If this is implemented, there will surely be some improvement in the crisis situation. Currently, effective MSP is available only for two crops and limited to a few states. In Bihar, there is no arrangement for MSP for paddy.

MSP guarantee provides the farmer with income protection. Another approach would be income

transfers: the farmer getting an assured cash transfer per acre of land, declining for larger holdings. The farmer with smallest plot thereby will get more income protection. In many parts of the world farming is no longer considered a viable livelihood option but is recognized as a public service. Therefore, these forms of income protection from a share of overall tax collections ensures that the farmers' future is protected. These are two important measures that should be considered. There is also need to change agriculture technology that is unsustainable and dependent on lot of water, chemicals and fertilizers.

Finally, the landless farmer should be catered to by a strong NREGA programme. The social protection policy, including NREGA, health protection and the pension system should work; the education system in rural areas should be restored so that villages become secure living spaces from which people do not need to exit but where they can earn their livelihoods and sustain themselves. Their basic incomes must be ensured if the country is to fight the epidemic of hopelessness in the rural sector and eliminate it. ●



# “Futures prices have given life to the entrepreneur in me”



“Earlier, select few traders ruled the markets. This monopoly is non-existent now, thanks to Futures prices. The wider reach and opportunities have helped me realize my dream of becoming an entrepreneur. I can financially support my children's ambitions of higher education.”

Mr. Sunil Yadav,  
Maize Trader - Bihar

## Futures Prices - The National Price Benchmark for Agri Commodities in India

Futures prices are dynamically discovered on electronic exchange platform based on the underlying demand and supply fundamentals of the commodity

### Benefits of Futures prices:

- Transparent Futures prices increase bargaining power of the farmers
- Helps value chain participants to hedge price risks
- Helps processors in better inventory planning
- Offers a window into the expected prices of commodities, thereby providing policy inputs

### Daily Price Alert on your phone



Whatsapp : Save NCDEX Whatsapp number 8879223388 on your mobile and send a message stating your name and commodity of interest



SMS : Register for free SMS service, visit [www.ncdex.com](http://www.ncdex.com) for more details



NCDEX Mobile App : Available for Android users on Google Play



# NCDEX

Pragati ka Solid Exchange

Issued in Public Interest by

## NCDEX Investor (Client) Protection Fund Trust

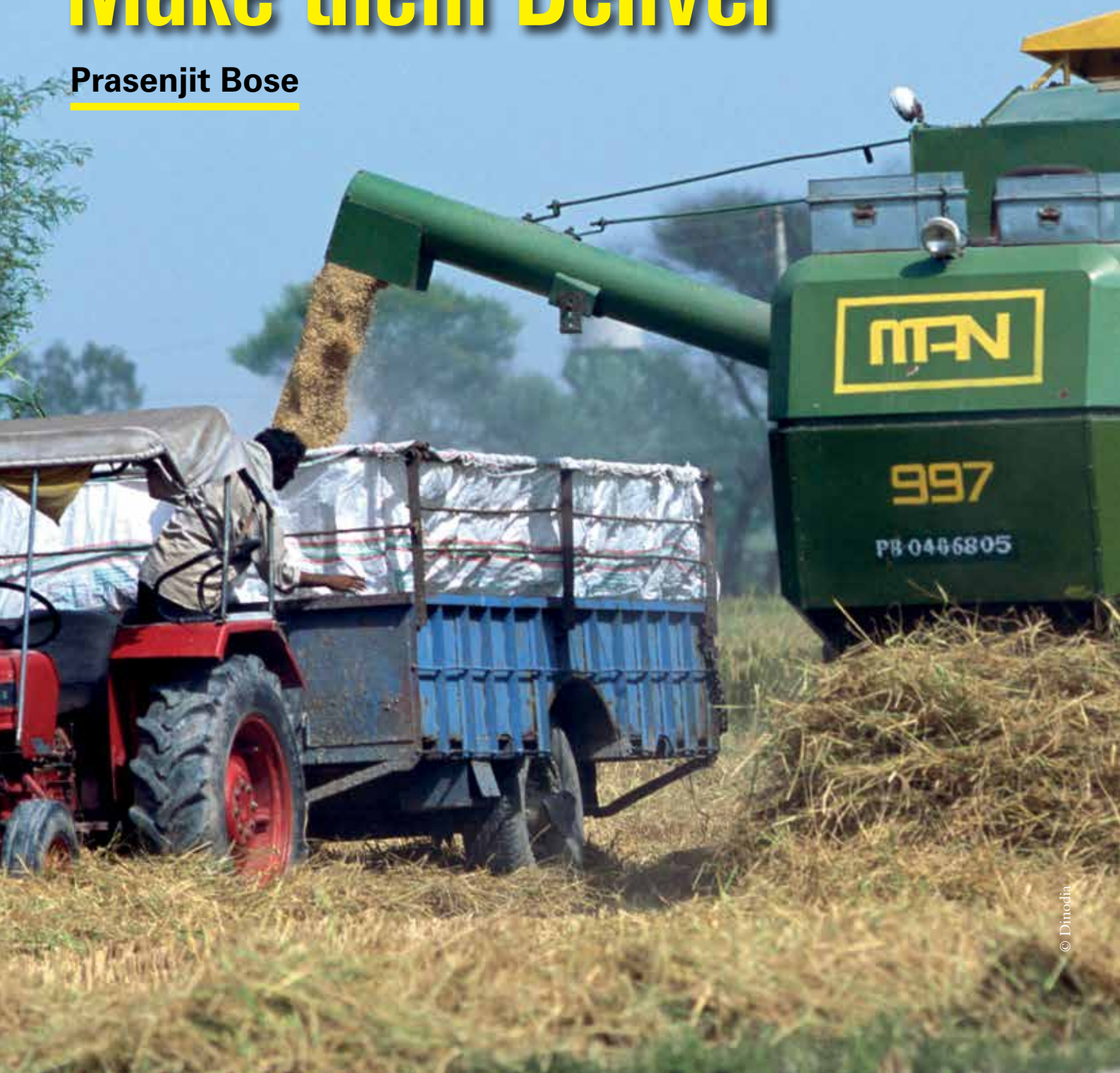
| Toll Free: 1800 26 62339 | E: [askus@ncdex.com](mailto:askus@ncdex.com) | W: [www.ncdex.com](http://www.ncdex.com) |

CIN: U51909MH2003PLC140116

**COVER  
STORY**

# Strengthen Support Systems to Make them Deliver

**Prasenjit Bose**



**T**he 2011 Socio-economic Caste Census (SECC) brought out the true picture of rural India: around 883 million living in rural areas of whom over 50 per cent were landless and illiterate or primary school dropouts. Around 45 per cent did not have pucca houses. More than 75 per cent of the rural families had monthly earnings of under ₹5,000.



**PRASENJIT BOSE**  
Economist and  
Political Activist

The 2015-16 Economic Survey quotes the NSS on a farmers' income survey showing the farmer's average annual income to be barely ₹20,000. This is what is left after deducting the farmer's production cost. Income in the agriculturally prosperous and high productivity regions is higher. In the eastern region, particularly in states like Bihar, Jharkhand, West Bengal and Uttarakhand, the average annual income of farmers is even lower than ₹20,000, although there are well-off farmers too. India's rural development is crucially dependent on farming and, without agricultural prosperity, there can be no rural prosperity.

Some good steps had been taken by the previous government: minimum support price (MSP) MSP had been increased significantly in the last decade but the biggest flaw with MSP and the procurement system is that apart from farmers in the two states of Punjab and Haryana (where more than 80–90 per cent of the farmers are aware of MSP), not more than 20 per cent of farmers are aware

of MSP in the rest of India.

In the eastern states of Bihar, West Bengal and Jharkhand or even in the southern region — for crops like wheat and rice as well — no more than 20 per cent of farmers know about MSP; that the government pays a fixed minimum price, to buy crops from them. There are no procurement operations, particularly in smaller blocks in villages, even after more than 60 years of Independence.

The feasibility of providing direct income support to the farmers in a country of India's population size is questionable. In the United States, where around one per cent of the population

## In the eastern states of Bihar, West Bengal and Jharkhand or in the South, no more than 20 per cent farmers know about MSP for crops like wheat and rice

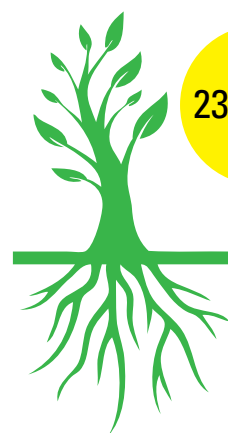
There is a belief that agriculture has no future and farmers will gradually have to switch from agricultural to the industrial or services sector and only this can help the agriculture sector to develop. This is not a healthy mindset in a country like India where, even 20 years after 1991 — when economic liberalization was initiated — there has been no significant improvement in labour absorption in the non-agricultural sectors, which is a prime concern.

India is a labour surplus economy that is the main reason for its poverty as employment generation in non-farm activities is inadequate to absorb the surplus labour in the agricultural sector. Growth linked to globalized markets does not leave much scope for autonomously expanding labour intensity in industry and services. This has led to jobless growth. Income for the upper segment has grown but a very vast section, mostly in the rural areas, has been left behind. If the rural crisis is to be addressed, the government must look for growth prospects and development in agriculture. There is no alternative.

is engaged in agriculture (3.2 million in a country of 310 million plus), almost doing it as a service, it is possible to identify that tiny segment and open bank accounts for them to transfer money into. In India, with the SECC figures revealing that of the 883 million people in rural areas, 30 per cent are direct cultivators and 50 per cent casual manual labourers, it is practically impossible to do so. It would not even be possible to provide income support to the 300 million direct cultivators through direct income transfer. It is extremely difficult to create a structure for this.

India has had an MSP system to support its agricultural society for many years along with the Food Corporation of India, which suffers from problems like corruption and leakage. The system is riddled with other problems too. Even so, this is an existing system that can and must be strengthened because it offers MSP for rice and wheat. More recently, MSPs for pulses have been set as well.

Persistent food inflation is the other big problem because India is unable to increase agricultural



production adequately. Agricultural productivity is extremely low due to poorly-developed irrigation, the inadequate availability of seeds, fertilizers and other inputs. India's agricultural productivity is even less than Bangladesh's for many crops. Comparisons with China or America are best avoided.

There is much scope for improving productivity provided there is a robust mechanism for price incentives. Failing that, farmers will not adopt technologies nor increase investments. There is a well-established empirical relationship between price incentives and agricultural production in India. Not only should MSPs be increased periodically but procurement operations should reach out widely, especially to the smaller villages and blocks in underdeveloped regions (beyond Punjab and Haryana) where farmers have to sell their produce way below the MSP.

Much has also been said about the NREGA and it is obvious that the prosperity of a village is not only dependent on the farmers but also on manual labourers, who are mostly adivasis and dalits, the most exploited segment of Indians. The NREGA has been quite significant for them in terms of welfare and has improved the wage rate somewhat. The scheme entailed a 100 days employment guarantee for people and the programme was best implemented in 2009-2010 when the average number of employment days generated via NREGA was 54. This has now dropped to 40.

Less than 10 per cent of the total workforce gets employment through NREGA today and it gets



© Dinodia

## Less than 10 per cent of the total workforce gets work through NREGA today and it gets it for for much less than 100 days. India is failing to implement it

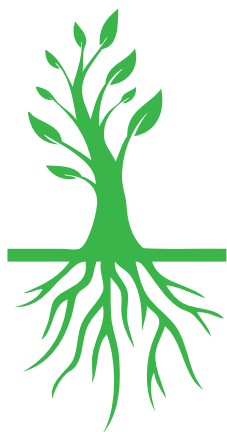
employment for much less than 100 days. India is failing to implement the NREGA properly in most places while the government is more concerned about the GDP growth rate. There are serious shortcomings with relief work in the stressed rural areas.

For the last two years, the government claims that the economy is growing at upwards of seven per cent. However, data — on bank loans, railway freight, direct tax or just the condition of the corporate sector — tells a different story. Bank bad loans have exceeded ₹7.5 lakh crore, indicating that industries are unable to repay loans. This is because industries are neither growing nor making profits. Amongst the defaulters are those who have cheated,

as one has seen in the case of the Kingfisher brand owner, Vijay Mallya.

The ground level economic activity does not reflect a seven per cent growth rate. As far as agriculture is concerned, the growth rate since last year is zero per cent, despite a big chunk of India's population being dependent on it. Government policies have caused further deterioration in the last two years.

The minister talked about the need to improve credit, increase expenditure in irrigation facilities and so on to double farmers' income in five to six years without saying which income will be doubled. As asked earlier, if the target is to improve





the average farmers' annual income of around ₹20,000 to ₹40,000, where does inflation figure in this? Is the higher amount on account of inflation? There is no clarity around this.

The first priority of a government serious about improving the economic conditions is to get rid of its obsession with fiscal deficit. This is called fiscal conservatism. India's fiscal deficit has to be reduced but if restricted to 3.5 per cent of GDP along with the government not wanting to raise taxes — India's tax-GDP ratio is among the lowest within the developing economies — where would the resources for development come from? Rich Indians not only pay lower taxes but many stash their money through shell companies in offshore tax havens like Panama.

If the government cannot mobilize resources for public investment, it will not have the funds for development, whether for increasing MSP or

increased spends under the NREGA. It will only mislead people with false claims. The government will also have to increase productivity. No economic development is possible with the rural Indian reeling under crisis with stagnant or declining per capita income.

India needs a major transformation in its economic policies. Infrastructure development is, of course, necessary. The dream of having high rise buildings, urban development, smart cities and flyovers is understandable but the paramount need is to increase public expenditure, thereby impacting the livelihoods of the majority. Therefore it is important for the government to prioritize economic policies for agriculture development. Ignoring the interest of the majority will distort Indian democracy. The rhetoric of doubling farmers' incomes with the current set of policies pursued by the government will not amount to much. ●

# Time to Make the Farmer Matter

Yogendra Yadav

As children, we were taught not to criticize people behind their backs, which gives rise to a personal dilemma. The minister has conveyed his ideas and left and should not be criticized behind his back; Jairam Ramesh has not yet arrived. Since we were also taught to speak the truth, let truth prevail. Hopefully it will reach those in power because the Bharat Krishak Samaj (BKS) is consulted by the government.

The problem is that there is no disagreement in what is being said. When we say that farmers are under stress, the government echoes the sentiments by saying that they are in deep crisis. When we say that there is drought in the country, they resonate it by saying that there is drought and climate change. When we say that farmers have lower income, they say that the income is very low and we will double it.

Had empty talk solved the farm crisis, Indian farmers would have been prosperous and satisfied.



**YOGENDRA YADAV**  
Member, Swaraj  
Abhiyan National  
Coordination  
Committee &  
National Convener,  
Jai Kisan Andolan

Every political party talks of improving the lot of Indian farmers. If one checks the situation on the ground and raises those concerns, the dialogues do not remain quite as civil.

The term 'rural distress' or 'agrarian distress' is a complete lie. Distress is something caused by a temporary factor. A drought or flood like situation in a year can mean distress. Distress can be caused by reasons that are not structural, which means that such things do not usually happen and that there has been some aberration. At times

farmers face distress due to their own mistakes. What is happening in this countryside is not distress; the correct term is 'crisis'. There is an agrarian crisis.

