Perspective: State in Indian Agriculture: Visibly Active ... Saffron Times in Srinagar

FARMERS' FORUM

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Issues and Ideas for Indian Agriculture

RURAL CREDIT EVERYWHERE ...

But Not a Drop for the Small Farmer?

R. RAMAKUMAR | KAVITHA KURUGANTI
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Paying the Plutocrat; Impoverishing the Ploughman

The 7th Pay Commission recommendations are expected to grant one lakh salaried employees and pensioners additional annual benefits of ₹1,00,000 crore or a per capita ₹1,00,000. Farmers, toiling on the ground and struggling to make ends meet, may be forgiven for being bewildered by the largesse that plutocrats have appropriated for themselves.

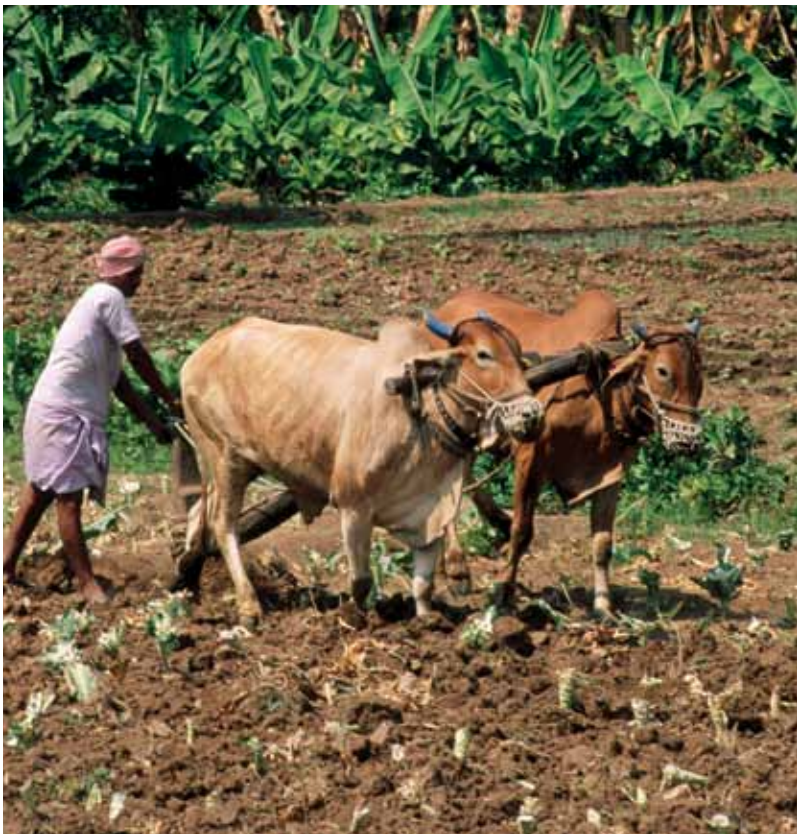
If accepted, a teacher who joined on a salary of ₹850 a month in 1980 will draw ₹96,700 in 2016; a 113 times rise in 35 years. Additionally, he will receive a superannuation pension of ₹46,000. An about to retire employee at a rural co-operative bank, who joined in 1976 on a salary of ₹720 per month will enjoy a last drawn monthly salary of ₹1,30,000; an 180 time rise in 40 years. This is probably unprecedented in history but such examples are endless in today's India.

A retiring lieutenant general commissioned on a salary of ₹450 in the early seventies currently draws around ₹1,75,000 and will retire with a monthly pension of ₹85,000. Not surprisingly, tens of thousands of rural teenagers queue up before recruitment centres across the country, at times braving lathi-charges by the police to disperse the numbers. OROP (One Rank One Pay) is still an unsettled issue.

There is something macabre about the farm situation with young farmers committing suicides, unable to deal with their dire economic straits, while trade unions and the administrative services air their discontent against even the generous recommendations. The central government minimum wages are being increased by 260 per cent from a monthly ₹7,000 to ₹18,000 per month in a dream-like sequence alongside a nightmarish reality for the average marginal farmer, who would have to earn ₹1,40,000 per acre to earn an income equivalent to the basic minimum wage without the perks that go with the job.

India's largest private sector activity, agriculture, remains unremunerative and extremely risky. A person working on the farm earns ₹3,000 per month on an average. Farmers constantly coping with the vagaries of weather and price fluctuations of farm produce cannot contemplate retirement until their last breath. They must farm because they have no option. They do not want their children to farm,

KEEPING FARMERS HAPPY ON THE FARMS IS THE ECONOMICAL, ECOLOGICAL AND ETHICAL WAY FORWARD



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THE RURAL YOUTH EN MASSE ASPIRES FOR SECURE GOVERNMENT JOBS LEADING TO THE MIND BOGGLING 23 LAKH APPLICANTS FOR 368 PEON POSTS IN U.P.

nor do their progeny want to farm and neither do they want their daughters to marry farmers anymore. The rural youth en masse aspires for secure government jobs leading to the mind-boggling 23 lakh applicants for 368 peon posts in Uttar Pradesh. These numbers tell a story of shame, sorrow and utter failure of agriculture policies in the country.

Economists arguing that the recommendations would serve as a stimulus demonstrate zero understanding of Indian realities because stimulus is needed not for India's top one per cent earners but the underprivileged bottom one per cent, who would actually engage in consumption spending. Government expenditure should be about creating equal opportunities. One way to do so would be through a moratorium on wage hikes for a decade at least. Not that the government will ever dare to take on the powerful lobby of bureaucrats and labour unions.

The figure of ₹1,00,000 crore is a humungous sum; even the much-abused fertilizer subsidies add up to ₹65,000 crore. Meanwhile, farmers are constantly reminded of the one-time ₹55,000 crore farm loan waiver that, lest one forget, served to generate 375 crore person days of work every year under the MGNREGA. It is, however, invariably difficult for the government to allocate resources to the farm sector because of competing demands even though common sense cautions one about the consequences of the exodus of farmers to urban centres.

Keeping farmers happy on the farms is a far more economical, ecological and ethical way forward but a myopic government prefers to appease its constituency of bureaucrats. If all state governments implement the recommendations, the additional expenditure to the exchequer would reach a staggering ₹3,00,000 crore. If that were to happen, there can be no stopping India from going the Greece way.

Meanwhile, the impecunious farmer must grease palms to ensure a *chapraasi's* job for his son or pay a huge dowry — selling land to do so — to get his daughter married to boys with secure government jobs. Being at the bottom of the socio-economic order while doing the most critical job of producing food is a debilitating feeling at a time that equitable growth has been sent for a toss by the salaried class. For the farmer it is catastrophe everywhere but no one is listening. ●

Ajay Vir Jakhar
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To the Editor

Time for professional intervention

Sir, The plight of the Indian farmer was clearly explained in your editorial "Night Without End for Indian Farmers" (*Farmers' Forum*, October-November 2015). While agreeing with your view that "farmer suicides are not caused by a natural calamity but are a manmade malady; a creation of policies past and present", I wonder what is the solution to having to cope with ill-informed bureaucrats. You correctly point out that policy-makers do not realize the disastrous consequences of agreements they sign without understanding the long-term implications and that India has to participate professionally in trade negotiations. The question is how does the farmers' lobby ensure that it can make meaningful interventions at the right time and right place. Without an effective voice, the farmer's case is lost for ever.

Deepak Rastogi,
New Delhi

Double Dutch?

Vincent Van Gogh's 'Wheat Harvest' provided the vibrant accompaniment to your most informative article on your experience in the Netherlands under Greenfingers, "Amsterdam Dankjewel" (*Farmers' Forum*, October-November 2015). All global experiences are eye openers but the philosophical take that you provide at the end of the report: "…I extend that belief to the broader picture of farm advocacy. Those advocating on behalf of farmers must either be practicing farmers or be living with them to understand their issues and feelings" is the most significant takeaway from the article. It is this that makes Greenfingers such a readable section in your magazine but does it make sense to policy-makers and the agriculture bureaucracy?

Lalit Rawat,
Lucknow, Uttar Pradesh

All power to dairying

Dairy farming is critical to the survival of the Indian farmer and I appreciate your organizing a conference on the subject, "Agriculture's Plan B: Developing Down the Dairy Route" (*Farmers' Forum*, October-November 2015). Dairy farming is the back-up plan for every farmer to sustain himself. I hope you have succeeded in sending this message to the government, loud and clear, that it should leave no stone unturned to ensure that the dairy sector does not lose its life force.

Jai Singh,
Alwar, Rajasthan

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

Stree shakti

Thank you for your excellent portrayal of women farmers in the country under Perspective; "Women Farmers: In Search of an Identity" by Bharat Dogra (*Farmers' Forum*, October-November 2015). Women are getting increasingly empowered in rural India, socio-politically and financially and should be encouraged to take on leadership roles in farm practices and policy-making. How can agriculture in India realize its potential unless women, who do the bulk of the work, are treated as equal partners with equal rights and a place of great dignity in the countryside?

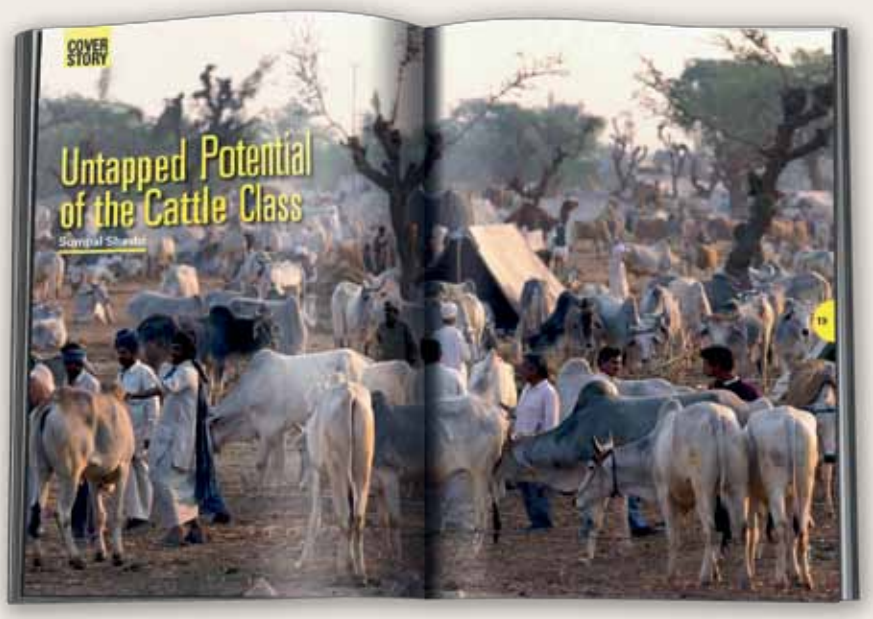
Radhayshyam Jhunjhunwala,
Noida

Floods and farms

Sir, The Chennai catastrophe makes one appreciate the import of "Urban Agriculture for India: Learning from the World" by Rahul and Sumita Gupta Gangopadhyay under the Insight column (*Farmers' Forum*, October-November 2015). The rapid urbanization in the name of development has eaten into our farmlands and our ability to manage urban India.

Sankar Banerjee,
Kolkata

NDDB does not fix price paid to dairy farmers



This is with reference to the cover story "Untapped Potential of the Cattle Class" by Sompal Shastri published in the October-November 2015 issue of *Farmers' Forum*. The story mentions that between 1984 and 1992, wheat prices moved between ₹85 and ₹375 per quintal while milk price paid by National Dairy Development Board (NDDB) to the farmer moved from ₹4.20 to ₹5.60 only.

For the record, the minimum support price of wheat announced by the government was ₹152 in 1984-85 and ₹250 per quintal in 1992-93, as against ₹85 and ₹350 per quintal respectively, mentioned in the article. The comparison is not valid—while the procurement prices of foodgrain is administered price, fixed by the government, producer price of milk is decided by the dairy co-operatives based on market situations.

The reported statement was also erroneous since NDDB does not buy milk and has no role in deciding the price paid to dairy farmers. The milk unions fix different producer prices across different geographies depending on their local conditions.

NDDB promotes farmer owned institutions (co-operatives) that are owned and governed by milk producer members. The board members of dairy co-operatives comprising milk producers decide the price to be paid to the farmers. The producer price of milk by the dairy co-operatives during 1984-85 and 1992-93 were ₹3.24 and ₹6.43 per litre respectively registering an increase of about nine per cent per annum.

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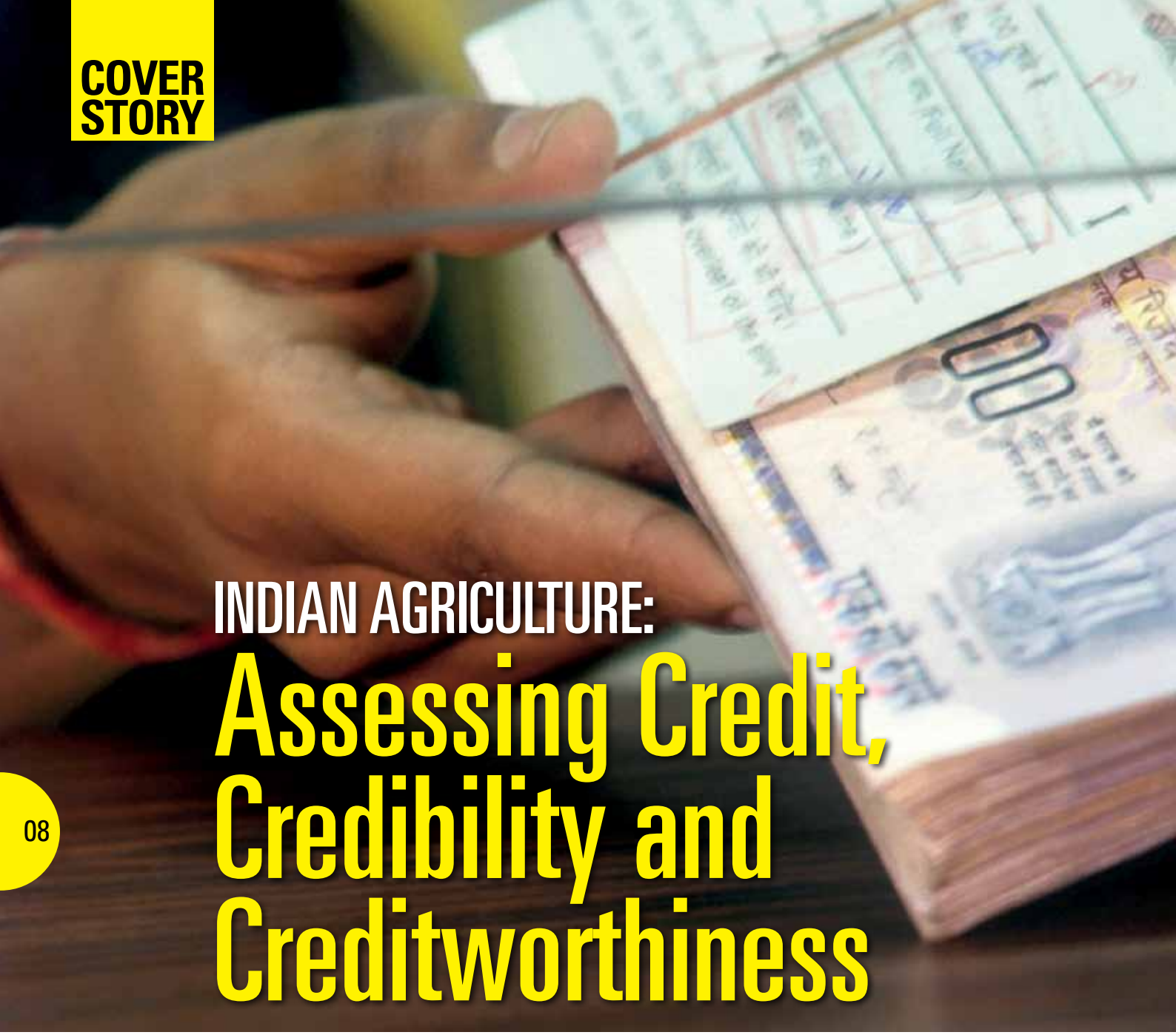
In addition to this, many co-operatives paid a price difference at the end of every year to the milk producers. NDDB is mandated to provide financial, technical and managerial support to the dairy co-operatives.

The article also mentions that the NDDB, government of Uttar Pradesh and Mother Dairy can lift 1,00,072 litres with the rest left to the private sector. We would like to clarify that NDDB does not procure milk from milk producers nor does Mother Dairy have any mandate to procure milk from Uttar Pradesh. Mother Dairy is a wholly-owned subsidiary of the NDDB whose mandate is to pool surplus milk from co-operative federations and farmer owned institutions of neighbouring states and provide milk and milk products to consumers in Delhi NCR.

Mother Dairy sells about 3 million litres of liquid milk in Delhi and in the NCR region every day. This milk comes from various producer organizations from the neighbouring states. This is in addition to a substantial quantity of curd, *lassi* and other fresh milk products sold by Mother Dairy.

Abhijit Bhattacharjee
Senior Manager, PR & Communications, NDDB



INDIAN AGRICULTURE: Assessing Credit, Credibility and Creditworthiness

Institutional credit to farmers remains a matter of grave concern in India, especially when it comes to public sector bank lending. Agriculture credit is a complex business in the country because the nature of the problem changes with geographies and credit needs differ widely, demanding different kinds of expertise at the appraisal end. "Credit issues will be different in rain-fed farming from irrigated farms of Punjab", said Ajay Vir Jakhar, president of the Bharat Krishak Samaj (BKS), flagging off a meeting on "Agriculture Credit" with Raghuram Rajan, Governor, Reserve Bank of India (RBI), at the RBI headquarters in Mumbai on September 21, 2015.

It is not everyday that a farmer's group gets to present its case to the RBI Governor, which is why the interface was particularly significant. The participants included not just farmers but thought leaders from various institutions who presented to the RBI a comprehensive idea of the real issues around agriculture credit. Setting the tone of the deliberations, Prof. R. Ramakumar, Professor & Dean of Development Studies, Tata Institute of Social Sciences (TISS), began with a presentation on the macro picture around agricultural credit.

The other panelists included: Kavitha Kuruganti, National Convenor of Alliance for Sustainable & Holistic Agriculture, Rashpal Singh, Secretary, Khuian Sarwar Co-operative Agri Society, Ferozepur, Basappa Belakud, President of Basaveshwar Urban Credit Souharda Sahakari Niyamit, R.C. Gawri, Additional Managing Director, Punjab State Co-operative Bank, Jaya Prakash Guraja, Chief Operating Officer, Star Agri Warehousing and Collateral Management Limited, Raj Kumar Bhatia, General Secretary, Chamber of Azadpur Fruit and

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Vegetable Traders Association; Shrikant Barhate, expert on rural issues in Vidarbha, P.S.M. Rao, economist, analyst and columnist, Paranjoy Guha Thakurta, journalist and author, and H.R. Dave, Deputy Managing Director, NABARD.

Exemplifying the kind of apathy/misconceptions resident in the minds of the credit dispensers, Ajay Jakhar said: "Two agriculture development officers of different public sector banks, working in different villages, were denied permission by their respective seniors to come to this consultation presuming Bharat Krishak Samaj was a political organization. Had they been here they would have been able to elaborate more on problems faced by rural branches of public sector banks and problems faced by farmers on account of public sector banks".

