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Contents

Editorial

The Seminar organised by the Federation on 2nd August 2016 on Preparedness of ARDBs for Banking recommended that the priority of State Cooperative Agriculture & Rural Development Banks (SCARDBs) should be to become strong and efficient financial institutions within the scope of their present mandate rather than becoming fullfledged banking institutions. The Seminar observed that deficiencies in the original design of the structure as a specialised lending agency dealing in a single product have now been removed in almost all States through appropriate amendments in their Acts. SCARDBs were given permission to take term deposits from public upto their net worth in 1977. They can also accept deposit from members without any term restrictions and ceiling. Similarly, provisions have been included in their Acts, to enable advancement of all kinds of loans and undertaking non-fund businesses based on the changing needs of rural sector. However, it was observed that SCARDBs by and large could not take advantage of these opportunities adequately. Building up own resources is the starting point of functional reforms in the structure. Considering their vast membership, statewide jurisdiction and long history of providing credit services in the rural sector, ARDBs have huge potential in mobilising deposits. Though banks started accepting deposits from members since 2013 the programme has not picked up pace except in a few States due to lack of publicity and absence of targeted approach. Though the avenues for borrowings are now expanded, the capacity of SCARDBs to borrow from NABARD and other agencies is linked to their financial strength. All fully functional SCARDBs have comfortable CRAR level but high NPAs and low productivity are the two main issues they have to tackle to improve financial position. It is seen that the substantial portion of loan recoveries by ARDBs take place during April-June which are not reflected in NPAs reckoned as of 31st March every year. The Seminar recommended a common cut-off date for reckoning both loan recovery and NPAs during the year to tackle this problem. Profitability of ARDBs are affected by their faulty pricing policies. Though cooperatives are not allowed to charge interest on interest they are permitted to charge interest at the same rate on overdue interest. Still, it is seen that in most of the States no interest is charged on defaulted interest irrespective of the period of default, causing huge losses to banks which also serves as an incentive for delaying repayment. The Seminar recommended SCARDBs to reform pricing policies to address these shortcomings. The Seminar observed that computerisation and introduction of CBS are badly delayed in this sector. Computerisation is an important requirement to enhance the capacity of branches/PCARDBs to expand business including acceptance and servicing of deposits. Computerisation of ARDBs gained momentum only in the last one year, thanks to the initiative of NIC which has developed common software and CBS applications for ARDBs with online connectivity through their national network at quite affordable cost. Addressing staff shortage is an urgent requirement even to sustain operations at the present level in most of the States. Recruitments are delayed in ARDBs due to procedural hassles and absence of permanent arrangement for filling up vacancies on a regular basis. The recommendations of the Seminar if taken seriously by banks are expected to give a new direction in shaping their future.

K K. Ravindran
Managing Editor

Article

Microfinance: An avenue for empowerment of fisher women

Ms. Adita Sharma[1]
Dr. Arpita Sharma[2]

Abstract

One of the objective of development planning is to reduce the extent of poverty by providing employment opportunity and raising the income levels of population in fisheries sector. Microfinance is recognized as a key strategy for addressing issues of poverty alleviation and women's empowerment, access to financial services and the subsequent transfer to financial resources to poor women enabling them to become economic agents of change. Providing affordable credit to the rural population has long been a prime component of development strategy. Government and donors have sponsored and supported supply led rural finance intuitions both to improve growth and equality and to neutralize or mitigate urban biased macroeconomic policies. But because of high risk, heavy transaction costs and mounting loan losses many of the programmes have drained state resources to little purpose, reaching only a small part of the rural population and making little progress towards self-sustainability. Various researches have confirmed microfinance is very important avenue for women empowerment. Present paper highlights concept of microfinance, microfinance initiative, models of microfinance and role of microfinance in women empowerment.

Key words : Microfinance, women empowerment

Introduction

Microfinance is recognized as a key strategy for addressing issues of poverty alleviation and women's empowerment, access financial services and the subsequent transfer to financial resources to poor women enabling them to become economic agents of change. Women became self reliant and contribute directly to the well-being of their families play a more active role in decision-making and are able to confront systemic gender inequalities. The micro-finance programmes/projects implemented by National Government, banks, International Organizations i. e. FAO, UNDP, NGOs and donor countries have shown that micro-finance can overcome hurdle of collateral by formation of group which provides group guarantee. This also helps banks to reduce cost of lending and poors including women gets empowered creating village bank for easy access to credit. Therefore, microfinance is also emerged as best innovative approach for poverty alleviation in different sector.

Microcredit is one of the fastest growing world industries today. Its popularity stems from the model of The Grameen Bank, begun by Muhammad Yunus in 1976 in a village near Chittagong, Bangladesh to assist improvised village. Microfinance (credit, saving and insurance) programme can help poor households' smooth consumption during an adverse shock. Access to credit has long been considered a major poverty alleviation strategy in India. Microfinance programme help households to cope up with shocks and also provide capital to create or expand micro enterprises. Micro finance thus help households diversify these sources of income and resources their vulnerability to income shocks.

In order to enhance women's access to credit for consumption and production, the establishment of new and strengthening of existing micro-credit mechanisms and micro-finance institution will be undertaken so that the outreach of credit is enhanced. Other supportive measures would be taken to ensure adequate flow of credit through extant financial institutions and banks, so that all women below poverty line have easy access to credit.

Status of fisher women in India

In recent years the fish economy has gained importance because of substantial foreign exchange

Article Continues to page no. 5

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earned through export of prawn and other variety of fishes. In spite of this, the fisher women complain, that their contribution to the economy of this country has not been duly recognized (Baral, 1996). The fisher women are gripped by a sense of ambiguity and uncertainty. As in all subsistent economies, women play an active role in the fishing communities of India. In fact, fisherwomen have made the survival of the coastal, marine and inland communities possible (Nandeesha; 1991). Though they have very limited control over the conditions and products of their labour, women have almost exclusive responsibility of running the household and caring for the children (Sahu, 2000). Despite the fact that they play an important role in fisheries, they remain invisible. Their contribution to the sector and their struggle for survival remain unnoticed.

The consequences of the damage done to the traditional fisheries and their ecology through the commercial sectors, hurdles and imperfections in fishing and marketing activities, the increasing hardships faced by the fisherwomen in fish vending, alienation and marginalisation of the fisher folk in India are the major problems of the economy of the fisherwomen (Nirmal and Baral, 2001). After India's independence a number of steps have been taken by the government of India as well as state government for the development of weaker section of the society. In the last two decades both government and voluntary organizations have paid special attention to the problems of Fisher women, who have suffered from several kinds of inequality and deprivation. Fisher women, being victims of both backwardness and gender discrimination, are struggling to find out a space for them (Gulati, 1984).

Role of microfinance to empower fisher women

In India, the major activities in which women's contribution can be noticed as fish processing and marketing. The involvement of women in these activities generates supplemented income to support their families. Microfinance for self help groups is fast emerging as a promising tool for promoting income generating enterprises for reaching the - 'unreached' for credit delivery in rural areas, particularly the women who are often considered to have low net worth for availing any credit facilities from formal financial institutions, the banks etc. Microfinance is also considered as the vehicle for achieving empowerment of the women in all spheres — social, cultural, political and economic. It is a way of self-sustenance without looking for financial help or subsidy from 'elsewhere'.

A majority of microfinance programmes target women with the explicit goal of empowering them. There are varying underlying motivations for pursuing women's empowerment. Some argue that women are among the poorest and the most vulnerable of the underprivileged and thus helping them should be a priority. Others believe that investing in women's capabilities empowers them to make choices, which is a valuable goal in itself, but it also contributes to greater economic growth and development. It has been well documented that an increase in women's resources results in increased well-being of the family, especially children (Mayoux, 1997; Kabeer, 2001; Hulme and Mosley, 1997).

A more feminist point of view stresses that the financial services represent an opening or opportunity for greater empowerment. Such organizations explicitly use microfinance as a tool to fight for women's rights and independence. Finally, keeping up with the objective of financial viability, an increasing number of microfinance institutions prefer women members, as they believe that they are better and more reliable borrowers. Mayoux (1997) argues that the impact of microfinance programmes on women is not always positive. Increases in income for women can come at the cost of heavier workloads and repayment pressures. Their loans are used by men in the family to set up enterprises, or sometimes women end up being employed as unpaid family workers with little benefit. Furthermore, it can lead to withdrawal of male support and decrease in male contribution to household expenditure. Rahman(1999), using an anthropological approach with in-depth interviews, participant observations, case studies and a household survey in a village, finds that between 40% and 70% of the loans disbursed to the women are used by the spouse and that tensions within the household increase (domestic violence).

Thus one may conclude that by helping women meet their practical needs and increase their efficacy in their traditional roles, microfinance can help women to gain respect and achieve more in their traditional roles, which in turn can lead to increased esteem and self-confidence. Although increased esteem does not automatically lead to empowerment, it does contribute decisively to women's ability and willingness to challenge the social injustices and discriminatory systems that they face (Cheston and Kuhn, 2002)

Microfinance programme in india

Women play a pivotal role in fisheries. They are engaged in a wide range of activities in the fisheries and fishing community, which are as follows;

1. As workers (paid & Unpaid) within the fisheries, in pre and post harvest activities, including liaison work with institutions and agencies. In many countries, it is mostly women who are engaged in inland fishing and aquaculture.
2. As workers in sea- food processing plants.
3. As care givers of the family and in maintaining social networks and the culture of the community.

4. As members of fishworker movements and fish organisations.

The inability of credit institutions to cover a sizeable segment of the rural poor is generally attributed to their high cost of administering large number of small loans and the perceived lending risks in the absence of any collateral. This promoted a number of NGOs to enter the rural credit scene for organizing the poor into informal groups for mutual help and benefit. Many of these groups have been provided credit support. These NGOs are instrumental in promoting informal structure of poor to help them save and promote self- reliance in financing their needs through the concept of self- help groups (SHGs). SEWA, and NGOs in Ahmedabad, and affiliate to women's world banking (WWB), New York is networking with NGOs giving financial assistance to women group. The working women's forum, Chennai has organized women cooperative society's for pursuing income generating activities and facilitating their empowerment. MYRADA and NGOs based in south India, are engaged in promoting SHGs and has done pioneering work in providing access to credit through linking with formal credit institutions.

The availability of credit for women in India comes from the following sources:

- Formal credit structure which represents banks, cooperatives, regional rural banks and other financial institutions like NABARD, SIDBI (through NGOs).

- Quasi informal which represent linkage between banks and self help groups, providing bulk financing for NGOs for lending to sit up of a National credit fund for women by Govt. of India (Rashtriya Mahila Kosh).

- Informal credit from relatives, money lenders, wholesalers, self help groupings and credit groups of women.

- Women Development Corporation providing loans for margin money, training and assistance in arranging credit.

Role of National bank for Agriculture and Rural Development (NABARD)

NABARD'S involvement in promoting micro finance through the concept of SHGs started in 1987, with a sanction of ₹10 lakh as grant assistance from its R& D fund to MYRADA for providing seed money to the credit management groups promoting by it. The objective of providing grant assistance was to facilitate building up a thrift fund and aiding the members of the SHGs with margin money to borrow from the formal credit system. The success of this experiment was the precursor to the launching of the pilot project in 1992 for linking 500 SHGs with the banks. The linking programme promoted by NABARD is unique as it facilitates relationship banking as compared to parallel banking practiced in other countries. Under the relationship banking improvement in the existing relationship between the poor and the banks are attempted with intermediation by the NGOs, who either play the role of promoters of SHGs or financial intermediaries. The basic philosophy of the linkage models promoted by NABARD is to establish synergy between the banks, who have the financial strength and the NGOs, who have the ability to mobilize the poor and build up their capacity to avail loans from the banks. This is expected to facilitate the poor to graduate to a level from where they can access larger amounts of loan directly from the banks without the intervention of NGOs.

Small Industrial Development Bank of India (SIDBI)

The Small Industrial Development Bank of India (SIDBI) was established in 1990 to serve as the principal financial institution for promotion and development of industry in the small scale sector as well as to co-ordinate the functions of other institutions engaged in these aspects in the sector. The bank launched the micro-credit schemes (MCS) in 1994 for extending financial assistance to the rural poor, particularly women, through NGOs for taking up income generating activates at the micro-level. The scheme envisages provision of soft loan assistance at 9% per annum to accredit NGOs for on-lending to the poor borrower for promotion of micro- enterprises. Saving from an integral part of the programme and members of the SHGs are encouraged to plough bank their saving to the group corpus for building up borrower's equity over a period of time. A salient features of the scheme is the grant assistance extended by the bank for developing the credit absorption capacity of the borrows.

Capacity building of intermediaries

Towards ensuring that a supplementary channel of the credit delivery is properly developed, SIDBI has been making investments in improving the credit absorption and usage capacity of the women's group and credit delivery skill of the functionaries of the MFIs/NGOs working with saving cum credit groups. Financial support is extended to NGOs for training interventions in the area of maintenance of accounts, book keeping, credit management, identification and selection of income generation activities and management of microenterprises. The bank has been supporting orientation programmes for NGOs desirous of the undertaking thrift- cum- credit activities. These programmes are being conducted through NGOs and professional institutions having ample exposure/experience in the areas of managing micro credit programmes. Besides, financial assistance is extended by way of grant to NGOs for meeting part of their administrative expenses and cost of management support services for effective implementation of the programme.

Rashtriya Mahila Kosh

The national credit fund for women or Rashtraiya Mahila Kosh (RMK) was constituted in March 1993 by the Government of India (GoI) and is registered as a society under the societies registration act, 1860. The RMK was established with the objective of promoting support scheme and improving the facilities of the credit to women, which could be used as an instrument of socio-economic change and development. It also supports experiments in the formal and informal sectors using innovative methodologies to reach poor women with credit and other social services. The RMK was establishes with an initial corpus of ₹310 million contributions by the Department of Women and Child Welfare, Ministry of Human Resource Development, GoI. The main features of the micro-finance services being provided by **RMK** are:

1. It is a tool for empowerment of the poorest; the higher the income and better the asset position of the borrower, the lower the incremental benefit from further equal doses of micro-credit is likely to be.
2. Delivery is normally through Self Help Groups (SHGs).
3. It is essentially for promoting self-employment; the opportunities of wage employment are limited in developing countries - micro finance increases the productivity of self-employment in the informal sector of the economy - generally used for (a) direct income generation (b) rearrangement of assets and liabilities for the household to participate in future opportunities and (c) consumption smoothing.
4. It is not just a financing system, but a tool for social change, specially for women - it does not spring from market forces alone - it is potentially welfare enhancing - there is a public interest in promoting the growth of micro finance - this is what makes it acceptable as a valid goal for public policy.
5. Because micro credit is aimed at the poorest, micro-finance lending technology needs to mimic the informal lenders rather than the formal sector lending. It has to: a) provide for seasonality (b) allow repayment flexibility (c) eschew bureaucratic and legal formalities (d) fix a ceiling on loan sizes.

Role of micro-enterprise banks in development assistance

Micro-enterprise banks grant many small loans, offer investment opportunities and handle their customer's payment transactions at home and abroad. They are licensed by and under the control of local banking supervisory bodies. They are growing fast and expanding their branch networks. There are various banks as NABARD and SIDBI which supports the SHG groups.

Self help group

A Self Help Group (SHG) is a small economically homogeneous and affinity group of rural poor generally not exceeding 20 members voluntarily coming together with these objectives:

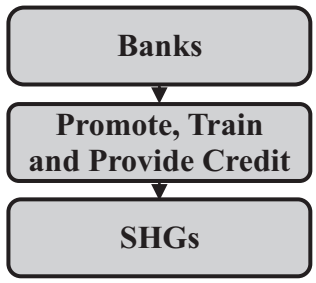
- To save small amounts regularly.
- To mutually agree to contribute to a common fund.
- To meet their emergency needs.
- To have collective decision making.
- To solve conflicts through collective leadership and mutual discussion.
- To provide collateral free loans with terms decided by the group at market driven rates.

The SHG is an informal organization. It is controlled and managed by the members. The regular saving contribution to corpus fund is the eligibility to join the SHG. The mutual trust is the spirit of the organization. It has its own set of rules and regulations. There is transparency and accountability in SHG transactions. The SHGs are formed by the promoters like bank, NGOs and Government Dept. such as Dept of Women and Child Development etc. there are various categories of SHGs. The SHG empower women in various respects. They provide women access to economic recourses. They enable women to Participate in decision making at every level on every financial and nonfinancial issues. They improve the socio economic status of women. They change women from housekeeper to organizer, manager and decision maker.

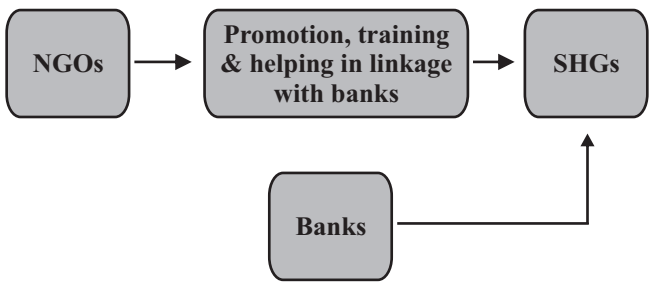
Emerging model of SHGs-bank linkage

(1) Bank-SHG-Member Model

In this model, the bank itself acts as a Self Help Group promoting Institutions (SHPI). It takes initiatives in forming the groups, nurtures them over a period of time and then provides credit to them after satisfying itself about their maturity to absorb credit.

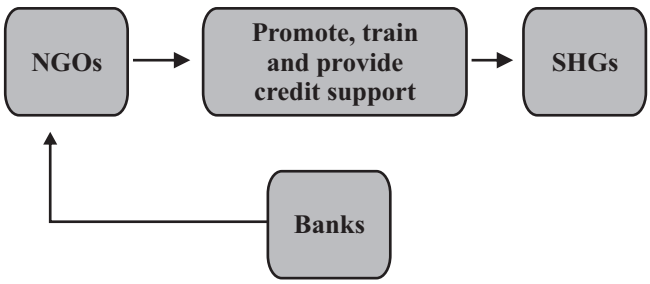


(2) SHG bank linkage model : bank – facilitator agency – SHG- members



Under this model NGO's, Government Agencies or community based organizations acts as facilitating agencies from SHGs. The groups are developed, nurtured and trained by these agencies. Bank observed the operations of the SHGs and after satisfying the functions helps them to open savings and accounts and provides the credit directly to the SHGs. Seventy per cent of the SHGs were linked under this model. The state Government agencies like DRDA and DWDA play active role to play. They should take laudable efforts in linkages exercises.

(3) SHG bank linkage model: NGOs as financial intermediaries



This model is totally different from other two models. Under this model SHGs are nurtured, promoted and even financed by NGO's act as facilitator and micr5o finance intermediaries (MFI's). After sometimes, when the SHGs have fully developed and stabilized, banks are being approached by the NGO's for loans for on lending to SHGs. Very important development in this model is that NGO's have also been found to federate the SHGs and gradually equip the SHG federations to take on this role. Sixteen per cent of the SHGs are linked during the year 1999-2000.

Role of SHGs in women development issues

Women's development is a part of Society's overall efforts at improving its human resources potential. However, no human resource development is possible without a corresponding improvement in the status of half of its population. In India women works as wives, mothers, agricultural. Laborers, wage earners and teachers of skills. At the same time, the benefits of economic and social development seem to have by passed them.

In India several attempts have been made for alleviation of rural poverty. A systematic effort towards rural development started after India attained her Independence. During the initial period of development the Government neglected the participation of people in the different developmental programme largely depends on the active participation of the people alone.

Indian experience with Self Help Groups with a focus on women is emerging as a promising financial innovation with great potentials to reach the poor and marginal workers in cost-effective way to the lender and with many spinoffs to the needy and vulnerable, who are outside the economic arena.

