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Cooperative Agriculture & Rural Development Banks which are engaged mainly in financing investments in farm and non-farm sectors can contribute significantly to sustainable development goals approved by the United Nations. Sustainable development is defined as the development that meets the needs of the present without compromising the ability of future generations to meet their needs (Brundtland Commission). There is a fundamental conflict between economic development and sustaining natural resources. How to meet the requirements of present generation for a comfortable healthy peaceful living while repairing and protecting our planet is the most important challenge in sustainable development.

A distinction is often made between what is to be sustained and what is to be developed. It is generally agreed that economy, people and society needs to be developed while nature, life support and community should be sustained. The concept of sustainable development started getting wide attention since 80s on the realisation that increased pace of economic growth since the industrial revolution era resulted in depletion of non-renewable resources to a dangerous level causing irreparable damage to eco systems, endangering the very existence of mankind in the long run. These discussions resulted in developing various approaches to sustainable development, each one giving thrust on one or more of the elements to be developed or sustained. While millennium development goals focused primarily on issues in the people cluster, green economy approach combined development with preserving environmental life support systems. Strong sustainability has been another popular approach which emphasised protecting nature as it is unsubstitutable. It was in this context that the United Nations felt the need to develop a comprehensive approach covering the whole range of sustainable development issues for effective joint action by national governments and non-governmental agencies and started its work on sustainable development agenda 2030.

The United Nations General Assembly in September 2015 approved the sustainable development agenda consisting of 17 sustainable development goals and 169 targets encompassing social, economic and environmental dimensions of sustainable development. United Nations sustainable development goals attempt to address the following issues with specific targets to be

achieved by 2030. 1) Poverty, 2) Hunger, 3) Health and well-being, 4) Education and learning opportunities, 5) Gender equality and women empowerment, 6) Water and sanitation, 7) Energy, 8) Inclusive growth and decent work for all, 9) Infrastructure and innovation, 10) Inequality within and among countries, 11) Urbanisation issues, 12) Sustainable consumption and production patterns, 13) Combating climate change, 14) Sustainable use of oceans and marine resources, 15) Sustainable use and repairing and protecting terrestrialeco systems, 16) Peaceful and inclusive societies and 17) Global partnership for sustainable development.

Cooperatives by virtue of their people driven governance and commitment to meet economic social and cultural aspirations of their members are gaining recognition as appropriate institutions capable of promoting sustainable development at local community level. In developing countries, cooperative industry is a powerful tool for social and economic empowerment of people with limited means who otherwise would have been excluded from mainstream social and economic life. According to International Labour Organisation, cooperatives are highly relevant and important in the realisation of United Nations sustainable development goals. ILO in one of its recent publications highlighted the role cooperatives can play in sustainable development goals of poverty reduction, gender equality, food security and nutrition, employment creation, livelihood and equitable growth, sustainable natural resource management etc. Financial cooperatives especially ARDBs which are financing agriculture infrastructure need to reorient their operations to promote sustainable development. They have to ensure that the projects they finance should be based on sustainable management of natural resources and sustainable agricultural production. However, cooperatives though central to the realisation of sustainable development goals with their focus on members and local needs are generally found to be not proactive to national and international debate on the subject. There is a need for cooperatives to increase their visibility at national and international levels to enhance their participation in achieving sustainable development goals.

K K. Ravindran
Managing Editor

सब्जियों की पौध तैयार करने की प्लास्टिक प्लग ट्रे प्रौद्योगिकी

स्रोत—पूसा कृषि विज्ञान मेला, द्वारा संरक्षित कृषि प्रौद्योगिकी केन्द्र, भाकृअसं, नई दिल्ली

इस तकनीक द्वारा सब्जियों की पौध को तैयार करने के लिए प्लास्टिक की खानेदार ट्रे (Multi celled plastic tray) का प्रयोग करते हैं, ट्रे के खाने शंकू आकार के होने चाहिए क्योंकि ऐसे खानों में पौधे की जड़ों का समुचित विकास होता है। टमाटर, बैंगन व समस्त बेलवाली सब्जियों के लिए 18–20 घन से.मी. आकार के खानों वाली ट्रे का प्रयोग होता है जब कि शिमला मिर्च, मिर्च, फूलगोभी वर्ग की सभी फसलें व सलाद, सेलेरी, पारसले आदि सब्जियों को 8–10 घन से.मी. आकार के खानों वाली ट्रे उपयुक्त रहती है।

इस विधि में पौध को भूरहित माध्यम में उगाया जाता है। यह माध्यम कोकोपीट, वर्मीकुलाइट व परलाइट को 3:1:1 के अनुपात (आयतन के आधार पर) में मिलाकर बनाया जाता है। भूरहित माध्यम को पानी मिलाकर गीला करने के बाद ट्रे के खानों में भरा जाता है तथा बाद में उंगली से हल्के गड्डे बनाकर प्रत्येक गड्डे में एक एक बीज बोया जाता है। बीज बोने के बाद वर्मीकुलाइट की पतली परत से ढक दिया जाता है ताकि बीजों को अंकुरण के समय समुचित नमी मिलती रहे। वर्मीकुलाइट में नमी को अधिक समय तक बनाए रखने की क्षमता होती है।