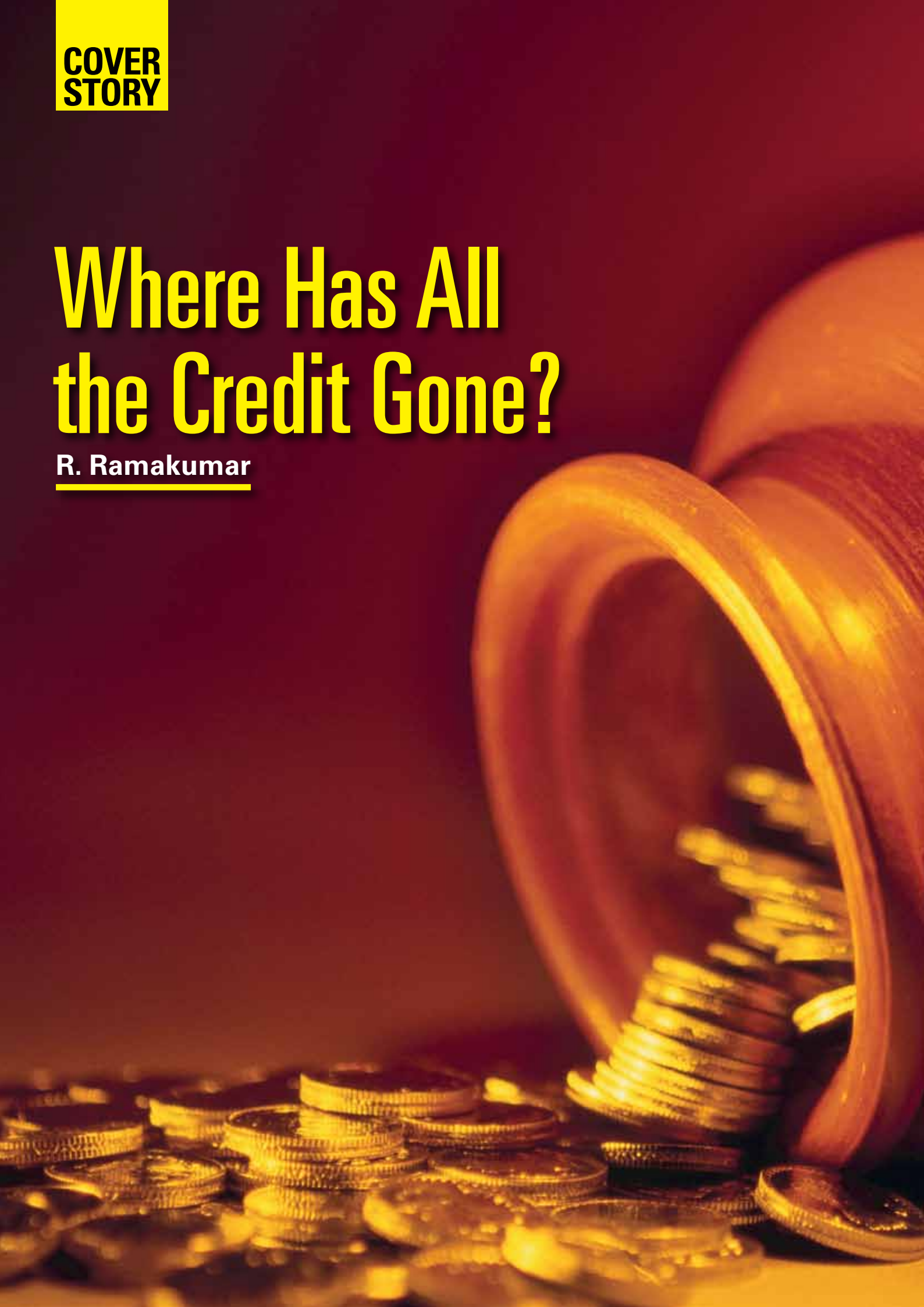
Nevertheless, the participants represented a fair spectrum of stakeholders in the Indian agriculture landscape from co-operative societies, co-operative banks, subzi mandi commission agents, and representatives of private warehousing companies, who covered the entire credit gambit. Bringing objectivity to the proceedings were experts and economists.

The moot point of the meeting, in Ajay Jakhar's words: "A pan India policy will not work, it will succeed to deliver at some places while it will fail at others." TISS was commissioned by BKS to study the cost of sanctioning agricultural credit from institutional sources, which also remains a very big concern for farmer organizations. "Our preliminary estimates suggests that costs of accessing institutional credit could be as high as 10 per cent. When I mention cost of accessing credit, I am not talking about interest but just the cost for sanctioning the credit", Ajay Jakhar said. ●

COVER STORY

Where Has All the Credit Gone?

R. Ramakumar



R. RAMAKUMAR
Professor and Dean, School of Development Studies, Tata Institute of Social Sciences, Mumbai

A critical problem in Indian agriculture today concerns the indebtedness of agricultural households in rural areas. On an average, a rural or cultivator household has become more indebted in 2013 than it was in 1992. The key results of the 2013 round of the All-India Debt and Investment Survey (AIDIS), released last week, provides information on the conditions of asset ownership, indebtedness and investment for two sets of households: all "rural households" and "cultivator households".

All rural households operating at least 0.002 hectares of land were treated as "cultivator households". The AIDIS is organized roughly every 10 years. Unlike SAS, concepts used in AIDIS are comparable across time. Hence, a longer view and comparative data on indebtedness for 1992 and 2013 is adopted here.

The conditions of indebtedness of rural and cultivator households show massive deterioration between 1992 and 2013. There was an increase in the share of rural and cultivator households that were indebted. The share of rural households that were indebted rose from 23.4 per cent in 1992 to 31.4 per cent in 2013; the share of cultivator households that were indebted rose from 25.9 per cent in 1992 to 45.9 per cent in 2013.

Of course, a rise in the share of indebted households need not be an adverse phenomenon in itself. However, what has been striking is that the rise in the incidence of indebtedness occurred alongside a rise in debt-asset ratios (that shows the extent to which debt is a drain on the value of owned assets). In 1992, debt-asset ratio for rural households was 1.78, which rose phenomenally to 3.23 in 2013. Thus, the data points not just to a higher share of indebted households, but also to an intensification of their debt burdens.

Where did they borrow from? Between 1992 and 2013, the share of debt outstanding from informal credit sources increased sharply. For all rural households, the share of debt outstanding from the formal sector fell from 64 per cent in 1992 to 56 per cent in 2013. Similarly, for the cultivator households, the share of debt outstanding from the formal sector fell from 66.3 per cent in 1992 to 64 per cent in 2013. The most important reason was

the withdrawal of commercial banks from lending to farmers and rural areas. Between 1992 and 2013, the share of debt outstanding from commercial banks fell from 33.7 per cent to 25.1 per cent for rural households, and from 35.2 per cent to 30.7 per cent for cultivator households.

Informal sources of credit have become increasingly powerful in the 1990s and 2000s. If only 32.7 per cent of the debt outstanding of rural households was from the informal sector in 1992, the corresponding share rose to 44 per cent in 2013. If we consider cultivator households, the share of debt outstanding from the informal sector rose from 30.6 per cent in 1992 to 36 per cent in 2013. Within the informal sector, the share of debt from moneylenders rose most sharply. For all rural households, the share of debt outstanding from moneylenders rose from 17.5 per cent in 1992 to 33.2 per cent in 2013. For cultivator households, the share of debt outstanding from moneylenders rose from 17.5 per cent in 1992 to 29.6 per cent in 2013.

The data also shows that there is a movement from simple interest to compound interest. Thus, the average interest rates paid by a cultivator household has also risen.

The RBI data, however, presents a different picture and this contradiction is significant (Box 1). The number of rural branches of commercial banks has gone up between 1992 and 1994, followed by a fall between 1995 and 2005 and then a rise after 2006. After falling by 922 branches between 1992

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The data shows a movement from simple interest to compound interest. Thus, the average interest rate paid by a cultivator household has also risen

Box 1: Distribution of amount outstanding under direct agricultural advances by scheduled commercial banks, by broad size-classes of credit limit (1985-2013; in %)

Year	Share of amount of direct advances with credit limit (%)					
	<₹2 lakh	>₹2 lakh	Total	<₹10 lakh	>₹10 lakh	Total
1985	na	na	100.0	96.7	3.3	100.0
1990	92.2	7.7	100.0	95.8	4.1	100.0
1995	89.1	10.9	100.0	93.6	6.4	100.0
2000	78.5	21.4	100.0	91.3	8.6	100.0
2003	72.6	27.4	100.0	87.5	12.5	100.0
2005	66.7	33.4	100.0	88.1	12.0	100.0
2006	60.8	39.2	100.0	86.3	13.7	100.0
2011	48.0	52.0	100.0	76.2	23.8	100.0
2013	48.4	51.6	100.0	83.1	16.9	100.0

Source: "Basic Statistical Returns of Scheduled Commercial Banks in India", RBI, various issues.

and 2005, in the shorter period, between 2006 and 2012, the number of rural branches increased by 5,660: one of the sharpest growth rates of rural bank branches in recent times, from 30,000 to 35,000. That is a phenomenal expansion on paper.

The agricultural credit supply, the green line (Chart 1) is a projected linear trend line from the 1980s. If agricultural credit had risen in the post-1980s period at the same rate that it had risen in the 1980s, it would be somewhere at the end of the green line. Throughout the nineties though, the actually supply (red line), fell below the green line. Then, in the 2000s, there was a revival; a sharp upward trend. The nineties have thus been a lost decade for rural banking in India but the 2000s have been a period of revival; the number of branches has risen and there was a phenomenal rise of agricultural credit supply.

Why has this not led to a softening of the debt burden of rural households? Why has it not led to the share of the formal sector picking up in the share of rural outstanding debt of rural and cultivator households? Where has all the credit gone? Agricultural credit rose from ₹96,000 crore in 2004-05 to ₹4.6 crore (2010-11) to ₹6.7 lakh crore in 2012-13; an increase of ₹5.7 lakh crore over about 10 years.

How much of this was indeed agricultural credit? How real is the agricultural credit expansion? The main issue is the size of direct credit, which is supposed to go directly to the cultivator. The share

Rural bank branches between 1991 and 1994: RBI data

The number of rural branches increased by 123.

Between 1995 and 2005:

The number of rural branches fell by 922.

Between 2006 and 2012:

The number of rural branches increased by 5,662, from 30,188 to 35,850.

of amounts under ₹2 lakh in direct agricultural advances for scheduled commercial banks was 92 per cent in 1990 and fell to 48 per cent in 2013. In other words, in 2013, of the total credit supply of ₹6.7 lakh crore, only 48 per cent, or about ₹3.02 lakh crore, has gone to the farmers. The remaining of about ₹3.5 lakh crore has gone elsewhere.

Despite the availability of credit and the number of bank branches having increased, the share of formal credit in the debt portfolios of cultivator households have fallen below 1992 levels. This is due to the phenomenal urbanization of agricultural credit. About a fourth of the agricultural credit supplied in India is disbursed from urban and metropolitan branches of banks in India. As much as 22 per cent of direct finance, which is supposed to go to farmers, goes through urban and metropolitan branches.

In West Bengal, 55 per cent of direct finance goes through urban and metropolitan branches. In Maharashtra and Tamil Nadu, 32 per cent and 33 per cent. respectively, of the total loans goes from urban and metropolitan branches. These are the top three states in terms of urbanization of agricultural credit. The numbers speak for themselves; the credit does not reach the farmers.

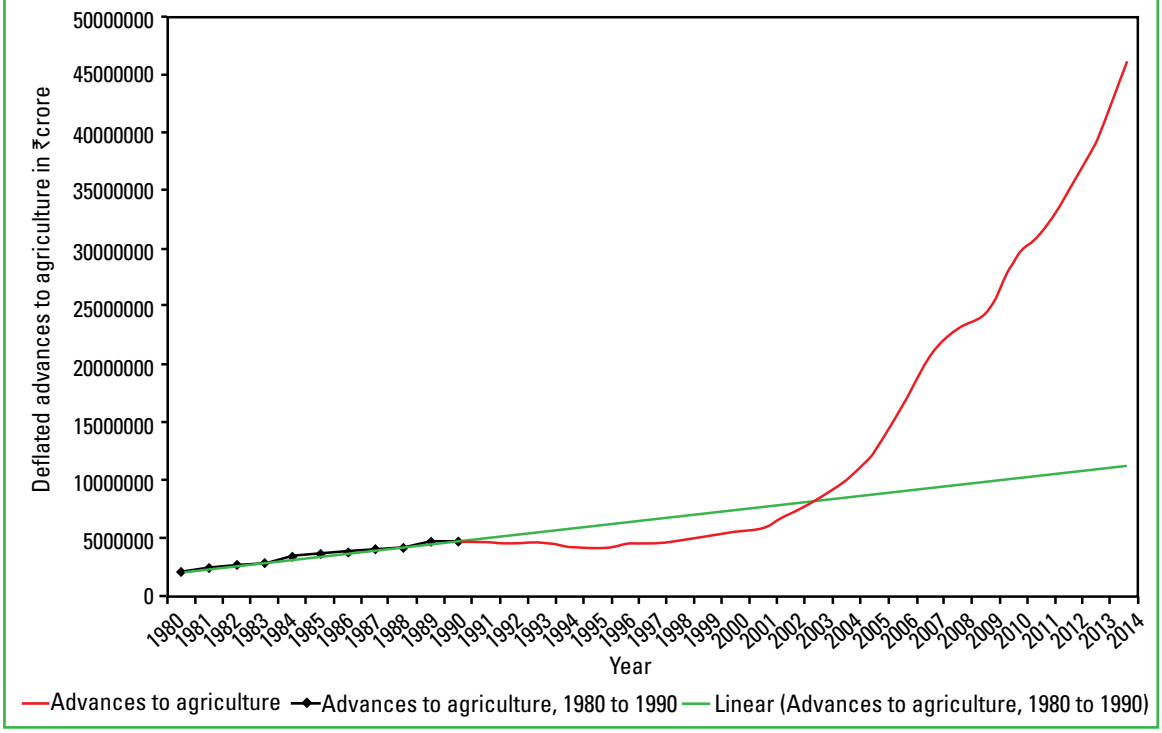
The impact is evident. The share of short-term credit to agriculture is increasing and of long-term credit to agriculture is falling. This becomes clear if credit supply is correlated with investment in agriculture. The measures taken by the RBI have been inadequate in terms of correcting these anomalies. The agrarian distress across rural India is clearly correlated with this condition of sharp indebtedness. Farmer suicides are a result of increasing debt burden. This is an anomaly that needs to be corrected urgently by the RBI.

Can loans to corporate houses not be removed

Governor's intervention

The RBI has cleaned up the process by having a minimum for small and marginal farmers. Today about six per cent loans, by definition, goes to small and marginal farmers. If every RBI measure is subverted, there is no end to the problem. The intent of the RBI was to increase flow to small and marginal farmers with the priority sector norms. There is, in fact, a gain from five per cent to eight per cent. Obviously, corporate loans can be disguised as farmer loans and big farmer loans can be disguised as small loans. The RBI is trying to figure out if the loans can be linked to Aadhaar numbers so that there is no multiple lending.

Chart 1: Total agricultural advances between 1980 and 2014, and projected linear trend line for the 1980s, deflated (Rs crore)



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Farmers with large amounts of land can divide it, show two or multiple small farms and avail of agricultural credit under a sub-target of 8 per cent meant for small and marginal farmers

from the purview of agricultural loans? Changes in the definitions of what constitutes direct finance or indirect finance reflect an increasing tendency, inspired by the master circulars of the RBI, to draw in new items related to capital intensive, lumpy investment — drawing items into the ambit of agricultural credit as a whole and even direct credit. For instance, from 2007 to 2013, loans given to corporate houses for agriculture up to ₹1 crore were treated as direct finance.

The latest Nair Committee and the RBI circular in April 2015 does away with the classification of direct and indirect finance. In some ways, this makes it difficult to monitor where agricultural credit is going. Earlier, 13.5 per cent out of 18 per cent of priority sector credit target had to go for direct finance. Indirect finance could not exceed 4.5 per cent within the priority sector 18 per cent earmarked for agriculture. That distinction does not remain today but it was useful for monitoring where the credit went.

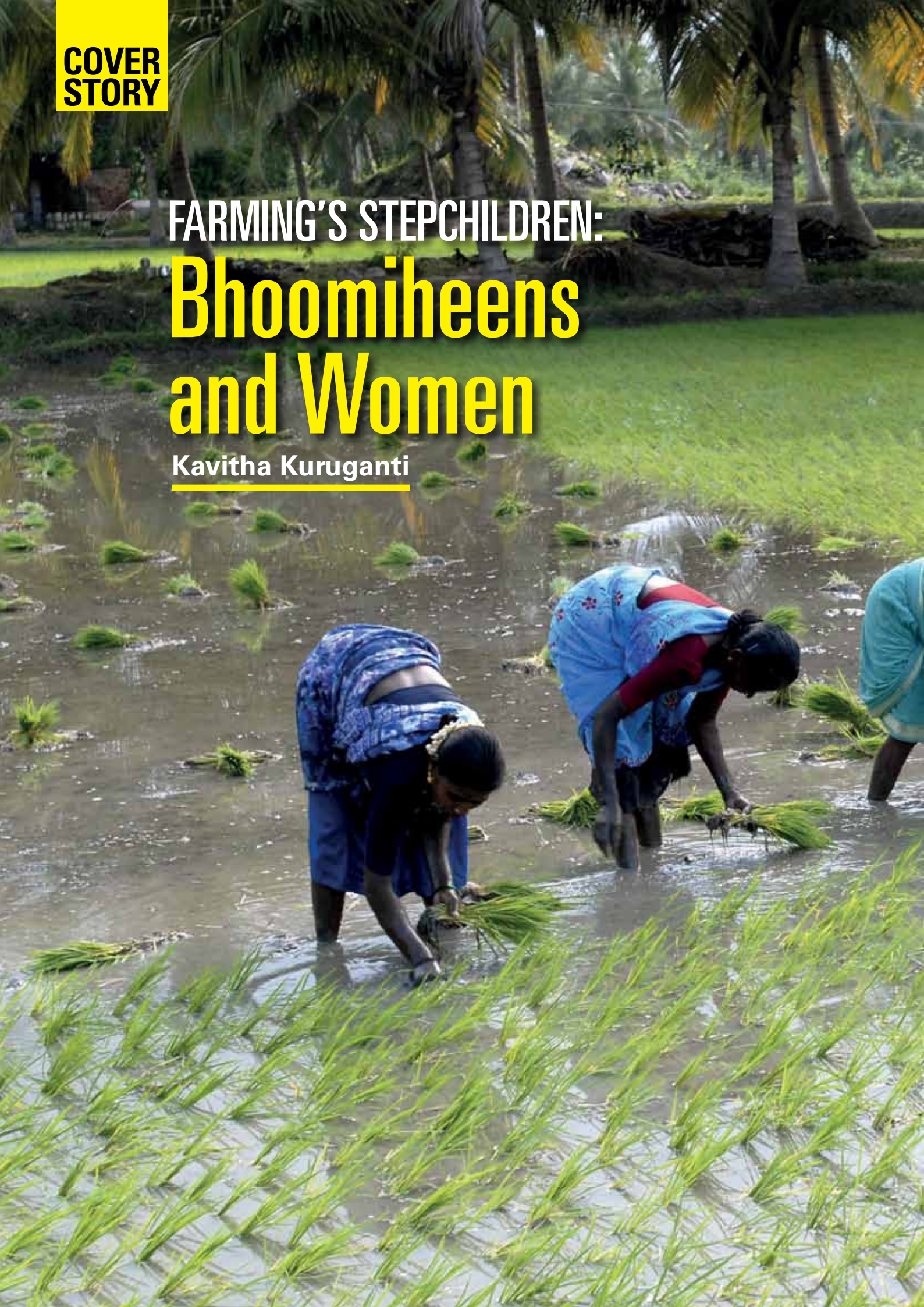
If the RBI had stuck to the original definition of direct finance and implemented it strictly, 13.5 per cent within 18 per cent could have gone to the farmers. If there is an eight per cent sub-target for small and marginal farmers, it is easy for big farmers and corporate farmers with large amounts of land to divide it into smaller pieces, show two or multiple small farms, avail of agricultural credit and be treated under the sub-target of eight per cent.

Even the Bhoomiheen Kisan Credit Card scheme has a lot of problems with coverage. Only 35,00,000 tenant farmers are covered across the country and the numbers must increase, especially in states like Andhra Pradesh where there are a lot of tenant farmers deprived of credit. The promotion incentives are low. Loan eligibility cards have been provided to farmers but banks continue to deny them loans. The RBI needs to intervene on behalf of such farmers. ●

COVER STORY

FARMING'S STEPCHILDREN: Bhoomiheens and Women

Kavitha Kuruganti



KAVITHA KURUGANTI
National Convenor, Alliance for Sustainable & Holistic Agriculture (ASHA); Member, GoI Committee on Fixing of Minimum Support Prices

The fact that institutional credit is not reaching non-landowning cultivators and women farmers is well-established. States like Telangana and Andhra Pradesh have gone out of their way to create legislative measures (in undivided A.P. for instance) for tenant farmers. Under the Licensed Cultivators Act, the revenue department identifies lessees in different villages at the gram sabha level.

There are, however, issues with identification itself. They fear that their ownership will be taken away under the tenancy laws. Despite many real challenges, ID cards called Loan Eligibility Cards (LECs) are being issued with great difficulty but banks do not respect them because they have their own fears.

The point is that the government and others are doing the initial paperwork for the banks. The ID cards are survey number specific, land owner-lessee specific and crop specific. For instance, only

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There are issues with identification itself. Land-owners do not like their tenants being identified. They fear that their ownership will be taken away under the tenancy laws

0.1 per cent of loans in Telangana go to tenant farmers though tenancy, according to NSSO surveys, could be as high as 30 per cent to 32 per cent. Across India, the 70th Round says that about 10 per cent of agricultural households work on leased-in land. The real numbers would be much higher. The problem is that even though systems such as ID cards are in place, bankers do not come forward to lend.

There is also the issue of Bhoomiheen Kisan Credit under which only about ₹2,000 is being given for facilitating the creation of Joint Liability Groups (JLGs). Facilitating the creation of a JLG should not be taken too lightly in the interest of both the bank and the JLG. Greater investment should to go into handholding while creating a JLG and in sustaining the institution. Farmer Producer Organizations (FPOs), created by NABARD through its revised grant scheme, have had handholding support for three years. The approach to JLGs should be similar and the current approach should change if these groups are to benefit from Bhoomiheen Kisan Credit Scheme.

There is also little education or awareness being created around the Licensed Cultivators Act and the ID card system in states like Telangana and Andhra Pradesh. There is need for fresh guidelines from RBI to banks to respect the Licensed Cultivators Act and the ID card system that the states have put in place. From an equity perspective and from the perspective of reducing acute agrarian distress, our fact-finding efforts in Telangana, where farmer suicides have taken place, show that 80 per cent of such cases have leased-in land. If agrarian distress has to be addressed, one must evaluate how tenancy is adding to it and how the lack of institutional credit is exacerbating the situation.