Women's empowerment, participation and micro-finance: Competing paradigms and underlying assumptions

Concern with women's access to credit and contributions to women's empowerment are not new in India. Women's empowerment and participation have been to the forefront of debates about credit provision since the late 1970s. Self-Employed Women's Association (SEWA), founded in 1974, and identified credit as a major constraint in their work with informal sector women workers. Other women's organizations, including Working Women's Forum (WWF) and Annapurna Mahila Mandal (AMM), soon followed. Savings and credit, and more recently insurance and pensions, are conceived as part of a broader empowerment strategy including unionization, cooperative formation and mobilizing around gender issues like domestic violence and dowry as part of the wider women's movement. The mid-1980s saw a mushrooming of donor, government and NGO-sponsored credit programmes in the wake of the 1985 Nairobi women's conference. Women's credit and/or savings programmes were started by NGOs like MYRADA, ASA and CARE as the women's component of integrated development programmes. Other programmes like ASSEFA added programmes for women onto existing micro-finance services. Some credit cooperatives attempted to target women more effectively. In some places federations of women's thrift and credit cooperative groups were set up, as in the case of Andhra Pradesh Cooperative Development Foundation. The numbers of NGOs involved in micro-finance continued to expand rapidly in the 1990s and into this century. As part of this expansion, the emphasis on female targeting in both NGOs and specialist micro-finance institutions (MFIs) has increased.

Summing Up

"Poverty is not merely insufficient income, but rather the absence of a wide range of capabilities, including security and ability to participate in economic and political systems"

Amartya Sen

In India, microfinance is making a strong headway in its efforts to reduce poverty and empower the unreached. Microfinance through SHGs and others is a vital weapon for the poor to fight against poverty. However, credit alone is useless unless packaged with training, awareness programme depleting market support strategies, the members could effectively build enterprises as a source of their employment and income. Therefore, training to potential leaders must be imparted with focus on developing skills, group dynamics and group conflicts. Empowering of the traditional fisherwomen means not

only lighting hope for future of the traditional fisherwomen but also for the world at large. Fisher community have always been very poor and amongst the most marginalised communities, especially the women faces a lot of difficulties, often exploited by merchants and middlemen.

Rural poverty is mostly concentrated in South Asia and that too on the Indian sub-continent. Rural women are doubly disadvantaged segments are by passed by the development process and remain excluded from the benefits poverty reductions. SHG is the right approach to create self employment opportunities so as to supplement the income and assets of the rural poor. The SHG provides the rural poor women the access to micro-credit. It encourages rural women entrepreneurship and rural women empowerment. Financially sustainable minimalist microfinance has been promoted as the human face of structural adjustment policies which seriously disadvantage women, decrease public sector availability of complementary services and remove any existing welfare nets for the very poor. Although it is true that millions of poor people require access to financial services, such services are only likely to address poverty if they are part of a broader agenda for women's empowerment and poverty elimination. It is crucial therefore those microfinance programmes are adequately supported to build on their considerable organizational strength, reaching thousands of women and men, to challenge gender inequality and economic injustice. It is also crucial that microfinance programmes are conceived as a complement to, rather than substitute for effective policies to transform national and international economic and political inequalities.

As fishery sector plays a strategic role in the economy by contributing towards exports, food, nutritional security and employment generation in coastal and inland areas. The involvement of fisherwomen is substantial.

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Article

Priming of sorghum seed – Easy way to increase sorghum yields of resource poor farmers

Ms. M. Sudha Rani*
Dr. A.V.S. Durga Prasad*

Introduction

Sorghum is one of the important millet grown in tropical and sub tropical conditions and mostly under rainfed situation. Sorghum is mainly grown for grain and its stalks are utilized for fodder purpose. Poor germination and initial establishment is important concern reported by the farmers, which could be due to biotic and abiotic factors. The biotic factors include low quality seed, improper land preparation erratic distribution of rain fall etc., Resource poor farmers in marginal areas suffer more (Harris 1992;1996) than others due to these abiotic constraints.

Timely availability of good quality seeds with high vigour, uniformity, structural soundness besides having genetic and physical purity is the foremost requisite for successful seed production.To improve seed quality, seed enhancement techniques like seed priming have been developed with an objective to increase the rate of emergence and uniformity in crop establishment in most of the vegetable, flower crops in advanced countries.

Seed priming is a controlled hydration process that involves exposing the seeds to low water potentials that restrict the germination, but permits pre emergence physiological and biochemical changes to occur (Bradford, 1986; Khan, 1992). Upon rehydration, the primed seed may exhibit faster rate of germination, more uniform emergence and greater tolerance to environmental stresses and reduced dormancy in many species (Khan, 1992). Harris etal. (2012) observed that on farm seed priming improved the rate of crop establishment and reduced the crop duration and increased the yield in rice, maize and chickpea.

Muruguet al. (2004) reported that the effect of priming depend upon the crop species and seasonal rainfall. Seed priming is not a new methodology and has been a recommended practice in many crops in India. But, farmers do not appreciate the wide range of benefits from this low- cost, low- risk practice unless they are given opportunity to experiment themselves. If this technology is refined and developed using participatory approach, it will have a positive impact on the livelihood of resource poor farmers. The participatory approach carried out by Rammurthyet al. (2005) under Technology Assessment and refinement through Institute- Village linkage programme was successful to sustain sorghum production of rainfed resource poor farmers at Vidarbha region of Maharastra. The present study reports the results of participatory evaluation of seed priming (Hydropriming) technology in 6 locations constituting 3 villages in each district of Ranga Reddy and Kurnool of A.P.

Fig. 1.Demonstrated and popularization of hydro-priming technology in sorghum to the farmers of Ranga Reddy and Kurnool districts.

Materials and Methods

The villages, where participatory evaluation was conducted are located at 16^0 30' and 18^0 20' of North latitude and 77^0 30' and 79^0 30' of East longitude of Ranga Reddy of Telangana; $14^0$15' and 15^0 11' of North latitude and 76^0 53' and 78^0 25' of East longitude of Kurnool district of Andhra Pradesh. The sorghum cultivar M35-1 was utilized for on farm demonstration having 88% of germination. The study was conducted during rabi 2015-16 in red loamy soils. The seed material was sterilized by using 30% Sodium hypochlorite for 4 minutes and washed with distilled water. Half of the seed was used for priming. The seed was placed in wet sand for 9 hours at 300C. Later, the seed material was shade dried till it reached its original moisture and sieved to separate the seed. The treatments used were hydro-primed seed (T1) and non soaked as control (T0). On-farm trials were conducted at farmers fields in six villages viz., Kodangal, Peddemul and Anantharam Thanda of Ranga Reddy district; Mithnala,

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Table:1 Effect of priming on various seedling parameters and yield in sorghum under rainfed situation												
Locations	Germination (%)			Field emergence (%)			Final Plant stand (m^2)			Grain yield (kg/ha)		
	T0	T1	Mean	T0	T1	Mean	T0	T1	Mean	T0	T1	Mean
Kodangal	89	93	91	85	90	87.5	18	24	21	19.37	22.12	20.75
Peddemul	87	92	89.5	85	91	88	20	24	22	20.12	22.45	21.29
AnantharamThanda	85	93	89	83	93	88	23	27	25	19.84	22.15	21.00
Mithnala	90	94	92	87	92	89.5	20	25	22.5	18.79	20.26	19.53
Nandipalli	91	93	92	88	91	89.5	22	23	22.5	17.65	19.17	18.41
Sugalimetta	86	90	88	85	90	87.5	22	25	23.5	20.02	21.84	21.84
Mean	**88**	**92.5**	**90.25**	**85.5**	**91.4**	**88.33**	**20.83**	**24.67**	**22.75**	**19.15**	**21.23**	**20.47**
C.D(%)			2.14			2.04			1.24			1.98

Nandipalli and Sugalimetta of Kurnool district.

During this season, the sorghum cv. M-35-1 was tested on medium deep (25-50 cm) red soils. Three farmers from each village were selected for recording observations. Farmers were trained to prime the seed and allowed to take up sowing in extent of 0.5 acre with hydro primed seed and other 0.5 acre using non- primed seed. The package of practices followed for both the plots were absolutely same during the season. The data analyzed using randomized block design.

Results and discussion

Pre sowing hardening or priming is the kingpin to increase the productivity by overcoming the moisture stress and nutrient deficiency for sustained production.

Effect of priming on seed germination

Hydro priming of sorghum seed significantly improved the mean germination per cent (92.5) over non primed seed which recorded as mean germination per cent of 88 among the six locations demonstrated. Noumanetal. (2012) reported that priming improves the germination and vigour of rangeland grasses. Harris etal. (1999) found that hydro priming enhanced seedling establishment and early vigour of upland rice, maize and chickpea, resulting in faster development, earlier flowering and maturity and higher yields. Effect of priming on field emergence.

Fig.2 Differences in the Initial plant stand of primed and control plots

Hydro priming of sorghum seed reflected in significant improvement in field emergence during the study period. The primed seed plots recorded a mean field emergence of91.4 per cent while it was 85.5 per cent in untreated control. Many locations showed significant improvement in field emergence. Harries et al. (2001) reported that priming was effective to improve mineral content of the seed which can be attributed to the early emergence and improved growth.

Effect of priming on final plant stand

Final plant stand showed numerical superiority of primed plots 24.67 over control 20.83. Earlier workers (Nagar et al., 1998) showed hydro priming of maize seeds had rapid seedling emergence and improved field stand. Similarly, Mumtaz Khan et al.(2003) reported that primed seeds have more protein metabolism ability and enzyme activity. Rowse (2001) reported that hydro primed corn seeds had better germination and establishment due to reduction in time of water absorption.

Effect of Seed priming on grain yield

Sorghum cultivar M35-1 recorded numerical superiority with regard to grain yield among six locations (21.23) overun primed control (19.15). There was an average improvement of 10.86 per cent in yield with respect to yield due to hydropriming. Harries et al. 2007 reported that seed priming with Zinc sulphate and water increased the grain yield to a tune of 27% and 14% , respectively that is convening the results of the study. Further, Harries et al. 2004 reported 16 % wheat yield by on farm seed priming with Zinc sulphate solution.

The probable reason for higher germination, field emergence and plant stand might be due to higher viscosity and elasticity of the protoplasm, increase in bound water content and lower water deficit. Further, the improvement may be attributed to activation of cells

which result in enhancement of mitochondrial activity leading to the formation of more energy compounds and vital biochemicals which were made available during the early phase of seed germination. In priming the seed is dried back to original moisture content after a specific period hydration. The triggered germination events are being halted and when the seed were sown, germination events begin from the point where it stopped previously. As a result early emergence and seedling establishment was realized in the primed seed lots.

Fig. 3.Evaluation of primed and control plots at Mithla village of Kurnool Dt, A.P

Most of the farmers reported that they have observed early germination and good plant stand. It was also noticed that primed plants did not show early wilting symptoms unlike that of non- primed. The farmers appreciated that seed priming helped them to harvest the crop almost one week early with higher yield than non-primed. Almost all the farmers of the villages observed the results & convinced with the performance of demonstration and made a wish to prime the seed of sorghum next year.

Summary and conclusions

Crop establishment is often poor in semi-arid tropics. However, good crop stand and initial establishment is very essential for the efficient use of water and light and to realize higher productivity. Thus, hydropriming of sorghum seed for a period of 9 hours at 30^0 C resulted in significant improvement of seedling parameters viz., germination, field emergence, final plant stand and grain yield to a tune of 10 per cent without incurring any additional expenditure and it is very simple and easy technique that can be adopted by the poor resource sorghum farmers of marginal and sub marginal soil conditions. Seed priming is a key technology to sustain sorghum production.

A Report on
KSCARD BANK BEST FARMER AWARD – 2015

Inaugration of Best Farmer award function by Shri A C Moitheen, Hon'ble Minister for Cooperation and Tourism Kerala State

KSCARD Bank - Best Farmer award "Harita Retna', confered to Shri Domanic Mathew

The Best Farmer Award of KSCARDB-2015 comprising memento and cash prizes was distributed. In a spectacular function held on 26th July 2016 at 10.00 A.M. in the conference hall if Kerala State Agricultural and Rural Development Bank Ltd at Thiruvananthapuram. Shri A.C. Moitheen, the Hon. Minister for co-operation and tourism – Kerala State, inaugurated the function and presented the best farmer award – 'Haritha Retna' and a cash prize of ₹1,00,000/- to Sri Domanic Mathew, a progressive farmer of Nilampoor PCARDB in Malappuram District. The second prize 'Haritha Mitra" and a cash prize of ₹50,000/- was awarded to Sri Sibi, Irijalakuda PCARDB, Thrissur District and 3rd prize 'Haritha Sree ' and a cash prize of ₹25,000/- was presented to Smt. Therasiamma Thomas, of Kanjirapally PCARDB, Kottayam District. Sri V.S. Sivakumar MLA presented best performing awards to PCARDBs for their performance in deposit mobilization during 2015-16 in the function.

In the key note address, the minister appreciated the initiatives taken by KSCARD Bank in uplifting the rural farmers and channelizing loans through the 75 PCARD Banks and their branches in all over Kerala. The Minister explained to the forum about the various programmes being chalked out by the Govt for the integrated development of farmers, and increasing production of organic vegetables and marketing of agricultural produce and invited the active participation of KSCARD Bank in these venture.

Sri Solomon Alex, President of KSCARDB presided over the function and the Vice President of NCARDB Federation. Sri K. Sivadasan Nair EX-MLA and Sri V. Raveendranath the new CGM NABARD felicitated to the function. Shri K.M. Joseph Bank director delivered welcome speech and Smt. Aparna Prathap, General Manager expressed vote of thanks to all the participant.

Profitable Sheep and Goat Farming

Shri Md. Zaheeruddin

In a situation when farmers are committing suicide almost every day in the different States owing to financial burden, goat and sheep farming could be an inspiration to farmers for adopting alternative means of farming. Commercial goat and sheep farming is a very lucrative and profitable venture which can be initiated with a comparatively small capital investment. In India, revenue wise goat farming is very popular among the small and marginal farmers and even to landless farmers. One can start goat farming as a home based business opportunity from his backyards or he can initiate a full-scale goat and sheep farming business with a substantial capital investment.

Sheep and Goat with its multi-facet utility for wool, meat, milk, skins and manure, form an important component of rural economy particularly in the arid, semi-arid and mountainous areas of the country. It provides a dependable source of income through sale of wool and animals.

The advantages of sheep and Goat farming are:

- Sheep and Goat do not need expensive buildings to house them and on the other hand it requires less labour than other kinds of livestock.
- The foundation stocks are relatively cheap and the flock can be multiplied rapidly.
- Sheep and goat eat varied kinds of plants compared to other kind of livestock. This makes them excellent weed destroyer.
- The production of wool, meat and manure provides three different sources of income to the farmer.
- The structure of their lips helps them to clean grains lost at harvest time and thus convert waste feed into profitable products.
- Sheep and Goat mutton is one kind of meat towards which there is no prejudice by any community in India and further development of superior breeds for mutton production will have a great scope in the developing economy of India.

Scope for Sheep and Goat Farming

The farmers having at least 5 to 6 Sheep or Goat and above the age of 18 year can become member of a Primary Sheep Growers Coop. Society.

Advantages of becoming member of a Primary Sheep Growers Coop. Society

- Preference in Govt. schemes
- Loan facility from National Coop. Development Corporation and NABARD with subsidy.
- Collective Land management.
- Collective Animal Health management.
- Collective Market Facility management.
- Decisions in democratic manner.

* Asst. Registrar of Cooperative Societies, Hyderabad

Methods of Grazing in practice

- **Intensive Grazing:** In this method, farmer graze animals in open ground where ever fodder is available.
- **Semi- Intensive Grazing:** In this method, farmer graze animals in open ground where ever fodder is available. As well as provide better housing (shed) and provide fodder in side shed .This method is better than the Intensive grazing.
- **Zero Gazing:** In this method, farmer do not graze animals in open ground. But totally keep in shed and provide fodder/Clean drinking water, proper medication and kid care etc. in side shed.This method is best and profitable.

Housing

Normally sheep and Goat do not require elaborate housing facilities but minimum provisions will definitely increase productivity, especially protection against inclement weather conditions (sun, rain and winds) and predation. A shed could be provided with gunny bags or temporary or removable protections made of thatching material and bamboos. The roof of the shed should be made of the asbestos sheet supported by tubular or angular steel, but wooden rafters and thatching material could also be used along with the mosquito nets.

For best economy sheds please visit:
http://www.youtube.com/user/sheepngoatbreeding

Health Management

The health management calendar has to be followed for better health of stock as per Veterinary doctors'advice and clean drinking water should be provided to minimize the mortality rate.

Fodder classes

Seasonal fodder: Fodder sorghum, Maize, Nutrifeed,
Perennial fodder: CO3, CO4, CO5 Napier Hybrid, Guinea grass, Para grass, APBN.
Fodder legumes: Stylo, ledge, Lucerne, Fodder ground nut

Government Schemes implemented

Various welfare schemes are implemented for the farmers engaged in sheep and goat breeding. Sheep Insurance is one of them.

Sheep Insurance is provided with 66⅓% Subsidy. ₹3000/- perdeceased sheep and ₹1500/- per deceased Ram Lamb is paid towards insurance two times free deworming in a year.

Sheep and Goat breeding guide lines to beginners/Entrepreneurs

1. First of all, work for at least one month in a nearby sheep/goat farm to gain experience orundergo training.
2. In the beginning, invest less in sheds.
3. Breed sheep or goat based on the meat consumption of public where you wish to start farm. (It means, if your area's public eat sheep meat ,breed sheep. If the public eat goat meat, breed goats only for easy market.)
4. Select local breeds only (enquire which sheep/goat breed largely breed in your locality).
5. In the beginning, go for breeding with 100+5 and gradually increase.
6. In 2nd phase you can start Ram lamb rearing (i.e Male sheep rearing).
7. Do not depend on labour /or relative. Use labour but plan to work yourself.
8. Now a days, meaning of ethics have been changed. So be careful while purchasing sheep/goat etc.
9. Farmer can breed approximately 50 sheep or goat with fodder cultivated in one acre of land.
10. No registration is required for starting a sheep/goat farm. But after starting a farm, please inform to local veterinary clinic official for their information and Govt. help.

Sheep Business Economics approximately

Economics of sheep/goat business Approximately Income and expenditure.

Investment

i) Infrastructure and 100 Sheep plus 5 Rams working capital	₹10,65,000/
ii) Feed , Labour, Medicine, Insurance etc. (Rs.38000/-X12 Months)	₹ 4,56,000/-

Breeding cycle is 8 months. 81 sheep per each cycle. It means Approximately 121 sheep per year

(iii) Income

121 sheep X 30 Kgs = 3630 kgs x ₹250 per kg	₹9,07,500/-
Working Capital (Minus)	₹4,56,000/-
Net Income	₹4,51,500/-
iv) Income on each Sheep	₹4515/- or ₹4500/-

THE 2016 INTERNATIONAL DAY OF COOPERATIVES

Importance of International Cooperative Day

The aim of the International Day of Cooperatives is to increase awareness on cooperatives, highlight the complementarities of the goals and objectives of the United Nations and the international co-operative movement and underscore the contribution of the movement to the resolution of the major problems addressed by the United Nations. The International Day also aims to strengthen and extend partnership between the international cooperative movement and other actors, including governments, at local, national and international levels.