Coincidentally, there have been droughts for the last two years. Were it not so, the situation would still have hardly been favourable. Also, the agrarian situation cannot be addressed by focusing on agriculture and farming alone. The whole model of development has evolved in such a manner that farmers cannot achieve prosperity. The model is



© Dinodia

villagers. The conclusion is that if the government increases incentives for farmers, they will do a lot of things themselves.

Farmers want a good life and aspire for higher living standards for their families; a farmer is, normally, not any more foolish than the average person. Every shopper picks up things attractively packaged and people are taken in by well-delivered dialogues too but in reality they receive nothing. That is the political part of the promise. There is also the policy issue to be addressed with an open mind and in the global context.

India's erstwhile finance minister, P. Chidambaram, said that he dreamt of converting 80 per cent of this country into urban areas. He may have spoken in an unguarded moment — though that is everyone's dream — but people do not like to talk openly about it. In a nutshell, there is an unwritten policy that villages will have to be wiped out. Farming will slip out of the hands of India's farmers to big corporate houses and the farmer, currently a landlord, will see his son working as a daily wage labourer in these corporate farms.

This is the unstated intent and, if people ever speak about the issue, they word it so that the farmer does not understand the import because it is discussed in the terms of demographics and other statistics. There is an underlying assumption

## There is an unwritten policy that villages will be wiped out. Farming will slip out of farmer's hands to big corporate farms where the farmer's son will work for daily wages

pro-production and not producer-oriented. The overall production data is good even in a drought year; or so the government claims.

The two basic considerations are the policy threat and the political threat; the former often looms larger than the latter. There are some problems with policies that need to be discussed. The government is always trying to tell the farmers that it will help improve their conditions. A novel 'Rag Darbari', based on rural India, has an incident that one is reminded of.

A big wall in the village carried an inspirational quote by the Indian government to 'produce more'; exhorting the farmer to increase yields. The author wonders whether the farmers oppose this idea; he questions the need to give the farmer a moral lesson and goes into why that inspirational message is interpreted differently by different

that whatever happened in Europe will also happen in India though no one asks why and under what circumstances and context things happened thus in Europe. There is no effort to consider matters in an India-specific light and question why the European experience must be repeated in India. This mindset must change and that involves firm determination, which is not easy to come by.

Can BKS take a pledge that India will remain a nation where villages can be preserved? That villages can be saved; that rural civil society will flourish and not in the form of a residue or dustbin. Currently, villages, agriculture and farmers are treated like the skin of the current system that can be peeled off and thrown away. Can a pledge be taken that villages will not be the removable skin but a fruit to be conserved in a manner that rural civil society can live and flourish?



This will be a big pledge for this is not a minor issue and will involve a change in India's entire policy and politics regime. Can it be ensured that the large section of Indians living in villages can earn a respectable living from farming? These involve major decisions and ensuring their implementation will mean discussing policies. One could begin with policies on pricing incentive for farmers that is complicated to start with.

Some Indian farmers get some minimum support price (MSP) for rice and wheat and, therefore, focus on these crops and not on those for which there is no assured return. Economists can debate whether intervening through price mechanism helps farmers but it would appear that there is no other route. It is important that some income mechanism be planned and farmers' unions openly discuss which model would best provide income assurance: the direct income support or assurance price mechanism. Neither is primarily against farmer interest but if farmers are to be saved, income assurance must be guaranteed.

The second question is how much of the fertilizer

been paid. Who is getting the benefit on ₹200,000 crore? Obviously, not the farmer. Farmers' unions must demand that any income above ₹1 crore — though farmers do not earn this much — be taxed and the recovered taxes be exclusively used for farmers. There has never been an open debate on this and it should take place now.

There are thus policy-based issues and political ones, which are the real problems. The minister has talked of doubling farmer incomes through five pro-farmer policies and a dynamic and flexible MSP. How come there is nothing flexible in the income of government employees but MSP for farmers has to be flexible? The government makes tall promises in the budget and people in the media are taken in. No one questioned the government that was hailed for presenting a 'pro farmer' budget; even in the discussion in TV studios; amidst questions like: 'Will the government spend the whole budget on the farmers?'; 'Will there be anything for urban India?'

It is hard to imagine such hypocrisy and stupidity of this magnitude. In a ₹20,000,000-crore budget,

## How much of the fertilizer subsidy is utilized by the farmers and by how India is perversely incentivizing it by convincing farmers to add more poison to the crop-growing

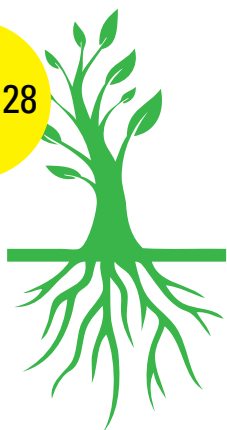
subsidy is being utilized by the farmers and how India is perversely incentivizing it by convincing farmers to add more poison to the crop-growing process, which is harming the soil as well. Is there a better way to advise the farmer on efficient fertilizers that can be subsidized? The idea is to subsidize the efficient usage of fertilizers or to use organic manure. The problem is that India designs one policy and formulates another one to nullify the previous one. On the one hand it incentivizes fertilizer use and, on the other, it promotes organic farming. Surely, there are intelligent people who can work out how the amount being spent on fertilizer subsidy can be given to the farmer who can decide what kind of fertilizer and in what quantity to use it or not, to use fertilizer at all.

The third issue is about the number of people who do not pay taxes, claiming that theirs is agricultural income. Statistics obtained through RTI are surprising and have not been denied by the finance minister in Parliament. In the last few years around ₹200,000 crore has been claimed under agricultural income on which no income-tax has

the government allocated around ₹20,000 crore to agriculture, of which around ₹15,000 crore was courtesy some accounting fudge. The government has fudged figures in public view. Had the government made similar claims concerning the stock exchange, shares or a corporate house, by the evening the quality of the debate in the television studios would have been entirely different.

This was a simple case of cheating but the government managed to receive applause by the evening and no one caught the deception. People like us belabouring the point appeared to be an unreasonable, complaining lot. There is much dialogue delivery in politics and it is time for the government to put its money where its mouth is.

The government talks about irrigation and even this ₹5,000-6,000 crore spend suffered a budget reduction. We have also asked in the Supreme Court how far the government has gone with its farm credit restructuring. The government has provided lengthy responses that we analysed to find that last year the total credit restructuring — only that due to drought and hailstorm — is



around ₹4,900 crore. Compare this with the loan restructuring for corporate houses of around ₹300,000 crore by different estimates.

Restructuring means waiver of loans, deferring repayment or reducing interest rates on the loans taken. Compare the restructuring for the farming and corporate sectors and the reality reveals itself. In the Supreme Court, the government talked of the Pradhan Mantri Fasal Bima Yojana when asked about its response to last year's drought. The judge pointed out that the policy would be implemented a year later and not in the ongoing year. The policy does not even address the basic issues completely; it covers around 20 per cent of the problem and there are no efforts to make coverage universal.

The government assumes that the policy would cover around 50 per cent without explaining the basis of the assumption. Similarly, it has publicized the interest rate cut without mentioning that two earlier schemes had the same interest rate. Interest was cut for one but not for the other. There is duplicity again. There is much talk on this issue but little has been done on the ground and one is not talking about this government alone. However, the MSP was a bit better under the previous regime.

Why is 'solving the agrarian crisis' a political question? This is because farmers in India are not powerful enough to have their demands met. Consider the post budget debate over EPF (Employees' Provident Fund) when the anchor was using very harsh language like 'we are enraged'. I was a panelist and said that I was happy that anchors too get upset and that they should get upset over issues other than EPF as well. The point is that the furore secured an EPF roll back because the government does not want to rub certain segments of the population on the wrong side.

The government has spent around ₹14,000 crore for one instalment of dearness allowance for its employees. Its expenditure on irrigation is less than this amount. Basically, nobody is bothered about the farming class. Though the leaders have realized that the farmers are upset, they still believe that they can take the farming class for a ride. Today, when the agriculture sector is facing the biggest crisis, the politics of the Kisan Andolan, the



farmers union, has become weaker. It was never like this during the last 25-30 years.

At a time that the Andolan has to be at its peak, it has been reduced to its feeblest. It is weak and divided, based on crops and region. Sugarcane farmers and wheat-growing farmers have different problems while rubber-growing farmers have issues of their own. They are not ready work together while the rest are divided over the issues of MSP supported, NREGA and the 'seemant kisan'. At the policy level, the feeling is that farmers will somehow survive even without any funds being invested in the farming sector. How will this change?

The only way out is through a strengthened farmers' movement. This is not to say that the Grand Trunk Road should be blocked. There are other ways for farmers to express their anguish. Until the metropolitan cities are disturbed, nothing happens in this country; no other pain is felt in this country. Heavy rains are a topic for discussion because they help in settling the dust particles in Delhi; not because of their impact on the farmers. The farmers' survival is not news. For things to change, farmers will have to get united and strengthen the unity at the regional levels too. ●

---

**Niranjan Das Swami:**

*One must learn from the farmer's movement of yesteryears and develop a strong bond, bridging regional gaps, differences between crop growers and different farming classes. The entire farming class should stand united and do something to prick the conscience of people living in urban areas and intellectuals. The day things start pricking them, things will start changing. It should also start pricking the parliamentarians. Without that nothing will change, despite all the talk.*



# Point-Counterpoint

Discussions on economic policies in India become more political than discussions on politics. This complicates discussions on MSP, on various kinds of subsidies and debates on PDS amongst others. There is also a misplaced sense of solutions. The Direct Benefit Transfer, for instance, is seen as a solution to farm problems but it is only a means to an end; not the solution in itself.

**AJAY VIR JAKHAR:** When the government demanded funding for 100 smart cities, BKS suggested that it be spent on a couple of thousand census towns instead, to keep their population from migrating to cities. Unless off-farm jobs are created, unless factories are created, unless the service sector becomes productive, the farm crisis will not go away. The jobs created should be such that people want to take them; because they offer better prospects.

There is also a misplaced sense of solutions. The Direct Benefit Transfer, for instance, is seen as a solution to farm problems but it is only a means to an end; not the solution in itself. While supporting DBT, one reiterates that it is not a guarantee of income; by itself it accomplishes little. The idea is to deliver benefits through a better mechanism. The primary idea is to deliver benefits. How the crisis can be resolved and how incomes can be guaranteed



is what one must figure out. If the government can guarantee the Seventh Pay Commission payouts to its employees, surely it can guarantee income to the farmers as well.

As far as restructuring farmer loans is concerned, as a director in a government-run co-operative bank in my home town — without any say in the management — I have some knowledge of what goes on. The crisis in Punjab led to short-term loans getting converted to long-term loans with the rate of interest quietly increased from five per cent to nine per cent, without the farmer's knowledge. Farmers were very happy with the longer repayment schedule, from short-term to long-term. Thus even restructuring comes at a cost that is hidden in the fine print.

To my mind, the government's strategy to double income is not about increasing prices

but reducing input costs for the farmer. It can do three or four things. Mechanization through use of better machinery can substantially improve productivity. If production increases using the same amount of input, the farmer secures a higher value for the produce. Since owning expensive machinery is detrimental to farmer interest, a service-leasing model, whereby farmers can hire machinery, is recommended. Farmers also need better seeds and inputs to earn more or the same at a reduced cost.

Another demand from all political parties, farmer organizations — or anyone who has anything to do with farming and holds an opinion on farming — is for the implementation of the M. S. Swaminathan Report. I believe that no political party has carefully considered the report, which is why the BJP promised to implement it. It did not know what it contained. Even most farmer organization leaders have no clue about the length of the report.

It is all about how things are projected by the media. The demand is for higher MSP even though most crops are not covered by MSP. Public perception is often incorrect, which is why one is grateful that this audience is here to listen to these discussions. It is through such conferences, seminars and meeting each other that farmers can actually drive the debate on lines that would benefit them. The media can play a very important role in highlighting the issues but it needs to understand the truth instead of consuming information from public relations departments of multinational companies, large Indian corporate houses or government departments. Journalists need to go to the farms and judge for themselves.

### GAURAV JAIN

*Law student*

My question is very specific. To what extent is the ban on cow slaughter and beef responsible for the agrarian crisis, especially in Maharashtra?

### CHAITANYA KALBAG

*Senior Journalist*

What are the five big and urgent steps that you will take — were you the finance minister, agriculture minister or the prime minister — to make things get better quickly?

### S. S. SOLANKI

There are four main actors for rural, agricultural or farming development: the political player, the



JAYANT SINHA

bureaucracy, the farmer and the policy maker. Political parties are at the receiving end but what about the role of the policy maker and bureaucrat in creating the mess? Surely, the bureaucracy and policy makers must be just as responsible?

## RAM CHANDRA CHAUDHARY

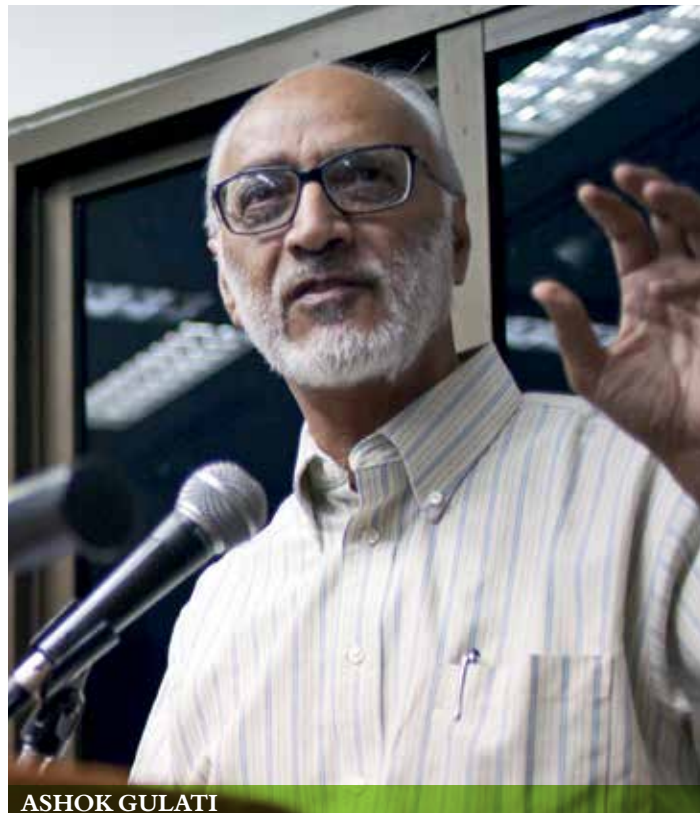
*Chairman, Ajmer Milk Union*

The ban on cow slaughter is adverse for cattle development. It should not be banned. Also, how about an MSP for milk?

## UNIDENTIFIED FARMER

The NSS 70 data, when a family's income through agriculture was around ₹3,081, shows that of the total income of ₹6,500 the consumption expenditure is ₹6,200, with savings of just ₹300 per month. If there are five members in the family, the monthly per capita saving is ₹40 or an annual ₹480 per capita. What can be done with this meagre amount?

Increasing non-farm incomes of farmers has been talked about for the past 30-40 years without any mechanism to drive it. Who will develop the technology or deliver the produce to the market and how will farmers raise money and capital cost? The biggest problem will be marketing the farm produce. What is your perspective on this?