सब्जियों के बीजों के अंकुरण के लिए 20 से 25 डिग्री सेन्टीग्रेड तापमान उपयुक्त होता है। यदि तापमान अंकुरण के अनुकूल है तो ट्रेज को बाहर ही रखा जा सकता है अन्यथा यदि तापमान 10–12 डिग्री सेन्टीग्रेड से कम है तो बीज बुआई के बाद ट्रेज को अंकुरण कक्ष (जो अस्थायी हो सकता है) में रखा जाता है। तथा अंकुरण के तुरन्त बाद ग्रीन हाउस में बने बेंच या जमीन से उपर उठाकर बनाई गई क्यारियों के उपर रखा जाता है। अंकुरण के एक सप्ताह बाद सिंचाई जल के साथ आवश्यक मात्रा में मुख्य तत्वों (नत्रजन, फास्फोरस व पोटैस) और समस्त सूक्ष्म तत्वों को भी दिया जाता है। इसके लिए बाजार में उपलब्ध विभिन्न अनुपात (20:20:20 या 19:19:19 या 15:15:15) में मिले नत्रजन, फास्फोरस व पोटैस उर्वरक जिन में सूक्ष्म तत्व भी मिले रहते हैं का एक टंकी में स्टाक घोल बना लेते हैं तथा उस घोल को गर्मी के मौसम में 70–80 ppm तथा सर्दी में

140 ppm तक सिंचाई जल के साथ मिलाकर ट्रेज में दिया जाता है। इस प्रक्रिया को फर्टीगेशन (Fertigation) कहते हैं। गर्मी में पौध का दिन में कम से कम दो बार पानी देने की आवश्यकता पड़ती है लेकिन फर्टीगेशन एक बार ही किया जाता है। सर्दी में दिन में एक बार ही सिंचाई या फर्टीगेशन किया जाता है। इस तकनीक से पौधे 25 से 30 दिन में रोपण के योग्य हो जाते हैं।

पौधों को तैयार होने पर ट्रे में बने खानों से बाहर निकाला जाता है। इस समय माध्यम के गुच्छे के चारों ओर जड़ों का सघन फैलाव सफेद धागों जैसा साफ दिखाई देता है। यह पौधे आसानी से खानों से बाहर निकल आते हैं। गर्मी के मौसम में पौध पर रोपाई से पहले दिन कीटनाशक का छिड़काव करना लाभदायक होता है। सामान्य तापक्रम होने पर रोपाई का कार्य सुबह या दोपहर में किसी भी समय किया जा सकता है परन्तु अधिक तापक्रम होने पर रोपाई का कार्य सांय काल में किया जाना चाहिए। इस पौध उत्पादन तकनीक को लघु उद्योग के रूप में अपनाया जा सकता है।

इस तकनीक के अनेक लाभ हैं।

1. भु जनित रोगों से मुक्ति।
2. शत प्रतिशत विषाणु रोग रहित पौध।
3. बेमौसमी पौध तैयार करना संभव।
4. कम क्षेत्र में अधिक पौध तैयार करना संभव व एक वर्ष में 5–6 बार पौध तैयार की जा सकती हैं।
5. पौध को ट्रे सहित दुर स्थानों तक ले जा ना संभव।
6. ऐसी सब्जियां जिनकी परम्परागत विधि से पौध तैयार करना संभव नहीं जैसे बेलवाली सब्जियां, की भी पौध तैयार की जा सकती है।
7. पौध की बढ़वार एक समान होती है।
8. पौध तैयार कर बेचने का व्यवसाय किया जा सकता है।
9. पौध तैयार करने की अवधि निश्चित है जो लगभग 25 से 30 दिन होती है।
10. यह तकनीक सामान्य तथा संकर किस्मों के बीज उत्पादन में बहुत उपयोगी हो सकती है।



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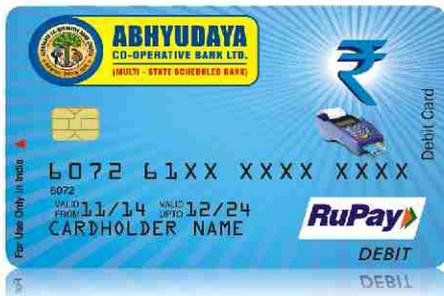
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Weather insurance – A shield against risks

Sohil Bhatt

In India, the agricultural sector contributes 17 percent of GDP and employs around 58 percent of the population, the Central Government closely monitors meteorological risks related to it and plays a key role in the financing of agriculture in general and agricultural insurance in particular. Climate risks, including rainfall, have a significant impact on the yields of farmers whose farms have an average size of 1-2 hectares, are rarely irrigated, and poorly supplied with water and thus dependent on the monsoon rains. Agriculture contributes much to farm income, which in return forms an important component of rural demand. In past, various schemes from State-run agencies tried various crop insurance schemes to secure the income of farmers. The schemes are, however, plagued with problems, apart from the fact that they are a heavy burden on the exchequer. Weather insurance was formally introduced in 2003 as a pilot, and by 2007 the government adopted it as an alternative to the yield index insurance. Around 40 crops are insured under the category for various climatic phenomena like deficit rainfall, dry-spell, excess rainfall, low temperature, high temperature, high humidity, and high wind.

Major private players in the crop insurance are also trying out weather insurance as one of their product which is a cheaper means to protect farm incomes. The logic behind this is more than half of India's cultivable land is non-irrigated and estimates show that a vast majority of the crop insurance claims have arisen because of deviations in the amount of actual rainfall from the normal average.

Weather Insurance embrace a quick claim settlement



based on a simple method of comparison of weather data with an index and thus a low cost procedure.

Weather

When we think of the word 'Weather', a picture of brown moving clouds comes to our minds. When we go deeper, we consider more options than clouds alone and thus come wind, heat, cold and humidity. The picture turns to a collage of all these and we describe the term 'Season'. 'Season' is a combination of all these and many other factors in certain proportions. Excess of one may increase or decrease another factor.

Seasons

In our country, 'Dincharya' is the term used to define the daily routine of a person and 'Hritucharya' is the rules to follow for a healthy living according to the season. Hritu is a Sanskrit originated word which defines the seasons.