In 1992, following a concerted lobbying effort by the cooperative movements in membership of the International Cooperative Alliance (ICA) and members of the committee for the Promotion and Advancement of Cooperatives (COPAC), the United Nations General Assembly proclaimed the International Day of Cooperatives by the UN by resolution 47/90 of 16 December 1992. The resolution states:

"…The General Assembly, Proclaims the first Saturday of July 1995 to be the International Day of Cooperatives, marking the centenary of the establishment of the International Co-operative Alliance, and decides to consider the possibility of observing an International Day of Cooperatives in future years; …

The date of the celebration of the International Day was chosen to coincide with the already existing International Co-operative Alliance (ICA) International Co-operative Day which has been celebrated since 1927. In 1994, the United Nations General Assembly adopted another resolution on cooperatives which not only called on governments and international agencies to consider fully the potential of cooperatives for contributing to the solution of economic, social and environmental problems in formulating national development strategies; and consider reviewing legal and administrative constraints that are not applied to other businesses and enterprises, but also invited governments, relevant international organisations, specialized agencies and national and international cooperative organizations to observe annually the International Day of Cooperatives on the first Saturday of July starting from 1995, as proclaimed by the General Assembly in its resolution 47/90".

The theme for the year 2016 International Day of Cooperatives is "Co-operatives: The power to Act for a Sustainable Future". The theme was chosen to emphasize the co-operative contribution to the United Nations' Sustainable Development Goals (SDGs) to achieve three extra ordinary things viz. End extreme poverty, fight inequality, fix climate change – over the next 15 years. Cooperatives have a unique role to play in realizing the Goals, as they contribute to sustainable economic growth, social development and environmental responsibility.

Co-operatives around the world celebrate the International Cooperative Day in many different ways as below:

- The messages of the ICA and United Nations are translated into local languages and widely disseminated to co-operators, media and government officials at all levels.
- Co-operatives use the media to create awareness on their movements and contributions.
- Co-operative Fairs, exhibition, contests and campaigns are held.
- Meetings with government officials, United Nations agencies and other partner organisations are held.
- Co-operatives partner with community agencies to champion economic, environmental, social and health challenges.
- Cultural events are sponsored – theatre, concerts, etc.

THE 2016 INTERNATIONAL DAY OF CO-OPERATIVES

CO-OPERATIVES SUPPORTING THE SUSTAINABLE DEVELOPMENT GOALS

The Post-2015 Development Agenda and Sustainable Development Goals

Sustainable Development is at the very core of Co-operative enterprises. This is a model of business based on ethical values and principles whose goal is to provide for the needs and aspirations of their members.

Through self-help and empowerment, enhancing local resources and capabilities and reinvesting surpluses, co-operatives play a pivotal role in responding to local community needs and objectives.

Instead of looking at short-term goals of maximizing profits, have a long-term aim of sustainable economic growth, social development and environmental responsibility.

Therefore co-operative enterprises support and promote a vision of Sustainable Development based on a triple bottom line approach: economic, social and environmental.

Even though co-operative enterprises contribute every day and in almost every sector of the economy towards the achievement of sustainable development goals, there are still several obstacles that prevent them from fully exploring their potential.

Unleashing the full potential of co-operatives requires, among other measures:

- Recognition that co-operative enterprises are a well suited model of business to deliver Sustainable Development Goals and have an important role in the implementation of the Poss-2015 Development Agenda;
- Inclusion of specific targets and indicators related to the promotion and development of co-operatives in member countries, in accordance to the definition, values and principles referred above; these targets should be associated with a concept of growth that includes other factors than GDP, in particular targets associated with social and environmental indicators.
- Access to specific implementation measures and programs including funding; these programs and measures should be adapted to the specific characteristics of co-operatives and respect their specific business model.
- Participation of co-operative structures in the discussions and decision-making processes regarding the Sustainable Development Goals and Post-2015 Development Agenda.

Bioleaching: An Emerging Technology of Metal Extraction

[1]Nandish. M.S.
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Microbiology has played a pivotal role in the mining industry for hundreds of years. The use of bacteria has enabled more efficient ore extraction and purification of ore compounds. In the recent years, research has been devoted to developing more environmentally sound and efficient extraction process and microbial remediation of mining sites. Biomining is the use of several biological processes for different applications in the mining industry. It involves hydrometallurgical processes known as bioleaching or bio-oxidation and some environmental processes. Although the terms 'bioleaching' and 'bio-oxidation' are often used interchangeably, there are distinct technical differences between these processes and technologies. Mineral bio-oxidation refers to a pre-treatment process that uses the same bacteria as bioleaching to catalyze the degradation of mineral sulphides, usually pyrites or arsenopyrites, which host or occlude gold, silver, or both. Bio-oxidation leaves the metal value in the solid phase and the solution is discarded.

Bioleaching involves the action of micro-organisms in the leaching process. It refers to extraction of specific from their ores by the use of bacteria. In majority of cases, the major sources of commercial metals are ore bodies, in which the metals mainly occur as sulphides minerals. Extraction of the metals from these sulphides mineral is conveniently accomplished by aqueous oxidation from sulphides to soluble sulphate, thus producing solution from which metals may be removed.

Micro-organisms used in bioleaching

Bioleaching refers to the use of bacteria for the recovery of metal in the solution phase during oxidation. Mainly pure and mixed population used for better recovery of metal. These solutions are handled for maximum metal recovery and the solid residue is discarded. The chemical condition under which natural bacteria-aided sulphide mineral leaching takes place are normally acidic, owing to the use of Sulphuric acid as solvent. Mesophilic moderate and extreme thermophilic microorganisms are used for bioleaching. They are autotrophs, mixotrophs and heterotrophs, and have chemosynthetic metabolism and the ability to use oxidation of inorganic sulphur and its compound to produce energy for growth (chemolithotrophs). Thiobacillus ferroxidans, Thiobacillus thiooxidans, Thiobacillus acidophilus, Thiobacillus organoparus, Leptospirillum ferroxidans, Ferroplasm, Sulfolobus, Metalosphaera, Acidianus and other thermophilic species of sulfobacillus acidianus are used to leach metals such as copper, zinc, uranium, nickel and cobalt from a sulphide mineral.

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Types of Bioleaching

The efficiency of bioprocessing invariably increases with operating time, as microorganisms adapt to their environment and also bioleaching processes. Bacterial dissolution of sulphide minerals is thought to involve two mechanisms; direct and indirect.

In direct leaching, bacteria attach themselves to the metal sulphide crystals within the rock. Through a biochemical reaction known as oxidation, the bacteria then change the metal sulphide crystals into soluble sulphates, thus dissolving the metals.

In indirect leaching the bacteria need not be in contact with the mineral surface. The role of the bacteria is to re-oxidize the ferrous iron back to the ferric form and oxidizing the elemental sulphur formed in some cases. The ferric iron then chemically oxidizes the sulphide minerals producing ferrous iron. The bacteria only have catalytic function because they accelerate the reoxidation of ferrous iron to ferric iron which takes place very slowly in the absence of bacteria.

Methods of bioleaching

There are currently two methods of bioleaching – tank bioleaching and heap bioleaching.

Tank bioleaching

The major form of bioleaching is known as stirred tank processes. The name is fairly self explanatory, as the process requires constructing large aerated tanks that are generally arranged in a series, so that run-off from one tank serves as raw material for the next. In this way, the reactor can operate in continuous flow mode, with fresh ore being added to the first tank while the run-off from the final tank is removed and treated. The ore to be processed is generally crushed in a very small particle size to ensure that the solids remain suspended in the liquid medium. Mineral nutrients in the form of (NH4)2SO4 and KH2PO4 are also added to the tanks to ensure maintenance of maximal microbial density.

Heap bioleaching

Traditionally, this process is carried out by naturally occurring microorganisms, usually thermopiles, which are usually found in acidic environments produced by the oxidation of sulphur, for example, in and around hot springs, volcanic regions and sulphiderich areas. While most living organisms derive energy for growth and reproduction from organic carbon, thermopiles grow on inorganic matter and are harmless to living creatures. Their diet consists of pyrite, arsenopyrites and other metal sulphides, such as chalocosite and chalcopyrite.

Advantages of bioleaching

- Bioleaching is simpler and economical to operate and maintain than traditional processes.
- Bioleaching can be applied from simple to complex bioreactors and are not dependent on scale.
- It does not require high temperature and pressure.
- Liquid effluent generated in this process can be neutralized and thus the process is more environment friendly than traditional extraction methods.
- Less landscape damage since the bacteria involved grows naturally. As such the mines and surrounding area are left relatively untouched.
- It is flexible and can be used for single or mixed mineral.
- Bioleaching also has a less harmful impact on the environment than conventional extraction methods, as it uses less energy and does not produce SO2 emissions.

Disadvantages

- The bioleaching process is very slow compared to smelting.
- Toxic chemicals are sometimes produced in process. Sulphuric acid and H+ ions formed can leak into the ground and thus causing environmental damage. Heavy metals such as iron, zinc and arsenic leak during acid mine drainage. When the pH of this solution rises, these ions precipitate as a result of dilution by fresh water, causing 'yellow boy' pollution. For these reasons, set up of bioleaching must be carefully planned, since the process can lead to biosafety failure.

Conclusion

The current panorama of bioleaching in developing countries is encouraging. It is expected that in the coming years several new commercial – size bioleaching plants will be installed. It is likely that heap leaching will continue to be the choice for low-grade ores and tailing, while tank bioleaching technology will probably increase its application for gold, copper and other base-metal concentrates. The use of thermophilic bacteria and archea will be a major contribution, increasing the leaching rates and metal recoveries and allowing for the treatment of recalcitrant ores such as chalcopyrite. Developing countries should increase their effort in research and development in bioleaching technology, as they have comparative and competitive advantages in this area. International cooperative should also be considered in the establishment of new operations that can significantly contribute to the economic and social development of these countries. The future developments will most likely include an increase in the temperature at which stirred tank reaction are carried out, by identifying or developing bacterial strains that have higher optimal temperatures. These initiatives may be much less environmentally destructive than conventional technologies and prove to be the beginning of new generation of mining technologies.

Draft norms for on-tap bank licences released

The Reserve Bank of India (RBI) issued draft norms for on-tap licensing for universal banks, in which stiff conditions have been set for industrial houses that aspire to become banks. This is first time since the financial sector was opened up in 1991 that the banking regulator has decided to make the bank licensing process continuous, as opposed to the 'stop and go' approach adopted hitherto.

While the broad contours of the norms are in line with guidelines issued for bank licensing in 2013, the central bank has now made it clear that business houses predominantly in financing activities, for example, non-banking financial companies (NBFCs) would be preferred.

"Groups in the private sector that are 'owned and controlled by residents' and have a successful track record for at least 10 years, provided such a group has total assets of ₹5,000 crore or more, and the non-financial business of the group does not account for 40 % or more in terms of total assets/in terms of gross income," RBI said, regarding eligibility of the promoters. Preference will be given to promoting entities having diversified shareholding, it added.

The central bank has allowed individuals as well as companies who are directly or indirectly connected with large industrial houses to have 10% stake in a bank, as compared to 5% earlier. However, the regulator said such companies should not have such shareholders should not have any director on the board of the bank on account of shareholder agreements or otherwise.

The initial capital requirement for opening a bank is set at ₹500 crore and the entity have to maintain 13% capital adequacy ratio for three year. The entity has to maintain a net worth of ₹500 crore at all times. Regarding the corporate structure, it is proposed that individuals or standalone promoting entities need not have a non-operating financial holding company structure (NOFHC), but this is mandatory if the promoter entities have other businesses. The NOFHC, which will be registered with RBI as NBFC, will hold the bank as well as the other financial services companies of the group.

The NOFHC will not be allowed to set up any financial services companies for three years from the date it commences. Promoters' minimum stake in the NOFHC will be 51%. The promoter (or NOFHC, as is the case may be), should have 40% equity in the bank which will be locked in for five years, from the date the bank starts business, RBI said. In case promoters (or NOFHC) hold more than 40%, then it has to be brought down over five years. The RBI also mandated that promoters' stake be brought down to 30% over 10 years and to 15% over 12 year. The bank has to list its shares on the stock exchange within six year.

The central bank said licences would be issued on a selective basis to those who are likely to conform to the best international and domestic standards of customer service and efficiency and it may not be possible for RBI to issue licences to all the applicants just meeting the eligibility criteria prescribed above. RBI will set up a standing external advisory committee (SEAC), comprising eminent personalities, to vet the applications. The SEAC will, in turn, submit its recommendations to RBI for consideration. RBI will put out the name of entities that have applied for a licence and also of successful candidates in the public domain. The regulator will also inform the unsuccessful candidates about the decision. Unsuccessful candidates will not be allowed to apply within three years of rejection. The unsuccessful candidates can appeal against the regulator's decision to the RBI's central board of directors within one month of rejection.

International Day of Cooperatives – 2nd July 2016

The theme for the 2016 International Day of Cooperatives (IDC) is 'Cooperatives: The power to act for a sustainable future'. The theme was chosen to emphasize the cooperative contribution to the United Nations' Sustainable Development Goals (SDGs), to achieve three extra ordinary things viz. end extreme poverty. Fight inequality. Fix climate change – over the next 15 year. Which the cooperative movement has pledged its commitment. It also echoes the slogan of the 2016 International Summit of Cooperatives, which will take place in October 2016 and address cooperative engagement in SDG achievement. In September 2015, the UN Member States adopted a 2030 Agenda for Sustainable Development, containing the seventeen SDGs. In paragraphs 41 and 67 of the outcome document, cooperatives are acknowledged within the private sector as important actors in implementing the Agenda. Cooperatives are similarly mentioned in paragraphs 13, 35 and 39 of the Financing for Development outcome document adopted in August 2015.

Given this unprecedented recognition of cooperatives in UN development policy, COPAC will support the engagement of cooperatives in the implementation of the SDGs by promoting their contributions during the 2016

IDC, which took place on 2nd July 2016. The IDC is celebrated annually on the first Saturday of July, as detailed in the 1992 resolution 47/90 of the United Nations. To celebrate the day, COPAC hosted a photo exhibition at United Nations headquarters in New York from 4-20 July, and an event at the UN during the High-Level Political Forum for Sustainable Development later in July 2016.

Cooperatives to face competition from new age banks

Reserve Bank of India Deputy Governor HR Khan said that as technology improves and new payments as well as small finance banks emerge, regional rural banks and cooperative banks will face strong competition. In August, 2015 the RBI had given 11 entities in principle approval to launch payments banks. The next month, it had issued 10 licences for small finance banks. Khan added that there was a need to ensure existing regional, rural and cooperative banks were able to better harness technology, including being on core banking solutions. On financial inclusion, he said there was constant scrutiny over inter-operability of micro-automated teller machines, and how much work each bank was doing to achieve that.

He said the RBI had studied the option of white-label business corre-spondents, but "somehow, we found that it wasn't going to work" because business correspondents could move from one bank to another and customers would not be able to identify a particular correspondent with a specific bank, which may complicate matter "The second best alternative was inter-operable micro ATMs. I know the IBA and NPCI (National Payments Corp of India) are working on it, but the progress is not great," Khan said. Also, issues related to cash limits for business correspondents remained and these had to be looked at, he added.

Nabard to extend 'eShakti' project to more districts

The National Bank for Agriculture and Rural Development (Nabard) said it will extend its 'eShakti' project for digital book-keeping of self-help groups to another 23 districts in the country. This move follows successful eShakti pilot projects in two districts of Ramgarh in Jharkhand and Dhule in Maharashtra, Nabard said in a statement.

E-Shakti has strengthened the quality of book keeping at the SHG level and brought the SHG movement under the digital platform. Further, in order to foster better understanding of mutual requirements of banks and SHGs, Nabard, in collaboration with banks, the National Rural Livelihood Mission and state governments, has kicked off a month-long village level credit linkage programme for SHGs in over 50,000 villages.

Nabard said the programme will enable further expansion of financial services to SHGs in resource poor regions based on field appraisals and experience-sharing among women members of SHGs. The programme is being being organised in 13 priority states Assam, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Maharashtra, Madhya Pradesh, Odisha, Rajasthan, Uttarakhand, Uttar Pradesh and West Bengal.

Nabard to expedite setting up of irrigation fund

In a bid to reduce farmers' distress, the National Bank for Agriculture and Rural Development (Nabard) will speed up operationalisation of the Long-Term Irrigation Fund, encourage diversification by farmers into off-farm activities, and focus on rural infrastructure creation. HK Bhanwala, Chairman, Nabard, said in FY17, his institution will raise about ₹55,000-60,000 crore, against the normal ₹45,000-50,000 crore mopped up by issuing bonds every year.

Out of 141 million hectares of net cultivated area in the country, only 46 % is covered under irrigation. Further for mitigating distress, the Minister said farmers need to diversify into off-farm activities. In this regard, dairy and food processing sectors offer good opportunity. Small and marginal farmers can take advantage of dairy income significantly. The Minister said there should be focus on rural infrastructure to revive demand. Besides irrigation, the state governments, through the rural infrastructure development fund mechanism, should also encourage activities in agriculture and related sector (such as soil conservation, godown, plantation and horticulture), social sector (drinking water, toilets, and public health institutions) and rural connectivity (rural roads and bridges). Bhanwala said his institution has suggested to the authorities that there should be focussed attention on credit delivery in Eastern, North-Eastern and Central India. "There should be a mechanism for creating demand for credit in these areas. For that we need to work with local institutions there, be it Panchayati Raj institutions or any other institution," he said.

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The Himachal Pradesh State Cooperative Agriculture & Rural Development Bank

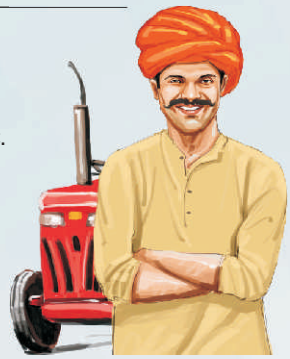
HPSCARDB

SDA Complex, Shimla 9

The Bank was established in 1961 extend long and medium term loans to farmers of the State for agriculture, activities allied to agriculture and Non Farm Sector. At present, the Bank is serving the State through its 60 branches.

THE BANK PROVIDES CHEAP & HASSLE FREE LOANS FOR

Farm Mechanization	:	Tractor, Thresher, Power Tillers and other equipments.
Horticulture / Plantation	:	Apple, Stone, Citrus and other plantations.
Animal Husbandry	:	Dairy Development, Cattle Sheds, Sheep & Goat rearing Poultry, Sericulture, Fisheries, Piggery, Rabbit Rearing etc.
Land Development	:	Land levelling & Land reclamation fencing etc.
Non Farm Sector	:	Small Scale Industries, Cottage Industries including Service Sector, Rural Housing, SRTOs, Rural Godowns.
Minor Irrigation	:	Construction water storage tank, Dugwell, Tube Well, Deep Tube Well, Installation of water lifting pumps, pipelines, lift Irrigation etc.



Bank accepts FD & RDs for 1 year to 5 years at the following rates

Period	General Public	Senior Citizen	Coop. Societies/Other charitable Institutions
1 to <2 yrs	7.75	8.25	8.25
2 to <3 yrs	7.75	8.25	8.25
3 to <5 Yrs	7.75	8.25	8.25

Note:- 0.10% higher rate of interest is admissible on the above rates on deposits of ₹5.00 lacs and above.

SALIENT FEATURES

1. The Bank raises installment on quarterly, half yearly and yearly basis.
2. The Bank charges simple rate of interest on loans.
3. The TDS is not deducted by the Bank at source on fixed deposits.
4. Loan against FDRs is available upto 75% of the amount.
5. No third party guarantee is required for raising loan.
6. The Bank provides 1% interest rebate for regular repay master.

The Bank has recently started daily deposit schemes for its members especially for the shop keepers & business men etc. to save from their daily earnings.