ASHOK GULATI

## VIVIAN FERNANDES

*Journalist and TV Producer*

Yogendra Yadav talked of increasing productivity and income but is averse to chemicals and fertilizers and wants organic farming to be promoted. India quit organic and entered the era of green revolution. The point is that India needs better technology and there may technologies whereby resource use can be reduced. As a policy maker and political leader one should not advocate something that is not good for farmers.

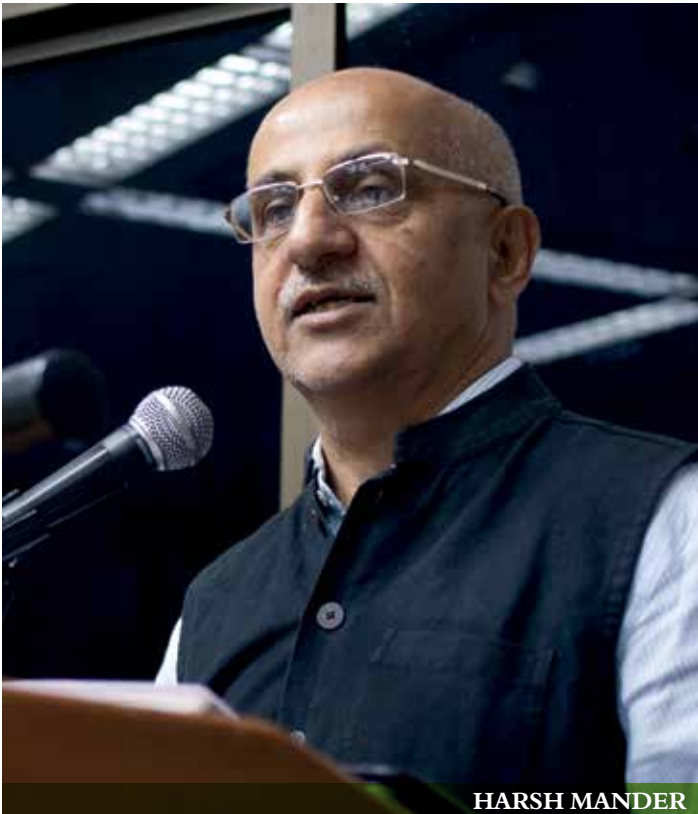
## MOHAMMED MUSTAQUI

*Rural and Marketing magazine*

(Question for Ashok Gulati, former chairman of the Commission for Agricultural Costs and Prices or CACP) Given India's variety of agricultural climatic zones with variant costs, is it fair to have single a MSP across the country?

## ASHOK GULATI

I will take two questions, first different MSPs for different zones. Each farmer has a different cost structure and each block probably should have different MSP if one is to go by the principle of different MSPs for different zones. That will be a disaster for this country. There is a question of who is more competitive for a particular crop.



HARSH MANDER



PRASENJIT BOSE

## The bane of Maharashtra is irrigation that has sucked in money without adequate irrigation. BT technology is not wrong. It brings prosperity to in Gujarat and causes problems in Maharashtra

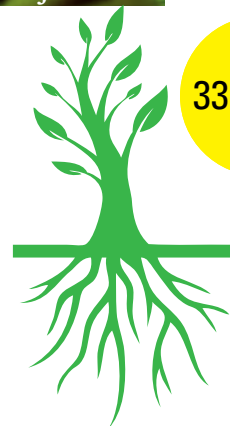
As chairman of the CACP, I got a call from the chief minister of Maharashtra, when farmers started committing suicide in Vidarbha. He said that costs were very high and MSP should be doubled and asked whether I could do something to help. Vidarbha has only three per cent of cotton area under irrigation and its productivity is half of Gujarat. Gujarat farmers were prospering with the same MSP while Vidarbha farmers were suffering. I explained that if MSP was doubled or increased by 20 per cent, the whole of Gujarat would produce nothing but cotton and still beat Vidarbha growers. Where would the growers export all the cotton? Where would the Vidharba crop go? The message is that some places are not suitable for certain crops.

The bane of Maharashtra is that irrigation that has sucked in all the money without adequate irrigation. The point is that there is nothing wrong with BT technology; the same BT was giving prosperity in Gujarat and causing problems in Maharashtra. It would be disastrous to start having different MSPs for each area because it would end up protecting high cost or promoting

inefficiency in the system. That will never be done. The solution is not MSP but irrigation. Give them irrigation, which is what I am saying.

One could do just two or three things to turn around agriculture. The current budget allocates ₹5,700 crore for the Pradhan Mantri Krishi Sinchayee Yojana and ₹130,000 crore and ₹70,000 crore respectively for food and fertilizer subsidy. This adds up to ₹200,000 crore. The pending bills for food subsidy (not cleared by the government yet) add up to more than ₹70,000 crore, hidden under the carpet and not shown in the budget. The dues of the fertilizer industry are more than ₹40,000 crore; again not shown in the budget. This add up to a debt of ₹300,000 crore.

Things might improve if this is turned around and Direct Benefit Transfer is initiated. The leakage in the PDS system is around 46 per cent. It is a fundamentally wrong design to distribute a thing that cost you ₹22 at ₹2. There will be leakages in the system because price policy is being used to achieve an equity objective, for which it is a wrong policy instrument. Instead, income policy should be used to achieve the equity objective.





SATNAM SINGH BEHRU



AJAY JAKHAR

## An export duty is imposed as a temporary or knee jerk measure for farm produce but when prices collapse and potato is sold at ₹2 per kg, there is no government around

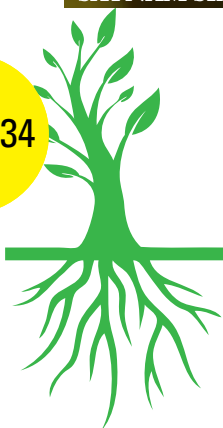
Direct Benefit Transfer should be able to save a minimum of ₹50,000 crore each year without giving up the objective function even as leakages on food and fertilizer subsidies are plugged. This can be used as additional investment in irrigation to raise productivity by 70 per cent to 100 per cent.

The second thing to do is to give farmers unhindered access to markets across space and time as is the fundamental principal of markets. I was part of the government in Latur when the government put an export ban on cotton — prices dropped by 25 per cent within a week and farmers began committing suicide. I was the first to issue the statement, despite being a part of the government, that the MSP should be increased by 20 per cent — otherwise the government had no right to ban export of cotton. What prompted the government action? The textile industry was in a bad shape, could not afford cotton at a higher price and had to be helped. Thus the cotton export ban but why was the efficiency of a farmer sacrificed to salvage the situation of the textile industry? If Bangladesh and China can import from India and export their yarn and garments, why cannot the Indian industry do that?

There is thus a basic political fight within the system, where the industrial lobby works much faster to secure gains at the cost of the peasantry under the pretext of exporting only after value addition. Any export ban, whether it is on onions or potatoes, is a tax on the exporter, yet an export duty is imposed as a temporary or knee jerk measure. However, when prices collapse and potatoes are sold at ₹2 per kg, there is no government around. If the government levies a tax when prices go up, it must provide support when prices crash.

Why are futures or forwards being banned? How does the farmer get the best price? The farmer has the right to the best price, when the produce can reach across the world and across time. India has stocking limits that are anti-farmer. On the one hand, there is a stocking policy and warehouses are being set up and, on the other, only 500 quintals of pulses can be stocked and everything else has to be unloaded in the market. The farmer can ask why he cannot keep his produce in the godowns and sell after three months. How can the government take away his right?

Proper market access for the farmer is the way to go rather than the MSP business because markets





YOGENDRA YADAV

will always give them better prices. Farmers must be given a better incentive structure and get into DBT and the government can save that money without losing sight of the objective and invest in irrigation. The country will then double its output within five to seven years and incomes will automatically be doubled.

#### HARSH MANDER

I believe that there is a need for a legal guarantee of MSP at cost of production plus 50 per cent for all cost; backed by law. There is scope for farmer income protection by restructuring subsidies and raising more funds, reducing subsidies on fertilizers because it creates adverse incentives. A national programme for watershed development for non-irrigated areas, expanding rural credits, better land records management, major investment for farmer extension and strengthening of the NREGA are what can improve the farmer's lot.

#### PRASENJIT BOSE

I disagree with Ashok Gulati on dismantling the MSP system set up precisely because markets for agricultural produce are very volatile, especially the international markets. I have no issues with some Indian farmers accessing the international markets and such extreme measures as export bans should be taken with caution. However, is

free trade in agricultural produce the best way to ensure remunerative prices for farmers? Kerala farmers, mostly producing commercial crops, have experienced high price fluctuations for all crops. Does India want that for rice, wheat and pulses? That would be disastrous in India, where the agrarian structure is dominated by very small and marginal farmers.

It is time to get realistic. How many farmers — half of whom are illiterate or semiliterate — can sit in front of the internet and access price signals emanating from the futures markets? Therefore, price support, backed by the state, in a country like India is absolutely essential. The price floor should not worsen and strengthening state intervention is very important in ensuring that.

The second point being made is that resources with the government in terms of taxes collected being finite, there is a limit to how much can be spent. It is being asked if the reduced subsidy amount can be invested in irrigation. Why should tax revenues be treated as finite when enormous sums of black money are being stashed abroad and huge amounts of bank loans are not being repaid? There is no dearth of rich people in India; only a dearth of political will.

The real issue is that India does not mobilize its tax resources efficiently and the first task is to increase its tax-GDP ratio. While talking about China and its huge productivity, one must consider the public investment in irrigation and storage there. There is surely a problem of leakages in the case of subsidies but the belief that one can increase public investments by reducing subsidies is a false one. This comes from a wrong mindset of people who think resource mobilization is constant and cannot be improved. There is massive inequality in India. The rich are very rich and the poor are very poor. If this gap is to be reduced, the rich should be taxed more and that money used to finance the agriculture sector. There is no need for subsidy reduction.

#### HARSH MANDER

MSP was started in 1965 and the CACP and Food Corporation of India, were born in the first week of January 1965. Till today, India has failed to introduce MSP in even two commodities, except in the five states of Punjab, Haryana, Andhra Pradesh, Madhya Pradesh and Chhattisgarh. The other states have no such benefit. Thus far, only eight per cent farmers gain from MSP but MSP is announced for

23 commodities though procurement takes place for not even two commodities.

The system is such that if one more commodity is added for MSP it might work in one or two states. From a futuristic point of view, the thinking that only government intervention will work should change. A market-aligned system with some intervention will benefit the farmer more than market policy only. It will be less costly as well. Consider the example of the food subsidy delivered through the Food Corporation of India that hires loaders to load and unload commodities. How much does the illiterate FCI loader, who does manual labour only, get paid per month? The average pay is ₹70,000 per month for picking bottles and doing loading-unloading work. There are many who earn at least ₹5 lakh per month all in the name of food subsidy.

This is the corruption in the government system that is paid for by tax money. Now if the farmers/poor are given direct income benefit — without reducing subsidies — surely the government will save. As the leakages in the system stop, there will be no need to reduce subsidy. The issue is about stopping the leakage of ₹50,000 crores by strengthening the system; not reducing subsidy.

## AJAY VIR JAKHAR

*Jo kisan ka kaaj kareyga, Woh hi desh pe raaj karega* (those who work for the farmers, will rule over the country)!

## YOGENDRA YADAV

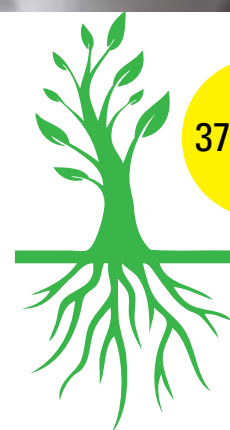
The question on cow slaughter has not been answered. The principal reason for the Maharashtra crisis was not the ban but it has exacerbated the problems. It has caused loss and damage to farmers, cattle-keepers and has not even benefited cows and buffalos. People sitting in Delhi, doting on cows, should see the state of cows in places like Bundelkhand. Every village has 500-1,000 starving cattle. It would be a great help if people debating the issue in Delhi visit these villages and open some cow sheds. That would help feed the cows instead of feeding them plastic garbage.

Of the five steps talked about, everyone agrees that many irrigation projects have stopped just at the brink of getting clearances and need a one-time clearance window. These involve projects of around ₹1.5-2 lakh crore. If big issues of river linking are parked for the time being and one-time clearance of all pending irrigation projects is taken up, one can make some headway. Five





## There should be tax on agriculture. Many companies secure agriculture tax exemption, which is pathetic as companies are saving tax in the pretext of practicing agriculture



years back, India bailed out the industry with a ₹300,000 crore package on account of a meltdown in America. Can the country not bail out irrigation projects of ₹1-2 lakh crore? That will demonstrate if agriculture is a government priority or not.

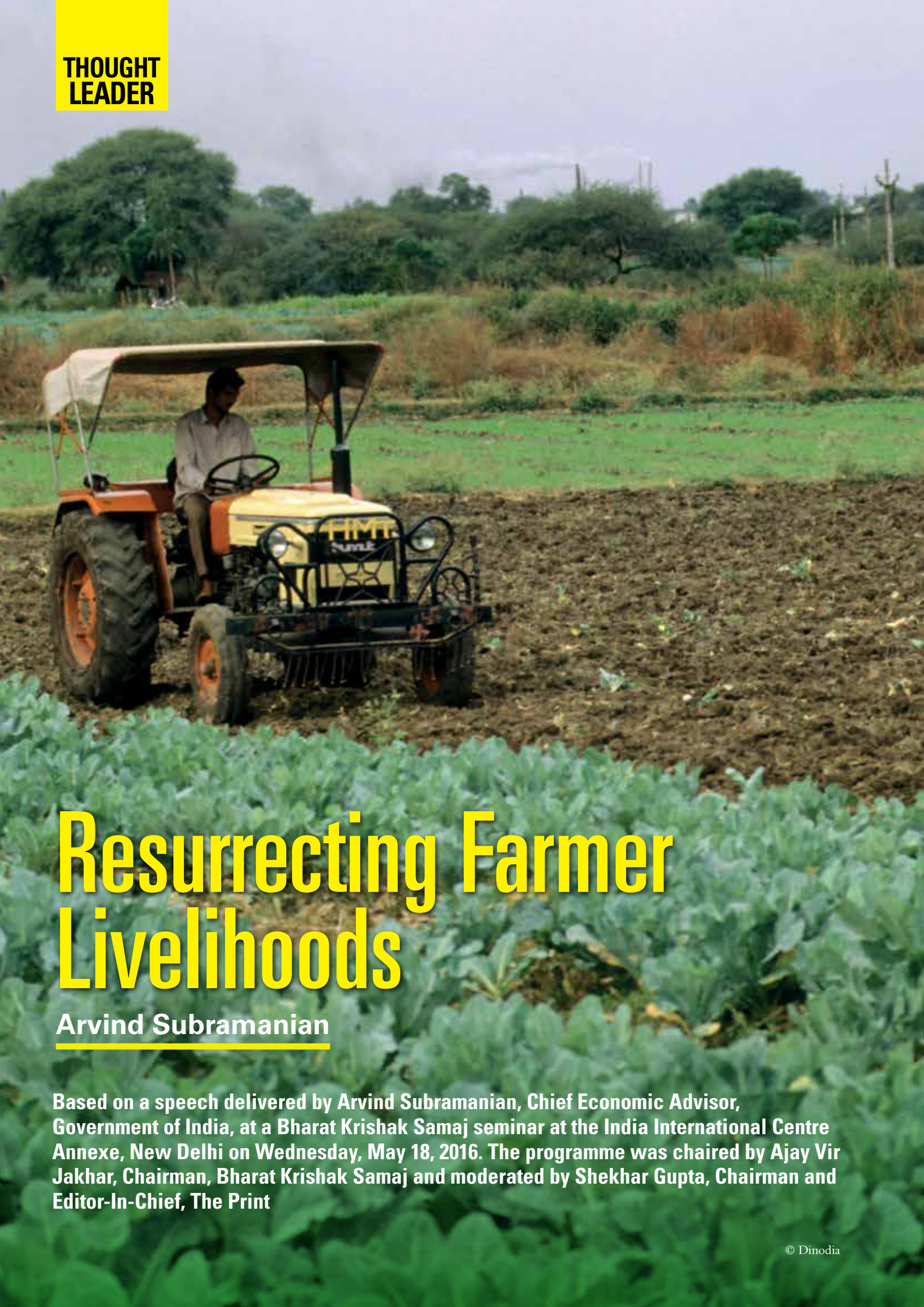
Second, there is a stated need for income guarantee though not necessarily through the price support mechanism. The leftist priorities are correct but the instruments used have not been intelligent and some rethinking is needed around this in order to achieve the objectives that the country is committed to. Many instruments for labour reforms and such others failed because there was a lack of understanding of the market mechanism. The problem in politics is such that one starts worshipping one's instruments. This should be avoided. One should be committed to one's goals and not the paths. Paths can change.