India has 6 Hritu or seasons as below –

1. Vasant Hritu or Spring season – March to May



2. Greeshm Hritu or Summer season – June to July
 3. Varsha Hritu or Rainy season – July to August
 4. Sharad Hritu or Autumn season – September to November
 5. Hemant Hritu or Pre-winter season – November to January
 6. Shishir Hritu or Winter season – January to March
- Wind, Sunlight Rain, Humidity can be considered as some of the major components which build these seasons. The main cause of creation of seasons is the Change of axis of Earth around the Sun.

Monsoon

All the seasons are inter-related. What is sown by one season is harvested by the next one. Monsoon i.e. rainy season is a major phenomenon in the atmosphere which decides the fate of Indian Agriculture. It is built with the asymmetric heating of land and sea during the previous season i.e. summer.

Our country witnesses two monsoons i.e. South-West Monsoon and North-East monsoon. South-West monsoon is mostly prevalent in our country which starts from June and ends in September. Majority of the annual rainfall in the country happens during this period. It is caused by the rising of winds containing water vapour from the Indian Ocean and the water filled clouds causes rains all across the sub-continent.

Agriculture

The building blocks of our country are farmers who have adopted their lifestyle and agriculture based on these seasons where monsoon plays a major role. There are 2 agriculture seasons or cropping cycles. These are Kharif which runs from July to October and Rabi which is followed from October to March. Some farmers also follow a third season i.e. Zaid which span from March to May and called as summer cropping.

Kharif, which starts before the onset of monsoon and ends post monsoon is the season to grow crops which need a lot of water to grow. Major crops grown in this period are Paddy (Rice), Maize, cotton, and millets. Rabi crops are sown in winters and harvested in spring. Wheat, Barley and Mustard are the major crops grown for this season. There are other monthly half yearly, annual and multi-year crops grown in the country.

Risks in agriculture

Agriculture, the backbone of our country faces many risks and it struggles to cross all the hurdles to feed the country. The major risks involved are –

1. Production risk – Reduction in crop production can be because of any or all of the below factors -
 - Adverse climatic condition – Irregularity in rainfall, temperature, hailstorm, cyclone, flood, drought, etc.
 - Pests

- Diseases
- Wild animals

It has been estimated that, on an average 15 to 25% of the annual crop production is lost due to pests, weeds and diseases.

2. External risks – In an economy demand and supply of the market decides the way forward. In agriculture, below are the market driving forces –
 - Agricultural inputs (Fertilizers, seeds, pesticides) supply and their prices
 - Volatility in agriculture output prices
 - Lack of infrastructure and storage facilities
 - Changes in regulations
 - Changes in input and output supports, subsidies
3. Financial and Credit Risk –
 - Availability of formal credit – As the Government and banks are focusing more for financial inclusion, this risk is expected to reduce in the time to come.
 - Due to lack of resources available a lot of farmers prefer the money lenders and commission – agents.

Risk reduction mechanisms

While External and credit risks depend a lot on the regulations and availability of resources, production risk is the only one where farmer has to step in to reduce the loss.

1. Transfer of Technology (ToT) –

Lot of researches happen in agriculture where old methods are restored as well as new technologies are developed. Below are some of the examples of how various procedures can be followed for risk reduction –

- Crop diversification
 - Inter/ mixed cropping
 - Staggered planting
 - Use of High Yielding Varieties (HYVs) or pest/ drought resistant varieties
 - Integrated agriculture involving dairy, poultry or fishery
 - Use of advanced farm equipments
2. Weather Risk Management –

Weather Risk Management is also a step where farmer can enter to avoid the financial risk associated with crop production.

Insurance is a mechanism where risks of a large number of people are pooled together and whoever among the same group faces loss has been compensated. Unlike other forms of insurance like Life insurance, health insurance, property or vehicle insurance, in weather insurance, claim payout is calculated by deviation in crop production due to adverse weather parameters. Below are some of the peculiarities which make weather insurance different from other forms of insurance –

- Policy is given on the number of days of cropping cycle or stage. E.g. – Sowing stage, growing stage or harvesting stage. Policy can be in days or in months.



- Claim of a weather based crop insurance policy is given based on atmospheric data.
- The claims are calculated and released without even claiming for it by the insured person. The Insurance Company procures the weather data from the Meteorological weather stations and then calculates and pays the claim.

The term 'Weather Insurance' seems difficult, but the concept is easy to understand.

The need

In every season, before starting cultivation, every farmer decides on what crop to cultivate, how the various arrangements like input material and farm equipments will be made and how the produce will be marketed.

There is a need to aware farmers about the insurance scheme at this stage. In all new regions where agriculture related schemes have never been introduced, it becomes difficult for the farmer to understand the importance of a weather or crop insurance scheme. As the involvement of insurance companies and focus by government is increasing, the awareness amongst farmers on this subject is expected to increase and they will be able to allocate a portion of their budget for insurance scheme.

The first stage of cultivation is sowing where natural perils like flood, drought, disease or pest can attack and destroy the crop in the initial stage only. The farmer can take an insurance policy only for this period. If anything goes wrong, the loss in investment which the farmer has made will be compensated through the insurance policy.

Similarly, for a different crop also and in same or different stage, the farmer can take an insurance policy to cover any financial loss against damages due to the mentioned natural perils.

In Kharif, there is excessive heat during the initial days. So, a policy covering loss due to 'excess temperature' can be taken. Policy against unseasonal rainfall can also be taken for the crops where no rainfall is required during initial stage. Last year, many parts of the country faced deficit rainfall during the monsoon period. The farmers who would have taken a policy against deficit rainfall would not have faced financial losses due to scarcity of water causing damage to crops. This year, the rainfall is high as compared to last year in some parts of the country. A farmer with an 'excess rainfall' insurance policy may get the loss compensated in case the excess rainfall crosses the defined limit of the policy.