FOR FURTHER DETAILS PLEASE CONTACT US OR OUR NEAREST BRANCH

Ravinder Nath Sharma, HAS
Managing Director

Pt. Shiv Lal, Ex-MLA
Chairman

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Small finance banks can trade on priority sector loan certificates

Small finance banks, the most recent entrants into the banking space, could play a "significant" role in supplying priority sector loan certificates as originator. According to India Ratings, small finance banks, along with urban cooperative banks, could issue priority sector loan certificates of ₹40,000-50,000 crore, roughly 15% of the rating agency's projected priority sector loans shortfall of ₹3.1 lakh crore in fiscal 2019-20. "Depending on the liability profile of SFBs (small finance banks), PSLCs (priority sector loan certificates) could boost their returns on managed assets by 0.3-0.6% annually," India Ratings said in a report. According to the RBI's 2014-15 (July- June) annual report, credit to priority sectors by public, private, and foreign banks was 37.3%, 42.8%, and 35.9% of adjusted net bank credit, respectively, as of March 31, 2015. This is indicative of a shortfall in meeting the overall 40% target by state owned banks.

Raghuram Rajan for Bretton woods – like pact to deal with monetary policy issues

RBI Governor Raghuram Rajan said the world is facing "increasingly dangerous situation" and a new international agreement on the lines of Bretton Woods is needed to prevent central banks from adopting policies that could hurt other economies. "What I have in mind (is that we) will eventually require a new international agreement along the lines of Bretton Woods, and some reinterpretation of the mandates of internationally influential central banks," he said in a commentary posted on the website of Project Syndicate.

He said that central banks in developed countries find "all sorts of ways" to justify their policies, without acknowledging the unmentionable that the exchange rate may be the primary channel of transmission. "If so, what we need are monetary rules that prevent a central bank's domestic mandate from trumping a country's international responsibility," Rajan said.

Setting the rules will take time, he said, adding the international community has a choice. "We can pretend all is well with the global monetary non-system and hope that nothing goes spectacularly wrong. Or we can start building a system fit for the integrated world of the twenty-first century," Rajan added.

He said the world is facing an increasingly dangerous situation and both advanced and emerging economies need to grow in order to ease domestic political tensions. "If governments respond by enacting policies that divert growth from other countries, this 'beggar my neighbour' tactic will simply foster instability elsewhere. What we need, therefore, are new rules of the game," Rajan added.

The Bretton Woods conference led to the setting up of IMF, World Bank. He said to bring growth back to pre-2008 levels, the remedy may be to write down the debt to revive demand. "It is uncertain whether write-downs are politically feasible or the resulting demand sustainable. Moreover, structural factors like population ageing and low productivity growth which were previously masked by debt-fuelled demand may be hampering the recovery," Rajan said. Politicians, he said, know that structural reforms to increase competition, foster innovation, and drive institutional change are the way to tackle structural impediments to growth. "But they know that, while the pain from reform is immediate, gains are typically delayed and their beneficiaries uncertain," Rajan added.

All monetary policies have external "spillover" effects, Rajan said, adding circumstances today are, however, not normal and domestic demand may not respond to unconventional policy. "To use a traffic analogy, policies with few adverse spill overs should be rated "green"; those that should be used temporarily could be rated "orange"; and policies that should be avoided at all times would be "red". He said globally countries are far from having clear agreement on the colour of policies today, even with the best data, models, and empirical work. So we must begin a discussion. We could start with background papers from eminent academics and move on to multilateral institutions such as the IMF and the G-20.

Goa Agriculture department goes hi-tech

The Goa Agriculture Department has gone hi-tech with a farmer-savvy and service-oriented website of the department. Under the Digital India initiative, Union Minister of State for Agriculture, Mohanbhai Kundariya, launched the newly revamped website, under which farmers can apply for Krishi Card and also claim subsidies. In case of any grievances or difficulties in accessing the same through online mode, the farmer can call the toll free 'Kisan call' number: 1800 180 1551, and ask for any technical or scheme related information. This initiative has been made possible through massive reengineering of services by a team of agriculture officers, consultants and the software expertise of State-owned Goa Electronics Limited (GEL). The URL for the website is www.agri.goa.gov.in.

The Goa Directorate of Agriculture visualised the need to bring in technology for the betterment of all stakeholders and this thought led to the Krishi project, an

attempt to use technology for reviving agriculture and allied sector Krishi Card, a smart card, is the product of technology-led reforms in the Directorate. This card acts as a token to retrieve the complete history of farmers in Goa and has biometric authentication and verification of the farmer. This innovation has led to proper disbursement of funds, reconciliation of accounts, and bogus beneficiary identification, a spokesperson of the Goa government told. There are additional benefits like faster processing of applications, status update on the application, transparent process, creation of centralised repository of farmers, identification of beneficiaries across schemes, easy access to data and more.

New crop insurance scheme will cover 50% of farmers: FM

The Pradhan Mantri Fasal Bima Yojana (PMFBY) will bring about 50% of India's farmers in the crop insurance net and help reduce the prevailing distress in the agriculture sector, according to Finance Minister Arun Jaitley.

PMFBY is distinct from all earlier schemes in the sense that it not only takes the number of insured farmers to a higher level (from 20% earlier to the estimated 50% now), but it will also provide more insurance coverage to farmers, assuring them complete safety, Finance Minister Shri Arun Jaitley said at a seminar on the PMFBY organised by the Department of Financial Services at the Nabard. In this new scheme, farmers will pay less for more coverage and the compensation will be much more in the event of any crop failure or destruction. "Since the last two years, we have been facing deficit monsoons. While we hope for better monsoons this year, with this new scheme in place, we will be better equipped to safeguard the farming community," Shri Arun Jaitley said.

He observed that the revamped insurance schemes that have been launched have the potential to reduce distress in the farm sector and would be rolled out in a "mission mode" from April 1 to cover kharif crops. Though the country had crop insurance schemes in the past, they were partially successful as they were mainly linked to crop loans, Shri Jaitley pointed out. Uttarakhand became the first state to adopt PMFBY as insurance companies bid for premiums lower than the stipulated 2%.

Start DBT for fertilisers to cut leakages – Eco Survey

The government should implement a mechanism of crediting sops directly to farmers' bank account for fertilisers, said the Economic Survey. In addition, there should be decanalising of imports, which is currently allowed to just three firms, and setting up of urea manufacturing plants in low energy priced countries could help to bring down the subsidy bill. "Reform of the fertiliser sector would not only help farmers and improve efficiency in the sector. Decanalising imports will ensure timely availability of fertilisers, and universal Direct Benefit Transfer (DBT) to farmers based on biometric identification with physical offtake reduce diversion of urea," said the report. The Economic Survey said that given the sensitivity of urea, the DBT could be started for diammonium phosphate (DAP), and muriate of potash (MOP) to create confidence that DBT is workable in fertiliser.

It is estimated that about 51% of farmers buy urea at above MRP. The massive diversion of subsidised urea is consumed in chemical industry, explosives, automobile systems, laboratories, medical uses, flavour enhancing additive in cigarettes and other. Black market effects are aggravated by a further regulation canalisation, pointed out the survey, adding that three firms are allowed to import urea into India, and the canalisers are also instructed when to import, what quantities to import, and in which districts to sell their goods. The government budgeted ₹73,000 crore for fertiliser subsidies in 2015-16. Nearly 70% of this amount was allocated to urea, the most commonly used fertiliser, making it the largest subsidy after food. The subsidised urea suffers from three types of leakages 24% is spent on inefficient urea producers; 41% is diverted to non agricultural uses and abroad; and the remaining, 24% is consumed by larger presumably richer farmers. These leakages imply that only 35% about ₹17,500 crore of the total urea subsidy of ₹50,300 crore reaches the intended beneficiaries, small and marginal farmer.

Maharashtra Cabinet gives go-ahead to package for soya, cotton farmers

The Maharashtra government has decided to provide an additional package of ₹1,012 crore to farmers cultivating cotton and soyabean, the two crops that were badly hit by the drought and still remained uncovered under crop insurance schemes. At a meeting, Chief Minister Devendra Fadnavis gave sanction to three proposals mooted by the Ministry of Agri-culture, the Ministry of Water Conservation and the Ministry of Water Resources to scale up the measures undertaken to mitigate drought-related problems.

The government will grant ₹647 crore to cotton farmers in the Aurangabad and Nashik divisions, and ₹365 crore to soyabean farmers in the Amravati and Nashik divisions as compensation for the losses they suffered last year. The additional aid of ₹1,012 crore will be over and above the relief of ₹3,049 crore that the Union government has sanctioned for farmers in Maharashtra. Agriculture Minister Eknath Khadse said, "Those farmers who have taken crop

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THE MEGHALAYA CO-OPERATIVE APEX BANK LTD.

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FINANCIAL HIGHLIGHTS

		As on 31.03.2014	As on 31.03.2015
• Paid up Share Capital & Reserves	:	₹ 10629.25 lakhs	₹ 12948.76 lakhs
• Deposits	:	₹ 148241.39 lakhs	₹ 169084.53 lakhs
• Loans & Advance	:	₹ 71664.46 lakhs	₹ 93134.67 lakhs
• Investments	:	₹ 64234.87 lakhs	₹ 59872.44 lakhs
• Money at Call & Short Notice	:	₹ 30885.10 lakhs	₹ 33855.68 lakhs
• Net Profit	:	₹ 1934.41 lakhs	₹ 948.69 lakhs
• Working Capital	:	₹ 181399.10 lakhs	₹ 206913.46 lakhs

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- *Double Benefit Scheme*
- *Cash Certificates*
- *Fixed Deposit linked with RDs*
- *Housing Loan Linked Deposits*
- *Children Education Deposits*
- *Crop Loans for Agriculture through KCC / SHG / JLG Cooperatives*
- *Term Loans for Agril. & Allied Agriculture*
- *Aquaculture Development-One Thousand Ponds Scheme*
- *Loans for Housing / Housing Complex*
- *Loans for SRTO*
- *Consumer Durables Loans*
- *Loans to Technocrats & Professionals*
- *Loans to educated unemployed youths*
- *Cash Credit & Overdraft Facilities*
- *Loans for Children Education*
- *Loans for women through WDC Cell*
- *Integrated Village Development Scheme*
- *Term Loan for Tourism Development*
- *Personal loan to salary earners*
- *Bank Guarantee*
- *Safe Deposit Lockers & Other Ancillary Services*
- *Loans to Tribals under NSTFDC Schemes*
- *Loans to Physically Challenged under NHFDC*

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Chairman

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insurance will be anyway eligible for monetary compensation as per the insurance policy. However, even those farmers who don't have an insurance to compensate for crop losses will be eligible for 50% of the amount that is given under crop insurance." This aid will be given to farmers with a landholding of up to 20 hectares. However, farmers who have received compensation for crop loss under some schemes would not be considered again, Khadse added.

The cabinet also gave its approval to sanctioning money for 51,500 farm ponds in the first phase in drought-hit districts. The government assistance will be of ₹50,000 per farm pond. The farmers can apply online and get the sanction. The state has set aside ₹207 crore for 2016-17. The state cabinet also amended the Maharashtra Water Conservation Bill to enhance the share capital from ₹2,000 crore to ₹10,000 crore to facilitate completion of pending irrigation projects. The disbursement of funds will be based on projects requirement suitable to every region, considering its geographical conditions. Under the National Mission for Sustainable Agriculture, the government approved traditional agriculture development programmes. It will help in low production cost and high farm income to be taken up by group of farmers set up in villages.

Use of plastic in agriculture can boost output by ₹68k crore

A wider use of plastics in agriculture can reduce the losses in harvesting, and increase the value of output by ₹68,000 crore, according to a report. Plasticulture refers to use of plastics in agriculture in a scientific manner which not only improves the productivity but also optimises the input resources. Use of plastics in farm sector is an interesting proposition as it can help reduce pre and post-harvest losses, the Tata Strategic Management Group (TSMG) said in its report on role of plastics in agriculture. "It is estimated that the agriculture output can be increased by ₹68,000 crore by using proper plasticulture applications like drip irrigation, mulching etc," it said.

The report also suggests that the innovative plastic packaging and handling techniques can promote proper harvest management which will in turn contribute towards agriculture GDP. Proper application of micro-irrigation technologies can result in water saving by up to 50-70% and can help increase productivity by 30-100%, the report added. It also notes that the government should create an environment for promoting plasticulture by easy and efficient sanction of subsidies.

Paddy procurement goes onlinein Telangana

The paddy procurement in the State, which follows a decentralised procurement programme, had commenced in April 2016 and will continue up to September under the Rabi season. As part of the online process, an android devise will be used to buy paddy from a farmer which captures his details such as name, Aadhar card and Jan Dhan account number, among other. "When transaction completes, an alert will be sent through proper platforms to the State Bank of India which process the payment instantly and sends money to the beneficiary account in 48 hours," the official said.

In the system being followed till now, everything was manual and papers were used to process the payment resulting in delays in payment to farmers besides allowing the middlemen to go for corrupt practices. "Our idea is to take recourse to technology which helps farmers' welfare and enhance administrative efficiency," Rajat Kumar, Commissioner Civil Supplies and exofficio Principal Secretary to Government of Telangana said. A pilot on online procurement was implemented in the Kharif procurement which ended in March. Out of a total of 3.5 lakh transactions we had in Kharif season a little less than 10% were online. But now, we have made it mandatory everywhere," Rajat Kumar said. There are about 2,000 paddy procurement centres in the 10 districts of Telangana. While half of them are managed by the women groups remaining were operated by primary agricultural societies and others

In the Kharif season, there was record procurement of 15.2 lakh tonnes of paddy despite prevailing drought conditions in the State covering 2.8 crore beneficiaries. The requirement for public distribution and others is about 22 lakh tonnes per year. The procurement target for Rabi has been set at 9 lakh tonnes. "We have already procured 3.2 lakh tonnes and are quite comfortable," Rajat Kumar added.

Rural credit raised by self-help groups up 40% at ₹30,000 crore in FY16

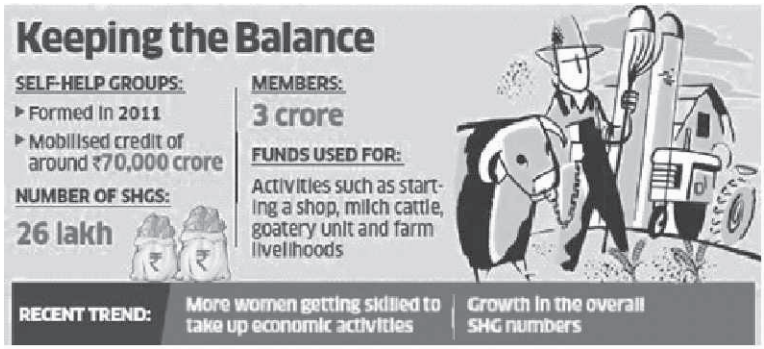
Rural credit raised by self-help groups in India through their bank linkage programme grew more than 40% in 2015-16 to about ₹30,000 crore, providing a glimmer of hope for the rural economy grappling with an acute drought, poor farm output and a tough agriculture market.

The self-help groups or SHGs have mobilised credit of about ₹70,000 crore since they were formed in 2011 to fund creation of social capital in villages that could lift non-farm jobs. "The funds have been used for activities such as starting a shop, milch cattle, goatery unit, farm livelihoods...With the skill development activities growing in villages the borrowings are also gathering pace," a senior rural development ministry official told.

The credit offtake during the fiscal, bucked the trend of registering highest growth in the southern states. States including Bihar, Jharkhand, Uttar Pradesh saw a near

doubling of credit demand, with more women getting skilled to take up economic activities and a growth in the overall SHG number.

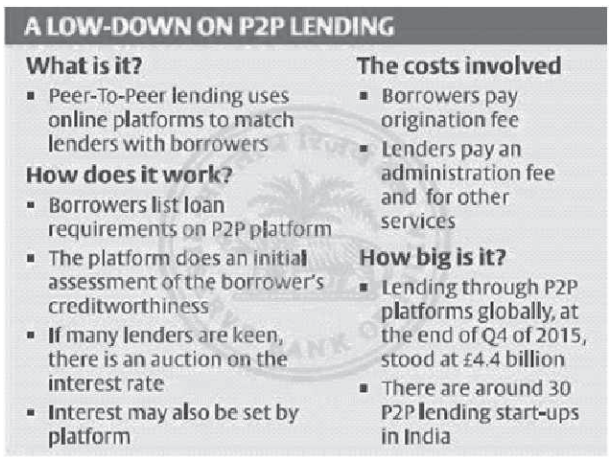
"It is a positive trend and broadly there is evidence that smaller segments of the economy are doing comparatively better. We are moving in the right direction but the pace of growth needs to be high consistently," said DK Joshi, chief economist, Crisil. In 2014-15 the total loan amount raised by the SHGs stood at ₹21,000 crore. The government is expecting the figure to grow to ₹40,000 crore in the current financial year as skill development activities gain more traction to facilitate economic activity on the ground. At present, there are 26 lakh SHGs in the country comprising 3 crore member. The loans are mobilised by Bank Sakhis or rural women members of the SHGs who help in connecting the borrowers with the banks, ensuring mortgages and arranging loans. In the next 10 years the government wants the number of SHGs to grow to 70-75 lakh.



In order to improve the bank linkages for rural India the government has provided interest subvention to SHGs to provide bank loans at 7% interest and an additional interest subvention of 3% on prompt repayment in 250 backward districts. The government is making several interventions to build confidence among banks to lend to this section of the society. The rural development ministry is providing a revolving fund to the SHGs and facilitating repayment of bank loans through community based recovery mechanism. "We are trying to promote diversified livelihood opportunities to leverage opportunities from emerging markets micro enterprises, self employment, skill-based employment, in convergence with the ongoing programmes," the official said.

Reserve Bank plans to classify peer-to peer lenders as NBFCs

The Reserve Bank of India has proposed to classify entities engaging in peer-to-peer (P2P) lending as non-banking finance companies in a bid to bring them under its regulatory purview. There are about 30 companies in India which currently operate p2p lending platforms but they are doing so without any regulatory oversight. In a consultation paper issued the RBI said, "If the sector is left unregulated altogether, there is the risk of unhealthy practices being adopted by one or more players, which may have deleterious consequences," the central bank said in a consultation paper. Only those companies with a minimum capital of ₹2 crore will be eligible to operate. No entity other than a company can undertake this activity: if the P2P platforms are run by individuals, proprietorship, partnership or Limited Liability Partnerships, they will not fall under the RBI's purview. The RBI paper says P2P companies can be registered only as an intermediary, which means the role of the platform would be limited to bringing the borrower and lender together without the lending and borrowing getting reflected on its balance sheet. The platforms will be prohibited from giving any assured return either directly or indirectly. The platforms will be allowed to opine on the suitability of a lender and credit worthiness of a borrower. Funds will have to necessarily move directly from the lender's bank account to the borrower's bank account to obviate the threat of money laundering. The guidelines would also prohibit the platforms being used for any cross-border transaction in view of FEMA provisions relating to transactions between residents and non-residents," RBI said. The proposed regulation could ask for reasonable proportion of board members having financial sector background. The guidelines may also require the P2P lender to have a brick and mortar place of business in India. The management and operational personnel of the platform would need to be stationed within the country.



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THE KARNATAKA STATE CO-OPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.

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No. of loan cases santioned as on 30-06-2016	17.93 Lakhs
Share of Small & Marginal Farmers in Bank's financial assistance.	54.43%

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1. 91 days - 7.00%
2. 181 days-8.00%
3. One year and upto two years-9.50%
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K. Shadakshari, MLA
President

Mohammed Zafarulla Khan, K.C.S.
Secretary

H. Balashekar, KCS
Managing Director

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Maharashtra govt to pay interest on crop loans

The Maharashtra government has decided to pay ₹1,272-crore interest on the crop loan taken by farmers in drought hit areas during 2015-16 kharif season. The state Cabinet also decided to restructure crop loans amounting to ₹10,942 crore to make farmers eligible for fresh loan. The decision will bring relief to more than 16 lakh farmers in the State. "The government will bear the burden of ₹1,272 crore (interest) and this decision will benefit 11.5 lakh farmers who will be eligible for fresh crop loan for the next sowing season," Cooperation Minister told. Similarly, crop loan totalling ₹5,000 crore for 2015 kharif season will be restructured.