Third, universal insurance schemes that cover all crops of all farmers should be introduced. For the poorer farmer, the entire premium should be paid by the government. This is feasible. No crop cutting checks are needed; things can be determined through satellite pictures and weather predictions.

Fourth, there is a need to rethink the approach to fertilizers and the fifth is that there should be a tax on agriculture. Many companies are receiving agriculture tax exemption, which is pathetic.

The last question is about modern agriculture versus organic farming and this debate is becoming a religious one. Instead of an evidence-based approach, people are becoming dogmatic. Fertilizer benefits depends on the quantity and quality of use and science can indicate the optimum usage. Farmers have as much stake in productivity as the government that wants to double farmer's income and some decisions around productivity should be left to the farmers.

Discussions on economic policies in India become more political than discussions on politics. This complicates discussions on MSP, various kinds of subsidies or debates on PDS and such others. They tend to be more ideologist and less evidence-based and everyone should work towards changing this. A deep commitment to a political position should not prevent one from being intelligent even when exercising political will. Sometimes these two things do not come together. ●



# Resurrecting Farmer Livelihoods

**Arvind Subramanian**

Based on a speech delivered by Arvind Subramanian, Chief Economic Advisor, Government of India, at a Bharat Krishak Samaj seminar at the India International Centre Annexe, New Delhi on Wednesday, May 18, 2016. The programme was chaired by Ajay Vir Jakhhar, Chairman, Bharat Krishak Samaj and moderated by Shekhar Gupta, Chairman and Editor-In-Chief, The Print

The first Economic Survey that this government prepared, focused on industries, services and manufacturing, with one chapter on the APMCs (Agricultural Produce Market Committees) and not very much on agriculture. The feedback from a lot of people was that we had not focused on agriculture. This was very fair criticism, given the state of affairs in the farm sector.

India has had four successive seasons of below average rainfall and international prices have crashed so farm incomes have been under a lot of stress. We were thus remiss in the first Economic Survey in not devoting enough attention to agriculture but we have made some amends in the second survey, where there is quite a bit on agriculture. So mea culpa to begin with.

I am not an expert on agriculture and will not say things that are terribly new. I just want to step back and take a kind of distant, slightly academic perspective on this and provoke more questions than provide answers.



**ARVIND SUBRAMANIAN**  
Chief Economic  
Advisor,  
Government of  
India

discovering. International prices have come down in these last few months, inflation has reduced but agriculture is keeping Indian inflation high. Both the wholesale and the consumer price indices are weighted heavily with agriculture and food, affecting growth via direct and indirect channels.

Second, interest rates would be lower had agriculture inflation been lower and this would have impacted the economy favourably. Third and a very important way agriculture impacts the economy is

through the pricing of power in agriculture. One is not going into whether this is good or bad. What is known is that agriculture affects the price of power for manufacturing. Fourth, credit provided to agriculture affects the rest of the economy.

Fifth, a very important impact of the fortunes of agriculture will be on the quality of urbanization in India. Will India have good or bad urbanization will be greatly determined by the kind of labour that migrates out of agriculture. Will it be educated, able to do relatively high-skilled jobs?

## An important impact of agriculture will be on the quality of India's urbanization: whether it will be 'good' or 'bad' will depend on the kind of labour that migrates out of agriculture

When talking of agriculture, the first question that is asked is: 'why agriculture?' It might be self-evident to many but one should spell out the reasons 'why'. The two broad factors making agriculture so important in India are intrinsic and instrumental. The intrinsic reason is that 49 per cent of India's workforce gets its livelihood from agriculture. Depending on whether one is talking about agriculture or the rural sector, somewhere between 40 per cent and 50 per cent of Indian households derive sustenance from agriculture.

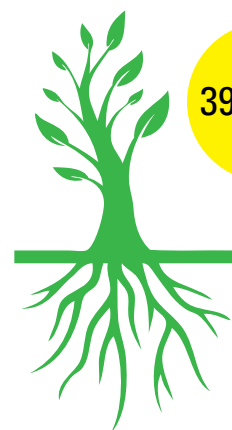
This really is a big deal. Similarly about 80 per cent to 82 per cent of India's poor are in agriculture/the rural sector. Agriculture also provides food security which is really important. The bottom line is that these numbers are so stark, so important and so large that India cannot afford to neglect agriculture.

There is also an instrumental reason. Agriculture is a kind of vehicle or means to other ends. It has the power to hold back the economy as a whole, which is why it should be focussed on. There are other ways that agriculture impacts the economy. First, Indian inflation is affected by agriculture, as one is

Sixth, agriculture can be a source of social stress, as one has seen in the last couple of years and, unless taken very seriously, there could be a lot of trouble for the economy though things may not turn out to be as gloomy, regardless of what is happening in the short run.

It is worth stepping back and appreciating that the story of Indian agriculture is not one of failure. It is a story of many successes and I will outline some that I rediscovered over the past 18 months. The green revolution, of course, changed everything from the droughts of the sixties and the dependence on imports of food. India is in a very different situation vis-à-vis agriculture now.

Similarly, there was the white revolution. To digress a bit, I have been writing about why foreign aid is not very good for developing countries in general. Aid in the form of cheap food has had a detrimental impact all over the world, especially in Africa. India's white revolution experience has, in some ways, repudiated the general rule and, in fact, cheap food imports like milk powder helped to develop the indigenous food sector. The



rest is history. This very interesting success story confounds the general international pattern.

Then, of course, India had six to seven years of the commodity price boom induced dynamism. In some ways agriculture had it relatively better because of high international prices from about 2007 onwards. What is less well understood is that there has been a real spread in the geography and composition of agriculture dynamism. The green revolution was implemented in Punjab, Haryana and in some southern states but in the last 10 to 15 years that has spread geographically to Gujarat, Maharashtra, West Bengal, Madhya Pradesh and, to some extent, Bihar. This spread is very welcome.

There has also been a spread that has gone beyond cereals. Gujarat is a cotton success story; Maharashtra is a horticulture story, West Bengal is a potato story, Bihar is a maize story and, of course, Madhya Pradesh is more the conventional cereal story. This diversity has been very important and the current drought has brought home the point that Indian agriculture has, in fact, become much more resilient.

If one were to establish a correlation between rainfall and food production, in 2015 there was a little rainfall. In fact, it was the second season of poor rainfall and, under normal conditions, it should have affected food and agriculture production. Yet agriculture output showed a positive growth that one could not have expected 10-15 years ago. It is worthwhile to acknowledge this basic success story despite the obvious challenges. (Figure 1)

Conceptually, there is need to think about two big issues around agriculture: increasing farm incomes and livelihoods. They both relate to

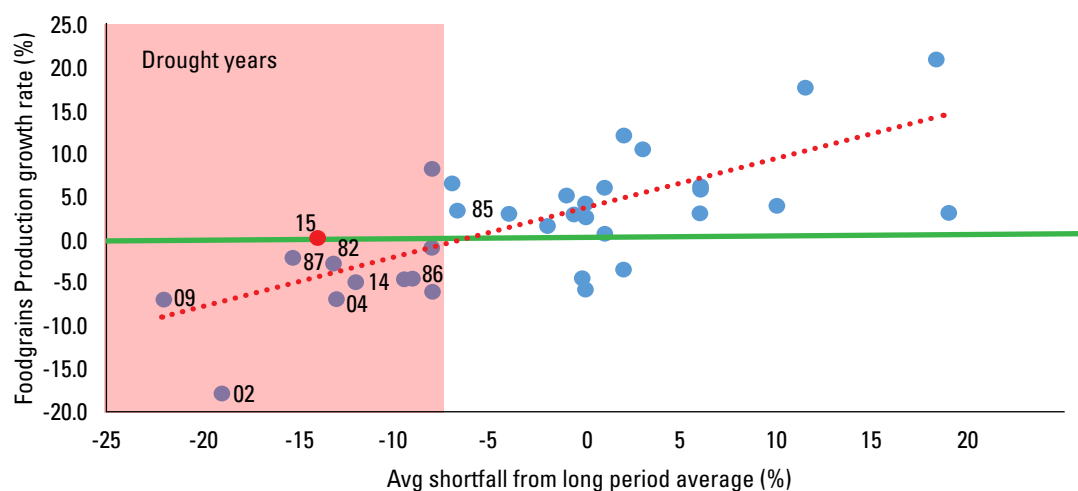
agricultural productivity. In terms of agricultural productivity in the world, India cuts a sorry figure, vis-à-vis the value added per worker, compared to China, Brazil, Europe and the United States. China is 3.7 times more productive, Brazil seven times, Europe 52 times and the USA almost 100 times more productive than India. That is the gap that must be bridged to achieve a real increase in farmer livelihoods. (Figure 2)

One needs to bear in mind a paradoxical thought that India must simultaneously improve agriculture productivity and move people out of agriculture into other sectors. The story of development all over the world is a story of people exiting agriculture and entering higher productive activities. This is not to denigrate the value and contribution of agriculture but to recognize the pattern that there are inherent limitations to agriculture in the long run.

If one wants to become richer, one has to move into higher productive activities. Therefore, while working on boosting agricultural productivity, people have to be moved out of agriculture en masse but under good conditions. They must not be forced out because of low productivity in agriculture.

In the Krishna district of Andhra Pradesh one can see what is happening in terms of the Direct Benefit Transfer and the JAM (Jan Dhan Yojana, Aadhaar and Mobile number) revolution. The Krishna district is showing what can be done with JAM; bringing together financial inclusion, biometrics and mobiles, to help the poor. At the end of my visit to the region, I told a collector that I was very impressed and asked what the per capita income of the Krishna district was. He said it was ₹1.1 lakh, which is very low.

Figure 1: Resilience: Impact of Drought Muted





© Dmodia

## Both India and China has suffered from volatility in agricultural growth to start with but China has achieved stability in the last 10 to 15 years, while India has not

Even a fertile, well run district like Krishna has a low average income because people are mostly reliant on agriculture. It is, therefore, believed that one gets rich by moving out of agriculture and the ordinary rural Indian has to have a transition. Mao famously said: “The way out of is industry”. The point here being that agriculture cannot be a permanent source of livelihood for a large swathe of the population.

The second major objective, given that agriculture is intrinsically volatile, is to protect farmers against volatility and risks. To compare agricultural growth between India and China, both experienced similar volatility to start with but China has achieved stability in the last 10 or 15 years, while India continues to have volatile times. (Figure 3) The work is cut out for India; not just to boost productivity but also to cushion farmers against the downside. That is why the Pradhan Mantri Fasal Bima Yojana (PMFBY) has been introduced.

These twin objectives of productivity enhancement and risk mitigation have to be attained against the backdrop of the ghost of Malthus. Basic agricultural resources, water, land, soil quality and atmosphere, are becoming scarce; partly because of climate change — happening to the weather around the world — and partly self-inflicted.

India’s domestic policies have led to a depletion of some essential resources: soil quality is depleted for obvious reasons; the water table is going down

for obvious reasons and this is happening in a context that is very different from what obtained 15–20 years ago. India has had successes but faces challenges today in an environment that is going to become much more difficult. The question is what needs to be done. There will be different opinions and all of them will be right.

I will run through what needs to be done very quickly because I want to pose a more fundamental and deeper question to which you will have better answers than I will. Earlier, it was a matter of putting in more to get more out of agriculture: more fertilizer, more water, more power to get more output. In today’s changing environment, one has to get more from less; by rationalizing input use — whether its power, fertilizer or land.

One also needs to create one market in agriculture and the NAM (National Agriculture Market), which the government is working on, is moving in that direction. Agriculture infrastructure is needed to reduce the role of middlemen; crop and farm insurance must be strengthened and land usage, in terms of small holdings that come in the way of raising agriculture productivity, has to be changed by encouraging land consolidation. The Niti Aayog is putting out a model law on land leasing but other things have to worked on to improve agriculture productivity. An increased role for science and an improved domestic R&D capability is necessary because India now needs a rainbow revolution in pulses.

Admittedly, there is a lot of policy uncertainty, especially around farm prices. When international prices are high, one set of policies is adopted. When farm prices are low another set is adopted and the farmers end up getting hurt in the long run because of such policy uncertainty. They cannot base long term decisions on such uncertainties. Do they decide on the basis of an onion MEP of ₹100, ₹300, ₹400 or no MEP at all?

There is also the question of strengthening institutions, as the Shanta Kumar Committee report said; strengthen the Food Corporation of India and the Indian Council of Agriculture Research and there are different views on that. Agriculture credit has to be rationalized and a study by Ramakumar and Chavan is quite interesting because it talks of too much farm credit, but not going to agriculture or to small farmers. Very important questions have been raised. This list is not exhaustive and one can keep adding to it but I want to ask you a meta question.

If I were to say that water conservation must improve or policy uncertainties must be removed, the immediate question will be why have these not

not be extended? One knows where the opposition is coming from but this is a demonstrably successful model. Why can it not be extended?

I could keep asking question after question. Why is there a fear of the private sector despite the many private sector driven successes in maize, BT cotton, pearl millet or bajra. Why is there a hesitation to embrace markets in agriculture? Another point that came out when my team did research on fertilizer and, as we said in the Economic Survey, the fertilizer policy actually ends up hurting the small farmers because there are black markets in fertilizer that impact small farmers much more than big farmers. It is the same with seeds.

Why is it that with so many more small farmers (and very few big farmers) politics is not rearranging itself to make things advantageous for the smaller man? These are the bigger questions to ponder over before solutions are recommended. Newspapers offer advice everyday on what needs to be done for agriculture but how this can be a part of electoral politics is the deeper question to discuss.

Instead of worrying about the many things that the

## Agriculture credit has to be rationalized. A study by Ramakumar and Chavan talks of too much farm credit but not going to agriculture or to small farmers

happened? The deeper question — why is there no good agriculture policy or good state level politics? Look at agricultural growth and what has happened with the electoral politics of Gujarat, Madhya Pradesh, Bihar or West Bengal. There is part correlation between many of these governments getting re-elected and agriculture doing well.