Women farmers face equally serious problems.

Given the phenomenon of increasing feminization of agriculture — the census has enumerated 36 million women cultivators — 30 per cent of the cultivators in the country are women. They are deprived of institutional credit just because they do not have property rights. Most women farmers, even the landed, are small and marginal farmers and must be brought under the JLG or self help groups (SHG) folds.

There is clearly also a need for financing on a higher scale because the rent for leasing-in one acre land can be as much as ₹30,000 to ₹35,000 per acre. This does not even feature under the Bhoomiheen Kisan Scheme, which is not designed to be at par with regular Kisan Credit Card. In fact, preliminary information suggests that even where JLGs exist, their scale of finance is being fixed lower. This issue faced by tenant farmers and women farmers has to be proactively addressed.

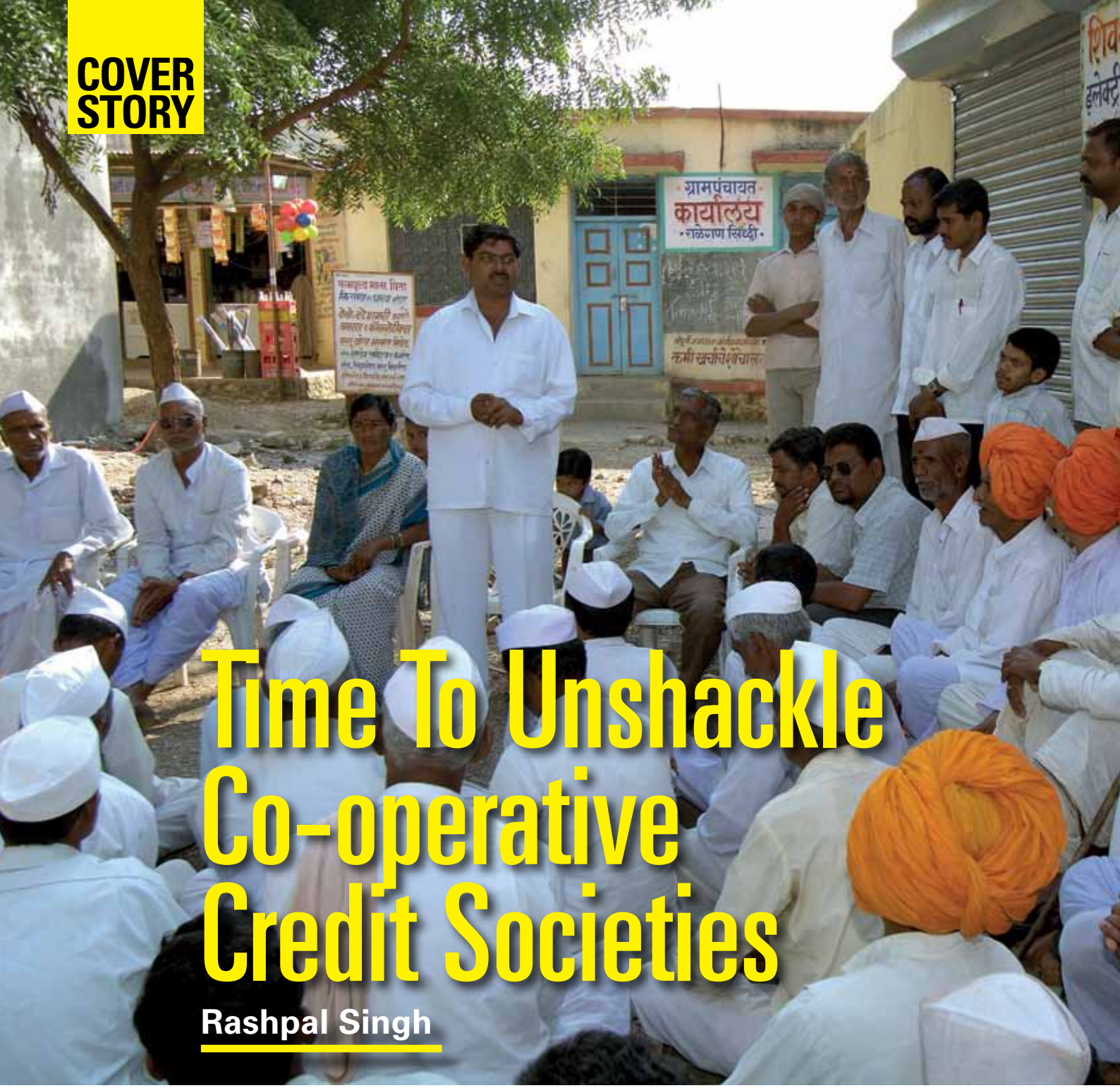
As far as FPOs are concerned, curiously enough, they are expected to have their businesses taking off from day one. There is no moratorium period for repayment of enterprise loan. If an FPO gets into value-addition and branding after taking this credit, it is unlikely to create space for itself in the market in year one. A repayment holiday must be built in after which the repayment schedule can start.

Finally, the share of livestock credit has come down to four per cent. As is well known, sub-marginal and marginal holdings in India get a significant share of their income from livestock rearing. That is part of agriculture and there is a need to look at specific allocations for livestock credit. The need is for equitable allocations across the board, not just minimum allocations for small and marginal farmers. ●

Governor's intervention

The RBI can ask banks to lend but banks do not lend because they are being held to different standards elsewhere. If returns from large or corporate farms are assumed to be higher, they will move to that direction. The problem lies in making lending to tenant, marginal and women farmers seem more profitable, which it might well be but the banks do not see them as so. If institutional changes are needed to make that possible, we are open to them.

COVER STORY



Time To Unshackle Co-operative Credit Societies

Rashpal Singh

The Khuian Sarwar Co-operative Agri Society Ltd (Punjab) has more than a thousand farmer members with deposits of ₹1.80 crore. Over the last 15 years or so, it has advanced nearly ₹10 crore in loans and its non-performing assets (NPA) are less than ₹10 lakh. The main source of the society's business is sale of fertilizers.

The society gives credit to members whose credit limit is linked to their holdings. In accordance with the Kisan Credit Card Scheme, the society has a maximum credit limit for rabi/kharif crops of ₹20,800/Rs 22,750 per acre (see chart on pg 21).

RASHPAL SINGH
Secretary, Khuian Sarwar Co-operative Agri Society Ltd (Punjab)

The credit cannot be taken in cash but has to be availed of in the ratios mentioned in the chart. There is, however, a move to de-notify these ratios and the RBI is requested to ensure that these ratios remain unchanged. Credit only in form of cash will not be good for the majority of the farmers.

Primary agriculture societies are also attached to co-operative banks and only allowed to take loans from these banks. A

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Primary agricultural societies, the future of farmer prosperity, should be allowed to take loans from any bank offering better terms and not be restricted to co-operative banks alone

The society must not be thus restricted because these primary agricultural societies are the future of farmer prosperity.

As far as subvention is concerned, around ₹11.50 lakh is received by 800 members as subvention every year at this society. About 600 members have more than one credit limit in other banks. Subvention is available when a farmer repays his interest in time. A loan at seven per cent will entitle the farmer to a three per cent subvention, effectively making the cost of loan four per cent.

About 250 members may have taken credit from one bank and made a fixed deposit in other banks/ institutions. Enterprising large farmers can get credit at three per cent and keep it as fixed deposits in different banks at 8.5 per cent.

The society entered the leasing machinery business in 2006-07 and has bought machinery worth ₹38.70 lakh, including three tractors and other agricultural equipment. At least ₹175 lakh worth of business has been generated by leasing out the machinery to farmers. The society made a profit of ₹38 lakh after excluding expenditure like maintenance and repairs. Such leasing of machinery benefits small farmers too. When small farmers are forced to buy machinery they go into perpetual debt. Leasing of machinery must be incentivized.

It would be better if the money allocated for interest subvention could be replaced by interest free loans to farmer co-operative societies to buy machinery to lease to small farmers initially. The main beneficiaries of interest subvention are large farmers. ●

	Cash		Seeds/ Fertilizers		Diesel		Household needs	Total (Rs)
Rabi	9,000	+	7,000	+	3,200	+	1,600	= 20,800
Kharif	9,700	+	7,800	+	3,500	+	1,750	= 22,750

primary society must, however, be allowed to take loans from any bank offering better terms and not be restricted to co-operative banks alone. Being forced to do business with a co-operative bank also leads to other peculiar situations.

If a member takes a loan from a co-operative bank and defaults, the bank directs the society not to do business with the farmers. Therefore, the society also suffers because of the bank's dealings.

COVER STORY

Time for Systemic Changes

R.C. Gawri

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The co-operative credit structure in Punjab functions under a three-tier system. The first is the Punjab State Co-operative Bank (Apex Bank) with 20 District Central Co-operative Banks (DCCB), having 802 branches, as the second tier. The third tier is made up of the Primary Agriculture Co-operative Service Societies (PACS), comprising 3,500 units affiliated with the branches of the central co-operative banks.

R.C. GAWRI
Additional Managing Director, Punjab State Co-operative Bank

There are 10.50 lakh operational landholdings in Punjab and co-operative banks have issued more than 10 lakh Kisan Credit Cards (KCC). Although the co-operative banks are functioning well, most of the DCCBs are not viable. Punjab co-operative banks have issued ₹13,000 crore of short-term agriculture loans (crop loan) to farmers in 2014-15 and the annual recovery is more than 90 per cent but the majority of the co-operative banks find it difficult to sustain their viability.

Such banks are entirely dependent on NABARD refinance that is available at 4.50 per cent to the apex bank and is given to the DCCBs at 4.75 per cent after retaining a very thin margin of 0.25 per cent for the apex bank and ultimately given to PACS at five per cent by the

DCCB for further lending to farmers at seven per cent as per the central policy.

The DCCB's cost of management is two per cent, making the effective cost for short-term agriculture loan 6.75 per cent whereas it is given to PACS at five per cent. This means that the co-operative banks incur losses of 1.75 per cent on every rupee given to farmers.

If these banks use their own funds for short-term agriculture loans, their losses increase. The cost of deposits of these banks is 6.91 per cent plus the cost of management of two per cent that leads to an effective cost of 8.91 per cent while the lending rate is five per cent. Even after the two per cent interest subvention, co-operative banks incur a loss of 1.91 per cent. This means that they incur losses of more than ₹100 crore on short-term agriculture loans to the farmers in the Punjab every year. This demands systematic changes.

Co-operative banks borrow between ₹5,000 crore and ₹6,000 crore annually from NABARD at 4.50 per cent. They need a reduction in the rate of interest of refinance from 4.50 per cent to 2.50 per cent to survive. That was applicable at the inception of the scheme in April 2006. Alternatively, the Centre may consider giving an interest subvention on refinance provided by NABARD.

Such losses on account of thin margins have affected the CRAR (Capital to Risk Weighted Assets Ratio) of co-operative banks. The Punjab government has infused share capital of ₹80 crore and the Punjab Co-operative Development Society has provided financial assistance of ₹56.25 crore to enable the co-operative banks to maintain their CRAR at seven per cent by March 31, 2015. They would require an additional capital of ₹700 crore to maintain a nine per cent CRAR by March 31, 2017, as stipulated by the RBI. This appears to be very difficult.

The cost of deposits of these banks is 6.91 per cent plus the cost of management of two per cent that leads to an effective cost of 8.91 per cent while the lending rate is five per cent

Further, co-operative banks have been brought under the ambit of income-tax since 2006-07 and Punjab co-operative banks have paid around ₹200 crore as Income-Tax. Along with their low margins, the IT levy has badly hit the bottomlines of the co-operative banks. This is something that the government of India should look into. ●

Whither Warehouse-Market Linkages?

Jaya Prakash Guraja

Operations in warehousing and collateral management came into vogue in the last decade, thanks to commodity exchanges, legal amendments such as the Model APMC Act and the banking thrust on commodity finance. There has been serious experimentation on how best to encourage farmers to come forward and pledge their produce but there are challenges that need to be addressed to enhance the farmer's ability to repay earlier credit and maximize benefits from current produce.

JAYA PRAKASH GURAJA
Chief Operating Officer, Star Agri Warehousing and Collateral Management Limited

First, the infrastructure created courtesy NABARD's Gramin Bhandaran Yojna, although adequate, has not been linked to the market. This makes it difficult to sell the commodities stored in warehouses. The farmer stocks commodity in the warehouse, gets warehouse receipt finance but, during termination of period, has to repay the bank first to get his commodity back from the warehouse service provider. This means returning to the informal lender for repaying the bank and only then being able to sell in the open market. The RBI should modify the existing norms of warehouse receipt (WHR) financing to address this issue.

Second, agricultural marketing is a state subject and the APMC Act has been amended to give licences for private markets. If warehouses are connected to enablers such as electronic platforms, the farmers would not need to go back to commission agents to sell their produce or even visit the mandi. The

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market linkage issue needs to be addressed and unless the modern private market model, which NABARD has been talking about for the past 10 years is operationalized, things will not improve. The entire business must be approached from a fresh perspective on warehousing with market linkages, warehouse receipt finance and eventual empowerment of farmers in terms of being the price determiner.

Third, NABARD's scheme on warehouse construction is more of a subsidy programme. Warehouses are being constructed even when there is no capacity requirement and over time, this has emerged as a real-estate game. Instead, NABARD should consider construction of grain silos and formulate a policy for procurement centres in the hinterlands where production takes place. Such modern storage facilities would provide efficient options that can be connected through other enablers. There is urgent need for such scientific infrastructure based on demand and requirement.

In addition, silo construction should be differentiated from warehouse construction schemes. The guidelines should distinguish between silos, warehouses and cold stores. NABARD's private market-yard construction scheme should be linked with development of silos with a focus on silos in crop production centres, offering storage facilities at taluka/block level. The business model for such centres would be procurement led rather than mere storage. This would save the farmer from having to travel over long distances to sell his commodity. There must be equal emphasis on construction of private markets vis-à-vis warehouses. ●

COVER STORY

ACTS OF COMMISSION:
Helping the Farmer

Raj Kumar Bhatia

Despite the talk of financial inclusion today, the schemes formulated by the government, and the RBI's emphasis on money being deposited in the beneficiary banks, the fact remains that, when it comes to lending to the agriculture sector, the size of such loans are so tiny that they do not meet any requirement.

RAJ KUMAR BHATIA
General Secretary, Chamber of Azadpur Fruit & Vegetables Traders Association

The government keeps formulating new policies and debates on how progress can be made in the sector to little effect. Also, when it comes to informal loans, commission agents and local moneylenders are seen as a single category despite the fact that there is a big difference between the two. Local moneylenders are financial institutions that charge interest on loans. Commission agents, on the other hand, provide financial assistance in selling the farmer's produce.

No government or bank scheme provides loans to help market a farmer's produce. There is no financial support for harvesting, processing, packaging, transportation or even storage, without which the process of agricultural production remains incomplete.

The commission agent's profits is defined in the APMC Act and cannot exceed six per cent. Commission agents have historically played the role of ATM machines in the agriculture sector. They provide financial assistance to farmers in the hope that the produce will reach the agent who will market it. They are not the traditional middlemen. They are service providers. Commission agents in local mandis know the state of local agriculture as well as the farmer does.

There are about 20,000 commission agents in every Indian state who lend anywhere between ₹1 lakh and ₹500 lakh. When banks refused loans to farmers in the past, particularly in years following droughts, commission agents provided financial support to the agriculture sector. Unlike moneylenders, they do not charge an interest. Money is lent on the basis of commission not exceeding six per cent. Commission agents also work to provide financial assistance to farmers for buying seeds and fertilizers.

Priority sector lending norms stipulate that loans can be provided to commission agents only in rural and semi-urban areas. However, the major share of commission comes from urban areas because agricultural produce fetches a higher price in urban areas. Then again, agriculture marketing is looked at with a certain prejudice and the sector has not received any loans.

What are the areas where change can be brought in? Harvest realization accounts should be linked to a national payment gateway. A corpus should be created such that the agent receives produce in proportion to money invested. This will strengthen the value chain. Indeed, India seeks to emulate good practices from other nations. This is something that has been practiced for at least four decades globally. It is only beginning in India and standardization is yet to begin.

There is a big difference between moneylenders and commission agents. The former charge interest on loans; the latter provide financial assistance in selling the farmer's produce

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Mandis finance smaller commission agents, who go directly to the farms and buy produce That is how the cycle works. According to some people, foreign direct investment would facilitate farmers directly selling their produce to large retailers but that may not be a good idea, irrespective of the gateways. A country as large as India needs aggregators such as co-operative societies or commission agents to serve the sector alongside them. ●

Arriving at a Credit Ranking System

Shrikant Barhate

Vidarbha has attracted a lot of attention following a series of unfortunate events but the underlying morphology remains untouched in more ways than one. Two specific components that need to be considered from a policy angle are:

1. A supply thrust-led approach to credit supply rather than demand-generated approach, the impact of which is evident in parts of Vidarbha. It has been positive even in terms of bringing about behavioural change;
2. Need for a specific focus on the insurance aspect of credit.

How is the quantity of the credit required to be determined? There is a system but it is not quite clear. A credit ranking system will be a significant initiative. It should be area based rather than farm based. Ranking should be weighted, using separate vulnerability index calculated a priori.

Determinants of the system shall include infrastructure status; water management status, including Integrated Watershed Development Programme (IWDP) potential because effective irrigation capacity in Vidarbha is not more than between 11 per cent and 12 per cent; connectivity (there is no value addition potential in Vidarbha); and input-output analysis vis-à-vis several factors for optimal cropping pattern.

SHRIKANT BARHATE
Economic analyst, Vidarbha

Even the Kelkar Committee on balanced regional growth talks about optimal cropping patterns but takes only one factor, climatic condition, into consideration. It does not take into account the pricing aspect of goods that should induce some sensitivity with regard to how choices are made. Though parameters are changing from one generation to another, people are not shifting away from farming.

Two different factors should also inform the matrix. It should be a dynamic system that updates itself every two years or on an annual basis. The

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If banks can take surety other than a personal bond for credit below a certain pre-defined amount, credit insurance can be taken on in part by the bank and in part by the customer

other issue is transaction cost that has an impact on access to credit. The complex nature of transaction is a major deterrent. A single-pitch form of application such as the Aadhaar Card, will made a big difference.

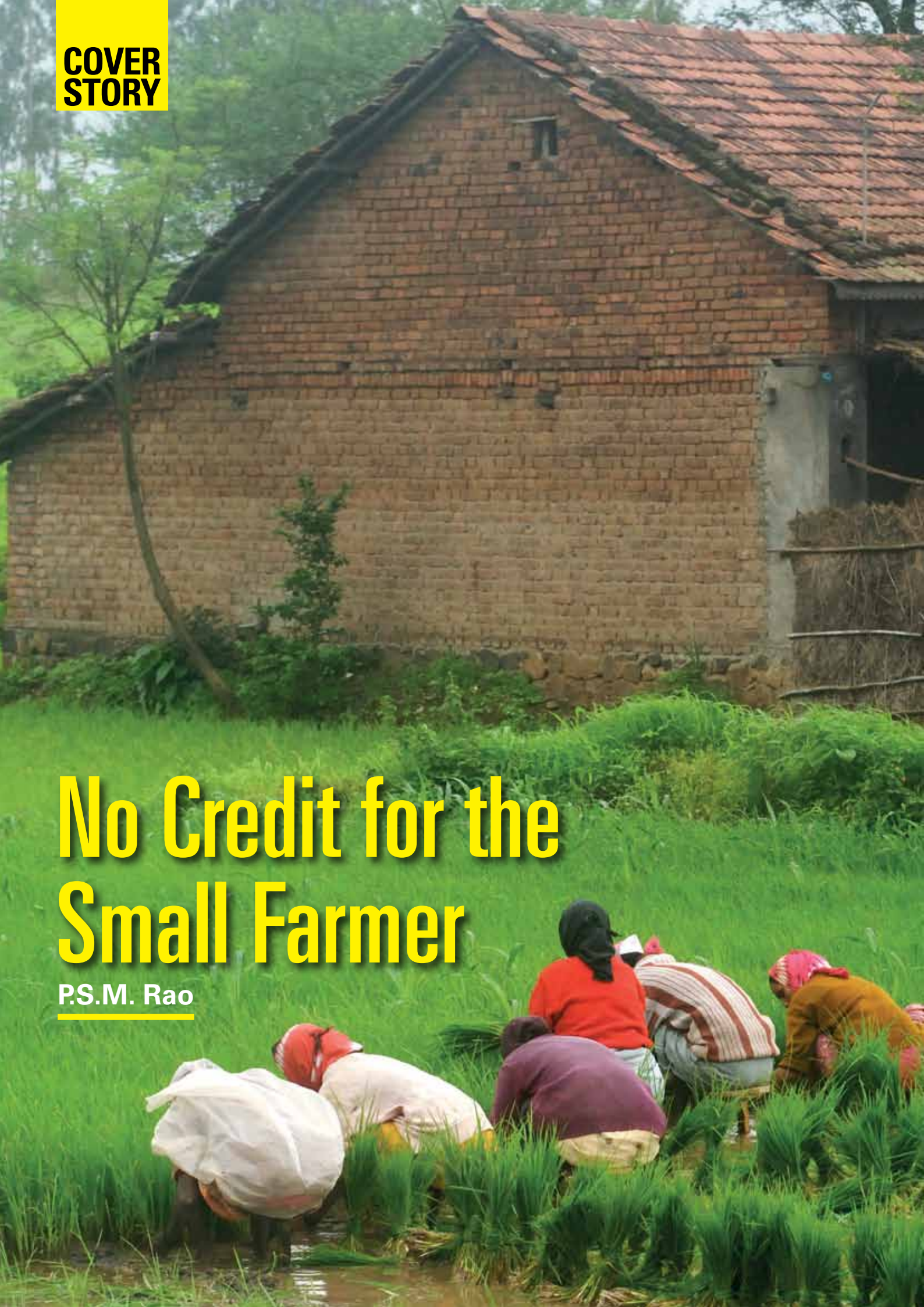
The issues of surety and risk mitigation buffer for banks are interlinked. If banks can devise an option to take surety other than a personal bond for credit below a certain pre-defined amount, credit insurance can be taken on in part by the bank and in part by the customer.