Many times, we face unexpected monsoons i.e. either a shortfall in rains or excessive rains. Opting for weather based crop insurance policy against the risks like temperature, rainfall etc. helps in sailing above the financial burdens.

Weather based crop insurance – how it works?

The major weather parameters impacting a crop are Rain and Temperature. When the decision of providing weather insurance in a particular geography is made, the insurance company does the calculations based on historical atmospheric and crop data and prepares a document (Sometimes called as Term sheet). This document has below points –

- Name of the crop
- Season
- Date of cover (From ... to...)
- Location name (District and Tehsil)
- Stage of crop for which insurance is required
- Reference Weather station name from where data will be procured for calculation purpose
- Name of the Insured peril (i.e. Rainfall or Temperature)
- Minimum and maximum range of the peril
- Sum Insured per unit area i.e. maximum loss which will be paid
- Premium per unit area
- Notional amount
- Description on how the insurance will work

Notional amount is the amount in rupees which a farmer will get for a degree of change in the given range of insured peril.

For e.g. – The suitable range of rainfall is given as 25 mm to 35 mm for a certain crop and notional value is given as ₹20. If rainfall of 36 mm happens, the farmer will get the amount of loss which occurred due to 1 unit (difference of 36 and 35 = 1) of excess rainfall. The notional value is ₹20. So, with 1 mm of excess rainfall, farmer will get ₹20.

Similarly, if rainfall of 10 mm is recorded, the insurance company will pay for 15 (25-10 = 15) units of deficit rainfall. This 15 will be multiplied to 20 which is the notional value = 20 X 15 = 300. The farmer will get ₹300.

The above one is the simplest example of deficit and excess rainfall. Insurance companies design a variety of such term sheets based on the needs of the farmers and Government. Some types of weather based crop insurance include excess rainfall, deficit rainfall or both high temperature, low temperature or both, consecutive days rainfall, average temperature exceeding or below a limit for certain number of days, multiple index, etc.

All these parameters affect the growth of a crop and thus such variation based on the crop and growing stage are required.

The insurance can be provided on 'Individual Approach' basis i.e. to each individual farmer or to 'Homogenous Area Approach' which involves insurance to group of farmers living in certain geography.

Schemes on crop insurance

From time to time, Government has tried to provide



Crop Insurance to farmers to help them cope with the financial losses. There are various crop insurance schemes launched by the Government where subsidy support is also given by the Government. Some of the major schemes are –

- Pilot Crop insurance Scheme (PCIS) – Introduced by General Insurance Company in 1979
- Comprehensive Crop Insurance Scheme (CCIS) – Launched by Government in 1985
- Experimental Crop Insurance Scheme (ECIS) – It was implemented in 1997
- Farm Income insurance Scheme (FIIS) – Introduced as pilot in 2003-04
- National Agriculture insurance Scheme (NAIS) – This was a broad scheme introduced in 1999-2000 and replaced CCIS
- Modified National Agriculture insurance Scheme (mNAIS) – Pilot was implemented from 2010-11
- Weather Based Crop Insurance Scheme (WBCIS)
- Coconut Palm Insurance Scheme (CPIS)

The latest schemes introduced are

Pradhan Mantri Fasal Bima Yojna (PMFBY) – This was launched by Prime Minister of India in 2016. It replaced the existing mNAIS and NAIS.

Unified Package Insurance Scheme (UPIS) – It is also introduced along with PMFBY in 2016. Along with crop insurance, it covers a lot of other risks associated with the farmer.

Pradhan Mantri Fasal Bima Yojna (PMFBY)

Objective of this scheme is to -

- Stabilise the income of farmers and ensure continuance in the sector
- Encourage the farmers to adopt innovative and modern practices
- Ensure flow of credit to the agriculture sector

Eligible beneficiaries

- All farmers including sharecroppers and tenant farmers growing the notified crops in the notified area (should have insurable interest).
- Compulsory insurance is given to loanee farmers.
- Voluntary insurance to Non-loanee farmers (on submitting land records in the State (Records of Right) and/ or Land possession Certificate (LPC) etc.) and/ or applicable contract/ agreement details (in case of sharecroppers/ tenant farmers).

Few of the salient features of the scheme are –

- Area Approach basis will be followed for yield losses as well as for prevented sowing.
- Individual farm basis will be followed for localised calamities like hailstorm, landslide and inundation.
- The scheme not only covers the weather based risks

but damage of crop due to other parameters like pests and diseases.

- Various insurance companies will be called as the implementing agencies of the scheme.
- If losses exceed 350%, at national levelling a crop season, Government will provide claim losses to the implementing agency.
- Involvement of State is important in the complete process. State Government and concerned Implementing Agency will be responsible for entry of all requisite information/ data in the crop Insurance portal well in time so that information may be available in digitized form to all stakeholders.
- The scheme will run with joint effort of all the stakeholders' viz. farmers, insurance companies, financial institutions and Government agencies on an IT platform to ensure better administration, coordination and transparency for getting real time information and monitoring etc. The Government of India has recently designed an insurance portal www.agri-insurance.gov.in.
- Further, to ensure better administration and ease in accessing information by farmers, an android based "crop insurance app" has also been launched.
- States implementing PMFBY shall be entitled for 50% reimbursement of incremental expenses in Crop Cutting Experiments and cost of smart phone technology.
- Crop Cutting Experiments (CCE) will be conducted in the farms for estimation of crop yield and losses. Sample size on Crop cutting Experiment is also defined in the scheme.
- Season-wise rates are fixed for the farmers. Based on the premium calculation provided by insurance company, premium above the farmers fixed rate will be provided by government as subsidy.