There is something interesting happening in India in terms of making good agricultural policy good politics but why is it not happening more widely? These are very simple questions. Why does it not pay in the polls to avoid droughts given that they affect so many farmers? The numbers in agriculture are so big that at some level it must be good politics to cater to the needs, the wants, the basic material well-being of millions and millions of farmers. That is the bigger puzzle.

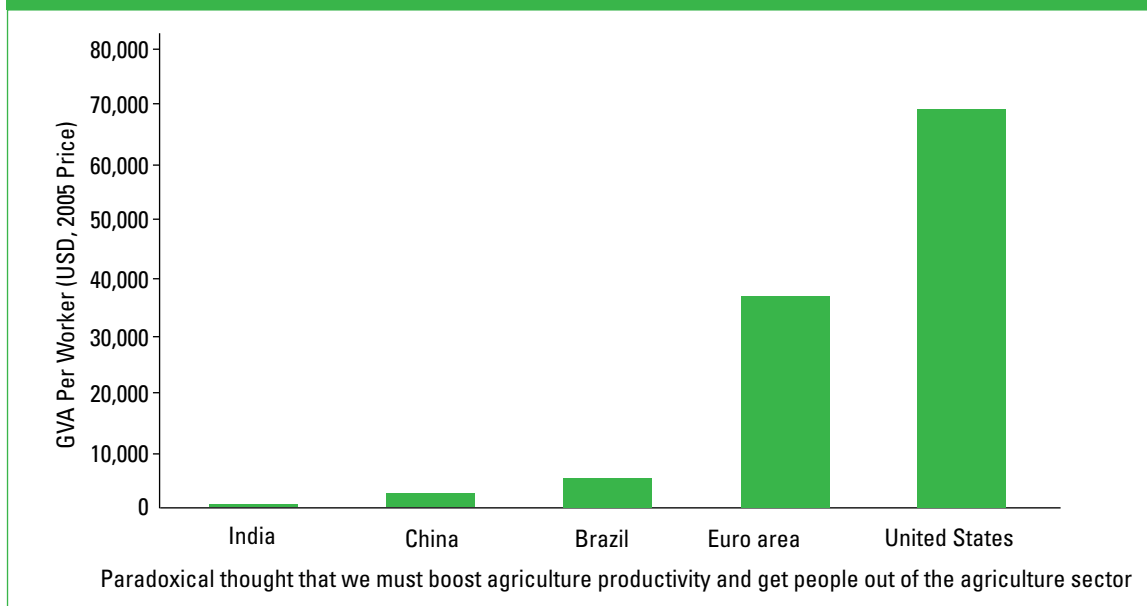
Why is investment in water conservation so low? Why is it so difficult to phase out APMCs when the benefits will accrue to lots of farmers? It is a question of a few against the many and, in electoral/democratic politics, the many should win. Why can the demonstrable success of BT cotton in Gujarat

government could be doing, do the following thought experiment. What if the government just did two basic things in agriculture? One, big public investment like the Pradhan Mantri Gram Sadak Yojana (PMGSY), R&D, extension, delivering genuine public good by way of the green revolution. It was about technology and agriculture extension services but look at the state of extension services today.

Maybe the government should focus on just providing a lot of public goods, public investment and people should realize that farming may not provide enough livelihood for everyone. Therefore, there should also be some basic income support. I do not want to draw the line but for a significant portion of farming that is unviable, where productivity is low, returns are low, one should perhaps provide other interventions. One could roll it all off into this big support and let agriculture boom and reach its potential. This is just a basic, big thought that I want to leave you with.

What is going to drive change in agriculture. It has to be rooted of politics but there are a couple of other things. The general rule is that crisis leads to reform

**Figure 2: Agricultural Productivity : Still Very Far From the Frontier**



and change of the kind that India saw in 1991. The current budget shows that a lot of thought has gone into supporting agriculture. The PMGSY allocation was increased; MSP in pulses has been increased significantly over the last two or three seasons because pulses production had to be incentivized, the PMFBY has been initiated and agriculture has been opened to foreign direct investment.

In some ways, the crisis has led to a very positive and significant response in terms of addressing problems but much more remains to be done. If there are two good monsoons, as everyone wants, leading to a temporary improvement in the fortunes of agriculture, it would be possible to give it long-term attention because there is need to be more watchful going forward.

I want to end with a point that economists have no business to make. Robert Solo, a Nobel Prize winner, once said that most discussions on economics and economic growth begin with a great deal of academic rigour and end in a blaze of amateur sociology. I am going to end in this blaze of amateur sociology. There is one deep problem about agriculture that may not have got attention and that is: agriculture does not resonate in the minds of people as it did. Nor has agriculture attracted great talent. How can agriculture attract the best talent of the stature of M. S. Swaminathan, C. Subramanian, the great academic economists, K. N. Raj, Raj Krishna or the iconic Verghese Kurien, who are missing today?

Agriculture was run by icons in academics, scientists

or amongst farmers and politicians. Something has happened to the sociology of agriculture that makes it a little less kind of “sexy”, as it were. Something has happened along the way and unless that is retrieved Indian agriculture will continue to struggle and that will be a shame because resurrecting farmer livelihoods in India is an absolute must. It must be top priority for the country as a whole.

### Question & Answer

**SHEKHAR GUPTA (SG):** I will ask Mr Subramanian a couple of questions to start the conversation and the rest can join in. Research and Development (R&D), science and technology got only a passing mention in your speech. How can all the changes in the economic policy, in procurement, in subsidy policy, work without science and technology? The icons you talked of relied on technology. Today, there is a fear of technology. You talked about BT cotton but I saw the agriculture minister day before yesterday celebrating with a group that came to him with indigenous seeds that he said were not contaminated and were much more productive than BT cotton. How can agriculture be energized and made more proactive when there is such fear of science and technology? This establishment is the most fearful of agricultural science.

**ARVIND SUBRAMANIAN (AS):** I did not mean to at all downplay technology; I talked of a long list of things. Science is very important but many other things are also very important. I do not think it is fair to say that this government is more



anti-science than others; we know about BT brinjal and all of that. There are legacy issues.

**SG:** But this government has gone after BT cotton, under your watch.

**AS:** Let me turn your point into a question. Supposing you are wary of science but are less wary of indigenously developed science than foreign science — there are layers of wariness — there are strains produced by Indian scientists...

**SG:** Mustard, for example, Dr Deepak Pental's lab.

**AS:** Yes. There is a huge opportunity here irrespective of the ideology one subscribes to. There is scope for greater reliance on science but when there is greater fear of foreign science, one must at least develop indigenous science or else, in the long run, one will be more beholden to foreign technology. That is to be avoided and there is more scope for developing indigenous science and India should be doing much more of that.

**SG:** My job is to be a provocateur. Day before yesterday, a tweet from Radha Mohan Singh, the agriculture minister, attracted me to his timeline. The first item is an address at a one-day national conference on gaushalas along with Prakash Javadekar, the environment minister at Vigyan Bhavan. The second, a courtesy visit of Parmjeet Parmar, MP, New Zealand, for synergizing post-harvest technologies in the dairy sector. The third on breed protection and genetic improvement

and on central herds being established to improve their productivity.

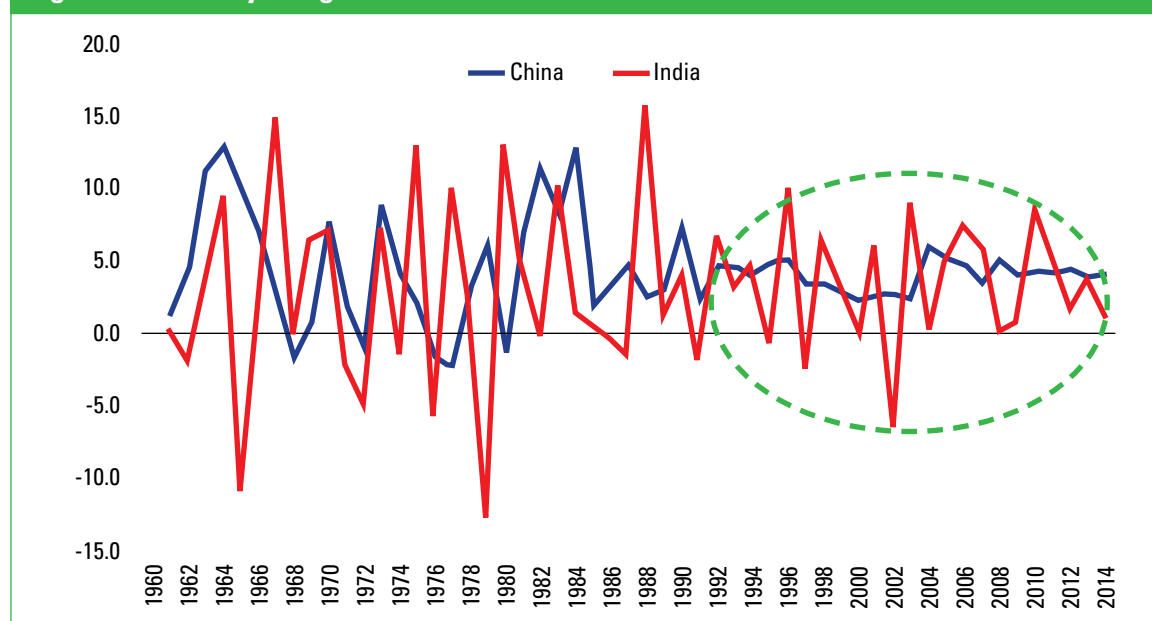
This comes from the idea of protecting the indigenous gene pool of cows to drive the jerseys out because they cannot stand the heat. States have been sanctioned establishment of 14 Gokul Grams. Under the National Gokul Mission, 35 proposals have been allotted ₹582.09 crore. Next, for separate marketing of milk containing A2 protein (only produced by Indian cows), Odisha and Karnataka have been allotted ₹2.2 crore.

Further, since America, Brazil, Australia and other countries have used Indian breeds to develop their heat-resistant cows species and are importing the Indian gene pool, there is need to protect the Indian gene pool. The increase of Indian cow species can mainly be accomplished by traditional knowledge and the hard work by the scientists. Within India, indigenous cows have a genetic diversity and this goes on and on. This may be wonderful and we may see a revolution now with minimum support price for cow dung, which may be a good idea, but this is not a government that is moving towards modernization or productivity increase.

**AS:** Shekhar you have performed your function as provocateur. I do not decide these policies but within the overall constraints, significant attention has been given to agriculture in this budget and the response has been very impressive, though a lot more needs to be done. To turn the question back at you, given that there is, interestingly, opposition on both ends of the spectrum, with a left anxiety about science



Figure 3: Volatility of Agricultural Growth: India and China



and technology as well, how would you respond?

**SG:** The tragedy of India is that its view of science is left of Jawaharlal Nehru University and right of the Swadeshi Jagran Manch (SJM). The poor scientists get caught in the middle because there is a suspicion of science, which it is a complex issue, but also because people confuse technology with science and engineering with science. I am saying something sacrilegious but Abdul Kalam becomes a scientist when he does not have a PhD as a scientist. His doctorate is as much a doctorate as Jayalalitha's and that is not to undermine Jayalalitha's. Having said that, I should shut up now.

**ASHOK CHOWGULE:** I am from Goa and have an industrial business with no interest in agriculture. Shekhar Gupta talks of the present government not allowing technology to come through but there is a legacy issue around only one genetically modified crop, cotton, which was forced by the farmer on the people. The opposition to genetically modified crops is a very large international phenomenon and, if this issue is to be resolved, the international dimension of the objection to the science has to be addressed. Otherwise, the country cannot go anywhere.

**AJAY VIR JAKHAR:** The question should go not only to the government but to the media as well. Why is technology not being represented in its true spirit and the right manner while so much publicity is given to the Luddite?

**ARJUN UPPAL:** I have been running agriculture related businesses for 30 years and cotton and vegetables are close to what I do. Just as cotton was forced by the farmers, brinjal too will be forced by the farmers because it is already legal in Bangladesh and the seeds are coming in. Why does the government not recognize the reality that there will be smuggling and before we know it, it will be here?

**AS:** Market forces lead to desirable solutions and we should be grateful for them.

**SG:** See how the brinjal yields have improved in West Bengal. The revolution is here. The bulk of the soybean oil imported from America and the corn oil is GM and Indians are consuming it. It is a part of the food cycle. Activist protest; America has activism too but it is not even allowing labelling of GM foods. Governments have to be strong about these things. Just because the previous one was confused, this one does not have to be confused.

As far as the media is concerned, it is not very well informed about most things; least of all science.

**AS:** To be fair to the questioner there are profound



© Dinodia

differences between Europe and the USA on genetically modified stuff. There have been many trade disputes over this. As far as GM is concerned, a distinction is to be made between food and non-food crops because of the safety concern.

**NO NAME:** I am part of the Coalition for Food and Nutrition Security and International Bank Coalition. Congratulations for bringing in the inequality question into the Economic Survey and for publicly quoting Ramakumar and Pallavi Chavan on the debt misdirection and leakages in debt relief. That is fantastic. Establishment economists need to start talking about that. The question is about India's position at the WTO that was an absolute copout. India could have gone better prepared. This was a fantastic opportunity for India to actually show international leadership, especially around permanent settlement. What is your linkage vis-à-vis preparing for the WTO negotiations? Is the Chief Economic Advisor even consulted?

**AS:** The Economic Survey did express clear views on India, agriculture and the World Trade Organization and was, perhaps, bolder than it should have been. This is another area not debated enough on the basis of facts and evidence. There is something about the *mahaul* (atmosphere), to use a more appropriate Hindi word, that comes in the

way of addressing this. To give you one example for which I have been pilloried, there is something called the special safeguard mechanism at the World Trade Organization. If there is a surge in imports, we can impose controls but we have made it a very important issue. For some reason we want an additional layer of freedom and sovereignty and such others when, in fact, asking for that actually becomes counterproductive during the negotiations.

The fact, however, is that we do not really need this except for a few items and, in any case, we are almost unconstrained in our use of some protectionist instruments. Our legal ability to use tariff is almost unconstrained at the WTO. We say in the survey that there is a bipartisan consensus and not just one side saying this. There is a bipartisan consensus on doing some of these things that is hard to break.

**SG:** Just as there is suspicion of technology or science, is there also a suspicion of multilateralism?

**AS:** No, India is a committed multilateralist and engages in all these things but the attitude to engagement is different; it engages more out of fear and anxiety than with a sense of confidence that will help us achieve much more.

**SG:** Last week a very good regime on IPR and patents was passed but there was much criticism both from the left of JNU and the right of SJM.

**RAVICHANDRAN:** I am a farmer from Tamil

Nadu. The government has a great goal of doubling the farmers' income. What is the present income as per your records and statistics? Is it the per acre income or some other measure that you have in mind? Also, in spite of our best efforts and in the best years most farmers get ₹6,000 to ₹8,000 per acre. Most farmers (85 per cent) are small and marginal farmers hold less than a hectare. How can we sustain ourselves on this small income? What is the target income that the government has in mind?