The default rates are worrisome and a result of the political economy, which has initiated all sorts of economic anomalies. It is a matter of grave concern because the bank's interest and that of the farmer are not distinguished. In a sound structural system, the interest of the bank and the interest of the farmer are aligned and the interest of the farmer ought to be the interest of the bank. ●

Agro-Credit Prescriptions: Some Pointers

1. Establish a credit ranking system for dry land farms.
2. Transaction cost is a deterrent. Process simplification would encourage the efforts to access different schemes. Travel is not only costly in monetary terms but also consumes critical time especially for rain-fed cycles.
3. Risk mitigation buffer for banks (there is an epidemic default risk). What could it be, apart from insurance?
4. Crop loan: the entire land holding is charged as a mortgage. Proportionate land value vis-à-vis total loan component is not inter-linked. Additional credit worthiness is curtailed.
5. Warehouse receipts: Due to asymmetry of access to information, a small scale producer has a disadvantage in rationalizing the forecast of agro-produce prices. Add the pressure of short-term liquidity and there is forced sale at distress cost. Warehouse loan against parked goods receipts, initially at group level, is a part solution. Some approaches are working at this level. Yet conventional banking is still antithetical to this idea.
6. Term loan needed for drip, tractor, well/lift pumps but the non performing assets (NPA) factor leads to reluctance of banks.
7. Institutionalized micro-credit.
8. Economies of scale constraints thanks to the dominance of small land holdings. Scale neutrality can be induced through effective actualization of collective land holdings and its linkage with steady flow of credit. Cash credit limit is currently applicable only to Kisan Card.
9. Primary agricultural credit societies not effective.
10. Post disbursement agri credit monitoring system, especially for marginal farmers, is needed along with the interface management between SOA and lending institutions to serve this objective.

COVER STORY



No Credit for the Small Farmer

P.S.M. Rao

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P.S.M. RAO
Economist,
Analyst &
Columnist

Prima facie, India's institutional arrangement for credit is impressive. There are co-operatives, rural branches of commercial banks, regional rural banks and other agencies and no dearth of arrangements for supply of credit in rural areas. Nor is the credit flow really small. It is, in fact, close to a half of the agricultural GDP. The big question is whether small and marginal farmers, who form 85 per cent of the farming population and operates 44.5 per cent of the agricultural area, is being served.

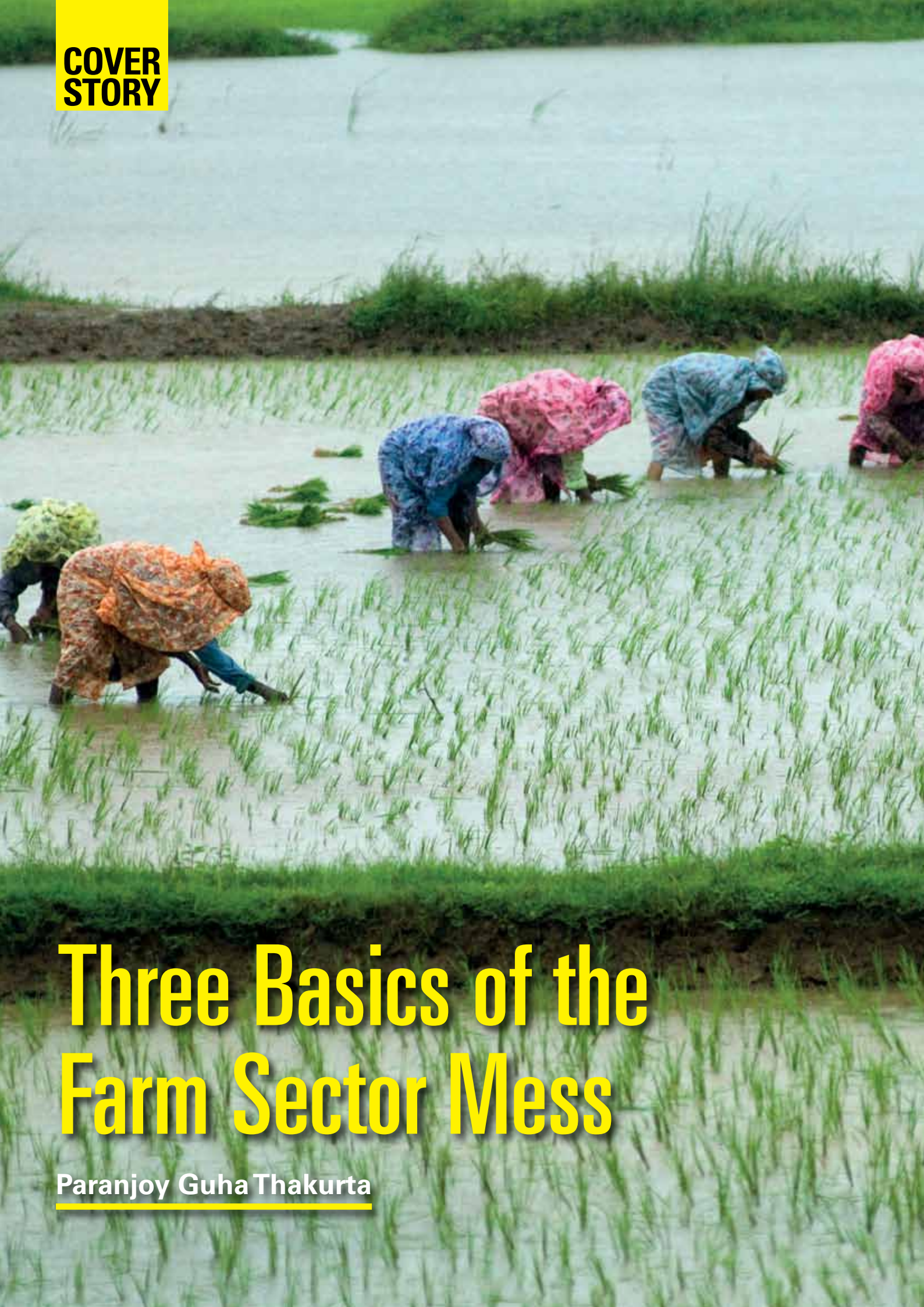
Much less than five per cent of credit goes to small and marginal farmers, clearly indicating an anomaly. The new priority sector norms want to scale it up to eight per cent by 2017. The question is why are the banks unable to deliver even though they are mandated to do so. Risk aversion is one reason why the ability of small farmers to repay loans is questioned. How then can the small farmer be served?

The self help group (SHG) route is one and bankers are optimistic about SHGs because they repay loans. This is why women's SHGs have been successful. If they are organized into SHGs, the issue of collateral disappears and collectivism helps farmers meet many other challenges such as the cost of farm equipment, marketing, storage and others.

Regional rural banks should be the agencies to provide finance to farmer SHGs. In fact, the very purpose of bringing in regional rural banks was to take care of small and marginal farmers. NABARD should play the same role that it played in promoting women SHGs from 1992. Women SHGs are successful because of NABARD's initiative and training on the one hand and its sensitization of functionaries who were reluctant to lend money to women on the other. Such sensitization is possible even vis-à-vis bank officials, including the top management. There are incentives for the banks too by way of timely repayment.

The Kisan Credit Cards should also be revamped because they are not used as credit cards in the true sense. Instead, they are used as agricultural cash credit and generally give no additional benefit. Farmers cannot buy input from suppliers using Kisan Credit Cards. This issue should be studied for systemic improvements. ●

COVER STORY



Three Basics of the Farm Sector Mess

Paranjoy Guha Thakurta

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PARANJOY GUHA THAKURTA
Journalist & Author

There are three critical areas of Indian agriculture that need to be flagged. The first is structural problem. The share of agriculture in the GDP is 16 per cent to 17 per cent but half the country's population depends, directly or indirectly, on agriculture. This is a huge structural issue.

The second is the risk factor. Farming across the globe is a risky profession. In India, it is arguably the riskiest profession of its kind. When prices of agricultural produce go up, farmers do not gain. When prices go down, they lose. India had a minister who held consumer affairs portfolio and the agriculture portfolio for the better part of 10 years. Regrettably the government has not been able to strike a balance between the interests of farmers and the interests of consumers. There is complete lack of co-ordination among ministries and departments.

The third issue concerns land. There is a land shortage in the country. India has 17 per cent of the world's population and 2.5 per cent of the land. Of the cropped area half is rain-fed further compromising the prospects for profitable farming. •

COVER STORY

Credit Operations in a Risky Enterprise

R. Ramakumar

Agriculture policy is the superset of which agricultural credit policy is a subset; the degrees of freedom are limited. The move from a low input-low output agriculture to a high input-high output agriculture over the last two-three decades has led to a rise in risks in agriculture. Input prices and fertilizer and pesticide prices, have risen sharply. Cost of cultivation has gone up but the price of output has not kept pace with the rise of input costs. The credit issue should be examined from this perspective; in this scenario of risk.

Agricultural credit and the problem of rising indebtedness must thus be placed in this larger policy context. The RBI can do a lot of things to ease many of these tensions. Post 2005, financial inclusion, for example, has been a classic experience, whereby the RBI has changed the behaviour of banks through its diktats. Through a change in the branch authorization policy, the RBI ensured that rural banks were opened and that 25 per cent more banks were opened in unbanked areas. The RBI can direct banks to behave and ensure that they provide more to farmers.

RBI master circulars are extremely important. Such circulars should be used to ensure that anomalies are taken care of. The RBI can cut down on corporate agricultural credit that should not be used to fill ratios in a particular way such that it denies credit to small and marginal farmers.

Ajay Vir Jakhar

The mechanization industry in India has forced the government to impose a 200 per cent to 300 per cent duty on imported farm equipment. A machine available in India for ₹1,00,000 can be bought in China for ₹75,000.

Import of agricultural machinery should be made duty free because agriculture employs millions more than the mechanization industry. Farmers are forced to buy expensive machinery from India because of domestic industrial inefficiencies.

Agricultural priorities too need to be understood. More important than Aadhaar is regularization of land records, which would include ownership of land and tenancy rights.

Besides, subsidy should be inversely proportional to land holding size and large farmers should be

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exempt from subsidy. Finally, direct subsidy to farmers is going to lead to a credit crisis unless it is designed properly.

Raghuram Rajan

Credit is needed primarily to finance growth but also to smoothen consumption. What becomes alarming is if credit finances income deficiencies, in which case, it becomes a debt trap and this must be avoided. The solution lies in increasing incomes in a reliable way. This is where the talk about hand-holding, extension, technology, Self Help Groups (SHG) of farmers and Joint Liability Groups (JLG) makes sense.

From the institutional side, there is need for more tailored products and more outreach because the current structure does not work. Despite all the branches that have been opened, if the branch is headed by someone who does not know the local area, does not speak the local tongue and is not willing to venture out, it does not work as effectively as local institutions. Co-operative banks are addressing that issue.

Can we get more local institutions? The RBI has licensed a few entities to see if this can be achieved; to see if the small finance banks, the micro-finance banks, grant more local loans. This needs to be worked out.

The RBI is reaching the limits of direction. Banks follow directions but also find ways around it. What will make it worthwhile for banks to lend to small and marginal farmers?

A point has been made about creating infrastructure and the need for both direct and indirect credit to create infrastructure. Commission agents provide indirect credit but they too need loans to spread the credit around. There is a need to work on that aspect too and use technology, create markets and link warehouses to markets, which is important.

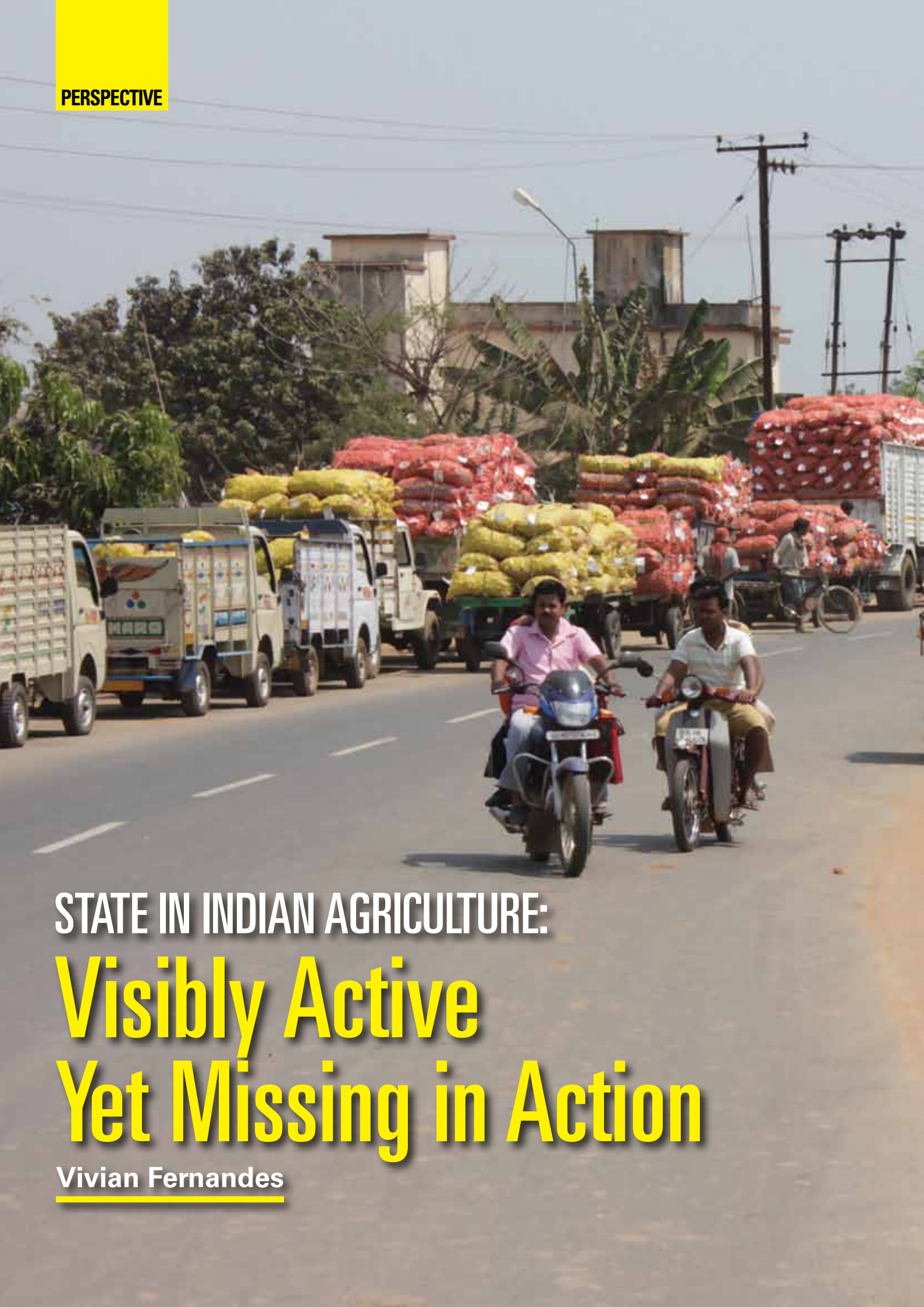
You have said that the government's food management is terrible, in the sense, minimizing the upside and occasionally coming in on the downside, that is worth emphasizing on a broader scale: do not give us subvention but do not restrict our prices. Also find ways of better storage but do not come in and destroy markets, whether wheat or onions, that is important.

The easiest way of food management is to shut off exports and keep prices the same. Of course, there are vested interests in this.

The other point is that input costs are high because the import of machinery is restricted and so on. Farmer lobbies need to focus more on that rather than the subvention issue. The voice of the farmer needs to be strengthened on those issues. It is hard for the RBI to play a significant role otherwise.

Land record digitization and trying to figure out the extent of tenancy are important issues. There is a committee looking at lending to Micro Small and Medium Enterprises (MSME) individuals and agriculture.

To some extent the RBI is reaching the limits of direction. Banks will follow directions but will find ways around them. The question is what will make it worthwhile for banks to lend to small and marginal farmers. Land record digitization is an important move in that direction. The government needs to provide a fund to incentivize digitization. ●



STATE IN INDIAN AGRICULTURE:
Visibly Active Yet Missing in Action

Vivian Fernandes

Potato trolleys on a West Bengal highway

VIVIAN FERNANDES
Runs the website *www.smartindianagriculture.in*

Prime Minister Narendra Modi has a repertoire of enterprising Muslims to show he deals an even hand to all communities. When he named a maths teacher from Alwar at London's Wembley stadium last November, he conveyed the sense that despite his exalted position, and nesting often at 33,000 feet above sea level, the humblest citizen never fails to catch his attention. In the run up to the 2014 Lok Sabha elections, his searching eye settled on Ismailbhai Rahimbhai Sheru.

Over the past year we have been travelling through rural India for a television series on 'smart' agriculture and also a website on the same subject. We did not go with a drain inspector's attitude, looking for sob stories. We were seeking out innovative and progressive farmers. While we found vibrancy in the countryside and a willingness to try out new things, we also witnessed episodes of acute distress. This was induced generally by bad weather but, at times, even good weather turned out to be too good.

A bumper crop of potatoes early last year sent prices crashing from ₹8 a kg the previous season to less than ₹2 a kg. There were kilometre long queues in the Hooghly and Bardhaman districts of West Bengal outside cold storages but no space inside. Some of the waiting women were crying piteously.

Unable to repay the loan from a dealer-moneylender her husband had contracted at a rate — three per cent per month — which banks charge on credit card dues, a woman in Andur village of Memari-1 block in Bardhaman said she was contemplating killing herself.

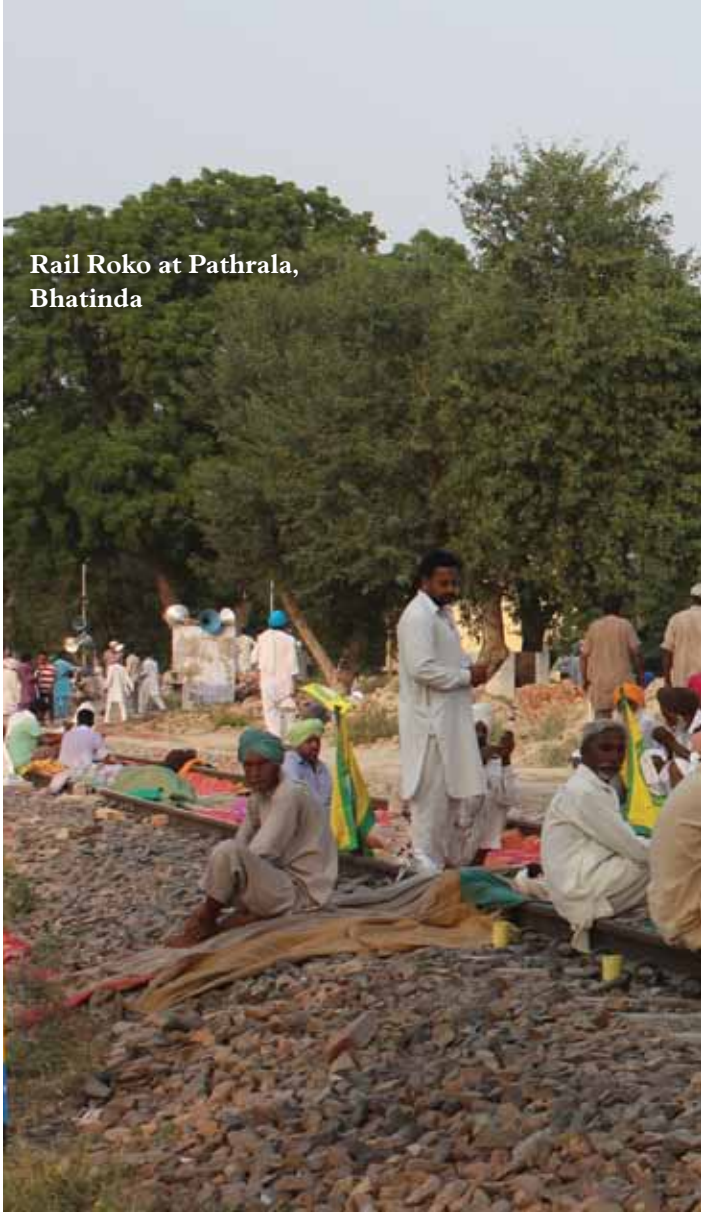
It was the same story in Gujarat but with less pathos. Banaskantha's Deesa town, the hub of potato cultivation, had 145 cold storages, a member of their owners' club said, aided by capital subsidy and uninterrupted power. Yet, trucks and trolleys were spilling out of their front yards and the farmers milling around looked taut and ready to snap at the slightest provocation.