The decision covers 15,747 villages, which recorded crop yield of less than 50% in 2015 kharif season, besides 11,862 villages under Amravati and Nagpur divisions. The Minister said the government would pay full interest rate of 12% for first year and will bear 6% of total 12% interest rate on behalf of farmers for four years starting from 2012. The Cabinet also decided to give one year extension for repayment of restructured loan of ₹3,503 crore for 2014-15 and that government will bear the interest liability of ₹36 crore for the same.

The story of dwindling loan recovery cases

The loans recovered through judicial processes are dwindling year after year it's just less than 20% of the amount involved. The number of cases referred to courts increased tenfold between 2012 and 2015. The number of cases settled through any of the three available legal options of recovery of bad loans to banks has been on the decline. The amount involved in legal process of recovery is nowhere near the amount of NPAs declared for the year.

(amount in ₹ billion)

NPAs of SCBs recovered through various channels

Year	Sr No.	Recovery Channel	Lok Adalats	DRTs	Sarfaesi Act	Total
2012-13	1	No. of cases referred	8,40,691	13,408	1,90,537	10,44,636
	2	Amount involved	66	310	681	1,057
	3	Amount recovered*	4	44	185	233
	4	3 as per cent of 2	6.1	14.1	27.1	21.9
2013-14	1	No. of cases referred	16,36,957	28,258	1,94,707#	18,59,922
	2	Amount involved	232	553	953	1,738
	3	Amount recovered*	14	53	253	320
	4	3 as per cent of 2	6.2	9.5	26.6	18.4
2014-15	1	No. of cases referred	91,31,199	1,71,113	12,41,086	1,05,43,398
	2	Amount involved	887	3,789	4,705	9,381
	3	Amount recovered*	43	531	1,152	1,726
	4	3 as per cent of 2	4.8	14	24.5	18.4

*Refers to amount recovered during the given year, which could be with reference to cases referred during the given year as well as during the earlier years; #Number of notices issued; DRTs- Debt Recovery Tribunals

Source: Table 19: BSR Statistics (2014-15), RBI

Lok Adalats look like small causes courts where lakhs of cases involve small amounts and the percentage of cases settled was less than 5% in 2014-15. If we look at the DRTs, a highly expensive and time consuming process, only 14% of the amount involved is settled. The much touted recovery mechanism through the Sarfaesi Act has not even touched 25% during 2014-15. Its decline year after year is more alarming. Most cases referred under this Act are collateralised MSME loans and not big corporate advances.

Some public sector banks have separated the recovery function from credit origination and monitoring. The officials in such outfits whose job is only to recover the bad loans, have already developed a negative mind set and would be averse to lending for development activities. The questions that arise are: 1. Are the processes wrong? 2. Are the powers not being exercised properly in accordance with the law? 3. Are the properties overvalued at the time of loan origination? 4. Do all these cumulatively contribute to the failure under this Act? A thorough study is required to go into these issues to fix them properly and make the necessary amendments to the laws and rules in the public interest. Banking reforms must address these core areas.

A note - How to make the National Agricultural Market work!

The purpose behind NAM is the creation of a common national market for agricultural commodities through an e-platform network. At present, agricultural produce market committees (APMCs) regulate market yards, limiting the scope of trading in agricultural commodities at the first point of sale where farmers bring in their produce following the harvest at a mandi located nearby. Mandis located across a state are not integrated and there are substantial transaction costs for moving the produce from one mandi to another within a state. Separate licences for each mandi are required for trading in different market areas within a state. This has led to a highly fragmented market and there is a high transaction cost for buying and selling agricultural commodities. Besides, it creates barriers for free movement of agricultural goods across the country.

NAM is an online platform with a physical market or mandi at the backend and rather an instrument to create a national network of physical mandis which can be accessed online. According to the official document, NAM seeks to leverage the physical infrastructure of mandis through an online trading portal, enabling buyers situated even outside the state to participate in trading at the local level.

The electronic platform under NAM is being created through a special software developed by the agriculture ministry and the same is provided to each mandi—which agrees to come on board—free of cost. There are some basic criteria for a state to integrate into NAM. For instance, the concerned state must amend its APMC Acts

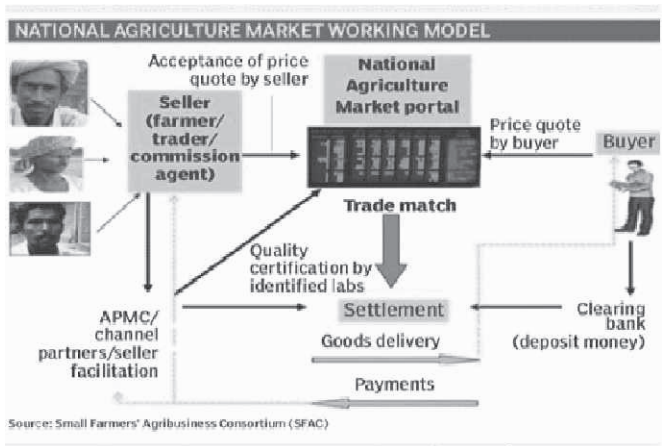
by bringing in provision for electronic trading. Besides, states must provide a single licence to anyone willing to trade through NAM in a local mandi. The agriculture ministry is aiming at integrating 200 markets in NAM by September 2016; 200 more regulated markets would be integrated with NAM by March 2017 and the rest 185 markets by March 2018.

Agriculture ministry officials say that NAM increases the choice for a farmer after he brings in his produce to a mandi. Local traders can bid for the produce, as also traders on the electronic platform sitting in other states. The farmer may choose to accept either the local offer or online. In either case, the transaction will be on the books of the local mandi and they will continue to earn the transaction fee. With more mandis coming onto the NAM platform, the volume of business will significantly increase, as there will be greater competition for specific produce, resulting in higher transaction fees for a mandi. The gradual integration of all major mandis into NAM e-platform would ensure common procedures for issue of licences, levy of fee and movement of produce. Over 5-7 years, the ministry expects significant benefits through higher returns to farmers, lower transaction costs for buyers, and stable prices and availability to consumers "NAM will also facilitate the emergence of integrated value chains in major agricultural commodities across the country and help promote scientific storage and movement of agri goods," the official document on NAM notes.

According to agriculture ministry officials, NAM which is currently being implemented through the Small Farmers' Agribusiness Consortium (a body under the agriculture ministry) would not lead to reduction in various levies imposed by states besides mandi taxes. However, because of single registration given to traders in a state, this would lead to payment of mandi taxes only at one place even if the concerned trader is buying commodities through the NAM platform in multiple markets across a state. The government is aiming at reduction in taxes and levies imposed by states in the next phase of reforms. The concerned APMC which has agreed to be part of NAM will ensure quality standards of agricultural goods sold through its platform. NAM envisages harmonisation of quality standards of agricultural produce and provisions of assaying (quality testing) infrastructure in every market to enable informed bidding by buyers.

The infrastructure available for NAM at local markets varies from state to state. The NAM platform is being supported by agriculture ministry, which is bearing maintenance costs for each mandi. The integration cost for local mandis and customisation of software, training, etc, will also be paid for by the ministry as a one time grant of around ₹30 lakh at the time of accepting the mandi in the national network. However, the running costs of the software at the local level, staff costs for quality check, etc, will be met with the transaction fee to be generated through the sale of produce. The key reason behind this support is to avoid any upfront investment by the mandi when it integrates into NAM, and enable it to support the running cost through additional generation of revenue.

A number of states which have amended their APMC Acts are yet to make changes for allowing the sale of fruits and vegetables through e-trading platform. Farmers face price volatility in selling fruits and vegetables as these are perishable, while in case of other commodities such as grains and pulses there are several traders involved in procurement. Experts say that as long as fruits and vegetables are kept outside the purview of NAM, the volatility in prices would continue, thus depriving farmers from getting better prices. Barriers hampering interstate transfer of agricultural commodities also have to be removed.



Banking on reforms can help promote efficient lending practices

The Reserve Bank issued guidelines for banks on purchase and sale of priority sector lending certificates in its bid to help them meet their Priority Sector Lending (PSL) requirements. Currently, several small and even large banks find it tough to meet their target and as a last ditch effort deploy money into Rural Infrastructure Development Fund (RIDF) or disburse loans to some exporter towards the end of the year.

With the new guidelines in place, industry experts say that this flexibility being provided by the central bank will not only allow banks to efficiently utilise their resources in their strong business domains, but will also go on to help develop a secondary market for trading and provide liquidity for such paper. Currently, while all domestic and foreign banks with at least 20 branches are required to lend a minimum of 40% of the Adjusted Net Bank Credit or credit equivalent amount of off-balance sheet exposure (whichever is higher) to the priority sector (agriculture, micro credits, education and social housing, and promote financial inclusion, particularly in rural areas), they are also

required to meet sub-targets such as 18% for agriculture, 7.5% for micro enterprises and 10% for weaker sections. Though the target and the subtargets have been retained, the RBI has now permitted banks to buy PSLCs issued from banks that have over achieved their targets and thereby meet the regulatory requirement.

This will work on the lines of carbon credit trading where a renewable energy company or plant accumulates carbon credit and then sells it to another company, thereby, giving them the right to emit one tonne of carbon dioxide. According to the RBI, PSLCs will allow market mechanism to drive priority sector lending by leveraging the comparative strength of different banks. It said that while a bank with expertise in lending to small farmers can over perform and get benefit by selling its over performance through PSLCs, another bank better at lending to small industry can buy these certificates while selling PSLCs for micro enterprise loans.

As per an illustration put out by the RBI: Bank A may sell PSLCs with a nominal value of ₹100 crore to Bank on July 15, 2016. Bank B will reckon ₹100 crore towards its priority sector achievement as on the reporting dates of September 30, 2016; December 31, 2016 & March 31, 2017. Bank A will subtract the same from its achievement figures for the respective reporting dates. The PSLC will expire by March 31, 2017. While banks can buy PSLC for overall priority sector target by paying a fee, they can also buy it for achieving sub-targets like agriculture, micro-enterprises and weaker sections. Experts say that it is not easy for all banks to meet the target and it was desirable that some flexibility was provided to banks. "It is an interesting innovation and is in line with other changes that the RBI has brought for priority sector lending. Directed credit on a large percentage of credit book is not desirable and some degree of flexibility was required. Also, many foreign and small banks don't find it viable to do rural banking or lending to SMEs, so this will help them meet their targets without deploying much of their resources for the same," said Abheek Barua, chief economist at HDFC Bank.

RBI Deputy Governor SS Mundra said that while target for banks' lending to micro enterprises has been progressively increased to 7% by March 2016 and 7.5% by March 2017, medium enterprises have been brought within the ambit of priority sector, whereby all loans to medium enterprises in the manufacturing sector and those up to ₹10 crore in the service sector now qualify for priority sector classification. There are others who feel that since 40% is a big number and the ticket size of such loans is small, banks are required to divert a large part of their resources in meeting the PSL target and therefore it is not feasible for many banks. A report released by the Moody's said that the PSLC guideline is credit positive for banks that do not have expertise in making priority sector loans. "It allows them to focus on their strengths and purchase credits from banks with expertise in making such loans, instead of diverting their own resources toward meeting priority sector lending targets," said Moody's. The report also pointed out that there is no transfer of assets associated with the sale of the certificates and thus the underlying credit risk and the funding requirements continue to be retained by the originating entity. "This should make transactions in priority sector lending certificates very straightforward because there would be little due diligence required. This contrasts with the current practice, in which banks must buy out priority sector loan assets from other entities in order for them to be counted as part of their priority sector lending obligations."

New Crop Insurance Scheme – New dawn for farmers?

Crop insurance schemes have not been a hit with Indian farmers in the past. High premia, limited coverage, complicated ways of assessing losses and delayed payment of compensation have kept farmers away from them. Given the high risk of crop damage in India, with significant loss in food grain production in 18 of the last 54 years (which is once in every three years as per data from the Commission for Agriculture Costs and Prices), it has become vital to address the flaws in the existing crop insurance schemes — the National Agriculture Insurance scheme (NAIS) and MNAIS (modified NAIS). Out of the total farm land of 195.26 million hectares in the country, only 42.82 million hectares or 22% is insured.

The main setback with the existing crop insurance schemes is that the sum insured (SI) is too small to make any difference to the farmer. In 2013-14, for instance, while the average per hectare output was worth ₹41,442, the sum insured (SI) under various crop insurance schemes was just ₹18,464 (kharif - ₹19,141 and rabi - ₹16,927). While the insured sum here looks sufficient to cover the cost of production, it is way less than a farmer's income in a normal season. In MNAIS, the Centre capped the maximum premium that can be paid for a crop. So, in crops where actuarial rates were higher, insurers reduced the sum insured proportionately, says Head - Agri Business, Bajaj Allianz General Insurance, which covers about 38 lakh

farmers under its crop insurance scheme in 2015-16. For instance, suppose in Uttar Pradesh's Lalitpur district, the actuarial premium (based on the assessment of risk by the insurer) was fixed at 22% for paddy, but 11% was the cap on premium fixed by the Centre. So, even if the farmer wanted SI of ₹30,000/hectare, he would get cover for only ₹15,000 (₹30,000*11% = ₹3,300) is the maximum amount that can be collected as premium, but the insurer can go only with his actuarial rate, so he will reduce the SI to ₹15,000 (₹15,000*22%=₹3,300). This, however, will change with the new scheme. Under the Pradhan Mantri Fasal Bima Yojana, there is no cap on premium. So the farmer will be covered for the full ₹30,000 and the premium will be paid to the insurer — ₹600 by the farmer and ₹6,000 by the State and the Centre (earlier, the farmer paid ₹900 and the Centre ₹2,400).

In the new scheme, the sum insured is the average of the past seven years 'threshold' yield for the specific crop (excluding calamity years) in the village it is grown, multiplied by the minimum support price (MSP). In the existing crop insurance schemes, farmers cough up substantial costs for insurance. In the Pradhan Mantri Fasal Bima Yojana, however, the premium outgo will drop substantially. Farmers will have to pay just 2% of the SI for all kharif crops, 1.5% for rabi and 5% for commercial or horticulture crops.

Unlike in the earlier schemes, in the new one, there is greater risk coverage. For instance, there was no cover for risks specific to a region (landslide, inundation) in NAIS. In MNAIS, risk of loss to cyclonic rains was given only to coastal regions. Under the Pradhan Mantri Fasal Bima Yojana all risks are covered. Post harvest losses due to cyclonic rain or thunder are covered for farmers across India. Also, unlike in NAIS, the new scheme covers loss due to adverse weather conditions preventing sowing of crops after expenditure has been incurred.

A delayed settlement process for crop loss defeats the very purpose of insurance. The delay in settling claims for existing schemes was sometimes as long as six months to a year. Estimation of yield through manual crop cutting experiments and the time lag in sharing the yield data with insurance companies results in delay in settlement. To expedite the process, the Centre has directed the use of drones and other satellite based technology when assessing crop damage and estimating acreage. It has also mandated authorities to use smart phones to capture images of crops to improve the quality of yield data. As the images come with GPS time stamping, the process will be more reliable.

From the number of days within which the State has to give the certified yield data to the insurance company, to the maximum number of days within which the Centre/State has to pay their premium subsidy to the insurer, and the number of days for the insurance company to settle claims — everything has been put down on paper.

Nabard to focus more on refinancing NBFCs, MFIs

National Bank for Agriculture and Rural Development (NABARD) plans to enhance its focus more refinancing non-banking financial companies and microfinance institutions, a process which was started last year. Harsh Kumar Bhanwala, Chairman, Nabard, said though refinancing NBFCs and MFIs are small part of the overall assistance provided to reach out to small and marginal farmers it is growing steadily as more companies are now focussing on rural regions. "The long-term refinance given by Nabard is about ₹85,000 crore, of which, NBFCs account for ₹2,500 crore. This portion of business may be small given our balance sheet size of ₹3.10 lakh crore, but it is growing fast," he said.

As a word of caution, he said Nabard is lending only to AAA and AA rated companies, most of which would turn into small banks. Rural-focussed finance companies should use latest technology to speed up the process for extending loan, minimise risk and reach funds to marginal farmers when they need them the most, said Bhanwala. NBFCs should also reduce risk by reaching out to different regions and establishing strong internal checks and balances, he added.

Step up investment in irrigation – Eco Survey

Stating that Indian agriculture has become a victim of its own success, the Economic Survey for 2015-16 called for measures for adoption of high yielding Genetically Modified (GM) crops, stepping up pulses and oil seeds output, increasing investment in irrigation and expanding the coverage of Minimum Support Price (MSP) mechanism among farmer. The economic survey also stated that a host of studies have demonstrated significant net benefit of GM crops and countries such as Brazil and China have adopted to the new technologies. "There are good reasons for some of the public apprehensions on GMOs. Therefore, the regulatory process in India needs to evolve so as to address the concerns in a way that does not come in the way of adopting high yielding technologies and rapidly moving towards the world's agro technological frontier," the survey noted.

Calling for bringing in efficiency in water usage, the survey has suggested investment in adoption of technologies such as sprinkler and drip irrigation and rainwater harvesting. It noted that since independence India has invested numerous resources on irrigation – canal and tube wells, which had promoted inefficiency in water usage. "In order to facilitate this shift, the new irrigation technologies need to be accorded infrastructure

lending status (currently accorded to canal irrigation) and both the centre and states need to increase public spending for micro irrigation," the survey has noted. The survey also noted that Indian agriculture has become cereal-centric and as a result, regionally biased and input-intensive, consuming generous amounts of land, water, and fertiliser. Encouraging other crops, notably pulses will be necessary to match supply with evolving dietary patterns that favor greater proteins consumption.

Criticising the current procurement mechanism policy for disproportionately focussing on crops such as rice and wheat instead of pulses and oilseeds, the survey has said while in principle Minimum Support Price (MSP) exists for most farmers for most crops, its realistic impact is quite limited for most farmers in the country. "This has resulted in buffer stocks of paddy and wheat to be above the required norms, but also caused frequent price spikes in pulses and edible oils, despite substantial imports of these commodities," the survey stated.

RBI looking into allegations of fraud by banks in priority sector lending

The Reserve Bank of India is looking into alleged irregularities by certain private and public banks while lending for agricultural activities under priority sector lending. The RBI move follows a complaint by Kishore Tiwari, Chairman of the erstwhile Vasantrao Naik Sheti Swavalamban Mission (VNSSM), an organisation affiliated to the Maharashtra government. He alleged that credit earmarked for farmers is being diverted by banks and microfinance companies. "It is a conspiracy of siphoning off money in the name of farmer Most of the nationalised banks, which managed to get credit through Nabard, are involved in this scam," he added.

Banks are supposed to earmark 18% of their net loans disbursed in a year for the agricultural sector. Mr. Tiwari, in a letter to Prime Minister Modi, said the modus operandi adopted by banks is to claim that they have achieved lending targets by forming fictitious Joint Liabilities Groups (JLGs), created in collusion with some agro-processing industries.They prepare fraudulent and forged documents in the name of farmer. The credit disbursement is then pocketed directly by these companies. Their gains from this exercise could run into hundreds of crores, he wrote. "Most of the accounts have been classified as NPAs and recovery proceedings are said to have started in Debt Recovery Tribunals against such non-existing farmer members of JLGs. In this way, most of the targets and sub-targets are shown to have been achieved. But farmers are being blamed for fraud; (but they) only exist on paper. It is a very serious fraud in the name of agro credit," the letter said.

Consolidation of banks will offer long-term benefits: Fitch Ratings

A consolidated Indian banking structure would be a positive development in the long term for the Indian banking system, according to Fitch Ratings. This observation comes in the context of Finance Minister Arun Jaitley stating that (public sector) bankers themselves have supported the proposal of consolidation of banks in order to have strong banks rather than a numerically large number of banks. The credit rating agency observed that large banks in a consolidated banking system enjoy scale benefits leading to better diversification of risks and stronger overall profitability contributing to higher credit ratings.