**AS:** I sort of responded to this. One, India's holdings are very small and achieving all this will mean a consolidation of holdings. China does it in a very interesting way. It is not that Chinese land holdings are much bigger than India's. It is just that the state has intervened to force/encourage either joint farming or co-operative farming. That will be much more difficult in India, which is why the land leasing law that Arvind Panagariya and the Niti Aayog are preparing is very important. If holdings are small they cannot generate livelihoods. It is with that sense in mind that India should think about basic income support for those small and marginal farmers; as a kind of semi-permanent solution.

**ARJUN:** I am a graduate from IIT-Delhi, currently a LAMP (Legislative Assistants to Members of Parliament) fellow. During an interaction with us, Arvind Panagariya he talked of low-hanging fruits in the case of Madhya Pradesh, where I come



from. My father is a farmer and I have worked in the fields. I know for sure that MP is not a case of low-hanging fruit, it was a case of trees where fruits were lying and no one was there to pick them and they were rotting. We were given sand in urea bags. That was the condition. My point is that India's agriculture R&D expenditure is only 0.5 per cent of the agriculture GDP, while it should be two per cent. The allocation for the farm sector is very low. Will there be an increase for this sector?

**AS:** Is it just a matter of spending more money for R&D? With institutions functioning the way they are, money will not fetch a lot of returns. A lot more needs to go into it to make things more productive. Internationally, more and more R&D is done by private sector actors and discussions about R&D should not be confined to government spending more in government institutions, although that should be part of the mix. How can the country rely on private sector R&D as well; what are the IPR issues; how do we treat private contracts are all important as well.

## Moving out of wheat will not be a source of lamentation in the country. We want less cereals and more pulses and other crops. We are over invested in cereals

**CHITRA**

*Hindu Business Line*

My question is about the Krishi Kalyan cess because one has seen how the cess has been used. Do you think the funds will percolate down and how exactly will it be used?

**AS:** As someone who kind of wrote the GST report, I think it is the general rule of public finance that one must have few cesses and more unified taxation. That being said, we cannot be purists. Take the example of one cess that was transformational: the fuel cess led to public investment in transportation. One has to be very empirical and agnostic about this. We have one really big outlier on that and some say that the transportation was actually transformed in the late nineties and early 2000s.

**SG:** Anything I say will be anecdotal but till about 10 years back you did not see raw coconuts being sold in street corners in Delhi. They are now transported from coastal areas.

**ASHISH**

*The Day After, international news magazine*

In the last 10 years, farmers have found their own ways of enhancing incomes by two to three times;

by exiting wheat farming and adopting innovative farming. If the trend continues, there might be a mismatch in the wheat demand and supply situation. Do you feel a drop in wheat output will cause a problem in the near future?

**AS:** I do not think that moving out of wheat will be a source of lamentation in the country. We want less cereals and more pulses and other crops. That would not feature on my list of undesirable developments. It needs to happen to some extent. We are over invested in cereals and, if some of that is reduced, it would be a good thing on balance.

**SG:** I read an article on how the farm gate value of traditional agriculture has now become higher than the rest. So milk, eggs, wheat and horticulture produce more than cereals.

**NO NAME:** How can you talk about resurrecting farmers' livelihoods without dealing with farm suicides? How can you ignore them? How is it that you have not even spoken about it? Ordinary

citizens like us have sleepless nights when we think that 250,000 farmers in this country have committed suicide and are continuing to do so even in the last two years of the new government. What is the government doing about it?

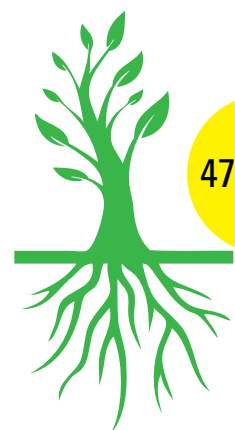
**BHAVNA PRASAD**

*Senior Advisor, Sustainable Business, WWF*

One of the three challenges for agriculture mentioned was dealing with depleting resources with the ghost of Malthus in the background. How can productivity be increased and has there been any macro level analysis of the right crop for the right area? Are we producing or exporting the right commodities? Is it rice or virtual water that is being moved out of the country? Some of these aspects need to be really addressed and understood. Is India doing enough of that?

**GAURAV JAIN:** I am a law student. Can you throw more light on the humungous gap between agricultural productivity in India and the USA and talk about two or three things that can be done to reduce that gap?

**NO NAME:** As we talk of farmer suicides, we should also talk of minimizing risks and you mention the Pradhan Mantri Fasal Bima Yojana.



What do the most of the short-listed insurance companies propose to do? Will they only address loanee farmers or include non-loanee farmers who are the majority?

**NO NAME:** Everyone is talking about agriculture credit as an important input but how much credit does the farmer get? Are there any statistics? The record in Chandigarh is a per hectare lending of ₹7 crore. Something is amiss in terms of the definition of agriculture credit.

**AS:** I referred to the study by Ramakumar and Chavan that examined such issues as whether the official numbers reflect what is happening in agriculture. As far as farmer suicide is concerned, it is such an important emotional, visceral issue that nothing that I say will really be equal to the challenge. I can only say that there cannot be a short-term knee-jerk response but things must be changed at a fundamental level by addressing the question of farmer livelihoods on a much more permanent basis. This will not happen in one or two years because there has been a pattern to this

they want. Why is the agricultural sector so regulated and interfered with by the government even after 15 years of liberalization?

**SUDHIR KOCHAR:** There is also the question about intellectual property rights and India must tune its system with the global IPR regime.

**GUNWANT PATIL**

*Shetkari Sanghatana, Maharashtra*

The food security bill promises rice at ₹2 to the farmer. Does this mean future security of the farmers or distortion for the agriculture market?

**NO NAME:** I am an illiterate farmer from Delhi but realize that we should give more attention to R&D for low water consuming crops.

**SUNEET CHOPRA**

*All India Agricultural Workers Union*

You have talked about everything except the people. Can a worker work for a year, hardly eating anything and not get paid even the NREGA wages for a year? How does he survive? Second, you have talked of China and India in terms of land holdings. In China it was a question of building co-operatives. In India

## As a nation, India has to raise the status of agriculture much more and devote much more political and bureaucratic attention to addressing its issues fundamentally

malaise. As a nation, India has to raise the status of agriculture much more and devote much more political and bureaucratic attention to addressing this issue fundamentally.

On the ghost of Malthus, the government has conducted many studies and a lot of information has been generated on the crop mix. The Prime Minister makes an excellent point when he tells trade theorists who believe in comparative advantage that all the water is in the east and the north-east and yet all the agriculture is in the other part. We need to rethink comparative advantage.

The striking disparity between the USA and India is partly because of mechanization, science and land size. Everything there is at a different level altogether and this is something that India needs to aspire to in the very long run. Whether it is science, extension or minimum support prices, there is need to do all these things because everything is very important.

**NO NAME:** I am a farmer from Tamil Nadu. After 15 years of liberalization and globalization, there is no government regulation vis-à-vis technology or product for the industry sector. People do whatever

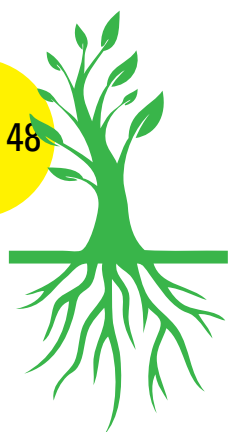
things are being done to make it easier to sell land. When one is in real trouble and does not know when the next meal is coming from, even that wretched land that gives the meals goes away. This is a very specific question. Third, you have not mentioned that farmer suicides were stopped in Kerala under the last LDF government. How did that happen?

**SG:** Kerala has the highest rate of suicides in the country by the way. You can blame it on anything, but a suicide is a suicide.

**NO NAME:** But not farmers' suicides.

**AS:** Let me answer the questions that are in my pay grade. The point to be made about the National Food Security Act (NFSA) is that the solution to it is the DBT (direct benefit transfer). The government is also committed to pushing that JAM agenda and a lot of pilots have been started. I have just been to Andhra Pradesh where the e-PDS is state-of-the-art in terms of how it is working. The more of that we do, the more will we address the distortions.

Why, after so many years, is agriculture so regulated? I do not know whether agriculture is less or more regulated than some aspects of





manufacturing and services and cannot give you a considered response.

As far as invisible export of water is concerned, India's cropping patterns are known as are the problems created with water tables collapsing. There should be less sugar in Maharashtra and my question to you is why does the political system not respond to that?

**NO NAME:** That question is above your pay grade.

**AS:** Exactly; I am glad you recognized my lowly status but it is a little bit unfair to say that I did not mention people because when one talks about farmer livelihood, one is talking about the farmers. Your point is very well taken, however. Finally, it is all about people.

**SG:** Since I do not have a pay grade problem because I do not have a salary, I would say that Indian farming and farmers suffer because of the politicization of the farming profession. Farmers in India are really victims of extreme poverty and there has been a pattern of pauperizing the farmer, then feeling sorry for them and throwing some stuff at them. As much as 60 per cent of India's population depends on farming and 49 per cent of India's workforce is involved in farming. Farmers produce 15 per cent of India's GDP and the mood of the farmers determines fortunes of political parties.

**AS:** My point is that if the mood of the majority of the farmers determined political outcomes, we would get much better results vis-à-vis farmer status.

**SG:** That is where I can take chances, not having a pay grade problem. What happens is that expectations are set very low. While debating farmer's suicide — it is a cruel thing to say — the expectations are that as long as they are saved from committing suicide, it will be all right. If one does better than that, people get re-elected. Farming contributes 15 per cent to India's economic GDP but 60 per cent to India's political GDP but politicians have cracked the code. They know that farmers' expectations should not rise too high. Talking about American productivity, how many people have moved out of farming and how few are involved in farming. Frankly, since I cannot let go of this, America now has GM salmon; in a restaurant you are served GM salmon and nobody tells you that this fish is genetically modified.

**AJAY VIR JAKHAR:** Till the time that the government creates off-the-farm jobs for farmers, there will be a crisis in Indian agriculture. That should be a priority. The government must have done something because so many of us are on the farm. I will tell you how it works; who stays on the farm, who stays off the farm. Normally, every family has two or three youngsters, the most enterprising ones move out of farming. People like me are left to farm. The only way to do it is to get us jobs off-the-farms so the pressure on the farm is reduced. That is the way forward. ●

PERSPECTIVE

# Case of the Food Miles Footprint

Rahul Gupta and Sumita Gupta Gangopadhyay

**F**ood miles refer to the distance food is transported from the place of production (farm) to the point of consumption (plate). A comparatively recent concept, originating in the early 1990s, it was conceived by Professor Tim Lang of the Sustainable Agriculture, Food and Environment Alliance in the U.K. Later Angela Paxton documented it in “Food Miles Report: The Dangers of Long Distance Food Transport”.

How far food travels has serious implications on health and climate. Policymakers and planners should focus on what should be done to reduce the impacts of long distance food transportation. With increasing globalization of trade, food tends to travel a greater distance from farm to plate. This is especially relevant for industrialized and advanced countries. In the United States, for example, processed food travels an estimated 2,080 km (1,300 miles) and fresh produce 2,400 km (1,500 miles) before reaching the consumer.

A recent study shows that 485,000 truckloads of fruits and vegetables leave the state of California every year for destinations ranging from 100 miles to 3,100 miles. In the U.K., 95 per cent of fruit and half the vegetables come from abroad. Here 30 per cent of all goods transported by trucks is foodstuff. The consumers in the U.K. get their oranges from California (5,000 miles), bananas from West Indies (4,000 miles), beef from Argentina (7,000 miles), tomatoes from Spain (1,000 miles), cocoa beans from Central Africa (3,000 miles) and lamb from New Zealand (11,000 miles).

These long distance trades in food result in various environmental, social and economic costs. The more the movement (be it by road, air, train or ship), the higher the emission created by the burning of fossil fuels, thus adding to the greenhouse gases (GHG), leading to global warming. The food chain uses fossil fuel (resulting in carbon dioxide emission) in every stage: production (to run machinery and pumps), processing/storage (heat and electricity), transportation/distribution, retailing and finally cooking and preparation.

Global estimates suggest that for every Kcal of energy obtained as food, 10 Kcal of fossil fuel energy is used as input into the food system. Energy is essential for food security but it has to be



**RAHUL GUPTA**  
Post-graduate  
in agricultural  
economics from  
Rutgers University



**SUMITA GUPTA  
GANGOPADHYAY**  
Architect and  
urban planner

used in a sustainable way to meet climate change targets. Globally, 30 per cent of the world's available energy is consumed by the agri-food chain. Of this, 70 per cent is consumed beyond the farm gates.

The agri-food chain is also responsible for 20 per cent of the world's GHG emissions. It is not that all the energy consumed by the agri-food chain is gainfully utilized. One thirds of the food produced is wasted, along with about 38 per cent of the energy that is consumed. Significantly, 83 per cent of the GHG emission of the agri-food chain comes from the production and processing activities, while 11 per cent comes from transportation and about five per cent from retailing/wholesaling activities.

Of the total carbon footprint attributed to food transportation, road transportation accounts for 60 per cent whereas air, sea and rail transportation accounts for 20 per cent, 10 per cent and 10 per cent respectively (*Food Miles – A Green Wash*, india. carbon-outlook.com, January 2011). Though air transportation is responsible for 50 times more emission than sea transportation, the sheer volume of road transportation (for food) makes it the highest contributor in green house gas emission. The bulk of fresh food (namely fruit and vegetable) transportation within India is done by the road transport mode with a small fraction using the railroad.

For food and agriculture, a developed country uses about 35 gigajoules of energy per person per year for food and agriculture with about 50 per cent of it for processing and distribution. In contrast, a developing country uses eight gigajoules per person, per year with 50 per cent being used for cooking. The picture of developing countries is changing rapidly. As per FAO projections, by 2050, the world will require a 70 per cent increase in food supply, mostly in developing countries, from the 2008 levels.. The increase in energy and water to achieve this level of production will be 40 per cent. Energy use needs to be optimized at all stages of the agri-food chain, wherever possible.

Given this, it is necessary to direct attention to optimizing 'food miles' and checking the GHG emission arising from large-scale food transportation by road. Local and regional food systems use less fossil fuels for transportation as farmers and processors distribute or sell their products to consumers



within a given geographic location, compared to the conventional food system. Consider an Indian example of the distance travelled, fossil fuel burnt, GHG emission, environmental cost incurred and some associated health hazard for fruit and vegetable transportation: the Kolkata market.

The definition of local or regional production may vary but a distance of 160 km to 200 km can be considered local or regional. Shipped from distant locations, fruits and vegetables can spend as many as seven days in transit and face up to 50 per cent loss due to spoilage. Long-distance transportation also requires the application of additional pesticide (the first 'P') to preserve food over the longer distance and time for transportation.

Unlike chemicals applied on the field, these chemicals are designed to stay on the fruits and vegetable, thus posing health hazards. The next 'P' arising from long distance transportation comes from packaging, which creates waste and consumes paper board. Shorter transport distances can reduce packaging requirements and promote the recycling of packages. The third and final 'P', processing, is an even more energy-intensive procedure, requiring more than 10 times the energy required for cultivation.

Processed food logs in more miles than fresh food. Food destined for long-distance transportation is picked unripe and then chemically treated to ripen at the destination. However, local fruits and vegetables are picked ripe and the consumers eat tastier and healthier food without added chemicals.