Unified Package Insurance Scheme (UPIS)

The risks covered by UPIS are –

1. Crop Insurance
2. Fire and allied perils for residential house and household contents
3. Personal Accident cover – Coverage as per Pradhan Mantri Suraksha Bima Yojna
4. Agriculture Pump-set Insurance
5. Agriculture Tractor Insurance
6. Student Safety Insurance
7. Life Insurance cover – Coverage as per Pradhan Mantri Jeevan Jyoti Bima Yojna

Conclusion

Our country is one of the largest growing economies of the world and agriculture is the backbone of this. We have to continuously take effective steps to mitigate all the risks related to farming. Insurance is the way to fight against the



S. no.	Season	Crops	Maximum Insurance charges payable by farmer (% of Sum Insured (SI))
1	Kharif	All food grain & oilseeds crops (All Cereals, millets, pulses & oilseed crops)	2.0% of SI or Actuarial rate*, whichever is less
2	Rabi	All food grain & oilseeds crops (All Cereals, millets, pulses & oilseed crops)	1.5% of SI or Actuarial rate, whichever is less
3	Kharif & Rabi	Annual Commercial/ Annual Horticultural crops	5% of SI or Actuarial rate, whichever is less

*Actuarial Rate – Premium rate as per calculation of the implementing agency

risks to agriculture. With the improvement in Weather & Crop Insurance schemes, we hope that the future is going to be brighter.

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Technology bloom in banking sector – Ways for prevention of crimes and safe banking

Dr. P. Selvaraj

Introduction

We are living in a modern world and our life style is in transformation stage. One cannot think of any activity without an element of information technology today. It may not be an exaggeration if we call this era as mobile or whatsapp era. Younger generation spends the entire day with mobile and technology. The impact could be seen in every industry and banking is not an exception. Today almost all banks are implementing technology banking products. Earlier one has to visit bank branch with 2 to 3 passport size photographs, introduction of existing customer, ID and cash for opening a Saving bank account and wait for long to get the work done. Now new accounts could be opened online without visiting the bank branch. The technology development has resulted in banking without “banks”.

Thieves, criminals’ and kidnappers co-existed as a part of mankind for many centuries in the world. They were physically involved in the act. But today modern thieves do not require sword, knives or pistol to rob. They use technology or simply a computer to steal our wealth or valuable information of credit card or bank details. As the popular saying goes “problems which can be solved by us are called problems and which cannot be solved by us are called environment”. So we need to be careful in safeguarding our wealth. Today one, especially youth, enquires about the availability of technology banking before opening bank account. But it is also fact that financial literacy is yet to reach remote corners especially villages in our country. My father used to withdraw money in ATM and immediately rush to bank branch to get the entry done in his passbook, to have a peaceful sleep. This article discuss in brief the recent developments in banking as well as precautions for safe banking. Technology is like a sharp knife, which will cut vegetables nicely and if we are casual it may chop off the fingers as well.

Banks in India

There are various type of banks in the country. The banks could be classified as Commercial Banks, Regional Rural Banks and Cooperative Banks. Commercial banks

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can further be understood as Public sector banks, Private Sector Banks and Foreign banks. The following is the network of banks in our country as on 31 March 2013.

Category	Number	No of branches
1. Commercial banks		
SBI & Associates	6	21,301
Nationalized Banks	20	54,478
Total Public Sector	26	75,779
2. Private Sector Banks		
Private Sector - old	13	6,283
Private Sector- new	7	9,718
Total Private sector	20	16,001
3. Foreign Banks	43	334
All Scheduled CBs	89	92,114

Source: Profile of Banks RBI

Regional Rural Banks are banks which are sponsored by Public sector commercial banks and they have the characteristics of cooperative banks and business acumen of commercial banks. As at the end of March 2015 there were 56 RRBs. Cooperatives came in a big way, around the turn of 19th century. These banks have vast network in length and breadth of our country and more closer to the farmers/ members. The following is their network of banks as on 31 March 2015.

	Category	Number
A	Urban Cooperative Banks	1,579
1	Scheduled UCBs	50
	Of which, Multi State	29
	Single State	21
2	Non Scheduled UCBs	1529
	Of which, Multi State	22
	Single State	1507
B	Rural Cooperative Banks	94134
1	Long Term RCBs	690
	State Cooperative Agriculture and Rural Development Banks (SCARDBs)	17
	Primary Cooperative Agriculture and Rural Development Banks (PCARDBs)	673



	Category	Number
2	Short Term RCBs	93444
	State Cooperative Banks (StCBs)	32
	District Central Cooperative Banks (DCCBs)	370
	Primary Agriculture Credit Societies (PACs)	93042
	Total Credit cooperatives	95713

Source RBI, NAFCARD, NAFSCOB

In addition to the above now we have following new banks also.

- Bhartiya Mahila Bank
- IDFC bank
- Bandhan Bank Limited

Reserve Bank of India has in Aug. 2015 granted "in-principle" approval to the following 11 applicants to set up payments banks. This "in-principle" approval will be valid for a period of 18 months, during which time the applicants have to comply with the requirements stipulated by the Reserve Bank. Then RBI would consider granting to them a licence for commencement of banking business under Section 22(1) of the Banking Regulation Act, 1949 enabling them to undertake any banking business.

1. Aditya Birla Nuvo Ltd (Idea Cellular)
2. Airtel M Commerce Services Ltd
3. Cholamandalam Distribution Services Ltd
4. Department of Posts
5. Fino Pay Tech Ltd
6. National Securities Depository Ltd
7. Reliance Industries Ltd
8. Dilip Shantilal Shanghvi
9. Vijay Shekhar Sharma (Paytm)
10. Tech Mahindra Ltd
11. Vodafone m-pesa Ltd

Of the above, SI No. 3, 8 and 10 have withdrawn their plan and others are in various stages of complying the requirements.