Fitch Ratings, in a statement, said the long-term benefits far outweigh the short-term challenges that tend to be associated with a consolidation process that is forced on the sector. However, it cautioned that when consolidation is not executed on a voluntary basis, it then tends to be forced on the sector when it least wants to entertain it.

Given that about $140 billion is needed for buffering the balance sheet to meet the Basel III capital requirements, banks will have to find more capital to fund loan growth. It said the Indian financial system would benefit from more banks of the size of State Bank of India.

The system is quite fragmented at present, with around 50 domestic banks with public sector banks (PSBs) accounting for around a 70% asset share. SBI, ac-cording to Fitch, has performed much better than its PSB peers through this credit cycle, thanks in part to greater scale benefits which enhance pricing power from a funding perspective and diversification. SBI has stronger capital ratios and is better positioned to absorb the asset-quality issues that have plagued the sector.

The banking system would need sufficient lending capacity to fund large corporates as India Iinc expands and extends its global reach. "Furthermore, private credit to GDP in India should rise from current levels of just over 50% as the middle class grows and becomes more affluent. This would imply higher credit growth rates relative to GDP over an extended period. This evolution is not without risks, and so necessitates a system that is competitive, profitable and well-capitalised," said Fitch.

A note - The 'marginal' effects of monetary policy

Marginal cost is the cost of increasing production by one unit. It differs from average cost, which is the cost of producing one unit. For instance, if you produce 10 balls for ₹1,000 the average cost to produce one ball is ₹100. However, out of the ten balls, if you produced 9 balls for ₹950 then the marginal cost for producing the tenth ball would be ₹50. MCLR employs this concept to take into consideration only incremental or marginal cost of the funds raised by the banks.

The Reserve Bank of India released the final guideline of MCLR in December 2015 to modify the calculation of the base rate (or the rate below which banks cannot lend). This was done because earlier banks were employing different methods to calculate base rates leading to inefficient transmission of monetary policy jargon for RBI rate cuts not leading to reduction in interest rate on loans.

No, there are three other components: Negative carry on account of cash reserve ratio (CRR); operating costs for providing loans and tenor premium. Unlike statutory liquidity ratio (SLR), CRR the portion of total deposit's that banks have to maintain in cash or as deposits with RBI does not yield returns, therefore banks bear a loss in maintaining it. Operating costs for providing loans includes the cost of raising funds from sources such as equity and debt borrowing. Finally, tenor premium accounts for early repayment and interest rate risks. If a 20-year loan is repaid in 15 years the bank loses interest income of five year. Among the four, cost of funds is the primary component of MCLR.

The primary components of cost of funds are deposits and borrowings. In case of India's biggest lender State Bank of India (SBI), deposits accounted for 75% of total funds. 10% was made up by borrowing and around 7% by reserves and surpluses (CRR comes under this head). For SBI 35% of the deposits come from savings and current accounts, with the rest being make up of fixed and other those deposits. Also, in case of borrowing only 25% of the borrowing was done in rupee, which is the component taken into account for calculating the MCLR.

Under MCLR norms, funds with different maturities have been given different weights such that funds raised recently by the banks get more importance, its effectiveness was highlighted by RBI governor Raghuram Rajan when he said 25-50 basis points cuts in loan rates have already taken place by virtue of the new calculation. Also, since RBI has cut its repo rate by 150 basis points since January 2015, banks would have borrowed at lower interest rates. This will reflect when banks calculate MCLR next month. MCLR is primarily aimed at helping your EMIs move in conjunction to RBI's key rates and not bringing them down. A future hike in repo rates or small savings returns can cause your interest payments to go up.

Agriculture can't remain the same, says FAO official

With rapid soil degradation, fast depletion of groundwater, excessive use of pesticides-fertilizers and extreme weather events all collectively putting stress on farming and forestry, it is time to recognise the fact that agriculture cannot remain the same, either in India or across the globe, pointed out by Kundhavi Kadiresan, Assistant Director General of the U.N.'s Food and Agriculture Organization (FAO) and Regional Representative for Asia and the Pacific.

Photo shows a field with drip irrigation system in Tamil Nadu.

At a critical juncture when population is increasing and there are more mouths to feed, it is important that better practices are adopted with an agro-ecological approach, Ms. Kadiresan, said. "I think researchers are doing a good job in developing new technologies, but transferring these technologies to farmers should be our focus. Scientists do research from their perspective, but it is the farmers' perspective that should be kept in mind while researching on agri-forestry issues. Farmers themselves are scientists…they know how to take care of soil, natural water resources — the need is to work with them in their fields to strengthen integration between research, extension and farmers. Farmer-centric approach is key to the success of climate smart agriculture and FAO is focused towards its realisation."

Elaborating on elimination of hunger and malnutrition in India, Ms. Kadiresan said the country has continued to develop the expertise, knowledge and capacity to win this war. "But, having said this, I must reiterate that we still have a Herculean task before us — even now, there are over 800 million hungry people across the globe and nearly one in four of them live in India. With these startling numbers we cannot say that India has achieved food sufficiency. At FAO, we aim for zero hunger and it will certainly be my endeavour during this tenure to put an end to malnutrition and hunger and enhance food security," she said. Ms. Kadiresan said it is not just producing more food but access to food and its best utilisation that needs attention. "Just because you have more food doesn't necessarily mean everybody has access to it. More than 30% people in this country are poor and close to 200 million are in a state of hunger."

A balanced diet is important and FAO will actively spread awareness in India, especially among women and children regarding adoption of diversity in diet to reduce malnutrition, she said. Ms. Kadiresan also stressed on speeding up efforts to increase yield of many crops in India as it was very low on the global level. "The government should encourage crop diversification. Policies should be drafted keeping in mind long-term solutions for ensuring food security. It's important to realise that we have limited natural resources and hence, policies should be framed to ensure that everyone resorts to rational use of these resources. Only then will we be able to achieve food security with sustainable development in India and around the world."

A third of India's soil degraded: experts

Land degradation is posing a major threat to India's food and environmental security, resulting from the loss in the biological or productive capacity of soil. These views were expressed by agriculture and soil experts at a seminar organised by the Food and Agriculture Organisation, a United Nations agency, to mark International Soils Day.

FAO representative in India Shyam Khadka said: "Land degradation, mainly caused by natural processes like wind or rain, is often exacerbated by human activity like deforestation and urbanisation. It is closely intertwined with climate change and biodiversity loss."According to estimates of the Indian Council of Agricultural Research (2010), of the total geographical area of 328.73 mha, about 120.40 mha is affected by various levels of land degradation. Experts said that as water and wind erosions were widespread across India, some 5.3 billion tonnes of soil got eroded every year. Of this, 29% was permanently lost to the sea, 10% was deposited in reservoirs, reducing their storage capacity, and the rest 61% got shifted from one place to another. Excessive use of chemical fertilisers, especially in the north-western parts of the country, was

one of the major reasons for soil degradation.

In addition, imbalanced nutrient application, injudicious use of pesticides, intensive cropping system, decline in soil biodiversity and depletion of organic matter in soil were some areas of concern requiring urgent attention, experts said. R.B. Singh, Chancellor of Central Agriculture University, cautioned that by 2050, the world would have 9.6 billion people and most of the "bulge" would come from India, China and South Asia. "Can we feed such a large population that will need 60% more food? The answer lies in the quality of our soils," he said. FAO assistant director-general Kundhavi Kadiresan called for greater awareness of soils as it had a direct bearing on food security. "We need an integrated management approach that links policies and programmes to farmers," she said. Agricultural practices should be managed in such a way that they preserved the soil and not degrade it, she said.

A model to conserve indigenous paddy varieties

A model evolved for applying traditional wisdom in farming has also helped in conserving indigenous paddy varieties that are under threat of extinction. The Biodiversity Rainfed Farming System, promoted by Rural Organisation for Social Education (ROSE), a not-for-profit voluntary organisation, in four blocks of Pudukottai district of Tamil Nadu, has revived the cultivation of 18 indigenous paddy varieties that are disease and drought-resistant. Farmers also believe that they contain medicinal properties.

The system, successfully experimented with funding from National Bank for Agriculture and Rural Development, factors in population explosion, which demands higher productivity, and climate change, which necessitates optimal use of available water. "It focused on climate resilience, conservation of traditional paddy varieties, revitalisation of rainfed farming, sustained productivity and food and nutrition security," says A. Adhappan of ROSE, who is also the Managing Director of Pudukottai Organic Farmers and Producers' Company that is involved in production, value addition and marketing of indigenous paddy varieties and minor millets.

The results of the NABARD-funded pilot project, 'Conserving traditional paddy varieties having medicinal values', in 30 acres among 15 marginal farmers have encouraged many small and medium farmers to raise them in about 500 acres in Annavasal, Arimalam, Kunnandarkoil and Pudukottai blocks. The 18 varieties raised using System of Rice Intensification techniques include Mappillai Samba, Garudan Samba, Poongar, Karunguruvai, Chandikar, Thooyamalli, Thanga Samba, Manjal Ponni, Milagi and Sornamusiri. The biodiversity system brought down input costs - two to four kg of seeds per acre against 30 kg needed for fertiliser based, water intensive farming; 2.5 lakh litres of water (7.5 lakh litres); no fertiliser (₹3,740 of fertiliser per acre) and ₹500 as average cost of pest management against ₹1,200. The yield was 34 quintals per acre, against 21 quintals in fertiliser-based farming. The fodder yield was also high at 5.4 tonnes, against 1.5 tonnes.

The total expenditure per acre was ₹9,050, against ₹3,000 and the net income was at ₹56000 (₹35,000). Non-application of chemical fertilisers and pesticides enhanced soil health and rejuvenated fertility of the farm. But the biggest benefit, according to Mr. Adhappan, was the presence of spiders, earthworms, bee hives and birds, post-harvest. The model has been used as a tool to enhance the income of small and medium farmers in the region. The producers' company, which has 1,023 farmers as shareholders, provides training in biodiversity farming, procures the produce in bulk and sells it in the market after value addition, thus ensuring a higher price for paddy and rice for farmers. It ensures a big saving on cost of transportation for farmers.

White epidemic – Whitefly Menace

The large-scale crop damage from whitefly infestation, especially in northern India, has raised questions on the possible susceptibility of Bt cotton to the dreaded sucking insect pest. But according to Keshav Raj Kranthi, director of the Central Institute for Cotton Research (CICR) said that, the whitefly problem has little to do with Bt technology per se. He blames it, instead, on the multiplicity of genetically modified cotton hybrids, incorporating the Bt genes, that are being grown in the country. "There are over 250 Bt cotton hybrids on the shelf in North India. More than 90% of these are susceptible to, and have even become hotspots for, whitefly and leaf-curl virus. CICR has been providing a list of such hybrids tolerant to both pests", the eminent cotton scientist told. Kranthi noted that prior to 2002 when commercial cultivation of Bt cotton began the country's entire area was practically under public sector-developed varieties, which were screened by CICR and released only if found tolerant to whitefly and leaf-curl virus. This is not the case with privately-bred hybrids now, which are not released by the Ministry of Agriculture and are largely commercialised without subjecting to any rigorous screening for tolerance to whitefly or leaf curl virus.

The high incidence of whitefly menace, was mainly due to delayed sowing, particularly in Punjab. More than 50% of the cotton was sown 15-30 days beyond the normal cut-off date, either due to late release of canal water or delayed harvesting of wheat. "The late-sown crop is tender

in July-August, when weather conditionshot, humid and cloudy are most congenial for the whitefly and leaf curl virus transmission.The early-sown crop is less susceptible, as the mature leaves are not preferred by whiteflies," Kranthi explained. Also, since rains were scarce and intermittent, farmers resorted to excessive irrigation and urea application that promoted fresh vegetative growth and allowed whiteflies to proliferate.

The problem was worsened by over-spraying of pesticides; CICR's surveys showed that the damage from whitefly was most severe in places where this happened. Whiteflies have a white waxy coating on their body at nymphal stage and on wings at the adult insect stage. The waxy coating protects whiteflies from most insecticides. On the other hand, many broad-spectrum insecticides like synthetic pyrethroids and mixtures kill a wide range of insects in the fields. That includes even beneficial insects known to control whiteflies naturally. "The absence of beneficial natural enemies leads to whitefly resurgence and out breaks. Scientific studies show that 50-60% of populations are controlled by natural enemies and 20-30% displaced by rains and winds," Kranthi said.

It is a small (1-2 mm) white-coloured insect affecting cotton, and also occurring on vegetables and other crops in tropical and sub-tropical regions. The whitefly sucks sap from the phloem or living tissue carrying organic nutrients, causes yellowing and upward curling of the leaves. The insect also deposits sticky honey dew excretion, which promotes sooty mould fungi that interfere with photosynthesis. Sticky cotton makes ginning and milling difficult. In north India, whitefly is present throughout the year, due the wide range of crops grown, shifting from one crop to the other. But more damage is caused by the cotton leaf curl virus that is transmitted by the same insect. There are no control measures for this virus. The disease-affected plants are stunted, with fewer numbers of bolls and reduced yields. Besides, the infected plants serve as source of inoculums and infestation for the remaining healthy fields.

Whiteflies are physically delicate and can be controlled even with water sprays. The best approach is to select methods causing least disturbance to beneficial insects that can control the whitefly naturally. Therefore broad-spectrum insecticides such as synthetic pyrethroids and mixtures should be strictly avoided. It is better to rely initially on water sprays, followed by soap sprays, suction traps, yellow sticky traps and reflective sheets or sprays with preparations of neem oil, castor oil, fish oil and rosin soap. There are chemicals, also known as insect growth regulators, like buprofezin and pyriproxyfen, which control whiteflies, while seen to have less effect on beneficial insects.

A model in mixed farming

The two-decade-old farm located in a slope at Erithavoor village near Maruthencode of Kanyakumari district, Tamil Nadu, has turned out to be a model. It is surrounded by paddy and banana fields. The one-hectare land is free from diseases and pests as no insecticide, nematicide, fungicide or weedicide is used. The one-time paddy farm sports a different look now with arecanut trees draped in pepper wines along rows of trenches filled with water almost all through the year.

The 20-foot-tall pepper plant at the farm of C Mohandas, former Principal Scientist, ICAR, in Kanyakumari district of Tamil Nadu. Photo: A SHAIKMOHIDEENT

When C. Mohandas, former Principal Scientist, Indian Council of Agricultural Research, found growing paddy labour-intensive, he switched to banana. From 1995, he started to experiment with mixed farming, using trench irrigation. As the erstwhile paddy field always had water stagnation in 11 months of the year, it had to be drained periodically. Hence, small drainage channels were dug and the mud was used to create long bunds around arecanut trees. Whenever they dry up, the silt is used to improve the health of the soil. Only surface water is used for irrigation in this rainfed farm. As the arecanut trees grew up, Mr. Mohandas obtained Karimunda variety pepper's runner shoots from Indian Institute of Spices Research, rooted them in poly bags and planted them at the base. Harvest of pepper started in 1997 and now Mr. Mohandas is able to pluck pepper two to three times a year because of the copious water running in trenches. "Mine is a disease-free farm. I occasionally use one-tenth of the recommended level of chemical fertilisers, but no pesticides or insecticides. Pests are found in the nearby paddy field, which uses chemical agents. Against the normal height of 10 feet per climber, my plants go up to 20 feet," says Mr. Mohandas.

In the last few years, the only investment for him is on labour. He also raises banana, ginger, turmeric and amorphophallus as inter-crop and grows fish in the streams. Goats used to be reared using weeds obtained from the farm and the goat manure was recycled into the farm. Farm yard manure is applied on alternate years and hand weeding is carried out around the base of pepper vines while taking care not to disturb their base. The income is from pepper, arecanut, inter-crops and fish,

besides pepper saplings. He reaps an average of 500 nuts per arecanut tree. Nurseries of climbers and bush pepper, which is ideal for home gardens, are raised at the farm.

Mr. Mohandas claims that the yield in the farm is increasing. It was two kg dry pepper in April-May and September 2014 in the off-season and went up to six kg per climber during December, the main season. As no pesticide was used for over two decades there is a build-up of a number of predators and parasites of pathogenic insects and fungi. Runner shoots in the farm are used to produce about 10,000 rooted cuttings, which are sold at ₹15 each. About 5,000 bush pepper seedlings are raised from lateral branches. About 1,000 orthotropic shoots are also used to produce seedlings which are sold at ₹25 each. He uses locally designed humidity chambers to enhance rooting. "There is a big demand now for pepper and saplings. The demand has been amplified by the crop failure in nearby Kerala," says Mr. Mohandas.

Zero-tillage wheat and direct seeded rice technologies

Burning of paddy stubble by farmers in fields after harvesting has been seen as a major cause of air pollution in the national capital. But a few enterprising farmers in Punjab, have adopted technologies — zero-tillage and direct seeded rice (DSR) — that not only enable sowing of wheat without any burning of crop residue, but also save water by doing away with transplanting operations in paddy.

Punjab grows paddy in 28 lakh hectares (lh) in kharif season (transplanting in June and harvesting in Oct-Nov) and wheat in 35 lh in rabi (sowing in Nov and harvesting in April). The two crops together produce an estimated 38 million tonnes (mt) of straw annually, of which over half is from paddy. While 70% of wheat straw is used as dry fodder and the rest burnt, the extent of burning is as high as 70-75% in paddy straw. One reason being high silica content in paddy straw, making it unsuited for feeding directly to animals. Importantly, the spike in temperatures during March noticeable in recent times, results in premature ripening of grains. It has led to early sowing of wheat, towards mid-November, by farmers. But with paddy being harvested in October, it leaves little time for field preparation and planting of the wheat. So, rather than recovering the 14-15 inch left-over stalks after paddy harvesting, farmers simply set their fields on fire. The cleared fields they plough using a disc plough or rotavator, which crushes the straw roots into small pieces, followed by one irrigation and planking or levelling to prepare the seedbed for sowing.

Narinder Singh Bajwa, however, has eschewed the above practice for the last 6-7 years. This 10-acre farmer from Chaura village in Dera Baba Nanak tehsil of Gurdaspur district harvests his paddy around October 10. During the interval before wheat sowing by mid-November, he also plants seeds of Dhaincha — Sesbania aculeata, a green manure crop — in between the paddy stubbles. The wheat seeds he, then, directly sows with a tractor-mounted zero-tillage machine, which also ploughs the Dhaincha growing in the field enhancing its soil fertility.

Traditionally, the total cost of field preparation and sowing using tractor-powered tillers comes to ₹3,500 per acre — ₹1,200 for rotavator/disc plough operations, ₹500 for planking, ₹1,000 for seed and ₹800 for sowing. "Here, my cost is limited to ₹ 800 per acre for running the zero-till machine and ₹1,000 on seed. Even if I spend another ₹500-600 per acre for a chopper machine to shred the paddy straw further for their easier absorption into the soil, it translates into savings of over ₹1,000," says Bajwa. His views are shared by Ravinder Singh Brar, who farms 65 acres in Kauni village of Muktsar's Gidderbaha tehsil. The latter uses the Happy Seeder, a modified version of the zero-till machine that cuts, lifts and throws the paddy straw and sows the wheat seeds about 2-3 inches deep (against digging up to 6-7 inches in conventional tillage). Brar started zero-till cultivation in 2009 and has been modifying his Happy Seeder machine, adding more blades to cut the paddy straws into smaller pieces at the time of sowing. Brar claims his wheat yields, at 26-27 quintals per acre, are at least two quintals more than in the traditional method. This, he attributes to the improved soil fertility from the incorporation of straw residue matter, which isn't possible with burning. This advantage comes on top of lower production cost and, of course, no pollution from burning of stubble. A zero-tillage machine costs ₹25,000-35,000, while ranging from ₹1.25 to ₹1.50 lakh for a Happy Seeder. Both are manufactured locally and amenable to modification as per the demand of farmers.