Each additional transport kilometre is an



© Dinodia

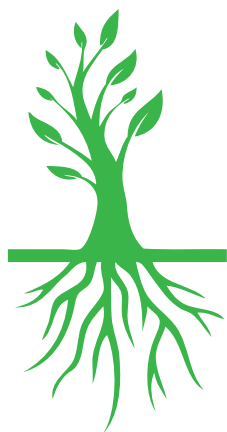
## Lower food miles indicate sustainability through lower fossil fuel use, thus promoting conservation, reducing emission/pollution, global warming and environmental degradation

additional cost and hence increases the price for consumers. The more vegetables and fruits travel, the less fresh they are when they reach the plate. The less food travels to reach the consumers, the smaller is the role played by intermediaries and money is reinvested in the local economy, close to the farmland. Money planted close to home assists the growth of the farming community. Farmers selling directly to the consumers with reduced role of intermediaries retain a larger share of profits.

Reduced food miles create a greater sense of trust between the grower and the consumer as food is fresh, retains its original taste and is

palatable. Lower food miles indicate sustainability through lower fossil fuel usage, thus promoting conservation, reducing emission/pollution, global warming and environmental degradation.

The supply of key vegetables and fruits to the Kolkata Municipal Corporation (KMC) area, based on primary data collection from the two principal terminal markets, namely the Kolay Market (which accounts for 70 per cent of vegetables sold through roughly 358 KMC retail markets) and the Mechua wholesale market (accounting for 80 per cent of fruits sold through KMC retail markets) is interesting. Both markets are located in congested





**Table: 1**

Fruit (Source)	Quantity Tonnes/Year	Number of Trips (14 mt/truck)	WASD* (km)	Distance Covered Per Year (km)	Litres of Diesel Burnt @ 3 km/l
Apple (Kashmir/ Shimla)	36,960	2,640	2,200	5,808,000	1,936,000
Water Melon (Bangalore/ Bhubaneswar/WB)	7,600	633	1,370	867,210	289,070
Grapes (Nasik/ Solapur)	13,860	990	1,800	1,782,000	594,000
Orange (Nagpur)	13,200	1,100	1,200	1,320,000	440,000
Sweet Lime (Aurangabad/ Vijaywada)	25,344	2,112	1,413	2,984,256	994,752
Banana (Chennai/ Bhusawal/WB)	36,000	3,000	476	1,428,000	476,000
Pineapple (Siliguri)	1,200	120 (10 tonne trucks)	560	67,200	22,400
Mango (WB-Malda/ Vizag/ Patna/Lucknow)	11,860	847	868	735,196	245,065
<b>Total</b>	<b>146,024</b>	<b>11,442</b>		<b>14,991,862</b>	<b>4,997,287</b>

\*WASD: Weighted Average Source Distance



central Kolkata, where the movement and parking of trucks are very difficult.

Kolkata has a few terminal wholesale markets for vegetables where supplies from farms/haats (local accumulation points close to farms) arrive. The Kolay Market is a major market and its wholesalers and office bearers suggest that in West Bengal, a major producer of common vegetables (brinjal, cauliflower, ladies figure, parval, radish, carrot, scallion, capsicum and potato), only onion from Nasik and cabbage from Bangalore come from faraway locations.

Most vegetables come to Kolkata from within the state to the Kolay Market, adjacent to the Sealdah railway terminus, by train and a small portion of the supplies reaches by truck (mainly small and mid-sized). About 70 per cent of the produce originating in north Bengal (Ranaghat, Krishnanagar, Shantipur, Murshidabad, Gede, Nadia and such others) and the south Bengal (Canning, Diamond Harbour, Lakhikantapur and such others) production centres reaches the Kolay Market by train (EMU coaches).

Other production centres like Bashirhat and Hasnabad towards the Indo-Bangladesh border and

Local and regional food systems refer to the method of production or distribution of food that is geographically localized; food harvested close to the consumers' home and distributed over a much shorter distance. Local and regional food systems are associated with sustainable agriculture while the conventional system relates to industrial agriculture. Local food is equated with sustainable food that is healthy and fresh and being produced close to where it is sold with reduced energy consumed in storing, distribution and transportation, which reduces the carbon footprint and yields environmental benefits.

the adjacent Hooghly district too depend on the railway to access the Kolay Market. Supplies from locations like Bhangar (50 km from Kolkata) and Midnapur (150 km) arrive by road in small and mid-sized trucks (5-6 tonne capacity). Thus the extent of fossil fuel burnt and resultant greenhouse gas emission is minimal for vegetable transportation to Kolkata for consumption within the KMC area.

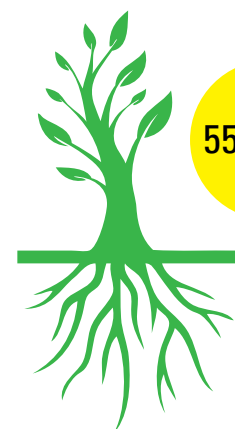


© Dinodia
























Vegetables sold in the KMC area travel less than 150 km from the farm to the plate on an average. This eliminates the high loss in transit, application of chemicals, pesticides, preservatives to maintain the freshness of products over long distance transit, and helps avoid expensive packaging. Thus one is spared the adverse effects of increased food miles in terms of consequences on health and climate. While this is the scenario for vegetables, where the city enjoys all the advantages of local food system, fruits present a different picture.

Commonly consumed popular fruits like apple, water melon, pineapple, sweet lime, orange and grapes cover a significant distance before reaching the Mechua fruit wholesale market in Kolkata. Mango and banana are partly produced in the state and partly imported from distant locations. (The distances travelled by different fruits are given in the diagram below.)

Fruit is transported to the Mechua wholesale fruit market (unlike vegetables to Kolay market) by road in heavy duty trucks (mainly 14-tonne capacity 10 wheeler trucks). *Table 1* shows the total quantity of the fruit brought into this market and the sources of supply, the number of trips undertaken for each fruit category, the WASD (Weighted Average Source Distance), total distance covered (one way, as on their return trip the trucks carry various types



Commonly consumed fruits like apple, water melon, pineapple, sweet lime, orange and grapes cover a large distance before reaching the Mechua fruit wholesale market in Kolkata

Average Distance by Truck to Kolkata Terminal Market (Mechua) for Selected Fruits						# of supply points
Apples	    	2,200 km				2 (Kashmir/Shimla)
Water Melon	  	1,370 km				3 (Bangalore/Odissa/WB)
Grapes	   	1,800 km				2 (Nasik/Solapur)
Banana		476 km				3 (Chennai Bhusawal/WB)
Orange	  	1,200 km				1 (Nagpur)
Sweet Lime	  	1,400 km				2 (Aurangabad/ Vijayada)
Pine Apple	 	560 km				1 (Siliguri)
Mango		868 km			each truck represents 500 km of distance travelled	4 (Vizag/Patna/UP/WB)

Data based on primary survey of wholesalers/ transporters in the Mechua Wholesale Market.

Food miles are measured by computing the weighted average source distance (WASD), the formula for which is:

$$\text{WASD} = \frac{\sum \{m(k) \times d(k)\}}{\sum m(k)}$$

Where, m = quantity consumed from each location of consumption origin

k = different locations of production origin

d = distances from the locations production origin to the point of consumption

of cargo), diesel consumption (based on three kms per litre of diesel for a 14-tonne capacity 10 wheeler heavy duty truck).

India consumed about 69 million tonnes of diesel across all sectors in 2012-13 (All India Study on Sectoral Demand of Diesel and Petrol, Petroleum Planning and Analysis Cell, Neilson, 2013).

The domestic transport sector (domestic aviation/domestic navigation/road/rail) accounted for 70 per cent of the diesel consumption. More specifically, light and heavy duty trucks consumed about 30 per cent of this (*Times of India*, Business, January 29, 2014).

The transport sector in India emitted 169.87 million tonnes of carbon dioxide during the year 2011-12 ([www.iea.org/stats/IEAStatistics](http://www.iea.org/stats/IEAStatistics) ©OECD/IEA). Doubling the amount of atmospheric



© Dimodia

## Domestic transport — aviation/navigation/road/rail — accounted for 70 per cent of the diesel consumption, light and heavy duty trucks consumed about 30 per cent of this

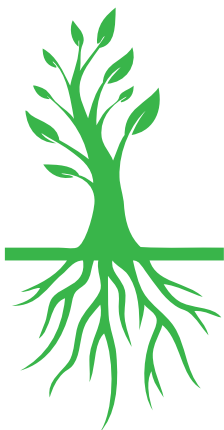
carbon dioxide will increase the earth's average temperature by about 2.5 degree centigrade.

An estimated 22.38 lbs or 10.138 kg of carbon dioxide is emitted by burning one gallon (U.S.) or 3.78 litres of diesel ([www.eia.gov](http://www.eia.gov)-Independent Statistics and Analysis; US Energy Information Administration).

Table 1 shows that 4,997,287 litres of diesel are burnt to transport the selected fruits to KMC wholesale market in Mechua. This translates to 13,402.8 tonnes per year of carbon dioxide emission. Total diesel consumption by trucks in India (21 per cent of 69 million tonnes) is about 14.5 million tonnes or 17,060 million litres, which causes a carbon dioxide emission of 45,755,100 tonnes annually. Fruit trucks travelling only to the Mechua wholesale market in KMC account for 0.03 per cent of carbon dioxide emission by all trucks in India.

Mechua is just one market in one urban centre. If the entire fruit transportation across the country is added up, the impact vis-à-vis carbon footprint will be substantial. All vegetable consumption centres across the country are not located close to production locations, as in the case of KMC. In such cases attention should be given to the practice of urban agriculture for vegetable cultivation in urban concentrations across the country.

Apart from being directly environmentally damaging due to transport emissions, long-distance food transportation adversely affects the way food is grown and treated to withstand the rigours of transit. On the one hand, growers, particularly the smaller ones, are forced to compete in a national (or even global) marketplace that adversely impacts their viability. On the other,



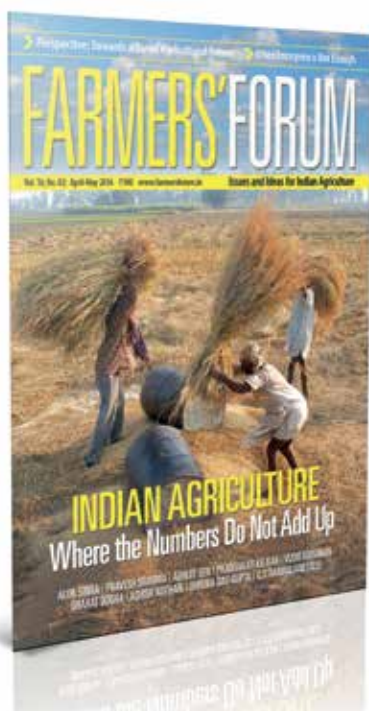


consumers eat more of long distance treated food than local produce.

The impact of a transport dependent food system on environment (through increased carbon foot prints), health (through chemically treated food with pesticide for longer preservation) and preservation of greenery (through increased use of paper board packaging material for protection of delicate fruits and vegetables in long transit) is known to governments and health experts. It needs to be consciously addressed by governments. ●

### References:

1. 2001, June; 'Food and Freeways: An Iowa perspective of how far food travels, fuel usage & greenhouse gas emissions' by Pirog Rich et al, Leopold Center for Sustainable Agriculture, Iowa State University.
2. 2016, Stratford, Helena; 'Food Miles: The Environmental Impact of Food', [www.pollutionissues.co.uk](http://www.pollutionissues.co.uk).
3. 2012; 'Energy-Smart Food at FAO: An Overview', FAO.
4. 2011, January; 'Food Miles – A Green Wash', India. [CarbonOutlook.com/content](http://CarbonOutlook.com/content).
5. 2013; 'All India Study on Sectoral Demand of Diesel and Petrol', Petroleum Planning and Analysis Cell, Neilson.
6. 2014, January 29; *Times of India*, Business.
7. [www.iea.org/stats/IEA](http://www.iea.org/stats/IEA) Statistics ©OECD/IEA
8. [www.eia.gov](http://www.eia.gov)- Independent Statistics and Analysis; US Energy Information Administration



## Ideas & Issues in Indian Agriculture

Discussed and debated by experts in India and abroad.

## Read **Farmers' Forum**

**Subscription For 6 issues in one year:**

**For individuals: ₹600**

**For others: ₹1,200**

Send your subscription by Cheque or Demand Draft in favour of '**Bharat Krishak Samaj**' payable at Delhi with your mailing address to:

**Farmers' Forum**  
**A-1 Nizamuddin West**  
**New Delhi 110013**

For more information, log on to [www.farmersforum.in](http://www.farmersforum.in)

**SUBSCRIBE TO  
 INDIA'S MOST  
 AUTHORITATIVE  
 MAGAZINE ON  
 AGRICULTURE**

ECOLOGY

SAVING TREES

# Pandurang Hegde's Appiko Movement

Bharat Dogra



In the forests of the Western Ghats, in Uttara Kannada (North Karnataka), a schoolboy grazing his family's cattle and buffaloes was deeply distressed. As a child too, he would bring his flock to these forests. He was sent off to school in town, and back home for the holidays, he found some beautiful trees had been cut and that others had big cuts on them. This forest, near village Kalgundikoppa (in the Sirsi taluka of Uttara Kannada district) had had been sold in an auction and its trees were being felled.

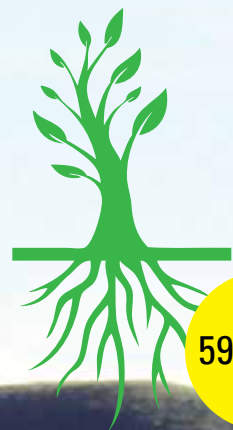
The boy failed to comprehend the growing greed of the timber industry and the pressures to increase forest revenues. What he did understand was that these forests had a very close and protective relationship with his family, his village and its animals. He had gradually assimilated this view over every day of his childhood with his 35-member joint family in Kalgundikoppa. The sight of the slaughtered and wounded trees made him feel physical pain; as if he had been attacked.



**BHARAT DOGRA**  
Senior journalist,  
specializing in the  
farm sector

In course of time this cowherd, Pandurang Hegde, who nursed the grief of seeing the forests destroyed, graduated with a gold medal from the Delhi School of Social Work and joined the Chipko movement of the Himalayan region, with Sunderlal Bahuguna as his mentor. He returned home in 1983, having evolved as a leading activist and eventually the co-ordinator of the Appiko movement for the protection of millions of such trees in Karnataka and in other parts of south India.

Uttara Kannada was rife with reports of excessive tree-felling that was angering the villagers. Youth clubs in several villages of the region were fighting several social problems and some of them also took up the challenge to prevent the destruction of forests. The activists, led by a particularly active youth group in Balegadde village, began petitioning the authorities against the menace and Pandurang, who was inspiring people with stories of the Chipko movement, got together with the clubs to arrange for a visit of Sunderlal Bahuguna to the region.



The veteran activist was visiting Karnataka and it was not too difficult to get him to come to Belagadde. Soon the movement to save Uttara Kannada's and South India's forests had gained momentum. Sunderlal Bahuguna said: "Like a bird the Chipko movement flew from the Himalayas to reach the hills of Uttara Kannada". His presence and his stories about the non-violent struggles to save forests were inspirational.

The people of Salkani village had already written protest letters to forest officials. Now they were waiting for some direct action. The opportunity came soon enough in September 1983, when the forest department started felling trees in the Kalase forest, located quite far from the village settlements. As soon as the news reached the Salkani and Gubbigadde villages, they mobilized people to reach the tree-felling site.