Those like Sheru, 62, were insulated from the anxiety. They had contracted to supply potatoes to a Mehsana-based Canadian processer that, in turn, supplies fries to an American fast food chain. The

price, ₹8 per kg, had been fixed at the beginning of the season. The processor provided potato seed at half the price. The other half was deducted from sale proceeds. Farmers had to turn in at least 10 times the quantity of seed supplied. If their yield was higher they got a bonus. The potatoes had to be of a certain size and defects could not exceed set limits.

The varieties were developed at the company's research laboratories in India and abroad. It engaged with farmers through a network of extension workers. They had been persuaded to give up flood irrigation and adopt drip or sprinkler irrigation. This had resulted in a huge reduction in water usage and fertilizer wastage. Farmers were taught the right planting methods. The dosage and timing for fertilizer application was prescribed. The use of untreated sewage was prohibited as also certain pesticides.

With the price aspect taken care of, contract farmers only had to focus on production, Sheru said. There were times when open market prices were higher than contract prices but, over time, they evened out. After graduating with commerce, Sheru took to agriculture despite being good in studies. With effort and perseverance he turned an inheritance of debt into a legacy of fifty acres on which he grew potatoes, castor, wheat, chilly and a variety of horticultural crops.



Rail Roko at Pathrala, Bhatinda

In West Bengal the fields are kerchief-sized because of land reforms. This has given farmers a sense of security but they are at the mercy of the market

At Varshila village in Patan district, he was the anchor-farmer of a 400 acre collective where cultivation was done on profit-sharing basis along scientific lines. Sheru found agriculture profitable. He claimed that he got ₹1 lakh per acre annually. He wanted farmers' sons to shun government jobs and take up cultivation. It paid better, he said.

That may not be entirely true for small farmers. Contract farming addresses the price risk but weather can be tricky. Ajit Singh Mann, 53, of Bheen village in Punjab's Nawanshahr block, lost half of his seed potato crop last year due to untimely rains. Even the insurance he had taken paying a premium of ₹15,000 did not help because his bank had purchased a shorter-duration cover. Mann cannot be called a small farmer with 70 acres of mostly leased land.

Governments can help or hinder. In Gujarat, the government has amended the agriculture produce marketing act to allow farmers to sell directly to private buyers. Private mandis are permitted. Cold storages are encouraged with incentives. The farm grid has been separated from the network supplying electricity to homes. This provides power for agricultural operations for at least six hours every day.

In West Bengal the fields are kerchief-sized because of land reforms under the erstwhile communist government. That has given farmers a sense of security but they are at the mercy of the market. An American producer of potato chips sources its requirements from the Hooghly and Bardhaman areas but is not sure whether contract farming is allowed.

As the farms are small, it does not buy directly; it

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Ismail Sheru

has employed aggregators, either wholesale traders or primary agricultural co-operative societies. To avoid legal complications the company uses terms like co-operative farming or collaborative farming. If the company could buy directly, farmers could have availed of cheap crop loans from banks on the basis of purchase agreements.

A ban on movement of potatoes outside the state in 2012 to fight rising prices has had a chilling effect on investors. An American food processor said it had decided against contract farming in West Bengal fearing it might not be allowed to take the potatoes out to feed the factory.

Yet even in Banaskantha, less than 10 per cent of the potato growers was on contract. Ignorance, inability to produce consistent quality and unwillingness to incur additional costs (on micronutrient boron, for example, to prevent potato cracking), were cited as reasons. Overall though, contract farming is a good arrangement for farmers to upgrade their skills and knowledge and earn consistent incomes.

The improvement in skills, practices, quality and yields can happen even if companies do not have buyback arrangements. In Jalgaon, a producer of plastic pipes and drip irrigation equipment, has a relationship of mutual dependence; its business cannot thrive if farmers do not profit from the stuff it sells them.

In the 1990s, the producer introduced the Honduran Grande Naine banana variety, which gives fruit every year unlike traditional ones that take 18 months. Secondary shoots yield two more annual harvests after the main trunk is cut post

harvest (called ratooning). Clones of high-yielding varieties grown in test tubes ensure the saplings are uniform and disease-free.

Unlike flooding, drip irrigation allows vast and even undulating areas to be irrigated within a short time. Dense planting and wind barriers around the periphery of gardens help maintain high humidity necessary for bananas to grow in Jalgaon's hot and dry weather. The company sells 60 million, 10-month old saplings, every year at four times the prices of normal rhizomes but demand exceeds supply.

The combination of tissue culture, drip irrigation and fertigation (application of fertilizer through drips) has enabled Jalgaon district to excel in banana cultivation. If it were a state it would rank fifth in banana production. Maharashtra's per acre banana yield is 23 tonnes against the national average of 14 tonnes. However, farmers associated with the Jalgaon company get as much as 40 tonnes per acre. A former *chai* (tea) seller (yes, another success story!) and a thwarted school teacher said his annual turnover was more than ₹1 crore.

Jalgaon's bananas are sold in the vast north Indian market and even go to Pakistan. The founder of the drip irrigation company regards Mahatma Gandhi, Jawaharlal Nehru and J.R.D. Tata as his icons: the first for ethical living, the other for dreaming big and the third for business with a social conscience.

Despite the use of drip irrigation though, water tables in blocks where bananas are grown have dipped. Intensive cultivation has frittered away the gains of frugal water use.

This became clear to us once again in Marathwada, which suffered a severe drought last year.

Against the normal rainfall of 683 mm, the eight districts of this region received 412 mm or 40 per cent less in the three months from June to September. Droughts are a recurring feature of Marathwada. They have occurred thrice in this decade; in 2012, 2014 and 2015. Earlier decades had equally bad or worse rainfall deficits but their impact was not as acute.

The vice-chancellor of an agricultural university in Parbani attributed this to a change in cropping patterns over the years. Farmers grew millets, pulses and oilseeds that were resilient but stagnant yields had made farmers shift to crops like soybean. With domestic demand for cooking oil exceeding supply and the European dairy industry's appetite for de-oiled cakes, farmers earned handsome returns and brought more acreage under the crop.

Soybean spread like an oil slick from two lakh hectares (ha) in 1990-91 to 35 lakh ha in 2012-13, the vice-chancellor said. While soy can survive without water for about two weeks, last year there were hardly any rains during the crucial month of July. Aurangabad district, for example, got just one

Harvesters at Partur

Tribal women harvesting moong crop

Cotton had taken a hit. The crop that should have been five feet tall, when we visited, was less than half the size. Plants had half a dozen bolls. There should have been 10 times as many

day of heavy rain and four days of drizzle during that month. By September, the crop had withered.

Cotton had also taken a hit. The crop that should have been five feet tall, when we visited Beed district last September, was less than half the size. Plants had half a dozen bolls when there should have been 10 times as many. With China not importing, cotton prices had collapsed the previous season. The loss of crop to drought was another blow.

Horticulturists like Prahladrao Kakde, 61, of Jalna district's Sarangpur village were not sure whether the money they were spending on saving the mousambi trees was an investment or depletion of savings. A farmer known to chase profits and new practices, his orchard of pomegranate and mousambi spread over 20-45 acres and had fetched him a nice house and professional jobs for his children.

He had a plastic-lined tank of 1.25 lakh litre capacity and another of four lakh litres to irrigate the fruit gardents. Filling them up with the help of tankers had cost him ₹25 lakh, he claimed (it is a lot of money!). Fruit trees are long-gestation crops and there is always the hope that one year's loss will be made up the next year. Kakde feared his hope would be ruinous.

Across the region, we saw fruit gardens with gaps in them like missing teeth. Kakde himself was doubtful about the viability of horticulture. He was contemplating joining his son's business exporting pomegranates to the Emirates.

At Partur, we saw about two dozen brand new harvesters, each costing ₹1.25 lakh, parked in the premises of a sugar factory, founded by an MLA, when we visited it in last September. Marathwada has 58 operational mills. Sugarcane needs rainfall of 2,400 mm; Marathwada gets about 683 in a normal year. Last season it got even less.

Cane is said to be a lazy man's crop but it provides income security (except when the weather acts up). There is assured buy back by mills — which are conduits of political patronage — at prices fixed by the state. Drip-irrigated cane consumes half the amount of water as the flood irrigated variety, but it

is still a lot of water.

The quantity of rain that Marathwada receives is not expected to decline much in the years ahead though there will be long dry spells punctuated with a few downpours. The region has not been careless. "We have an excess of rain water conservation effort", the vice-chancellor said.

A variety of structures has been built to arrest the rainwater run-off. Maintenance was neglected but the Jal Yukt Shivar programme has plugged that inadequacy. Breaches in dams had been repaired and silt removed from ponds and *nalas*. This has helped recharge the aquifers. Yet there were many villages where the extraction rate was unsustainable.

Even with the best conservation efforts, the cane area in Marathwada would have to be capped and existing fields shifted to drip irrigation. There were public calls for this from former chief minister Prithviraj Chavan, the water expert Madhavrao Chitale and the agriculture minister Eknath Khadse.

The water saved could irrigate a much larger area under pigeon pea or tur, prices of which had touched record levels last year. Tur is a traditional crop of the region. It also enriches the soil with atmospheric nitrogen.

Government policies do not help though. While urea (that tur does not need) is subsidized, potassium and phosphorous, which it needs, are decontrolled and sold at market prices. There is little procurement of the dal and storage is inadequate.

Soyabean crop in Marathwada

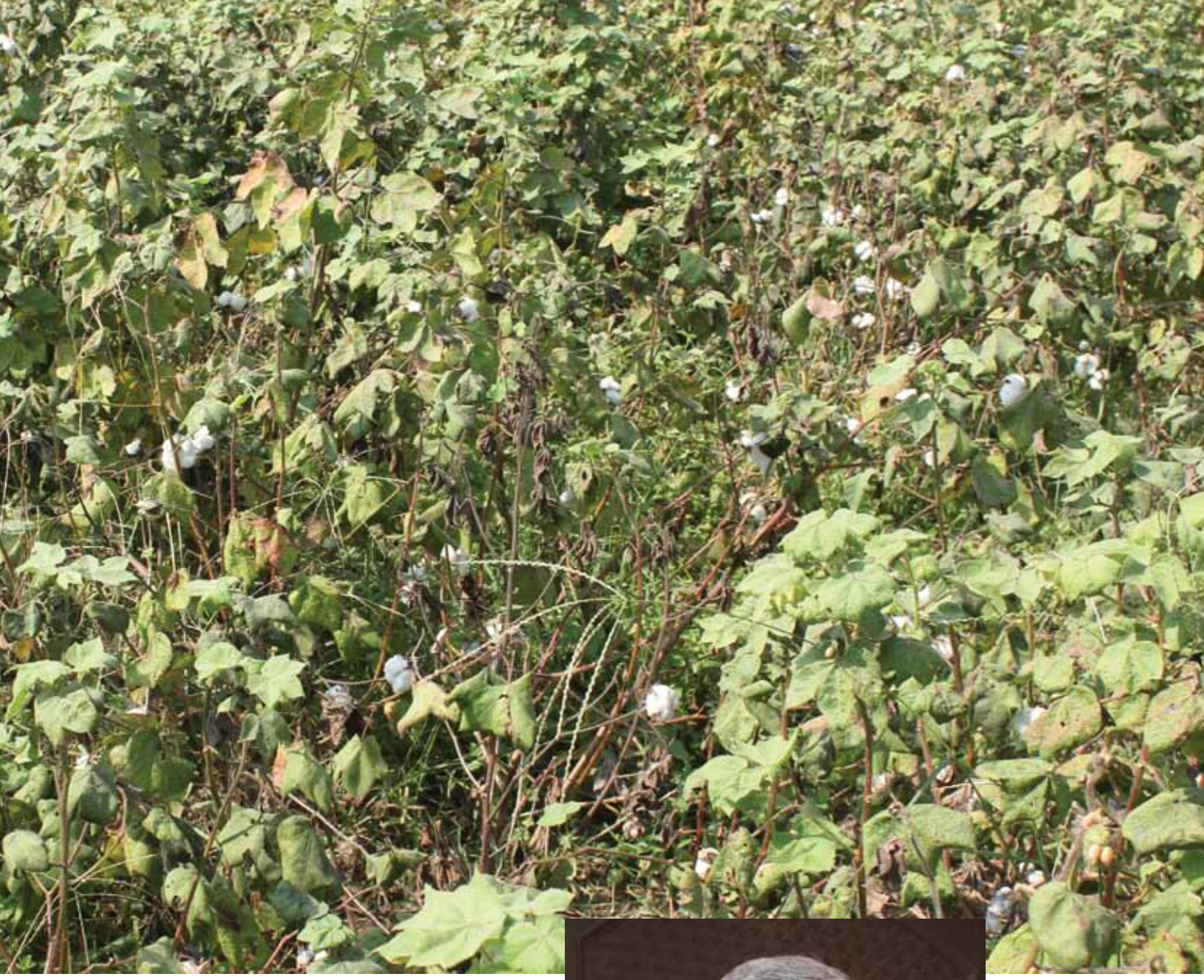
The white fly outbreak in Punjab last October caused extensive damage to the cotton crop in the belt adjoining Pakistan. The compensation did not cover cost or value of produce lost

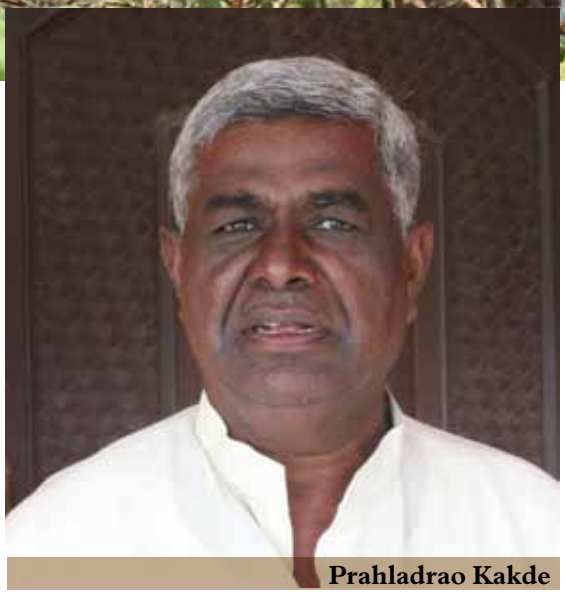
Individual farmers will grow what is most profitable for them. Their choice of crops was dictated by rising aspirations but has hit the ecological barrier. The government will have to nudge them towards climate resilient behaviour.

The white fly outbreak in Punjab last October caused extensive damage to the cotton crop in the belt adjoining the Pakistan border. For six days, farmers blocked rail traffic on the three lines connecting the state to the rest of the country. Despite the agitation, they were unable to improve upon the government's offer of relief: ₹8,000 per acre and ₹800 to every agricultural worker. The compensation did not even cover cost, let alone the value of produce lost.

Farmers planted cotton late because the wheat harvest and release of water in the canals was delayed. The pest arrived two months in advance, in the second half of June, aided by humid conditions and temperatures below 40 degrees centigrade. The cotton crop looked stunted; to boost it they applied urea generously and gave the crop a growth hormone called acephate. The flies feasted on the succulent plants.

None of the concerned agencies accepted responsibility for the damage. Bayer CropScience, from which the government had bought 92,000 litres of Oberon, a new age molecule introduced in India in 2013, said those who had applied the right dosage in the right window were satisfied.





Prahladrao Kakde

The quantity of Oberon supplied covered just 23 per cent of the cotton acreage; so it was unfair to put the larger share of blame on it. Nymphs, more than flies, cause the most damage and these would have eluded farmers, it said. The government, which supplied Oberon at a 50 per cent discount, removed the director of agriculture from his post and arrested him for alleged corruption. Farmers said Oberon was ineffective. They suspected it had been diluted or adulterated somewhere in the chain.

The Punjab Agriculture University said it had recommended four kinds of sprays to be used singly at a time. It had also issued advertisements in newspapers despite being strapped for funds and had even distributed leaflets at bus stations. Farmers had, however, applied a cocktail of pesticides.

Nagpur's Central Institute of Cotton Research said the blend of pesticides had killed whitefly predators like bugs and spiders. It did not accept that there was no sound anticipation. About 10 lakh text messages were sent to farmers listed on e-Kapas, a mobile phone based advisory service.

Earlier, the whitefly cycle was broken after the cotton harvest but extensive citrus gardens provide the pest a refuge now. A scientist said co-ordinated spraying at the community level was the best way to control pests.

The whitefly outbreak showed all round failure.

The vice-chancellor of an agricultural university agreed with this but did not wish the statement to be attributed to him to avoid controversy. Such episodes call for vigilance and pre-emptive action. The government must take the lead but in Punjab governance has become a casualty. The situation in Bihar is precarious too.

An editor had predicted in his Sunday newspaper column, a week before counting day, that Bihar Chief Minister Nitish Kumar would be returned to office for aggressively bringing electricity to rural homes. This, along with law and order and good roads had endeared him to voters; there was no anti-incumbency.

Yet, no power is available at the farm level in Bihar and pumps have to run on costly diesel. Last year, the rains failed the state once again. Precipitation for the three months ended September 30 was 742 millimetres. This was 28 per cent short of normal rainfall — against the national level deficit of 14 per cent — and in line with the trend this decade.

Except in 2011, when there was three per cent excess, the state has been in deficit ranging from 17 per cent to 30 per cent in four of five years. For Musafir Rai, 72, of Vaishali district's Senduari village, the monsoon season was a wasted one. He had used a technique called direct seeding that requires no transplantation in stagnant water but could neither save the basmati crop nor another high-yielding variety whose seed he had purchased from a German multinational. With diesel costing ₹50 a litre how much can one irrigate, he asked. He had lost big, he lamented.

The story was the same at the district's Dalit dominated (Paswan) Kanhuli Dhanraj village, adopted by the Borlaug Institute for South Asia (BISA) to demonstrate climate-resilient direct-seeded rice. Shiv Chander Paswan, 55, who owns a little less than half an acre was not confident of harvesting even a quarter of the expected yield. Paying ₹120 an hour to irrigate two kattas — one acre is 22 kattas — from a 180-foot deep tube well was not economical. There is a canal nearby but officials of the irrigation department, residents said, had cut off supply, following a violent clash.

"There is little point in giving high-yielding genotypes or teaching farmers good practices if there is no irrigation", said Deepak Bijarniya, research scientist at BISA, who is also engaged in extension work. The state's agricultural growth, therefore, swings like a pendulum from year to year.

Rice scientist with Bihar farmers

Bihar's farmers may not be as quick in adopting new technology and practices as those of Punjab but they are willing to adapt if shown the money. Despite the state's reputation for lagging behind on many parameters of progress, it has pockets of very high maize productivity. Farmers this correspondent met in Samastipur district extract seven to eight tonnes per hectare, against the state's average of three tonnes and the national average of two and a half tonnes per hectare.

True, Bihar's maize is grown in the rabi season that, unlike the monsoon maize, is less prone to pest and disease attacks. Silt from the flooded rivers also enriches the soil. Farmers, however, buy hybrid seeds from private companies and generally follow prescribed agronomic practices because their lean-season harvest has ready buyers at higher prices from the poultry and starch industries.

The second green revolution is supposed to happen in eastern India, starting from the wet districts of Uttar Pradesh adjoining Bihar. As finance minister, Pranab Mukherjee had given an impetus to a programme called BGREI (Bringing Green Revolution to Eastern India) and a budget provision of ₹400 crore in 2010.

Bihar's average rice production in the following three years was nearly 50 per cent more than the average of the previous three years. Its average rice productivity would have caught up with the national average had it not been for the havoc caused by the Kosi floods.

In 2008, the state charted pathways to a green, white and blue — 'rainbow' — revolution. In 2012, this was extended for five years till 2017 with a target investment of ₹1,50,000 crore in irrigation, agricultural marketing and agro-processing. The impact on agricultural growth is mildly discernible. Average agricultural growth since the 2008 plan was 5.5 per cent, against 4.6 per cent in the previous six years.

Subsidized seeds, fertilizer and diesel will not help if farmers do not get a good price for their produce. The procurement effort is lagging. Bihar does not have a regulated mandi system like other states. There are only a few primary agricultural co-operative societies for procuring rice and wheat for the ration system and there are cases of the government not honouring its part of the bargain.

Bir Chander Tiwari, 70, a retired school teacher, said that the co-operative in Vaishali's Suratpur Vidya village was left with rice stocks in 2014 after the government failed to lift them. Farmers were also paid less than what they had signed for. They have to sell to traders, who force down rates below the minimum support price.