Similarly there are 10 Small Finance Banks, who got license from RBI in Sept 2015 for starting the operations by April 2017. They are

- Au Financiers (Jaipur)
- Capital Local Area Bank (Jalandhar)
- Disha Microfin (Ahmedabad)
- Equitas Holdings (Chennai)
- ESAF Microfinance and Investments (Chennai)
- Janalakshmi Financial Services (Bengaluru)
- RGVN (Northeast) Microfinance (Guwahati)
- Suryoday Micro Finance (Navi Mumbai)
- Ujjivan Financial Services (Bengaluru)
- Utkarsh Micro Finance (Varanasi).

Further, there are four All India financial institutions namely Export-Import Bank of India (EXIM Bank), National Bank for Agriculture and Rural Development (NABARD), National Housing Bank (NHB), MUDRA (Micro Units Development Refinance Agency) and Small Industries Development Bank of India (SIDBI). They play a salutary role in the financial markets through credit extension and

refinancing operation activities and cater to the long-term financing needs of various sectors.

Technology in Banks

Technology adoption has changed the face of banking in India, especially in payment systems. The movement of cheques for collection (which used to take 15 days) was stopped with introduction of cheque sorters, MICR-based clearing, Electronic Clearing System (ECS), Cheque Truncated System (CTS) and later to National Electronic Funds Transfer (NEFT) and Real-time Gross settlement systems (RTGS) with no waiting period. As a result, after the establishment of National Payment Corporation of India (NPCI) we have the fastest interbank money transfer through secured banking channels in our country now. The developments could be traced as follows

- Introduction of MICR clearing in early 1980s
- Introduction of ECS and Electronic Funds Transfer in the 1990s
- Issue Credit and Debit cards by the banks was permitted by RBI in 1990s
- Interconnectivity of ATMs across the country by National Financial Switch in 2003
- Introduction of RTGS and NEFT by RBI in 2004 after CBS in banks
- NPCI was incorporated in December 2008 and the Certificate of Commencement of Business was issued in April 2009
- National Finance switch in Jan 2010
- Immediate Payment Service (IMPS) started in October 2010
- Introduction of CTS in April 2011
- Launch of RuPay – a domestic card payment network in March 2011
- RuPay ATM in June 2011 and PoS in March 2012
- Aadhaar payment Bridge system (APBS) in Feb 2013
- RuPay International in July 2013
- New RTGS with enhanced features in Oct. 2013
- USSD based National Unified USSD Platform in Aug. 2014
- Unified Payment Interface in April 2016

According to Shri S. S. Mundra, Deputy Governor, RBI, as at the end of March 2015, the no. of transactions handled under RTGS was 9.28 crore and volume was ₹754 lakh crore. Under the retail payments (including paper clearing and retail electronic clearing), the No. of transactions handled was 168.70 crore and the volume was ₹65 lakh crore. Further, the volume and value of card payments was 173.70 crore transactions with a value of ₹3,30,000crore..

Implementation of Core Banking Solution (CBS) in StCBs and DCCBs which was started in 2012 has been completed in all 32 StCBs and 347 licensed DCCBs. These banks can now offer RTGS and NEFT facilities to their customers through direct or sub-membership route and



also participate in Direct Benefit Transfer Scheme. RBI has already circulated the criteria for offering mobile and internet banking facilities by these banks. Technology adoption in cooperative sector is getting momentum. As at the end of December 2015, there were 1,93,678 ATMs in the country. In addition we have 10,983 White label ATMs also. The number of debit cards issued was 64.31 crore while that of credit cards was only 2.27 crore. There were 12.45 crore PoS (Points of Sale) which are linked to banking system. This gives an idea of volume of technology banking in our country.

By 2020 the average age of India will be 29 years and this young consumer base would be internet savvy and want real time online information. Their waiting period would be less than 20 seconds for any activity. So to meet the demand, Indian banks need to aspire high and move towards implementing a world class technology banking capability. Today many banks are offering the following technology products to the customers

- ATM (Automated Teller machine) where money can be drawn and deposit at any time.
- POS (point of sale) one can purchase using cards in mechanize establishment
- Mobile banking
- E wallets
- Internet banking
- Phone banking
- RTGS and NEFT money transfers
- For safe banking - SMS alert services, e mail alert services, One Time Pass words, Authentication
- Money transfer from card to card and even through Social media (Twitter)

Cyber crime

Computer crime, cyber-crime, e-crime, hi-tech crime or electronic crime generally refers to criminal activity where a computer or network is the source of a crime. In simple words Cyber-crime is an unlawful act, wherein the computer is either a tool or a target or both. Cyber Crimes in India are registered under two different acts, the Information Technology Act 2000 and the Indian Penal Code (IPC). The numbers of cases registered under the IT Act and IPC have been growing continuously. The cases registered under the IT act grew at more than 50% in 2012 & 2013. The cases registered under the IPC in 2013 more than doubled from 2012. Similar trend is observed in the number of persons arrested. It is a fact that with the introduction of technologies, devices including smart phones and complex applications, and rise in usage of cyber space for businesses, cyber-crimes are on the rise in the country. The list of states with the highest incidence of cyber-crime for the period 2011 to 2013 throws no surprises. Maharashtra tops the list with more than 1800 cases in the 3 years while Andhra Pradesh (including Telangana) is a close second with about 1500 cases.

Karnataka stands third while Kerala is fourth. The top states in this list are the ones with the highest internet subscriber base. Unlike in other counties, reliable data on volume of frauds and crimes are not available in public domain in our country.