On the morning of September 8, 1983 about 160 people started their march towards Kalase's

Kudrod forest. Braving rain and ignoring leeches that clung to their feet, crossing a river on a hanging rope bridge, the people moved towards Kalase, determined to prevent the further axing of trees. When they reached the forest, some of them rushed towards a tree that was being felled and embraced it. The axemen were stupefied. How could they axe a tree which was being embraced by human beings?

Surprisingly, the forest workers understood the basic concerns of the people and agreed to stop the work till senior officials came. On September 22, 1983 the district forest officer accompanied by scientists visited the site and said that the tree felling was scientific and would continue. He retreated from this position when an accompanying scientist said that the damage was indeed excessive and that the people should be complimented for having brought this to the notice of the authorities.

In the first phase, the Appiko movement spread quickly to eight areas — Mathghatta, Salkani,

**Sunderlal Bahuguna said: "Like a bird, the Chipko movement flew from the Himalayas to reach the hills of Uttara Kannada". The movement to save the forests had gained momentum**





Balegadde, Husri, Nedgod, Kelgin Jaddi, Vanalli and Andagi. In the last week of December 1983 there was the much-awaited visit of the forest minister to Kalase and other affected areas. People turned out in large numbers to represent their view and the minister ordered that the felling of several marked trees be stopped. He said only dead and dry trees would be cut in the future.

In April 1984, some Appiko activists decided to go on a long march to take their message to a wider area. This march started from Sirsi town on April 10, 1984 and covered about 650 km. They returned to Sirsi on April 29, 1984. Such foot marches spread the movement's message widely and helped the activists get a firmer grasp of the reality.

Within three years the movement had spread to the districts of Shimoga and Dakshin Kannada (South Karnataka). In some villages initial resources were mobilized by daily collection of handfuls of grain. The traditional theatre, Karnataka's 'Yakshagana' was adopted to spread the movement's message. In 1990, the state government banned felling of green trees within natural forests.

This was a truly amazing achievement for the Appiko movement that convinced officers,

### Appiko demands

- Stop the clear felling of the natural forests
- Halt monoculture plantation of single species
- Withdraw concessions given to forest-based industries
- Moratorium on felling green trees in the forest regions of the Western Ghats
- Change commercial objective in forest policy to ecological objective with emphasis on the protection of the natural forests for water and food security of the region

### Appiko achievements

- The state government agreed to stop felling of natural forests to make way for monoculture plantations
- The government withdrew the timber concessions for forest-based industries to extract timber from natural forests
- Moratorium on felling of green trees in the natural forests of the Western Ghats since 1990
- Change in the forest policy with more emphasis on ecological principles and conservation of biodiversity and abandoning of the commercial forestry



who initially justified scientific felling of trees, to have the state government ban the felling of green trees in the natural forests covering a large area. Pandurang Hegde says, "Since then Appiko is actively involved in helping farmers and forest dwelling communities to carry out sustainable harvesting of non-timber forest produce and value addition to increase their income. These opportunities provide the livelihood options for the forest dwelling communities in the tropical forest region. These are economically viable and ecologically sound with least impact on the existing natural resources, especially the tropical forests".

The Appiko movement has also been involved in several struggles to save forests, farms and livelihoods of farmers threatened by controversial projects including dams. Not all have succeeded but trees have been saved and many farmers protected from displacement.

Pandurang Hegde was careful about integrating the struggles with constructive activities. He wrote: "The slogan in Kannada is *ulisu, belasu* and *balasu* (save, grow and make rational use of natural resources)". The remaining natural forests are scarce and should be saved as a source for water and ecological security of the people. Therefore, the need for grassroots action to stop their destruction.

The regeneration of forests is the best way to recreate forests where the root stock still exists. Pandurang talked of emphasizing five varieties while planting: fruit and nut; fuel wood; fibre, fertilizer and fodder. The rational use of natural resources meant reducing the pressure on the natural forests by establishing alternate energy sources such as biogas units, solar panels and fuel-efficient *chulhas* or stoves.

Pandurang's own lifestyle embodied this philosophy. During the initial days of the struggle he had to lead a rather disorganized life in and around Sirsi, helped by friends like G.G. Hegde. He then settled down in an organic farm on land virtually gifted to him by a sympathetic family on the edge of a forest. This was like a mark of gratitude for Pandurang's work because he could only offer a modest payment, which he was allowed to make in small instalments, at his convenience.

The new, six-acre farm, Appikoppa, established on the edge of the tropical forests of the Western Ghats, respected the 'five f' principles but also grew the staple food, rice, using organic methods. The entire farm is organic and also grows areca nut, coconut and banana to bring in some cash for the family. However, fruits like mango and chikoo are not sold but shared freely with friends.



## An alternative tourism initiative called 'Spice Route', based on spice garden walks that avoids all the perils and pitfalls of 'five-star tourism' has been launched

Shyamla, Pandurang's wife, does much of the farm work, while Pandurang does what he can to help. So do their college-going children, Prithvi and Shyam. Pandurang also started a formal voluntary organization to take forward constructive activities like the fuel effective dryers, smokeless chulhas, biogas plants and solar lighting in 1991. This was named 'Prakruti' (Nature).

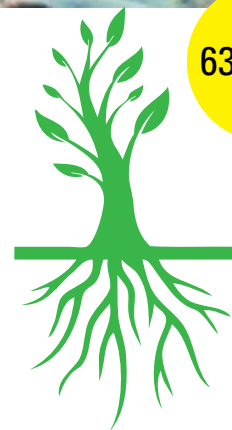
Earlier, the Parisar Sarankshana Kendra (Centre for Protection of Environment) was co-ordinating various struggles and campaigns for protecting forests and environment but its structure was not suitable for spreading technology and information about the use of energy conserving implements and fossil fuel reduction. With Prakruti, the work of spreading technology and the usage of implements to reduce fossil fuels consumption picked up significantly.

Prakruti also helped in adding value to the minor forest produce (MFP) collected by the villagers. Beautiful artisanal products were made from cane and fibrous material collected from forests. Several rural workers like Laxmi Siddi, Ganapu

Gowda and Chandrashekar were excellent and much-admired craftspersons. Yet the going was far from smooth because it has meant taking on vested interests. Sustaining even the modest flow of funds to Prakruti was not easy. Handicrafts had to be given up but other work was more successful; an important project which succeeded was the Save Honey Bee campaign. Most notably that relating to honey, which led to a very important, Save Honey Bee campaign.

Very useful work was done on livelihoods relating to sustainable harvesting of minor produce, which included educating rural communities on not harming forests while gathering MFP. Pandurang also played an important role in launching an alternative tourism initiative called Spice Route, that offers spice garden walks which avoid all the perils and pitfalls of 'five-star tourism', while providing sustainable livelihoods to local villagers, particularly youth and women.

After about two decades, Pandurang can perhaps afford to smile. ●



**GREEN  
FINGERS**

**WHEN WASTE IS A RESOURCE**

# The Untold Story of A Farmer Ecologist

Dhrubajyoti Ghosh



**H**e was an entrepreneur; a social entrepreneur by today's definition and his domain was agriculture. By chance or design, Bhabanath Sen was destined to become one of India's first farmer ecologists. At least, Metcalfe (a British administrator) was sure that he was one when, in the last decade of the 19th century, as the officer in charge of the Calcutta Corporation, he asked this simple looking Bengali: "Can you do it in the way that you have done it in Bankipur?"

The answer, in the affirmative, prompted one of the most important lines of progressive thinking vis-à-vis farming and ecology that continues to be a determining phenomenon in Kolkata's economics and ecology and made Kolkata a truly smart city. The bureaucrat and the entrepreneur were looking at an identified stretch of land by the city of Calcutta. Between Metcalfe and Sen, integrated resource recovery systems had made an entry into the urban farming lexicon. Bhabanath Sen's turned out to be the greenest of greenfingers for the city as he managed



**DHRUBAJYOTI GHOSH**  
Ecologist, Special  
Advisor, IUCN

Metcalfe had seen Sen execute the earliest known work of growing vegetables on garbage, near Patna in Bankipur. Metcalfe was quick to latch on to an outstanding mind and an amazing technology and just planted them elsewhere, an action that changed the history of garbage-dumping altogether.

Sen was given a 20-year lease of square mile of land acquired by the government (Dhapa Square Mile) in 1865 and freed of taxes. Subsequently, three such parcels of land in the whole of Bengal (that included Bihar and Orissa at that time) were described as 'Crown Grant'. The two other tax-exempted land parcels were the Kalighat Temple and the palace of the Nawab of Murshidabad. The Dhapa lease continued for many more years, though the conditions of contract were modified from time to time.

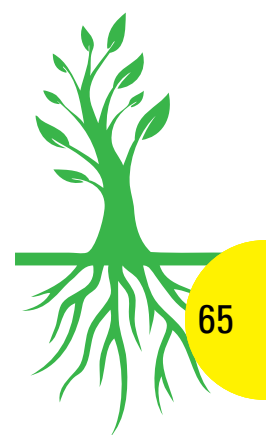
Sen's stint in Bihar also proved useful in a different way. The local villagers were not always agreeable to working on a garbage substrate. Increasing demand for labourers on the Dhapa farms was met by bringing farmer-labourers and

## Between Metcalfe and Sen, integrated resource recovery systems had made an entry into the urban farming lexicon. Sen's turned out to be the greenest of greenfingers for Calcutta

to convert the region into a veritable vegetable farm along with exceptional pisciculture practices.

It was this exercise in farming for the city that still ensures easy access to farm produce for the metropolis. It was also a replicable model having been tried elsewhere. The added advantage of the Kolkata site was that it was the natural recipient of the city's waste water that was free of metallic content.

Bhabanath Sen, a Bengalee entrepreneur, had already succeeded in growing vegetables near the banks of the Ganga in Bankipur close to Patna using city garbage sans plastics, of course. That Metcalfe, as a municipal body administrator had the vision to examine and understand the nature of Sen's accomplishment was fortuitous and small though the dialogue was, it was the harbinger of two fundamentally significant elements of urban and farming management. One, the ability of the head of a municipal body to think differently in his initiatives to manage city garbage and two, the innovative abilities of an entrepreneur who dared to innovate.





also supervisors from Bihar. Thereby, Sen created a battalion of well-trained garbage farmers. Many Dhapa farmers are found to have their roots in Bihar. Some have returned to Bihar with the administration not encouraging agriculture in Dhapa any more.

Bhabanath Sen — the salutary change maker who influenced the grammar of solid waste management for cities all over — is a little known name in Dhapa or, for that matter, in Kolkata, despite the strong wetlands movement. He made Kolkata the ‘smart’est of cities; a truth that may soon be relinquished as talks to permit predatory realtors grab the city’s garbage farms hit media headlines. Meanwhile, smart cities round the country may import urban agriculture solutions through a knowledge pack paid for in greenbacks. ●

## BHABANATH SEN

Farmer-ecologist, who innovated to provide options for better living, with reduced ecological footprints, by exploring relationships that bind society and nature.



66

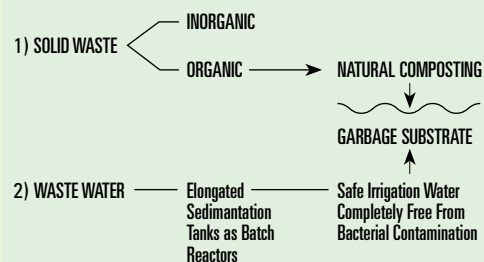


## Highlights of Dhapa Co-recycling Practice

1. There were waterbodies where sewage was used to grow fish – these were called jheels. The primary use of jheel water was to irrigate garbage agriculture.
2. Fish was grown only up to a certain size and then sold as fingerlings to adjacent large fish ponds of Bantala area (these sewage-fed fish were the earliest of such type in the world).
3. The waste pickers helped in removing inorganic part of the waste. There is no written history to identify the beginning of this complementary recycling practice.
4. A railway carriage systematically transported garbage to the fields of Dhapa along pre-planned short routes (the routes are still there). After the closure of railway carriage system, corporation trucks used to unload their collection as the farmers requested them. This service had a cost paid by the farmers to the truck drivers.
5. More than 16 types of crops were grown in these farm lands and an average of eleven crops was grown per year. The choice of crop depends mainly upon availability of water and availability of garbage. Many of the crops were grown simultaneously without any need for chemical fertilizer.
6. Except leafy vegetables most other vegetables do not stock toxins at their edible parts. We can remember that most vegetables we eat today are highly toxic because of the use of ripeners and colours (to look deceptively fresh).
7. There were more than 2,000 farmers even in the eighties who did not have any legitimate right to till the land they had worked on for generations.

## Co-recycling Municipal Waste for Urban Agriculture

(earliest recorded example in the world)



# More Crop Per Drop®

**More crop per unit land- More crop per unit input.**

**JAIN CONSTRUCTS POLY HOUSE/SHADE HOUSE/NET HOUSE and POLY TUNNELS**

JAIN IRRIGATION BRINGS PROSPERITY TO FARMERS;

THRU WORLD CLASS QUALITY MICRO IRRIGATION AND FERTIGATION SYSTEMS,

BOTH ARE ESSENTIAL FOR HIGHTECH FARMING.

**JAIN EXPERTS ASSIST FARMERS IN HIGHTECH PRODUCTION METHODS**

Empower the farmers with SUSTAINABLE FARMING AND HIGHER PROFITS.



## Jain Irrigation Systems Ltd....

- The largest manufacturer and supplier of drip and sprinkler systems in the world.
- Offers complete crop production packages for open field and protected cultivation.
- Only company that provides end-to-end solution for hi-tech farming.
- Offers systems for climate control and input supply in Poly houses.
- Provides full Automation for all systems.
- Undertakes training of trainers and farmers.
- Farmers learning thru experiencing at Jain R&D&D farms.
- One stop shop for all agricultural inputs.
- Company with rich experience in India and abroad with internationally qualified experts.
- Only Company with inhouse training center and R&D&D farms.



Jain Plastic Park, P. O. Box: 72, N. H. 06, Jalgaon - 425001. (Maharashtra).

Tel: +91-257-2258011; Fax: +91-257-2258111;

E-mail: [jisl@jains.com](mailto:jisl@jains.com); Web.: [www.jains.com](http://www.jains.com)

Offices (Tel): Ahmedabad 09426511403, Anantur 08554-274226, Bangalore 080-25361257, Bijapur 09448286500, Bhavnagar 02846-294222, Chandigarh 09417202115, Chennai 044-22200500, Coimbatore 0422-2457318, Deharadun 0135-2669865, Guwahati 9435199998, Hyderabad 040-27611706, Indore 0731-4265112, Jabalpur 09200025444, Jaipur 0141-2203515, Kolkata 033-24198648, Lucknow 0522-4021067, Mumbai 022-22109090, 22610011, New Delhi 011-26691569, Patna 0612-6560266, Pune 020-26057777, Ranchi 0651-2532240, Raipur 0771-2582091, Sundernagar 09418169333, Shimla 09418171333, Santhore 02979-285730, Vadodara 0265-2356727, Cochin Office: CC29/1288 E, 1<sup>st</sup> floor, vytila, Ernakulam, Cochin - 682019, Tel: 0484-2307642, Mob: 9446363742, 09446504333.



# National Bank for Agriculture and Rural Development