Prime Minister Narendra Modi says climate change is one of the two biggest threats facing the world (the other is terrorism) but he has done little to prepare India's agriculture for it. This is unlike his record in Gujarat as chief minister where a number of initiatives were undertaken. Extending the coverage of irrigation to the 66 per cent of cultivated land, which is either partially or wholly un-irrigated, could be one of them. It would take much of the risk out of agriculture.

Propagating less resource-intensive technologies and practices, like drip irrigation and direct-seeded rice, would be another. Making cultivation viable through pooling of land would be a third. This would require leasing laws to be eased, so that small holder farmers could rent out their land, instead of keeping them fallow.

The engagement of farmers with food processing companies and organized retailers would enable technologies and good agronomic practices to seep into the countryside. The state must invest in seed research, including genetic modification, for high-output, low-input agriculture. Multinational corporations with technologies that the country can benefit from must be encouraged and not shackled. If there are issues of food security, these must be addressed with a separate set of tools.

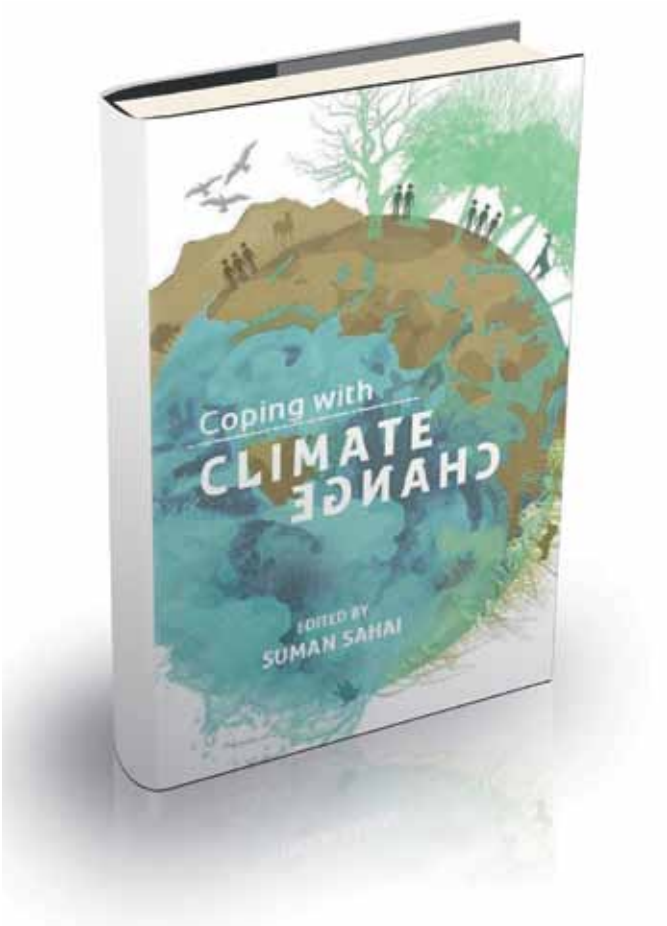
Decontrolling the prices of inputs and providing farmers subsidies on the basis of land held would give them the needed autonomy. A direct subsidy to very poor consumers while buying grain in auctions for distribution to them would help free up the grain trade

Agriculture is India's biggest private economic activity. It requires both the invisible hand and the benevolent touch of the market. ●

As finance minister, Pranab Mukherjee had supported BGREI with ₹400 crore in 2010. Bihar's average rice production in the following three years was nearly 50 per cent more

BOOK REVIEW

Empowering Small Farmers in the Time of Climate Change



COPING WITH CLIMATE CHANGE
Edited by **Suman Sahai**
New Delhi: Gene Campaign and Heinrich Böll Stiftung, 2014
ISBN: 978-93-83527-00-7
Pages: 381
An ebook is available for free download on the Heinrich-Boll Stiftung's website
[https://in.boell.org/2015/05/05/coping-climate-change]

SRINANDA GANGULY and **SHACHI SETH**
Staff Writers

The book *Coping With Climate Change* edited by Suman Sahai and published by Gene Campaign — a non-government organization that works on bio-resources, farmers' rights, climate change and agriculture amongst others — attempts to build a wider awareness of the effects, causes and solutions of climate change in sectors that are less popular than the energy sector, like agriculture, ecosystems or biodiversity.

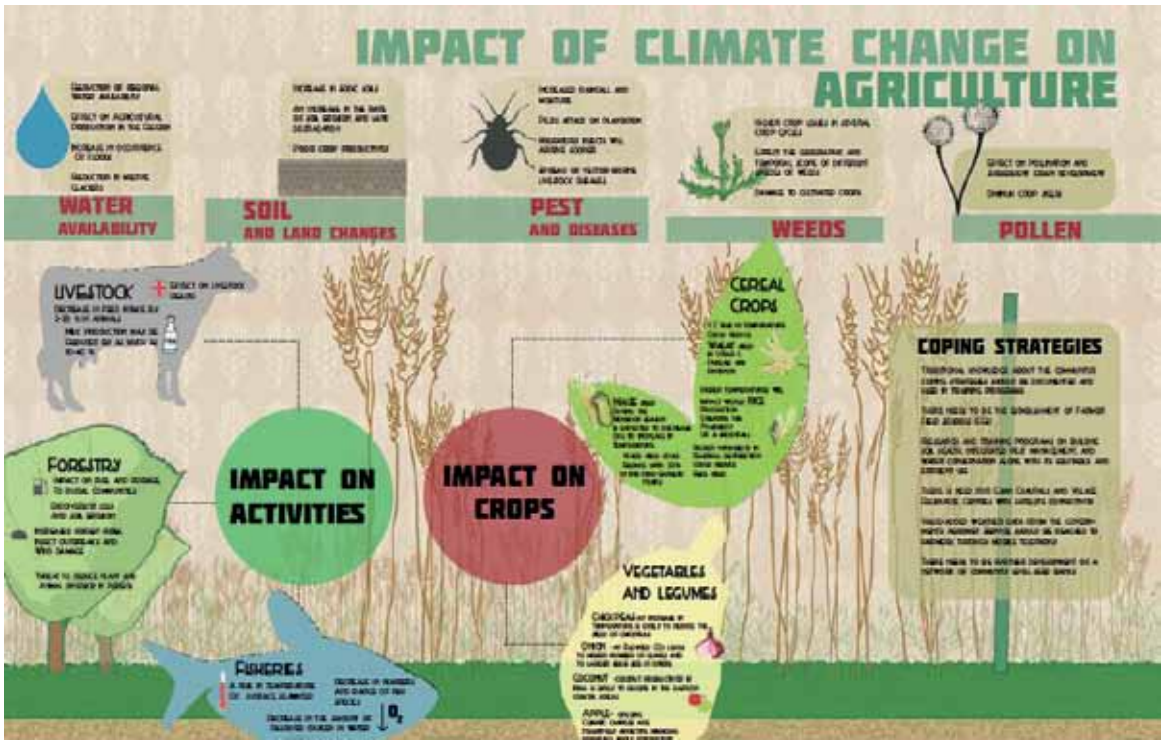
Its seven chapters begin with mitigation and adaptation to climate change in agriculture and cover the effects of climate change on various areas like forests and biodiversity, water resources, mountain eco-systems, coastal areas and agriculture. The final chapter is on climate change negotiations.

Climate is a direct input in agriculture. Shifts in climatic patterns such as changing rainfall patterns or increasing temperatures have a debilitating effect on agricultural systems if not addressed in time. The United Nations says that developing countries will bear the major brunt of climate change as ecosystems or agricultural systems in the tropics (the global South) already operate at the brink of their tolerance.

In a developing country like India, where the majority of farmers engage in subsistence agriculture, any adverse impact on the agricultural industry threatens food security and as most developing countries are already food insecure, unmitigated climate change ultimately means disaster.

The vulnerability of the Indian agricultural industry is increased because about 60 per cent of its cultivated area is rain-fed and more than 80 per cent of its farmers operating on a small scale. Most have stopped cultivating climate resilient crops like millets and have taken to crops like rice and wheat, which are far more susceptible to the vagaries of climatic fluctuations.

Without being alarmist, the book explains the various levels at which unmitigated climate change will exacerbate



Climate change mitigation and adaptation should start at a local level so that adaptations are specific to local climatic conditions, ecosystems and agricultural methods

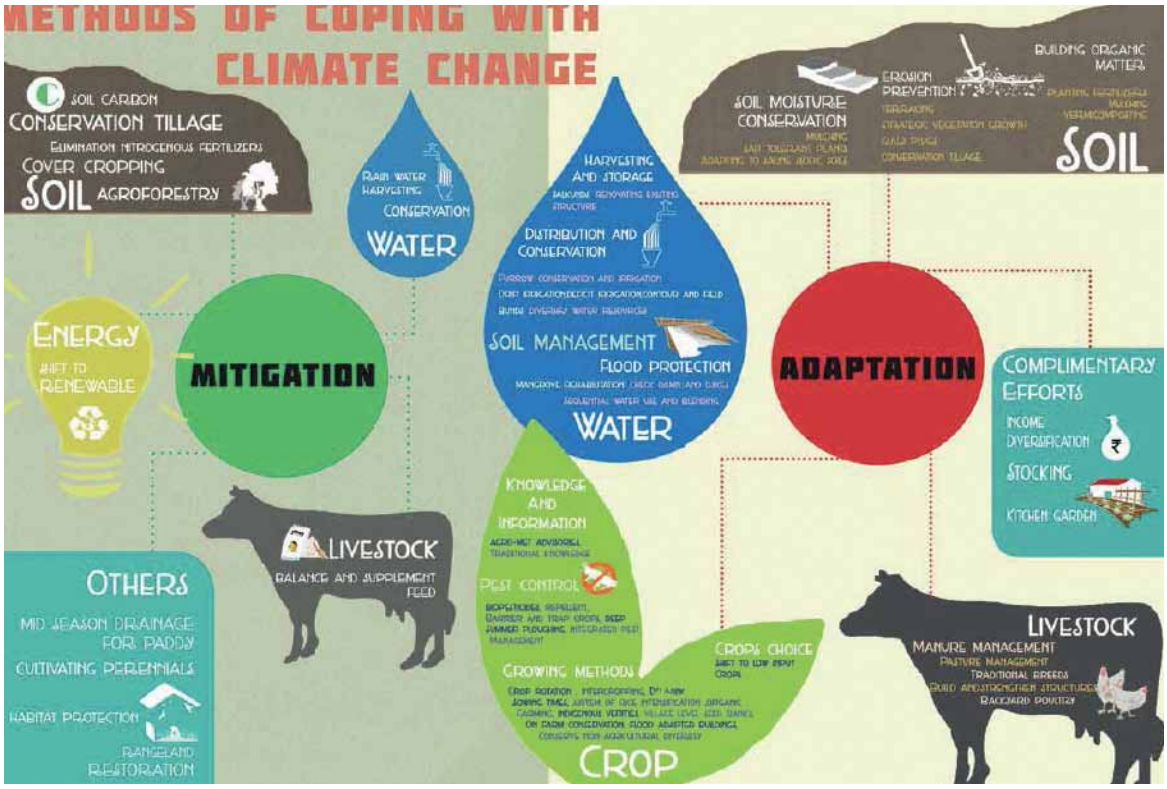
inequities. It presents both a theoretical look at climate change and a practical way out, with a meticulous list of mitigation and adaptation practices that will teach communities how to cope with climate change.

Sahai et al say that the mitigation of climate change and adaptation to changing scenarios needs to start at a local level so that adaptations are specific to local climatic conditions, eco-systems and agricultural methods. This approach ensures that agricultural practices keep communities and individuals self-reliant and self-sustained both ecologically and financially. One positive aspect of the predominance of subsistence or small-scale agriculture in India is that methods used are generally traditional and already based on economically and environmentally sustainable models. While many of these models have fallen into disuse, the current scenario has made many farmers realize the importance of prioritizing sustainability along with productivity.

The book lays out several practices and methods as blueprints that can be adapted to specific environments, some of which are existing practices that may have fallen into disuse. These methods concentrate on the main areas of reducing carbon and methane emissions, water conservation and maintaining or enhancing crop yields. Agricultural practices or methods are listed according to factors that include soil, water, crop choices, growing methods and livestock.

Many of these "no-regret" options (sustainable methods) are beneficial to environmental, agricultural and social systems even without the threat of climate change. The mitigation methods listed for sustainable soil management that ensure the maintenance of soil carbon are a good example. The book encourages agriculturists to take up practices such as conservation tillage where either cover crops are left on the land or are ploughed into the soil, maintaining carbon sinks through extended green cover where crops are planted or agroforestry whereby crops are planted amidst green cover to prevent carbon emissions from the soil.

Adaptation methods for soil are similar and the book espouses techniques such as using manure as fertilizer, mulching, vermicomposting, preventing soil erosion through terracing and such others. Crop growing methods discussed



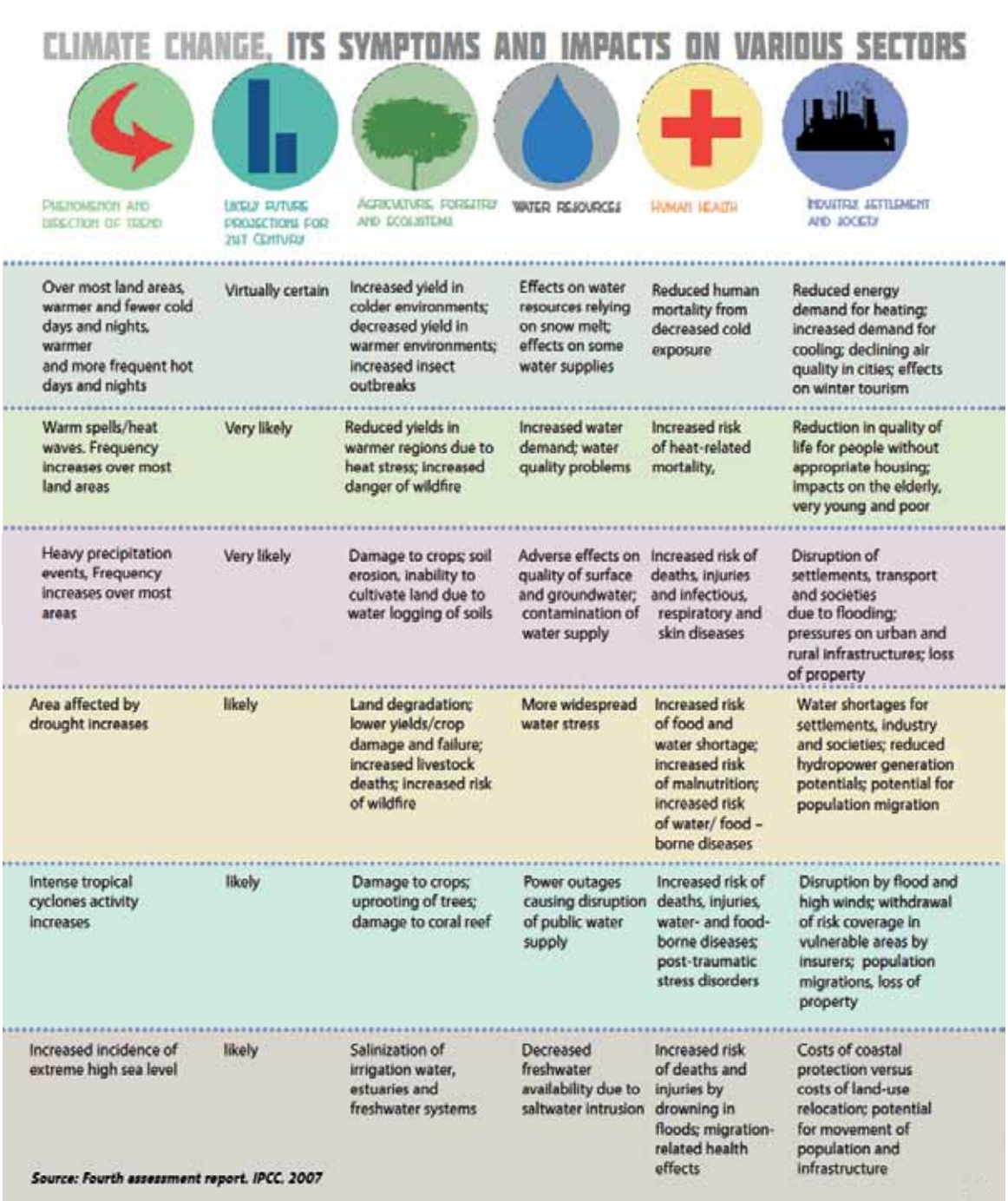
The book places great emphasis on planting crops that will flourish even through extreme heat or drought, in sodic or saline soils or shorter growing cycles

are, similarly, low-investment and high-yielding; crop rotation, intercropping, SRI (System of Rice Intensification, a method of growing rice that uses less water but increases productivity) and organic farming. These provide economic security to farmers and mitigate effects of climate change by preventing soil erosion, reducing pests and climate risk and reducing atmospheric nitrogen.

The book places great emphasis on planting crops that will flourish even through extreme heat or drought, in sodic or saline soils or shorter growing cycles, all based on combating various outcomes of climate change like rising temperatures, changing rainfall patterns, flooding due to melting of polar ice-caps, or fluctuating seasons. Millet crops are especially resilient and low-input; require fewer resources to flourish; are also more nutritious; and more affordable than rice and wheat.

Sahai et al focus on the importance of nourishing agro-biodiversity and recommend that several strains, both hybrid and traditional, of the same crop be grown at the same time to build resilience. This ensures that each strain is tested for climate resilience at a local level. Community seed banks are integral to endeavours of sustainably nourishing and maintaining agro-biodiversity. Gene Campaign has been responsible for establishing zero-energy gene-seed banks (as opposed to cold gene banks that are energy-intensive as they need low temperatures) in four states, Uttarakhand, Himachal Pradesh, Uttar Pradesh and Bihar with the aid of an international grant. The book encourages agricultural communities to start similar village-level seed banks.

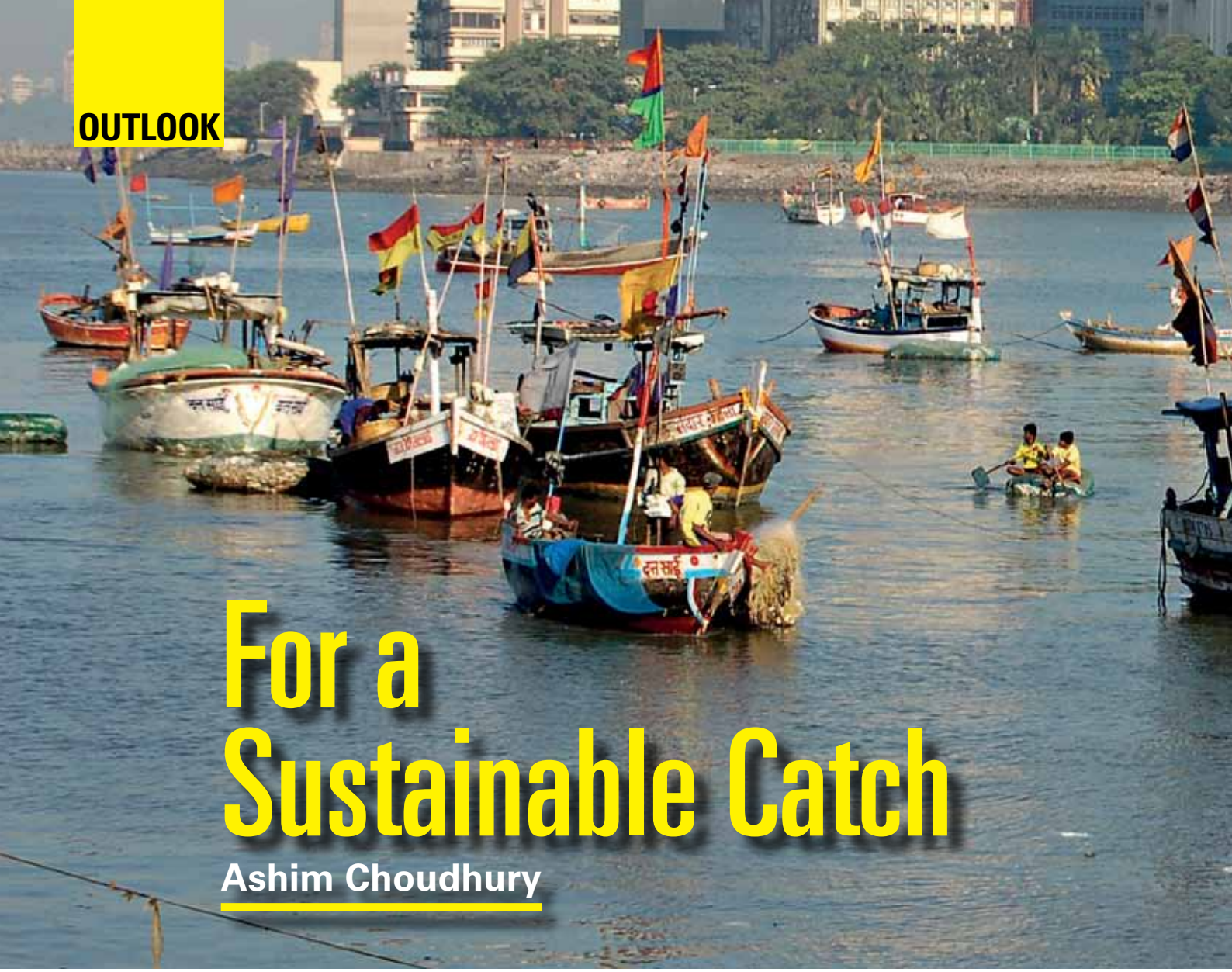
Around 17 per cent of total greenhouse gas emissions are attributed to crop and animal husbandry. The book suggests practices such as minimizing mechanization, supplementing urea with biological fertilizer, using neem-coated urea to minimize ammonia volatilization contributing to nitrous oxide emissions as some methods of mitigating emissions. Since methane produced by the cattle is a major contributor to overall greenhouse gas levels, it can be used as biogas to constructively channelize it. Animal dung used to



provide biogas can, therefore, be treated in a safe manner and also produce clean energy.