Precautions for safe banking

One lady in a village withdrew all her money from ATM and requested the Branch manager to keep it in her SB account, quoting a news item of ATM fraud in newspaper. One need not worry to this extent. There is a saying in China "Cross the river by feeling the stones". We need to be careful and protect our hard earned money. When technology is developing making our life comfortable, with easy access etc., the intruders and criminals are also finding their way through cybercrime. Giving tips is like talking about driving in the class room. One has to be very careful and vigilant, while availing the technology banking. However, there is no doubt that the following points will help you, for safe banking and prevent untoward incidents to our accounts.

- In your credit/debit card there is one 16 digit number. First digit identifies the major industry that produced the credit card; digits 2 to 6 provide a unique identifier for a particular bank Taken together, the first six digits are called the issue identifier number. Digits 7 – 15 is called Unique Personal Identifier related to your account and the last digit is called a check digit which is used to verify card numbers for accuracy. In the back side you have three digit CVV (Card Verification Value) number, which has to be hidden / erased after memorizing and signed in the space provided as security measures.
- "Password" is highly secretive information and not to be "passed on" to anybody, whatever closeness you may have. It is a key to open your bank account. A bank was trying hard to locate the cyber-crime culprit and later it was found to be none other than the account holder's son, who always used to accompany his father to ATMs. So, you should be alone inside ATM while doing the transactions. Memorize your PIN (Personal Identification Number) and do not write it down anywhere and certainly never on the card itself. •Keep hands close to ATM key pad as we do while writing examinations, in olden days. Press the "Cancel" key before moving away from the ATM. Always wait till the ATM returns to the idle mode and the green light is blinking and remember to take your transaction slip with you.
- If ATM card is lost or stolen, report it to your bank either in person or through the call centre immediately. They may guide you for filing case with cybercrime police station.
- Frequently monitor and check your account for the transactions. It is very much required in this computer-



ized world. One of my friends used to credit his wife's account without informing her, just to give her surprise. Later, he got surprise of his life time, that he has wrongly indicated the last two digits of A/c number as 26 instead of 62.

- Register your mobile and email Id with your bank for SMS alerts to keep track of your card transactions.
- Keep a watch on your card while making payment at merchant establishments/ POS, to ensure that it is not swiped on multiple devices/times and collect it back.
- While doing internet banking check for genuine site, "https" and padlock icon. Fake web sites look more beautiful and attractive than the original sites.
- Never reply emails or phone calls, which ask for your personal and confidential details. One of my friends disclosed the card number to a sweet lady voice, which spelt out the last four numbers (taken from the transaction slip from ATM) of his card. He thought that the other side was from bank as the digits informed were correct. If you get a mail informing you huge free gift/ upgrade, renew or validate your account and asking urgent action, it is a trap. No bank asks you these information. People are getting fake mails in the name of Governor of RBI with logo.
- Do not open e-mails or attachments received from people you don't know.
- Always remember to log off after completing online session, clear your cache, and close your browser. Avoid financial transactions from a cybercafé or shared computer in office.
- Upgrade your home computer to a legitimate (non-pirated) operating system with a firewall and anti virus/anti-spyware software. Prevention is better than cure.
- Do not save confidential information like debit/credit card numbers, CVV or PIN in your mobile phone. People

steal mobiles for these information also.

- Use of free public or shared Wi-Fi, you may unwittingly accept a malware application, which in turn will access information of your mobile banking.

Conclusion

Technology explosion in banks today has made banking a comfortable and enjoyable one. Our country is in a mission for digitization. RBI, NPCI and all banks have taken lot of care and preventive measures in fine tuning their products to ensure safe and secured banking transactions. Today nobody needs to visit the branch and wait in queue for doing any transactions. In emergencies one can withdraw cash and pay hospital bills or transfer cash across the world in seconds, anytime and from anywhere. It is all in our fingertips. This is really a boon. A recent study by Google found that many customers are worried about mobile banking security. This is mostly due to a misunderstanding or lack of knowledge of security features. Technology banking is almost like driving. The more you fear you will never drive and if you are careful, not only you enjoy the ride but also share your happiness with your partners.

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Community radio and financial inclusion for empowering rural women

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Financial inclusion is the delivery of financial services at affordable costs to vast sections of disadvantaged and low income groups. Financial inclusion (FI) can be defined as “access to fair, appropriate, cost effective financial products and services by mainstream service providers to a certain segment of society.” It can also be defined as the delivery of financial services at an affordable cost to vast sections of disadvantaged and low income groups. FI is not an end in itself, it is a gateway to a better life, better living and better income; a process that makes access to financial services possible and provides equal opportunity for availing adequate and timely credit. FI opens up the financial system for those who could not earlier muster up the resources to improve their lives, but now with easy access to savings, loans, insurance and affordable rates these opportunities are not out of their reach. The

Indian banking credit system in the last decade has registered a significant growth, which has enabled them to diversify their portfolio.