Bajwa and Brar have also taken to DSR technology in paddy. In the traditional cultivation method, paddy seeds are first sown in a nursery. After about four weeks, the young saplings are uprooted and transplanted in the main field. Prior to that, the field is also puddled or wet-tilled using tractor-drawn disc harrows. All these consume lot of water. For the first 60 days or so following transplantation, the paddy has to be given irrigation every 2-3 days to ensure continuous standing water at 1.5-2 inches above the ground. The underlying purpose is to prevent growth of weeds by denying them oxygen in submerged conditions. The weed threat recedes only once the plants have crossed the tillering stage. Transplanting is, moreover, a highly labour-intensive affair. About four labourers are required to transplant an acre, costing ₹2,800-3,000. With DSR, there is no need for transplanting, puddling or raising of nursery. The paddy seeds are directly planted in moist fields using a DSR machine, costing ₹500-600 per acre. The DSR machine — which itself comes for about ₹40,000 — can sow 5-6 acres area in a single day. Farmers, in this case, have to spend money basically on 'real' weedicides,

as opposed to water. The total cost of these — mainly oxadiargyl, bispyribac sodium and fenoxaprop-p-ethyl — works out to ₹2,000 per acre. This, along with the `500-600 per acre DSR sowing charges, is much less than the expenditure on water and labour in the conventional route. Brar estimates only 12-14 irrigations are necessary under DSR, as compared to 25-27 in the traditional method. The savings are more if one takes the free power made available for irrigation. "The day the Punjab government stops giving power subsidy, no farmer can afford transplanted paddy cultivation", points out Brar.

Today, about 8 lh wheat area in Punjab is being grown using zero-tillage/Happy Seeder and 1.60 lh under DSR paddy. Bajwa and Brar are among those who have adopted both technologies proven to be environment-friendly, cost-effective and labour and energy-saving. It will take some time to convince other farmers, too, that they needn't burn paddy straw to sow wheat or growing paddy is possible even without nursery preparation and transplanting.

To save rare forest, farmers try a new crop 'butterflies'

The colourful butterflies fluttering through Zanzibar's Jozani forest are beautiful to look at, but for farmers and charcoal producers in the region, they mean something more: a paycheck. In an effort to protect the island's threatened forest, local people are being trained to rear butterflies, under a scheme that tries to prevent deforestation by giving people a financial stake in keeping the forest intact. Jozani forest, which lies between the mangrove-filled bays of Chwaka and Uzi on Unguja Island.

But for all its beauty, the forest is under huge pressure from rapid deforestation due to charcoal production and unsustainable farming. A community-run initiative, the Zanzibar Butterfly Centre, aims to change that by retraining charcoal producers in villages surrounding the forest as butterfly farmers. "We cannot stop anyone from producing charcoal. However, we try to educate people about the damaging effects it has on the environment," Natalie Tempel-Merzougui, the project's facilitator, told the Thomson Reuters Foundation.

The programme offers training and equipment to butterfly farmers, the most successful of whom can earn as much as $250 a month selling butterfly pupae to the centre's own tourist exhibit and to overseas buyers, she said. Butterfly farmers operate by catching a few female butterflies and transferring them to mesh cages so they can lay eggs. Farmers then collect the eggs and raise the caterpillars by feeding them on host plants until they turn to pupae. It's at this stage that farmers start earning by selling the pupae to the butterfly centre, which sells them for export or keeps them until they hatch, to display for tourists.

Established in 2008, the centre, located near to Jozani Chawka Bay National Park, is one of Africa's largest butterfly exhibits, housing more than fifty species of native butterflies. The centre, which works closely with Jozani Environmental Conservation Association, draws tourists interested in seeing and learning about butterfly species. Rungu Hamisi, one of the butterfly farmers who used to earn a living making charcoal, said raising butterflies has improved his income remarkably. "Butterfly rearing is much easier than charcoal making, which requires a lot of work. I get enough money to support my family," he said. He said one of the benefits of farming butterflies, rather than crops, is that they mature quickly. "Once the eggs hatch and become caterpillars, it takes only a matter of weeks before they transform into butterflies ready for sale," he said. According to butterfly centre officials, the project has also created opportunity for women since butterfly rearing can fit easily around domestic chores. While many types of agriculture require the clearing of forest, which can drive climate change and the loss of species, butterfly farming requires intact forest which provides an economic incentive to conserve them, Merzoughui said.

Although the initiative is not in itself a solution for deforestation, it has helped create awareness and a sense of ownership of the forest among the farmers. A similar project is run by 250 local farmers in Tanzania's East Usambara Mountains, a region known for its biodiversity but where forests are being cleared to produce charcoal and to open up farmland. According to the Zanzibar Butterfly Centre, the amount each farmer earns varies depending on how many pupae they bring to the centre and of what species.

A cheap and locally available feed for livestock

Seemai Karuvel commonly known as Mesquite tree, is a waste-land tree found abundantly in areas where water and soil fertility are limiting factors. In Thoothukudi district, this tree is very common. It is similar to weeds and is a menace for normal crops. Local farmers are trying to control its further spread due to its fast spreading nature and thereby posing danger to their crops. But this tree does have a use, during summer, when availability of green grass or hay is scarce, goat, sheep and cows are fed on the dry pods. "Unutilized pods if properly collected and ground into flour can be used as a cheap alternative in livestock feed for grains like pearl millet and wheat bran," says Dr. G. Alagukannan, Programme Coordinator of SCAD (social change and development) KVK, Thoothukudi.

SCAD saw the potential of this tree and started promoting the use of its pods as livestock feed from the year 2010-11. Farmers were motivated to collect the pods at a cost of ₹3 a kg and then dried for 10-15 days to

reduce the moisture level and ground into flour which was then given as feed for milch cows for trial purpose in order to test its suitability as alternate feed. Trials conducted in two consecutive years showed encouraging results in terms of and 8 to 10% increase in milk yield, improved quality too. One of the participants, Mr. T. Ganesan of Keelathattaparai village, says: "The pod flour is cheaper when compared to other commercial concentrate feeds. We are able to get at least one litre additional yield of milk a day during its peak lactating period".

After getting positive feedback from several livestock keepers about eight tonnes of pod were procured and a grounding mill was set up at Vilathikulam last year. Within a month, all eight tonnes were sold out by collaborating with traders and cattle owners which showed that opportunity exists in promoting this enterprise. The pod flour is produced and marketed under brand name MS mesquite. The pods are collected during the month of April and May. A person collects an average of 30 kg pods in two to three hours of work. For this they are paid ₹150 (₹5 per kg of seeds collected) as wages. "In fact many people in the village preferred to go for pod collection instead of going for the minimum guaranteed work scheme run by the government, in which they get 150 days of work per family per annum. By starting this venture it created an additional employment of 40 – 60 days. Besides, during the processing it provided additional employment opportunities for the mill workers for about 240 man days," explains Dr. Alagukannan.

This venture has resulted in creation of 240 man days of work at mill and 267 man days of work for the pod collectors during 2014 just by collection and processing of eight tonnes of pods. We expect that in the coming year we can procure about 50 tonnes of pod and create an additional employment opportunity of 3,166 man days of work in the region, according to Dr. J.X.Amali Cletus, Member of Governing Council of Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) and Vice Chairperson of the institute. By feeding this flour as a cheap replacement for pearl millet / wheat bran livestock owners are able to save up to ₹5 a kg (cost of the pod flour in ₹16 where as the cost of wheat bran or pearl millet in ₹21 a kg).

Bio-char, compost tea are the new recipe

The initiative by Antony John, a resident of Ramankulangara in Sakthikulangara, could transform his crop-debilitated area into a hub of the new green revolution — to produce fresh, hygienic, and organic vegetables in each family being its thrust. Mr. John, a progressive farmer-scientist, much lauded and awarded by organisations such as ATMA, has been cultivating a variety of vegetables — amaranths, lettuce, kale, tomato, brinjal, capsicum, cabbage, cauliflower et al within the limited terrace area available to him, with vertical farming.

Though vertical farming is not an entirely novel concept, what makes Mr. John's initiative different is the distinctly different inputs he uses both in the growing medium and in the nutrient supplement. He uses treated coirpith and bio-char in equal proportions to make up 95% of the growing medium, the rest 5% being the soil available in the area. Vegetable seedlings are planted in the PVC channels of the vertical unit after filling it with the growing medium; irrigation is regulated by drip method using automatic timer. Periodically, the pH factor is monitored and corrected if necessary, to maintain at required level. He also uses compost produced at his own house by converting kitchen and other domestic bio-waste, for which he has developed a simple, but efficient aerobic bio-composing unit: the unit composts all domestic bio-waste in an eco-friendly manner to produce compost within 45 days. The ooze, which starts to come out from the unit from the third day onwards is effectively utilised both for disease prevention, and disease cure. The ooze is enriched before application with bio-fertilisers and friendly microbes, such as azetobacter and azospirilum and others and then aerated for 48 hours to make the aerated activated compost tea.

Mr. John cleverly utilised the bio-resource available, by adopted Maynard Murray's experiments with sea water in his farming. He diluted one litre of sea water with 10 litres of fresh water and applied it in the soil and on the foliage, to utilise the 92 micro-nutrients available in sea water by spraying this sea water-fresh water mixture once in a month, he claimed that he could produce nutrient rich organic vegetables. He claims that the use of bio-char in the growing medium and the aerated activated compost tea as nutritional supplement has been a huge success. Bio-char reduces the acidity of the soil, protects the plants from diseases, promotes growth of friendly micro-organisms, and reduces the loss of micro nutrients apart from increasing water retain-ability.

Fortifying rubber wood, naturally

A five-year-long research by scientists of the Institute of Wood Science and Technology (IWST) has resulted in finding an organic natural plant extract for treatment of rubber wood to preserve it better and make it stronger to match its friendly pricing. While teakwood and rosewood, which are categorised as Class 1, have natural properties to protect themselves against termites and vagaries of weather, rubber wood falls in Category III, which means that it is susceptible to termite attack and may not be long lasting without treatment. Currently, rubber wood is

treated with chemicals to increase its shelf life.

Scientists D. Venmalar and K.K. Pandey of the Wood Processing Division at IWST have developed organic plant extracts for developing eco-friendly wood preservatives. A combination of pongamia (honge) seed oil, cashew shell liquid, neem oil and specialised extracts of five other leaves and barks, including the acacia bark, which yielded remarkable results to fight insecticidal and fungicidal attacks on rubber wood. The scientist duo took up rubber wood timber cut according to BIS standards, and seasoned them for treating them in open fields. Their treatments over the years have shown them as being 6 to 8 times more resistant to pests. "We compared them with untreated timber left over in the fields. As rubber wood attracts termites and is highly perishable, we treated it with pongamia seed oil as its anti-septic properties extended a protective shield by making it resistant to pests, Ms. Venmalar said. These organic alternative treatments can help us see rubber wood in a different perspective and not get obsessed with teak. Rubber trees are inexpensive compared to teak as they belong to plantation timber," she added.

Comparing their finding with that of the inorganic chemical based treatments currently used in the industry, she said: "Timber health cannot be maintained with chemical treatments that has heavy metals as copper, chromium and arsenic elements in the mix." The organic study also leads to conclusions that timber as mango, eucalyptus, honne and mathi that also belong to Class III in their resistance to pests as rubber wood can be treated with the same plant extracts. This increases their marketability making them stronger and helping the lesser extraction of forest green.

Loan rigmarole pushes Punjab farmers into debt trap

Farmers in the country's grain bowl — Punjab — face huge problems in availing themselves of bank loans and other institutional credit, which push them into the debt trap of exploitative non-institutional sources of credit, primarily commission agents (arthiyas). Agricultural experts in Punjab say around one-fifth of the total debt of the farmers is through non-institutional sources, of which commission agents are the most popular medium as they facilitate easy availability of credit at all times and for all purposes.

Sukhpal Singh, senior economist and Head of the Department of Economics and Sociology at Punjab Agricultural University (PAU), told that the functioning of commercial banks needed to be improved so that the farmers can be bailed out from the clutches of moneylenders and have better and convenient alternatives of finance. "Even though they [farmers] are being exploited by the non-institutional sources of credit, they turn towards them in times of need as they face a lot of problems in getting credit from institutional sources, including banks," he said.

A study on farmers' issues conducted by Dr. Sukhpal and the PAU team revealed that the most common problem faced by about 85% of the respondents [farmers] was complicated and time-consuming procedure of availing themselves of loan from the banks. Other common problems faced by about 47% and 42% of the farmers were non-availability of non-collateral loans and high transaction cost of credit, respectively. About 30% of sampled farmers could not establish links with bank officials as they were uneducated. Further, about 22% each of the sampled farmers complained about the bureaucratic behaviour of bank officials and lack of banking facility at the village level.

Apart from these, corruption, non-availability of domestic loan, insufficient loan amount and inability of marginal farmers and tenants to hypothecate their land value were some of the other problems as stated by 14%, 7.33%, 1.67% and 1% sampled farmers, respectively, the study conducted on 'Magnitude and Determinants of Indebtedness Among Farmers in Punjab' highlighted. Dr. Shruthi Bhogal and Randeep Singh, both agricultural experts at PAU and members of the study team, said that an average farm household in Punjab was indebted to institutional source of credit to the tune of ₹1,33,844 (61.37%), while that from the non-institutional sources was ₹84,248 (38.63%).

Among the institutional credit agencies, 29.06% of the total credit amount was advanced by public banks, 11.81% by private banks and 20.5% by the cooperatives. "Even though banking system is highly developed in Punjab, 35.25% of the total credit is advanced by the commission agents [arhtiyas]," they said. The study revealed that in Punjab, largefarmers' availed maximum of their loan requirements from institutional sources as compared to smaller farmers.

New Cultivar may replace Samba rice Variety

Tamil Nadu Rice Research Institute (TRRI), Aduthurai, is in the process of popularising a new rice cultivar AD 09367 in the Delta region. The newly-released cultivar is a cross between BPT 5204 – a medium duration fine grain, released by AP Research Station and improved white Ponni. This new variety, farm scientists' hope, will help replace the existing popular two decade old Samba variety CR 1009. V Ravi, Director, TRRI, told that efforts were on to popularise the new rice variety which has high tolerance to major pests and diseases, and an yield advantage of 10% over CR 1009.

The new cultivar is, a 155-160 day crop and non-lodging, was tried on 10 farmers' fields last year. It was extended to 80 farmers' fields in the districts of Thiruvarur,

Thanjavur and Nagapattinam. According to R Suresh, Assistant Professor, Plant Breeding and Genetics, TRRI, AD 09367 is a medium slender grain, more suited for idli rather than table rice, due to its grain size. The yield during the initial trial period is said to be 7,024 kg/ha. The multi location onfarm trial yield at farmers fields was found to be marginally lower at 6,112 kg/ha. The plant breeder points out that the station trial yield was 11.2% higher than the ruling CR 1009,the height of the crop is around 120 cm, slightly higher than CR 1009.

Stating that there was a need felt among farmers for a new culture, Ravi said, "the ruling CR 1009 was released more than two decades back and the same, though still grown widely in the delta region, had over the years become susceptible to pests such as Brown Plant Hopper (BPH) and Bacterial (Yield) Blight among others. The yield loss due to such pest attack has been reported at over 60%." He further explained that CR 1009 was a semi-dry rice variety, suited for cultivation just before the rains in the month of August and ready for harvest around January-February. Of the total area of around three lakh hectares under Samba rice crop in Delta region, CR 1009 is being raised in the tail-end area of about one lakh hectares, University sources said.

Mulching in tuberose for weed management

Tuberose is an important traditional flower of India. It is used both as loose flower and cut flower. The major constraint in tuberose cultivation is weed management and about 70-80% of cultivation cost accounts for weeding. Plastic mulching is recommended for weed management, if planted under drip and fertigation system. Raised beds should be prepared at a height of four feet and lateral drip laid out along the centre of the raised beds. Plastic mulch sheet of 40 micron thickness top silver and bottom black should be spread on the raised beds.

Bulbs are planted in the holes made at recommended spacing. Use of the plastic mulch reduces the weed management cost to a tune of 80%. It prevents the evaporation of irrigation water which reduces the irrigation water requirement by 30%. The cost towards plastic mulching per acre is about ₹20,000. The crop period is for two to three years and the life of mulch sheet almost extends for the period of 15-20 months. If plastic mulching sheet is not used then weeding must be done once in 20-25 days. The mulch sheet reduces the weeding cost by 80%. The furrows between the raised beds alone need to be weeded. The furrow space is used for daily harvest of the flowers and hence the need for weeding in that area is also lesser.

Flowers are harvested daily and about 20 kilograms of flowers can be obtained per acre per day. The average cost per kg of flower is about ₹40 which leads to an income of ₹24000 per month. If plastic mulching is not used, about ₹6,000 per month will be spent for weeding, which is now saved by the use of plastic mulching. As a result, the net returns increases by 40 to 60% compared to an unmulched field. The quality of the flowers is also improved since the soil moisture is maintained and the plants are of vigour physiology.

Nabard released state focus report of Maharashtra

The State Focus Report for 2016-17, released by Nabard, allocated 51.3% (of ₹2,96,279.44 crore) of its total potential-linked credit plan (PLP) to Mumbai City and Suburbs. Set up by an act of Indian Parliament in 1982, Nabard's corporate mission is to 'Promote sustainable and equitable agriculture and rural prosperity through effective credit support, related services, institution development and other innovative initiatives.'

Nabard's report will be used by the Bank of Maharashtra, the convener of state-level banker's committee, to devise the state's credit plan. Simply put: decisions on loan disbursals will be based on the Nabard report's projections. The report emphasises that it is the poor and vulnerable groups that should have access to safe, easy and affordable credit and other financial services "in disadvantaged areas." It also notes that easy credit to lagging sectors is a precondition to accelerate growth and reduce income disparities and poverty.

Dr US Saha, Chief General Manager, Nabard, explained that the projections are not only for crop loans, but include total priority-sector lending. Dr Saha accepted that Nabard's primary focus should always remain on agriculture and agreed that Mumbai does not have agriculture, but the city does, he says, have "a number of MSMEs [micro, small and medium enterprises], food and agro-processing units, housing and social infrastructure projects. If you exclude Mumbai's projections from total estimated credit plan, the amount planned for areas affected by agrarian distress will be seen to be evenly distributed."

As per the report, after excluding the funds projected for Mumbai, estimates of PLPs for Marathwada and Vidarbha are 16.48% and 16% reseptively. Western Maharashtra, comparatively wealthier, and a region which has not faced drought and of farmers' suicides, gets 44%. While industry and service sectors are estimated to be contributing 88.7% of state's total domestic product, agriculture and allied sector contributes only 11.3%. However 55% of the state's population is dependent on the later.

Agriculture in Vidarbha, Marathwada at high risk to climate change: Report

The districts of Marathwada and Vidarbha witnessing maximum farmer suicides in Maharashtra face higher risk to climate change. A report by the National Bank for Agriculture and Rural Development (NABARD) recommends the state government to initiate policies and measures to adapt to climate changes that would be detrimental to the agro-sector in 14 districts affected by severe drought across Vidarbha and Marathwada.

According to the Central Research Institute for Dryland Farming (CRIDA), "The districts in Marathwada and Vidarbha face very high risk to climate change.Studies warn that if no action is taken, financial implications on account of damages due to climate change would be massive. Mumbai alone can incur financial damages of as much as ₹2 trillion due to climate change related damages."

CRIDA has also mapped the vulnerability atlas of India, a collection of maps showing parts of India vulnerable to natural disasters. At least 80% of the total area under agriculture cultivation is rainfed in Maharashtra. "Climate change was never factored in our policy-making or annual state budget. Now, for the first time in 2014-15, unseasonal hailstorm and changing rain patterns extending to longer dry spells have come as an eye opener to policymakers in the state. Out of the total 355 talukas in the state, 226 talukas received deficiant rain. While 112 talukas received normal rainfall, only 17 talukas received excess rainfall.