At present, national and international interventions in climate change focus on limiting emissions and reducing energy consumption. The major point of concern at COP 21 — the 21st Conference of Parties of the United Nations Framework Convention on Climate Change (UNFCCC), that took place in Paris from November 30, 2015 to December 11, 2015, is reducing greenhouse gas emissions.

Though India's Intended Nationally Determined Contribution (INDC) document for COP 21 begins by stating that India has a "long history and tradition of co-existence between man and nature", its plan of action for ensuring food security through agriculture focuses on using new technologies and cultivation practices, which are input-intensive methods. *Coping With Climate Change* presents a road map that follows the route of applying traditional knowledge systems and practices to combat climate change and ensure food security through methods that are knowledge-intensive. ●



For a Sustainable Catch

Ashim Choudhury

In Tamil Nadu's Pudukottai district on India's east coastline, a storm of sorts is brewing. It is between old rivals, traditional fishermen with small boats and owners of mechanized trawlers. These trawlers that are of relatively recent origin, starting out in the 1970s and 80s, proliferate in the entire Indian coastline. By international standards these are not big trawlers but compared to the boats they are like monsters.

ASHIM CHOUDHURY
Communications Consultant; Author, *The Sergeant's Son*

In Pudukottai the clash between trawlers and traditional boatmen took an ugly turn in 1978, leading to the 'three-four' agreement. Trawlers go out into sea on three days of a week, while the small boatmen go out on four days. Yet the small traditional boatmen are outrivaled by far. Their catch has shrunk.

The culprit is the push nets that the trawlers use, scraping the bottom of the sea. It catches not only juvenile fish but a whole range of life forms found on the seabed, including seaweeds. This is destroying precious fish breeding habitat that is telling on the size of the catch. The push nets that the traditional boatmen use are 'mini-trawls'. Yet, across Pudukottai's 32 fishing villages, traditional fishermen have decided to stop its use.

It is not been an easy decision as it affects their livelihood in the short term. Thanks to the Food and Agriculture Organization's (FAO) co-management process through its Fisheries Management for Sustainable Livelihoods or FIMSUL project, the traditional fishermen have ceded to the idea of saving the marine ecosystem in the shallow Palk Bay waters and, more importantly, the source of their future sustenance. Trawler owners have been pushed to a corner and thus the 'storm'.

Disappearing species

In Pudukottai's coastal village of Muthukuda, Karmegan, 47, who has been a fisherman for over 30 years speaks passionately against the use of

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push nets. "This (push net) is harmful…it takes away the young fish….Over 20 species of fish have disappeared", he says. "It scrapes the bottom of the sea where fish lay their eggs….Now we do not get lobsters here anymore", he adds wistfully. Karmegan says he knew of the harm all along but after the outreach meetings with FIMSUL he was fully convinced: "The net should be banned".

Chinnaiyah, 52, is another fisherman leader who also heads the Pudukottai district fishermen's union affiliated to the ruling party. "We have to safeguard the sea for the next generation… But we also have to earn our livelihood", he says. Chinnaiyah voices a common demand when he says: "The government should give us some compensation…". The push nets also get entangled with crab nets, destroying them, he says.

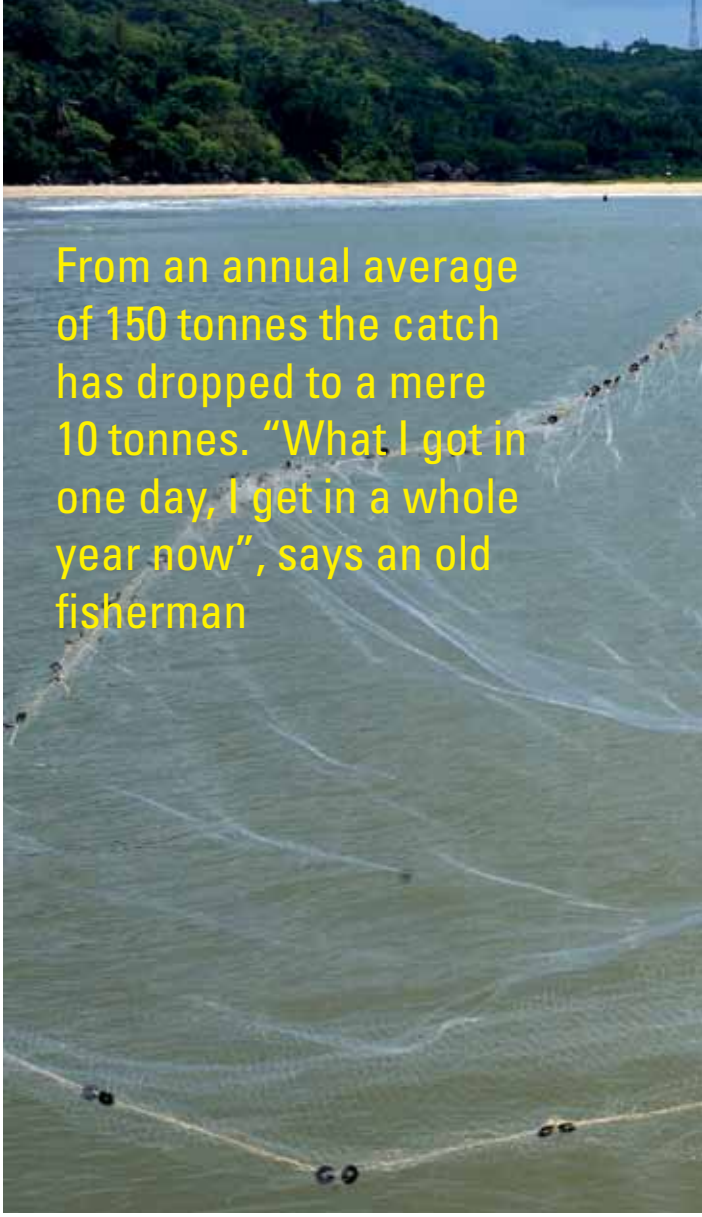
Panchavarnam, also a fisherman leader from the same village, who has attended several co-management meetings organized by the FAO's partners says: "We now realize what we are losing… within fisheries we have to look at alternate sources of livelihood". Most fishermen do not want their children to be fishermen as fishing has already become unsustainable. Panchavarnam demands job reservation for fishermen's children in the fisheries, navy, coast guard and other maritime departments.

Most fishermen do not want their children to follow them into fishing, now unsustainable. They want job reservations for their progeny in the fisheries, navy and coast guard

In nearby R-Pudupattinam village, the shoreline is littered with mounds of 'waste' from the sea — dead shells, starfish, sponges, sea urchins, coral, and seaweed — evidence of the

Dead 'waste' from the seabed

Chinnaiyah, displaying the push net



From an annual average of 150 tonnes the catch has dropped to a mere 10 tonnes. "What I got in one day, I get in a whole year now", says an old fisherman

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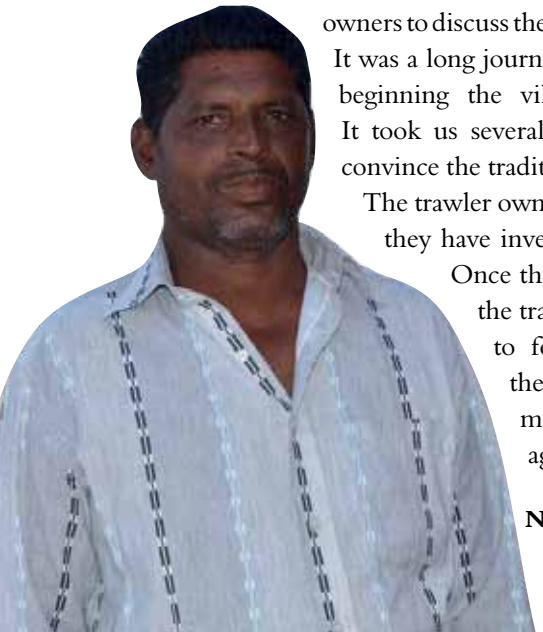
damage done by the push nets. An old fisherman weaving a net sums it all: "They have destroyed the entire sea". Nearby, at a crab-processing unit, T.A. Kannan a young fisherman says forcefully: "They should ban the push net…It is destroying our crab nets".

Chinnaiyah, doubling as our guide in the sultry shore, recalls how Fishmarc, the NGO partner, had formed a 10-member committee of traditional boatmen and another 10-member team of trawler owners to discuss the issue of sustainable fishing. It was a long journey starting in 2013. "In the beginning the villagers were suspicious… It took us several rounds of discussions to convince the traditional fishermen", he says.

The trawler owners refuse to comply saying they have invested large sums of money. Once the boatmen give up the net, the trawler owners will be forced to follow suit though. While the traditional fishermen co-management committee has agreed to stop the use of push nets, it is still being used. The committee's decision, with a few riders for compensation, has been sent to the fisheries department.

"We hope the Tamil Nadu government will impose a ban soon", they say. The fisheries department is yet to respond. Once the ban comes into force, the trawlers will have to fall in line. If Pudukottai follows the ban, the neighbouring districts of Tamil Nadu cannot stay behind for long. Soon, other coastal states too may follow this example and the fish population along India's coastline stands a chance of regeneration.

A few hundred kilometres further south, in India's southernmost district of Kanyakumari facing the Arabian sea, the problem is the same: species depletion. Lobsters, once found in abundance here, were overexploited because of the export market, fetching as much as $25 a kilogram (kg). From an annual average of 150 tonnes the catch has dropped to a mere 10 tonnes. "What I got in one day, I get in a whole year now", says an old fisherman who uses traps to catch lobsters that thrive among the rocks. He blames the trawlers. Berried lobsters,



Nayakam, lobster fisher from Kanyakumari

a single 'fish' holding as many as a 100 thousand eggs, on their way to the deep sea for spawning, are being trapped by trawler nets and also by the smaller fishermen. They too catch juvenile lobsters.

The drop in catch is steep. In village Keelamannakudi, seven kilometres short of Kanyakumari, Susai Nayakam is just back from retrieving his net after 48 hours. All he has got is eight lobsters weighing around 1.5 kg. At current prices he will get around $50 to be shared among five crew members. After cutting costs his average income is just $5. Yet small traditional fishermen like Nayakam, curiously all of them Roman Catholics, have agreed in principle to return berried lobsters and juveniles to the sea, thanks partly to persuasions from the church that was part of FIMSUL's outreach team.

They have also agreed to increase the net size from 90 mm to around 110 mm so that juvenile lobsters can live. When asked if he would actually return a berried lobster from his catch to the sea, Nayakam says a bit hesitantly, "Yes…sometimes. ...But why should we sacrifice when the trawlers are catching the berried lobsters…?" The decision to return berried lobsters to sea has not been easy as they weigh more, fetching good money.

For implementing partner Kanyakumari District Fishermen Sangam Federation (KDFSF) networking with 48 fishing villages across the district and convincing them was not easy. "If the government issues orders people will listen", Nayakam and his friends are convinced. For now the 10-member district co-management council, comprising fishermen, scientists, NGOs and officers of the fisheries department, has sent its recommendations to district authorities asking them to enforce a ban.

Rubert Jyothi, Assistant Director, Fisheries in Nagercoil, who was closely associated with FIMSUL's co-management process says, "Definitely… sooner or later the government will issue orders for the ban". If the lobsters get a new lease of life it will mean better catch and income for the poor fishermen of Kanyakumari. •

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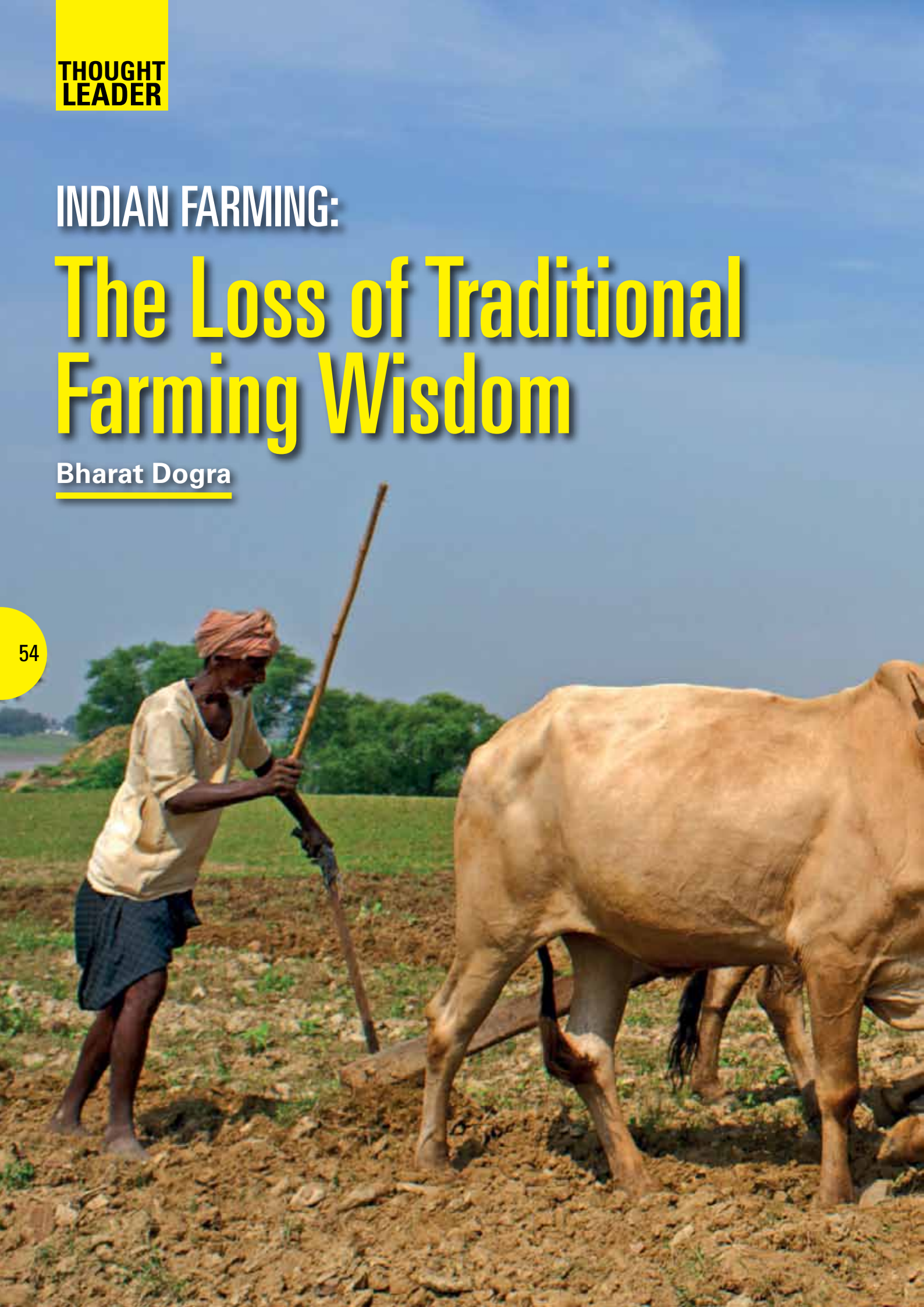
http://www.indiapost.com/trawlers-vs-boatmen/

THOUGHT LEADER

INDIAN FARMING:
The Loss of Traditional Farming Wisdom

Bharat Dogra



"I explain that I do not share the opinions which have been expressed as to Indian Agriculture being, as a whole, primitive and backward but I believe that in many parts there is little or nothing that can be improved. Whilst where agriculture is manifestly inferior, it is more generally the result of the absence of facilities, which exist in the better districts than from inherent bad systems of cultivation.... I may be bold to say that it is a much easier task to propose improvements in English agriculture than to make really valuable suggestions for that of India... the conviction has forced itself upon me that, taking everything together and more specially considering the conditions under which Indian crops are grown, they are wonderfully good. At his best the Indian raiyat or cultivator is quite as good as, and in some respect the superior of, the British farmer, while at his worse it can only be said that this state is brought out largely by an absence of facilities for improvement which is probably unequalled in any other country... I have remarked in earlier chapters about the general excellence of the cultivations, the crops grown here are numerous and varied, much more indeed than in England. That the cultivation should often be magnificent is not to be wondered at when it is remembered that many of the crops have been known to the raiyats for several centuries, rice is a prominent instance in point."

— Dr John Augustus Voelcker

BHARAT DOGRA
Senior Journalist

Amidst the present-day schemes and programmes for agricultural development, something invaluable is being lost all the time; steadily and relentlessly. Invisible and unheard, this loss may yet prove to be the biggest loss for farming. This is the loss of traditional farming wisdom, rooted in the collective experiences, experiments, efforts and endeavours of generations of farmers. Precious knowledge collected over hundreds and even thousands of years is often being lost within a few decades.

It is fashionable to refer to the traditional methods of India's farmers as inherently backward but it is important to remind policy-makers that even at the time of colonial rule, when top European experts were brought in to study the methods of India's farmers, they had only praise for Indian farming. The intricate skills, hard work and perseverance of farmers was applauded especially when it came to making the best possible use of scarce resources in the middle of many difficulties and constraints. That India suffered famines was not because of poor farming skills but the plunder of farmers by colonial rulers.

In 1889, Dr John Augustus Voelcker of the Royal Agricultural Society of England was deputed by the British government to study Indian agriculture. He toured the country extensively for over a year and his report was published in 1893. It has often been cited as an authoritative work on Indian agriculture of this period. The essence of Dr Voelcker's report was that "…taking everything together and more specially considering the conditions under which Indian crops are grown, they are wonderfully good". (see Box)

"Not only may there be rows of crops… but the alternating rows may be made up of mixtures of different crops, some of them quick growing …"

More specifically he stated, "To take the ordinary acts of husbandry, no where would one find better instances of keeping land scrupulously clean from weeds, of ingenuity in device of water-raising appliances, of knowledge of soils and their capabilities as well as of the exact time to sow and to reap, as one would in Indian agriculture, and this not at its best only but at its ordinary level. It is wonderful, too, how much is known of rotation, the system of mixed crops and fallowing. Certain it is that I, at least, have never seen a more perfect picture of careful cultivation, combined with hard labour, perseverance and fertility of resource, than I have seen at many of the halting places in my tour. Such are the gardens of Mahi, the fields of Nadiad and many others." There were accolades galore for the well-developed irrigation system too.

Voelcker's observations on the scientific rotation system were remarkable. He pointed out that it is quite a mistake to suppose that rotation is not

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"Irrigation by wells is at once the most widely distributed system and also the one productive of the finest examples of careful cultivation…..Further, as regards wells, one cannot help being struck by the skill with which a supply of water is first found by the native cultivators, then by the construction of the wells, the kinds of wells and their suitability to the surroundings and means of the people; also by the various devices for raising water each of which has a distinct reason for its adoption. All these are most interesting points with which I am not called upon to deal, for I see little to improve in them which the cultivator does not know perfectly well."

— Dr John Augustus Voelcker

understood or appreciated in India. Frequently more than one crop at a time may be seen occupying the same ground but one is very apt to forget that this is really an instance of rotation being followed. It is not an infrequent practice, when drilling a cereal crop, such as jowar (sorghum) or some other millet, to put in at intervals a few drills of some leguminous crop such as arhar.

There are many systems in ordinary use that are far more complicated. "For instance, not only may there be rows of crops, side by side, as noticed above, but the alternating rows may be made up of mixtures of different crops, some of them quick growing and requiring both sun and air, and thus being reaped after the former have been cleared off. Again, some are deep rooted plants. Others are surface feeders, some require the shelter of other plants and some thrive alone. The whole system appears to be one designed to cover the bareness and consequent loss to the soil."

Voelcker was not the only agricultural scientist to point out these assets of traditional agriculture in India. There were several other scientists, other experts and scholars who did so. J. Mollison and A.O. Hume had a great deal to say about the advanced Indian methods. Mollison, who became the first Inspector General of Agriculture in India, published a volume, 'Text Book of Indian Agriculture' in 1901. Like Voelcker, Mollison stressed the suitability of the implements used traditionally in Indian conditions.

"I believe that the implements in ordinary use are entirely suitable for the conditions of Indian agriculture. This statement may be objected to by other authorities, but if such is the case, l am afraid, I cannot change a deliberately expressed opinion. To those who are skeptical, I can show in parts of the Presidency cultivation by means of indigenous tillage implement only, which in respect of neatness, thoroughness and profitableness cannot be excelled by the best gardeners or the best farmers in any part of the world. That statement I deliberately make and am quite prepared to substantiate", Mollison wrote.

A.O. Hume, writing in 'Agricultural Reform in India' (1878), talked of weed-control by Indian farmers at that time: "As for weeds, their wheat fields would, in this respect, shame ninety-nine out of hundred of those in Europe. You may stand

Save the seeds movement in Himalayan villages

About a decade back, Vijay Jardhari, a farmer and social activist of Chamba block in the Tehri Garhwal district (Western Himalaya) was very worried about the possible ill effects of the chemical-intensive (fertilizers and pesticides) technology that some scientists were recommending in this region. As an activist of the famous Chipko movement he had participated in several meetings on environmental issues and had learnt about the possible adverse impacts of pesticides and chemical dependent seeds.

After some hesitation, he and his wife, Kamla, decided not to grow the new chemical-dependent seeds on their farms. This was not an easy decision to take. Like most hill farmers of this region the Jardhari family barely managed to make both ends meet. The new green revolution technology was attracting more and more farmers by promising higher yields in quick time. To make the offer even more attractive, extension agents were distributing free chemical fertilizers and seeds during the initial period. The temptation of taking the new seeds and abandoning the old ones was too great for many farmers to resist.

Vijay argued to himself and his family members that rapid spread of new technology in some villages was precisely the reason why someone should try to conserve the traditional seeds. After a few years some people may regret the decision of taking up the new seeds and search desperately for the traditional ones. Then we should be in a position to give them the old seeds, thought a determined Vijay Jardhari.

He shared his thoughts with his companions of the Chipko movement like Kunwar Prasun and Dhum Singh Negi, who not only backed his stand but also promised to actively help him in this work of saving seeds. Apart from conserving traditional seeds in their own fields and homes, Vijay and his friends also visited several distant villages with a view to learning more about this subject. What they saw only confirmed their beliefs.

In the high altitude valley of Ramasirain in Uttarkashi district, for example, they found that the people grew a very distinctive variety of red rice called Chardhan that apart from being very nutritious, met other local requirements so well that the people here were quite determined to reject the new seeds in favour of this distinctive variety of this region.

In villages nearer to their area of work they found that indigenous varieties like Thapachini,

Jhumkiya, Rikhwa and Lal Basmati that could give yields more or less comparable to the yields which are associated with green revolution varieties like Govind and Saket recommended officially in this region. The crucial difference is that while in the case of former varieties the high yields can be obtained without chemical fertilizers and pesticides, the latter varieties depend on chemicals to give the high yields.

The superiority of the traditional seeds has been confirmed by several experiments and observations in villages. On the basis of these various efforts Kumar Prasun later prepared a detailed catalogue of 328 local rice varieties that listed their essential characteristics.

Vijay Jardhari said that he challenged visiting scientists and extension workers who recommended green revolution technology to make a comparative study of the traditional seeds and new seeds, asserting confidently that the

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superiority of the former will be confirmed. Kunwar Prasun added that this happens when the rice grain is obtained from paddy and is generally more in the case of traditional varieties. Moreover, after cooking, the traditional varieties spread more than the new ones and give a greater feeling of nourishment and adequacy to the hard-working hill people compared to the new seeds.

Confronted with these views, a visiting scientist said in anger: "If your Thapachini variety is as good why do you not grow it everywhere?" Vijay Jardhari replied that each variety has its own role for specific farm conditions and so wide diversity of crops is needed, not monocultures.

Even small fields have been cultivated here traditionally on the basis of this concept of a wide diversity locally called *barahanaja* (literally meaning 12 grains). In practical terms, this means that a number of cereals and legumes are intercropped in a field so that the people can be self reliant in obtaining a balanced diet. At the same time the soil is also nourished by leguminous crops. Creepers of some of these plants can obtain the support of the stalks of other plants.

Table 1: Average Annual Growth Rates in Yields per Hectare

Crop	1951-52 to 1967-68	1968-69 to 1980-81
Wheat	3.7	3.3
Rice	3.2	2.7
Jowar	3.4	2.9
Bajra	2.6	6.3
Maize	4.8	1.7
Coarse Cereals	2.6	1.5
Pulses	2.3	-0.2
Oilseeds	1.3	0.8
Cotton	3.0	2.6
Sugarcane	1.6	3.1

Source : 12th Plan document

For example the kidney bean, lobhiya and moong pulse creepers can obtain the support of amaranth and the urad pulse creeper can obtain the support of mandua. So what looks like a maddening range of too many plants in a small area is actually a very balanced way of meeting the needs of human beings, of soil and also of plants themselves.

Since hill women play a leading role in agriculture, they readily appreciated these virtues of traditional seeds. Women like Sudesha Devi of Rampur village and Savitri Devi of Sabli village played a leading role in spreading traditional seeds as a part of this 'beej bachao andolan' (save seeds movement). Similarly, Kamla played a very important role in conserving seeds in Jardhar village.

The most frequent reason given for ignoring traditional farming practices (and the seeds on which these are based) has been that these are low-yielding. This reason is quite often extended without looking at the higher output of various kinds of produce given by mixed cropping systems and rotations. Also, the higher fodder yield, the higher extractions of edible components and the better nourishment provided by these foods is ignored.

Even if we look at official data, higher yield has been achieved at a time when there was greater reliance on traditional wisdom and seeds (the period from Independence to mid-late sixties) compared to the period soon after this. This is clearly evident from Table 1 (taken from the 12th Plan document).

An entire generation of farmers, then another grew up under a barrage of false propaganda, which alienated them from the achievements of their ancestors

in some high, old barrow-like village site in Upper India and look down on all sides one wide sea of waving wheat broken only by dark green islands of mango groves — many square miles of wheat and not a weed or blade of grass above six inches in height to be found amongst it".

Hume's tribute to the grain-storage practices of Indian farmers is no less glowing: "They are great adepts in storing grain, and will turn grain out of rough earthen pits, after 20 years absolutely uninjured. They know the exact state of ripeness to which grain should be allowed to stand in different seasons". These experts emphasized that the problems of India's agriculture were not related to the farming methods used by most farmers. In fact, within the existing constraints these methods were very productive and skillful. The problems were related instead to plunder and neglect by colonial rulers.

Irrigation was neglected most of the time and time-honoured systems of water conservation suffered grave damage, partly because of official apathy but also because the village community's ability to maintain them was very badly affected. In fact, the entire village community was seriously disrupted under the onslaught of aggressively exploitative colonial polices.

A major aim of colonial policy was to collect as much land revenue as possible. While the government made different kinds of revenue arrangements in various parts of the country, almost everywhere the actual cultivator faced heavy tax burden. Bishop Heber wrote in 1826, "Neither native nor European agriculture, I think, can thrive at the present rate of taxation. The fact is, no native prince demands the rent we do."

Farm progress was hindered in many ways but the tax burden increased relentlessly. This forced the farmer into the clutches of money lenders who exploited him in innumerable ways, charging very high rates of interest, keeping him in perpetual debt, grabbing his land or forcing him (and his family members) into debt bondage.

After Independence, these basic causes of poverty and lack of resources of farmers were not tackled to the extent that it was necessary. While the abolishing of the zamindari system and some other basic reforms improved the prospects of a limited number of farmers, on the whole farmers continued to face severe resource constraints,

Agricultural practices should honour nature

Ideas of Sailendranath Ghosh

Perhaps the most important aspect in a scientific study of sustainable agriculture is to understand how nature works to maintain soil fertility. This is described here in the words of Sailendranath Ghosh, a writer who repeatedly emphasized the need for organic agriculture: "Let us first take a look at the bounties of nature in an undisrupted system. … Nature has made ample provisions for the supply of nitrogen through the root system in a variety of ways. Rains wash down the nitrogen generated by thunder. Bacteria in the nodules of leguminous plants capture nitrogen from the atmosphere and fix it into the soil. So do some ferns, some forms of algae and some genera of free living bacteria. Various genera have been endowed with this quality so that this operation could continue under differing conditions. Probably the most important source of supply of nitrogen as also of other nutrients is the decomposition of animal and plant wastes. This is done by decomposer bacteria and fungi".

Animals eliminate excess organic phosphorus by excreting phosphorous salts in urine. There are also a phosphatizing bacteria, Ghosh says, to convert phosphorus into stable forms of phosphate salts which remain bound with soil. At the beginning of rains, the mineralization of organic matter releases phosphates for uptake by the plants.

Further, Ghosh writes: "For the supply of all other macro and micronutrients as also of vitamin and plant growth promoting substances, there are elaborate arrangements in natural soil systems. The soil abounds in countless forms of micro organisms — bacteria, fungi, viruses, protozoa, yeasts, algae etc. to perform different but interrelated functions. Each produces different kinds of enzymes by which all stand to benefit".

To enable this beautiful but complex natural system to carry out its work of maintaining land fertility, forest cover should be protected in and around agricultural fields; organic waste to soil should be returned and mixed cropping and rotation systems carefully adopted.

When all these time-honoured practices of maintaining soil fertility are neglected, soil fertility is impeded. The solution lies in correcting these mistakes, not in applying chemical fertilizers, for chemicals disturb and disrupt the natural process in numerous ways. For example, chemical farming kills earthworms, whom Charles Darwin called "the builders of civilizations" and who play an invaluable role in protecting and maintaining the fertility of land.

On the harmful aspect of chemical fertilizers Ghosh writes: "Their adverse effects are immense and in too many directions. These reduce soil organic matter, reduce soil porosity to impede oxygen flow, reduce the water-holding capacity of the soil, obstruct natural nitrogen fixation by soil bacteria as also the natural control mechanism, affect the soil flora and fauna, reduce the soil's resistance to extreme weather conditions, deplete the trace elements essential for the healthy growth of plants, animals and microbes, and poison the ground water and surface water in the neighbourhood, to which the unabsorbed fertilisers drain".

Ghosh adds that the harmful impact of chemical fertilizers is much higher in tropical climate conditions compared to temperate conditions — as

the soil in former conditions is much more prone to erosion and the loss to organic matter caused by chemical fertilizers in these conditions is likely to be higher.

However, organic farming should not be equated just with 'non-chemicalization'. Ghosh explains:"Organic farming means farming in the spirit of organic relationship. When you say this, it opens up a whole vista. In nature, organic relationship is a pervasive phenomenon. Everything is connected with everything else.... Since organic farming means placing farming on integral relationships, we have to know the relationship between the soil, water and plants, between soil, soil microbes and waste products, between the vegetable kingdom and the animal kingdom, of which the apex animal is the human being, between agriculture and forestry; between soil, water and atmosphere etc. It is the totality of these relationships that is the bedrock of organic farming".

many difficulties and injustices. Instead of concentrating on resolving these injustices and providing conducive conditions for farmers' skills and wisdom to realize their full potential, the government, under pressure from motivated interests, made completely wrong diagnoses.

According to the government's reading, the problem related to traditional agriculture being inherently backward and based on low-productivity seeds incapable of meeting increasing food needs of people. This was wrong as there was enough evidence of many traditional varieties of various crops giving high productivity in India.

Then the government implemented a completely distorted policy under which farmers were asked to give up thousands of traditional varieties, well acclimatized to local agro-climatic conditions and replace them with exotic, alien varieties about which farmers had very little knowledge. So they became more and more dependent.

One of the saddest aspects of the past five decades or so is that at no other time was so much damage done to this treasure trove of knowledge, skills and its products. The traditional farming practices and crop varieties that were the contribution of billions of farmers working for thousands of years were not only ignored but also allowed to be lost from fields. An entire generation, then another grew up under a barrage of false propaganda which alienated them from the achievements of their ancestors.

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Thousands of priceless varieties of crops were lost at least from the fields of farmers. A farming system that avoided or minimized waste; which harmonized agriculture, animal husbandry and forestry; which maintained the fertility of land; which did not require any polluting energy-intensive inputs; which produced healthy and chemical-free food was replaced by new practices that achieved the opposite. This was done in the name of progress.

Over a period of hundreds of years agro-climate peculiarities of various areas had been observed carefully by farmers, and the crop varieties most suitable to these conditions had been identified. Similarly mixed farming systems and crop rotations were developed so that many varieties of many crops needed by farmers could be grown while conserving soil and water. People's diverse food needs as well as essential raw materials like cotton could be grown in such a way that basic resources of soil and water were well protected. The crop-varieties and seeds, mixed farming systems, crop rotations and farming methods were all related to each other, well-integrated with each other.

This meant that disturbing one component would disturb others as well and this is precisely what happened. When the government's entire research and extension establishment was devoted to spreading new exotic varieties, the result was not confined to uprooting of thousands of traditional varieties of various crops. If the loss was confined to one invaluable biodiversity, it would be a colossal national loss apart from being a big loss for the farming community. Actually this was only a part of the actual loss, as in many cases the mixed cropping systems, crop-rotations and farming methods related to these were also lost.

Perhaps the biggest tragedy was that the new generation was constantly told by the government's vast research and extension establishment, supported by radio and TV that what their ancestors had practised and evolved over hundreds of years was backward and should be ignored. They should give this up and adopt 'modern' agricultural

Uprooting of the legume-cereal mixed farming and rotation systems from many areas led to a fall in the per capita availability of pulses, the staple source of proteins for most Indians

practices as recommended by the government and later by the corporate sector.

For example, the legume-cereal mixed farming and rotation systems were uprooted from many areas within a few years. This naturally led to a steady fall in the per capita availability of pulses, the staple source of proteins for most people of India. This also starved the land of essential nutrition provided by the nitrogen fixing abilities of legume crops.

This mixed system had a highly evolved form in Uttarakhand, in which coarse cereals, millets, legumes, oilseeds and spices were all grown together under the *barahanaja* or twelve crops system. Visiting government scientists told farmers to give up this 'backward' system and plant a monoculture of soybeans in its place!

As a result of such misdirected efforts of policy-makers and extension agents, over the past two generations, the wisdom and knowledge accumulated in rural areas around seeds, biodiversity, the most suitable farming systems and methods for various agro-climatic conditions got eroded at a vary rapid pace. A lot of this wisdom is vanishing so fast that it may be extinct very soon. The seeds, crop-varieties and animal breeds and all types of bio-diversity with which this wisdom is associated are also vanishing at a very fast pace.

There is very little concern for this loss of our most precious heritage. If this heritage is to be saved, there is no time to lose. India must accord the highest priority to protecting this traditional wisdom and the associated biodiversity. ●

The saffron flower

Saffron Times in Srinagar

Ajay Vir Jakhar

Emperor Jahangir once said about Kashmir: اگر فردوس بر روے زمین است همین است و همین است و همین است "Agar Firdaus bar rōy-e zamin ast, hamin ast-o hamin ast-o hamin ast (If there is Paradise on earth, it is this, it is this, it is this)".

Arriving in Srinagar, we dump our luggage and rush to the saffron fields hoping to catch a few hours with the saffron farmers before sunset. It has rained for the past week and the skies are welcomingly clear today. The same warmth of hospitality from our host, Adil Ashraf, wins us over. He is a banking associate with the Jammu and Kashmir Bank Limited in district Budgam and is in charge of Kisan Credit Cards.

The valley is surprisingly wide between the mountain ranges. The ground is flat and well drained. The saffron harvest has just ended; we manage to catch the last saffron flower standing on the field. The loneliness of the flower tells a tale of a valley and its people that has resolved not to surrender to adverse circumstances.

Adil takes us to meet Ch. Mohi-ud-din Banday in the saffron fields of Pampore, where grows the best saffron of the world. His family has been growing saffron for many generations. Pampore is just outside of Srinagar and, before we realize it, we are in the saffron fields, where the land slopes slightly towards the Jhelum. The air is crisp and fresh and it is exhilarating to take deep

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Saffron is picked four times between October 15 and November 10. The saffron flower is always picked in the morning

Adil Ashraf (brown jacket) with the farmers

breaths of air. As it fills up the lungs, there is a heady feeling of elation and one wants to inhale a year's supply while it lasts.

Seeing the river now, it is difficult to imagine the fury and destruction it wrought on the capital some time back. The message was clear: development must be tempered by strictly-enforced regulations.

Saffron cultivation requires dry climate, well drained land and raised beds. The crop being triploid, the saffron plant grows out of a corm (see picture). It yields saffron after one year or in the same year depending on the size and weight of the corm. The corm is priced at ₹25,000 per quintal and up to 2.5 quintals (250 kg) of seeds are required for one kanal (1/8th of an acre) of land. The minimum corm size required for planting is 15 mm and 8-10 gram weight is ideal for flowering in the same year. A single corm produces seven to eight corms over the years.

If kept well, a plant normally survives for 15 years. Earlier, cow dung was the fertilizer of choice but it is not easily available any more and farmers have started to use urea now. The fields are close to the road and other farmers gather around us. They complain that the government's department of agriculture has not been helpful as they would want it to be. For a few years, the department has asked farmers to treat their seeds with chemicals before transplanting but that does not seem to be helping either. Production is going down. The government also drilled some tube wells but none seemed to be working.

Weeds need to be removed twice a year; in June and September and require three operations. Removal by hand costs ₹1,000 per kanal, ox de-weeding of the furrows costs ₹200 per kanal while a scraper *panjja* costs a farmer ₹300. This equals to ₹1,500 for the whole process each time.

Saffron is picked four times between October 15 and November 10. The saffron flower is always picked in the morning. In the evening, saffron is separated from the flower. Next morning it is dried under shade. On sunny days, it takes two days for about a kilogram of saffron to dry and 30-40 kg of flowers yield 10-15 tolas of dried saffron. A kilogram of flower gets 10 tolas of non-dried saffron that yields 1.5 tolas of dried saffron. The last few years have seen a substantial drop in yields.

The last thing I expected to hear in the valley was about cement plants. The farmers, however, complain that production has declined on account of polluting cement plants in the area that spew smoke and dust.

There is no market infrastructure to sell saffron though many farmers like Mohi-ud-din Banday also trade in saffron. The size of the farm holdings is small and a farmer owning over 20 kanals of land is considered a large farmer. Interestingly, mostly bulk sales are for temples or for the *zarda* industry.

As the sun sets behind over the distant hills as we head back to Srinagar, stopping on the way at the house of brothers Tasaduq and Tajamul to sample saffron and for a cup of *kahwah*, a traditional green tea prepared in copper pots called *samovar* in the western reaches of the Himalayas. Boiled tea leaves with saffron stands, cinnamon bark, cardamom pods, Kashmiri roses and crushed nuts are just what we need to feel recharged.

The brothers show us different types of saffron and explain the differences: *Laccha*, the dry saffron priced at ₹1,40,000 per kg. *Moongra*, priced at ₹1,55,000 per kg. *Zarda*, priced at ₹60,000 per kg.

Saffron corm

Even Patti fetches ₹12,000 per kg.

Tasaduq educates me on the spurious saffron market and the need to get the right sellers to sell to you. Either the *patti* is coloured red so it can be sold as saffron or additives are used to enhance the weight of the original saffron. Back home, Adil takes us to meet his mother, where a hot cup of saffron milk awaits us. Srinagar and hospitality are quite synonymous.

Saffron farmers have seen better days, before saffron from Afghanistan and Spain flooded the market. The saffron from Spain is bigger and the yields are higher while the saffron from Iran has more colour. These do not compare to the saffron of Pampore that has far more aroma. Indian importers are driving down prices as they import large quantities of saffron and package it as Kashmir saffron—that obviously fetches a higher premium. I ask farmers about import duties to safeguard

Saffron farmers have seen better days; before saffron from Afghanistan and Spain flooded the market

them but they do not have a clue. I promise them to raise the question at the right place.

Drinking water supply is not much of an issue in the area but power is. Even though Srinagar was electrified in the 1930s, the electricity supply in the winter months is available for only two to four hours a day. The supply between May to October is good.

The next day affords us time till late afternoon to wander and seep in the serenity of Srinagar. Thankfully, the tourist season has ended; the Chashme Shahi gardens are not crowded, the Chashme Shahi spring water is cool and pleasant. The trees are shedding their leaves, preparing for winter. It is beautiful. After a stroll around the small compound, we take a shikara ride across the Dal Lake. No trip to Srinagar is complete without gliding across the waters of the lake on a shikara.

The floor of the Dal Lake is probably about 12 feet below us. Water weeds are clearly visible like lingering ghosts in the water. These are collected and sold as fertilizer on the land. A few fishermen are still around on their slim boats out fishing. Fruit and vegetable sellers plying their trade on shikaras approach our boat for us to buy their fresh produce along with those selling Kashmiri handicrafts.

Later, we visit the botanical gardens where the herbs and medicinal plants are planted. There is a plant to help each part of the human body. The setting and views are stunning, the walk around the gardens is rejuvenating. It is therapy for stressed minds and for daydreamers alike.

One and a half days in Srinagar is like watching a trailer of an exciting movie; it whets your appetite for more. Time seems to come to a standstill on the lake or while walking in the gardens but then, breaking the reverie, comes the rush to drive to the airport. It all appears so unreal when compared to the madding crowds of Delhi. Just an hour from the capital of India is a paradise waiting to be re-discovered over and over again. Alas, the wait may well be long for I return to Delhi and from there catch a train back to the farm the same night. ●

इफको

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