According to officials, a study done by TERI has identified Maharashtra as one of the most vulnerable states in India. Based on biophysical, social and technological indicators, the state has low "adaptive capacity" to climate change, meaning that it has little potential to respond successfully to climate variability and change, including adjustments in resources and technologies.The state falls in the zone of high to very high climate sensitivity, with a widespread dependence on agriculture.

The region is also interpreted as an area of "double exposure" where globalisation and climate change pose simultaneous challenges to the agriculture sector. Chief Minister Devendra Fadnavis, along with the Ministry of Environment, Forests and Climate Change (MoEFCC), has sought funds to undertake adaption and mitigation measures to tackle climate change. The ministry has approved a proposal submitted by the state government related to challenges in agriculture growth due to climate change.Apart from the "Jalyukt Shivar" water conservation project, the government has emphasised on crop pattern changes and promoting horticulture. Water management has been accorded the highest priority and the government is pushing for the adoption of new technologies to cope with the shortage in rainfall. The policy also includes agriculture practices to improve soil fertility. Higher yield and lower input cost is being modelled to help farmers.

A new lease of life for Mangaluru's unique chilli variety

A native variety of chilli in Mangaluru taluk, Harekala menasu,will soon be registered under the Protection of Plant Varieties and Farmers' Rights Authority.Situated on the banks of River Nethravathi, Harekala, Ambalamogaru and Pavoor villages are known for a particular variety of chilli known as Harekala chilli (Harekala menasu in Kannada). This particular variety does not have GI (geographical indication) tag. However, it is one of the 'hot' favourites in the preparation of non-vegetarian dishes and pickles in the region.

Harekala chilli, which was cultivated on an area of more than 200 acres two decades ago in these three villages, is being grown in hardly 10-15 acres of land now. Kishor Sapaliga, a young farmer who is cultivating this variety, said that he is one of the few farmers in these villages cultivating this crop for the past several years.

Grower can get yields up to 400 kg an acre during the four months of its harvesting. Sapaliga got around ₹160-220 for a kg of Harekala chilli in the last season. Harish Shenoy, Assistant Professor of Agronomy at Krishi Vigyan Kendra in Mangaluru, said that the process of registering this variety of chilli under Protection of Plant Varieties and Farmers' Rights Authority is in process. The move will provide certain protection to its growers under the Protection of Plant Varieties and Farmers' Rights Act 2001, he said.

Shrinking acreage and shortage of farm labour apart, the survival of this unique variety of chilli now hinges on the desilting of a two-km-long natural water canal in the villages where it is grown. Manohar Shetty, who owns the land in Harekala and an office-bearer of the district unit of Karnataka Rajya Raitha Sangha, told that though the farmers are ready to expand the area of cultivation of Harekala chilli, factors such as the accumulation of silt in the natural canal running through the villages is limiting them to take up any further expansion. The farmers in around 200 acres of catchment area of the canal were earlier getting the benefits of this canal to carry out cultivation of paddy, Harekala chilli and sugarcane, he said. Sadashiva Samani, a farmer from Harekala village, said that the silt has not been removed from the canal for the past several years. As a result of this, water from the catchment areas remains stagnant in the nearby field. Shetty said that several appeals to the officials of the departments concerned have not yielded any results. "We are ready to bring back the glory of Harekala chilli by

cultivating it on 200 acres in the catchment areas, if steps are initiated to remove silt from the natural canal," he said. Shetty said that he is planning to mobilise growers in the villages for a 'shramadaan' on removing silt, he added, "My intention is to bring back the lost glory of Harekala chilli and to provide a good market for this unique crop from the region," he said.

Agricultural research: The real 'yellow revolution'

It is India's largest source of edible oil. Unlike soyabean, which has only 18% oil content, and groundnut, more than 50% of whose kernels are either consumed directly or exported, rapeseed/mustard is one crop that is a 'true' oilseed. With annual production of around 2.4 million tonnes (mt), mustard accounts for a quarter of the country's average edible oil availability of 9.4 mt from indigenous sources (see chart).

That being the case, mustard would be central to any strategy aimed at reducing India's reliance on edible oil imports, which, in 2014-15 (November-October), amounted to over 14.4 mt valued at $10.5 billion. The fact that it is a rabi crop with almost 75% area under irrigation — as against barely 25% in groundnut and 1% for soyabean — and having roughly 40% oil content, makes mustard the most suitable candidate for ushering in a 'yellow revolution', similar to what wheat and paddy did for the 'Green Revolution'. For years, breeders have exploited a phenomenon known as 'heterosis' or hybrid vigour resulting from crossing two genetically dissimilar plant varieties even within the same species. The first-generation or F1 offspring from such crosses tend to have yields higher than what either parent can individually give.

In mustard, though, there have been two major constraints standing in the way of realising yield grains from heterosis that can help considerably boost domestic production. The first is the narrow genetic base of mustard varieties grown in India. Scientists at the Centre for Genetic Manipulation of Crop Plants (CGMCP) in Delhi University, led by former vice-chancellor Deepak Pental, however, showed that this problem could be addressed by crossing Indian mustard cultivars with juncea lines of East European origin like 'Early Heera' and 'Donskaja'. The combination of the two divergent gene pools enhanced the crossing options; the resultant F1 progeny were found to exhibit significant heterosis.

The second constraint is more basic, having to do with the absence of a natural hybridisation system in mustard. Mustard flowers contain both female (pistil) and male (stamen) reproductive organs, making the plants largely self-pollinating. To the extent that the egg cells of one plant cannot be fertilised by the pollen grains from the stamen of another, it restricts the scope for developing hybrids — which, in crops such as maize, cotton and tomato, is possible through simple emasculation or physical removal of anthers. Pental's team at the CGMCP initially developed a cytoplasmic male-sterile or CMS line of 'Pusa Bold' Indian mustard. This line (in which the stamen is sterile and cannot produce viable pollen), crossed with the East European 'Early Heera-2' variety (which is male-fertile and hence capable of pollinating the former), resulted in DMH-1, India's first ever mustard hybrid. Its average seed yield, at 2.6 tonnes per hectare, was a fifth higher than the 2.1-2.2 tonnes for existing best 'check' varieties, including Pusa Bold, Pusa Jaikisan, Varuna, Rohini and Kranti.

The CGMCP scientists also bred another hybrid DMH-4, from crossing Pusa Bold with 'S-7', a derivative from Indian and East European mustard lines. The yields from it were the same as DMH-1, but the new hybrid produced bolder seeds. The CMS-based hybrid breeding system, however, had drawbacks. It could work only in a single Indian mustard variety (Pusa Bold). Using the same CMS (female) parental line, thus, limited the crossing options. "We tried transferring our CMS system ('126-1') to many Indian and East European mustard lines. But in all these cases, the male sterility broke down and such partially fertile lines couldn't be used for hybrid seed production. The system was also unstable, especially under low temperatures," explains Pental.

The inherent limitations in CMS-based hybrid breeding, then, led Pental's team to explore the genetic modification or GM route. The technology they chose involved deploying alien 'Barnase' and 'Barstar' genes. The 'Barnase' gene, isolated from a soil bacterium called Bacillus amyloliquefaciens, coded for a protein that impaired pollen production and rendered the plant into which it was incorporated male-sterile. This plant was, then, crossed with a fertile parental line, containing, in turn, the 'Barstar' gene from the same bacterium that blocked the action of the 'Barnase' gene. The resultant F1 progeny was high-yielding and could also produce seed/grain, thanks to the 'Barstar' gene in the second fertile line. The CGMCP scientists used the Barnase-Barstar GM technology, originally patented by Plant Genetic Systems (now part of Bayer CropScience), to create a robust and viable hybridisation system in mustard. This system was also used to develop DMH-11 through crossing Varuna (Barnase) with Early Heera-2 (Barstar). This GM hybrid, which has demonstrated up to 30 % heterosis in field trials, is currently awaiting approval for commercial cultivation.

"The Barnase-Barstar system enables us to breed hybrids from a wide range of Indian and East European mustards yielding higher levels of heterosis. Besides, we can introduce new traits relating to oil quality (zero erucic acid, low glucosinolates content) or resistance to disease (alternaria blight and stem rot), which wasn't possible with

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THE HARYANA STATE COOPERATIVE AGRICULTURE & RURAL DEVELOPMENT BANK LTD

Sahkarita Bhawan, Bay No. 31-34, Sector 2, Panchkula
Phone: 0172-2587040 Fax: 0172-2587069

The Haryana State Cooperative Agriculture and Rural Development Bank Ltd., is the specialised institution in the State, which caters to the Long Term credit needs of the farmers for the upliftment of the economic position of the agriculturists and allied fields.

The bank advances Long Term loans to the farmers for the following purposes: -

Scale of finance and periodicity of Major Sectors

Farm Sector

Sr. No.	Name of the Scheme	Period	Scale of finance
1	Minor Irrigation	9 Years	₹0.75 to 4.00 lacs
2.	Land Development	--do--	90% of the project cost
3	Farm Mechanisation	5-9 Years	85% of the cost of the Machinery
4	Purchase of Agriculture Land	10 Years	Upto ₹12.00 lacs
5	Horticulture/Plantation	5-9 Years	₹0.25 to 3.55 per Ha.
6	Animal Husbandry	5-7 Years	₹0.70 to 3.50 lacs per 5 unit
7	Rural Godowns	Upto 9 Years	90% of the project cost

Non Farm Sector

Sr. No.	Name of the Scheme	Period	Scale of finance
1	Rural Housing	Upto 9 years	Upto ₹6.00 lacs
2	Marriage Palaces	Upto 6-9 years	90% of the Project Cost
3	Community Halls	Upto 6-9 years	90% of the Project Cost
4	Village Cottage Industry	Upto 6-9 years	90% of the Project Cost
5	Public Transport Vehicles	Upto 6-9 years	85% of the Project Cost
6	Rural Educational Infrastructure	Upto 6-9 years	90% of the Project Cost
7	Other SSI units	Upto 6-9 years	90% of the Project Cost

Rate of Interest

The Rate of Interest @ 13 % p.a. w.e.f. 21.01.2016 is being charged from the ultimate borrowers for all type of loans advanced by the DPCARDBs in the state of Haryana.

NOTE:

For further details, kindly contact The Haryana State Coop. Agri. & Rural Dev. Bank Ltd., Panchkula or the District Coop. Agri. and Rural Dev. Banks at District level and its branches at Tehsil & Sub-Tehsil level in the State.

RAJNI SEKHRI SIBBAL, IAS
Chairman

SATBIR SHARMA
Managing Director

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just a single, unstable CMS parental line," Pental points out. CGMCP has, in fact, tied up with the University of Arizona to map the Indian mustard (Brassica juncea), which itself has two constituent genomes 'AA' (from the Brassica rapa species) and 'BB' (from Brassica nigra), each containing 30,000 genes. "The rapa genome has already been sequenced, while the work on nigra will be completed by the end of 2016. Once this is done, we will be able to know and locate the genes that code for specific traits, be it oil content, seed size, pod length and density, number of seeds per pod or disease resistance," adds Pental.

GM technology will only help in developing hybrids with new parental combinations and incorporating these various quantitative, qualitative and disease resistant traits into them.

Ban 13 pesticides, phase out 6 by 2020, suggests Verma panel

The Anupam Verma Committee, set up to review the continued use of 66 pesticides that have been barred/restricted for use in farming in other countries, has recommended a ban on 13 'extremely hazardous' pesticides, phasing out of six 'moderately hazardous' ones by 2020, and review of 27 pesticides in 2018. The six pesticides suggested for phasing out by 2020 are: alachor, dichorvos, phorate, phosphamidon, tria-zophos and trichlorfon. The Verma panel did not review the use of endo-sulfan, as it is being examined by the Supreme Court.

Following the panel recommendations, the Registration Committee (RC) of the Central Insecticides Board, has suggested that "each pesticide should be reviewed in 10 year intervals after registration". The committee, headed by JS Sandhu, Deputy Director General (Crops Science), also recommended certain deadlines, failing which registration of pesticides could be cancelled, according to the minutes of the meeting uploaded on the insecticide board's website. "All the deemed to be registered pesticides (DRP) need to be re-evaluated for their bio-efficacy and residue data against major target pests as per approved label claims, and baseline toxicity data may be generated by the registrants by December 2017; otherwise the Certificate of Registration will be treated as deem(ed) cancelled w.e.f. 1st January 2018," it said.

A success story in parched Bundelkhand

In the parched, brown landscape of Uttar Pradesh's Bundelkhand region, where hundreds of distressed farmers have taken their lives in the past few decades or have been forced to migrate, Prem Singh's farm is an exception. In the fabulous green farm, there is plenty for everyone: abun-dance of water-bodies for animals to drink from, many fruit-bearing trees, a steady produce of organic products, healthy cattle, well-nourished soil and natural fertilizers and, importantly, a steady flow of income. The 32 bighas of land that Mr. Singh shares with his three brothers also boasts of a one-of-a-kind rural museum, the Humane Agrarian Centre. A farmer-activist based in Banda's Badokhar Khurd village, Mr. Singh believes that his experiment with "sustainable and traditional farming" could be repli-cated at a larger level, and could pave the way for a policy change. "The idea is to ensure the prosperity of the farmer's family, ecological balance and food security of the country."

Prem Singh believes that "sustainable farming" can pave the way for policy change

He calls his pioneering method of sustainable farming 'Aavartansheel Kheti.' Loosely translated, as per a book he coauthored with Belgium environmentalist Johan D'hulster, it means 'periodic proportionate farming.' Key elements of this approach are crop rotation, organic farming, animal husbandry, food processing, planting and research for improving soil fertility and seed development. The farmer, known in the area as "pragatisheel" or progressive, advises farmers to not directly trade their produce in the market but to sell the processed extracts. For instance, sell paneer but not milk, and so on.

Drought-hit Maharashtra decides to convert canal network into pipeline

Drought-hit Maharashtra has decided to stop construction of canals to restrict indiscriminate use of water for cash crops like sugarcane and banana, and increase the State's irrigation potential. The State's one-lakh kilometres of underground canal network will now be converted into a pipeline to aid irrigation, save water, and encourage farmers to adopt drip irrigation. The State Cabinet passed a policy on building a pipeline for future distribution.

It has been contested that the canal network is always diverted to suit the interests of the rural rich. For example, in a dry Marathwada, the belt along the Godavari is well fed with the network, which is allegedly diverted by individual farmers. "We will not only reduce thefts, but also losses. With a pipe network, we will be able to irrigate 1,300 hectares of land instead of 1,000 hectares irrigated

with canals," said Water Resources Minister Girish Mahajan, adding that the pipeline will help the districts meet their target. Each district has a target of bringing 1,65,000 hectares under drip irrigation annually.

It is estimated that the pipeline will improve water efficiency and irrigation potential by 20%, reduce distribution losses by 40%, and bring down thefts, officials said. The move will help the government achieve the target set by the Maharashtra Water Resources Regulatory Authority (MWRRA) to bring more areas of water-intensive crops under drip irrigation by April 1, 2019. According to the MWRRA, the State has 225 lakh hectares that could still be brought under irrigation, but with increasing urbanisation, the water meant for irrigation is being lost in distribution and thefts.

A new PPP model for smallholder agriculture

Small holdings may be a constraint to achieving higher productivity, but there have been attempts to overcome this through a movement of producers' aggregation. This new model of 'PPP' or people-to-people partnerships is yielding positive outcomes. About two decades ago, some three-fourths of the value of India's agricultural GDP was constituted by staples like cereals, pulses and oilseeds. But today, that share has dimin-ished to a fourth; the balance is largely accounted for by so-called high value agriculture (HVA) produce that include horticulture, livestock, fisher-ies and fibres.

Significantly, it is small holders who cultivate less than five acres the average size of Indian farms is just over 2.8 acres who have invested heavily in HVA. Their share in the supply of HVA produce has registered steady increase. It attests to their ability to adapt to demand and compen-sate for smaller size of holding through producing crops that generate more value per acre. Small holdings may be a constraint to achieving higher productivity, but there have been attempts to overcome this through a movement of producers' aggregation. This new model of 'PPP' or people-to-people partnerships is yielding positive outcomes. Over a thousand farmer producer organisations (FPOs) have registered across the country in recent years, with their numbers growing every day. These new generation collectives are learning to overcome the constraints endured by the earlier wave of agricultural cooperatives, which clearly failed to de-liver on the promise of empowering farmer. The fresh effort at aggregation through FPOs has been boosted by stronger legislation enshrined in the Companies Act as opposed to the various state-level cooperative laws which guards against the political and bureaucratic capture of these institutions.

Two examples are worth mentioning here. The first one is a small project started in the early 1990s by an NGO, PRADAN, in Kesla block of Madhya Pradesh's (MP) Hoshangabad district to aggregate tribal women poultry producers. It has blossomed into a commercial venture spanning MP, Jharkhand, West Bengal and Odisha, clocking revenues of ₹286.92 crore last year. This unique cooperative enterprise has over 9,000 women shareholder-members, each provided assistance to set up a poultry unit of 400-1,000 birds. By locating 30-40 farms within a tight cluster, the enter-prise is able to achieve production and cost efficiencies one might see in industrial-scale farms. Commercial viability has further been ensured through a vertically integrated supply chain. The cooperative owns a state-of-the-art hatchery producing 8 million chicks per year and a modern feed unit, apart from providing management, financial and veterinary support services to its member.

The integration of the production chain has helped de-risk the enterprise's women poultry rearer members from marketing and financial volatility inherent to agricultural markets. The cooperative plans to expand by enrolling 20,000 women-farmers through its model that has proven to be viable, scalable and inclusive. Though the model's backbone has been the hardworking woman poultry producer, PRADAN's professional approach and committed cadre of workers are equally responsible. A similar success story, with an even larger membership of one lakh-plus farmers, to be cited is that of the Madhya Bharat Consortium of Producer Companies (MBCPC). This is an apex level producer company promoted by 49 FPOs in MP, with support from another committed NGO, the Bhopal based Action for Social Advancement. In its first full year of operations ended March 2016, MBCPC recorded a turnover of ₹69 crore and is targeting ₹100 crore in the current fiscal.

MBCPC has, in the past few months, procured over one lakh tonnes of pulses through its FPOs for government agencies. Besides, it has entered into two unique MOUs. The first is with EM3, a private agri-services provider to establish machinery banks for high-end farm equipment that can be custom-hired by MBCPC's farmers as per need. The second MOU is with the Jawaharlal Nehru Agricultural University at Jabalpur to source breeder seeds of crops like cotton and soyabean for multiplication. The resultant certified seeds will be directly marketed to farmers by MBCPC at prices significantly lower than that of leading brands.

There are many such producer aggregation experiments happening in other states, too, enabled by NGOs and private sector firms. Government policy in agriculture is still largely focused on subsidies, whereas what the sector requires especially with HVA today is institutional innovation that gives producers access to capital, technology and markets. With an enabling environment, many of the tiny FPOs now coming up can grow to scale and offer a rural version of the Start-up India story.

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Key Financial Indicators of the Bank as on 31.03.2016

(₹ in crores)

Sl. No	Particulars	Position as on 01.04.2015 (opening Balances)	Position as on 31.03.16	% of Increase/ Decrease
1	Paid - up Share Capital	101.98	109.27	7.15
2	Reserves	454.04	472.48	4.06
3	Owned Funds	556.02	581.75	4.63
4	Deposits	2871.57	3252.41	13.26
5	Borrowings	2909.10	3055.37	5.03
6	Investments including call & Short Term deposits	3006.05	2565.34	(-) 4.68
7	Loans & Advances	3435.43	4080.28	18.77
8	Net Profit (after tax)		16.97	

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Shri.Konduru Ravinder Rao
President, TSCAB

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