History evolution of financial inclusion

Policy makers have grappled with the issue of reducing the scope of informal sector since colonial times. Nicholson report (1895) was the first to highlight the need to establish “Land Banks” as an alternative to dominance of money lenders resulting, the cooperative credit societies Act, 1904 was passed to provide, amongst other things, a legal basis for cooperative credit societies. Even after 70 years of independence, a large section of Indian population still remain unbanked. This malaise has led generation of financial instability and pauperism among the lower income group who do not have access to

Historical Perspective

1	1954	All-India Rural Credit Survey Committee report -suggested Multi-agency approach for financing the rural and agricultural sector.
2	1963	Formation of Agricultural Refinance Corporation.
3	1969	Nationalization of 14 major Private Banks – The flow of agricultural and rural credit witnessed a rapid increase
4	1972	Mandatory system of Priority Sector Lending (PSL)
5	1975	Establishment of RRBs
6	1980	Nationalisation of 6 more private banks
7	1982	Establishment of NABARD through the transfer of RBI’s agricultural credit department Provision of bank credit under Govt. Sponsored Subsidy Schemes Linking Agricultural Credit Targets at 18% with individual bank’s net bank credit
8	1990	Implementation of the concept of Village level credit planning for 15 to 20 villages allotted to each of rural, semi-urban and urban branches of PSBs and RRBs under Service Area Approach
9	1990	Formulation of potential linked credit plan for each district annually by NABARD
10	1990	Agricultural Debt Relief Scheme and Financial Sector Reforms
11	1992	SHG-Bank Linkage as the most suitable model in Indian context a/c to NABARD
12	2000	Reforms sharply focused on Agricultural credit
13	2004	Doubling the flow of agricultural credit – implementation of agricultural credit package
14		Annual Special Agricultural Credit Plan (Discontinued by RBI since April 2016)

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Importance of financial inclusion in India

The policy makers have been focusing on financial inclusion of Indian rural and semi-rural areas primarily for three most important pressing needs.

- [1] Creating a platform for inculcating the habit to save money -The lower income category has been living under the constant shadow of financial duress mainly because of the absence of savings.
- [2] Providing formal credit avenues – So far the unbanked population has been vulnerably dependent of informal channels of credit like family, friends and moneylenders. Availability of adequate and transparent credit from formal banking channels shall allow the entrepreneurial spirit of the masses to increase outputs and prosperity in the countryside.
- [3] Plug gaps and leaks in public subsidies and welfare programmes– A considerable sum of money that is meant for the poorest of poor does not actually reach them. While this money meanders through large system of government bureaucracy much of it is widely believed to leak and is unable to reach the intended parties. Government is therefore, pushing for direct cash transfers to beneficiaries through their bank accounts rather than subsidizing products and making cash payments.

Role of RBI to support financial inclusion

- [1] Initiation of no-frills account – These accounts provide basic facilities of deposit and withdrawal to accountholders makes banking affordable by cutting down on extra frills that are no use for the lower section of the society. These accounts are expected to provide a low-cost mode to access BANK ACCOUNTS. RBI also eased KYC (Know Your customer) norms for opening of such accounts.
- [2] Banking service reaches homes through business correspondents – The banking systems have started to adopt the business correspondent mechanism to facilitate banking services in those areas where banks

are unable to open brick and mortar branches for cost considerations. Business Correspondents provide affordability and easy accessibility to this unbanked population. Armed with suitable technology, the business correspondents help in taking the banks to the doorsteps of rural households.

- [3] EBT – Electronic Benefits Transfer: To plug the leakages that are present in transfer of payments through the various levels of bureaucracy, government has begun the procedure of transferring payment directly to accounts of the beneficiaries. This “human-less” transfer of payment is expected to provide better benefits and relief to the beneficiaries while reducing government’s cost of transfer and monitoring. Once the benefits starts to accrue to the masses, those who remain unbanked shall start looking to enter the formal financial sector.

Radio Programs to be broadcast on Radio Mewat

Radio Mewat is one of the few Community Radio Stations whose reach has grown with every passing day. Its popularity is evident in the increasing number of calls and participation of the community in its programs. Radio Mewat has become a strategic media tool. The ability of the medium to create dominant share of mind is a product of its intrusiveness and the high frequency with which ads are broadcast. With TV, radio is traditionally used to add to the length of a campaign or to fill weeks where there is no TV activity. It would also be used to explain products or services in more depth, or to include additional information. Radio can also, like TV, bring things to life by the addition of personality by the tone of voice. The radio programs would have a new approach and the new programs will only be 50 in number with a special emphasis on Kisan Credit Card and the new efforts and schemes. Another 50 programs would try to cover the new success stories and interviews of the managers. The rest of the 400 programs would be repeated from the earlier



archive as well as from the newly produced programs. A daily program of 30 minutes –five days a week- on financial inclusion for environment building will be broadcast and repeated the afternoon. The content would be:

- [1] The schemes and opportunities that banks provide through a daily program on financial inclusion.
- [2] Interview of experts /bank managers/ officials etc and host Q and A sessions.
- [3] Projection of success stories of people who could come out of the clutches of the money lenders after availing credit facilities of the banks.
- [4] Host programs on benefits of the different kinds of credit cards.
- [5] Highlight education loans, house building loans, benefits to SHGs, etc.
- [6] Produce programs to simplify application processes, inform of the limited schemes, highlight interest rates, encourage savings and credit habits/facilities and also re-emphasize the practice of repaying loans on time.
- [7] Empower the people through information and education on FI true to its mandate, Radio Mewat, would serve as a bridge between the community and the banks and informed and empowered the community on issues related to business and banking.

Financial inclusion in Mewat

Financial inclusion in Mewat is permeating through the society at a rapid pace. More and more families have been included in the banking sector. NABARD and the lead bank, Syndicate Bank, along with the Rural Bank- Sarva Haryana Grameen Bank, have been working relentlessly to achieve 100 per cent financial inclusion in the district. To achieve the objectives of this mission NABARD decided to engage with Seeking Modern Applications for Real Transformation (SMART) a not for profit organisation registered under the Society's Registration Act, 1860. Providing media and communication technologies for developing new paradigms for social transformation, SMART, conceives strategies to improve to the quality of life of the community especially women and children. Poverty, according to the organization, has a woman's face, and that literacy and information are major tools for inclusive growth, eradicating poverty, enlarging employment opportunities, advancing gender equality, promoting democratic participation and for empowering people. The endeavour is then, to provide awareness with a view to enhance existing skills and support sustainable growth models for the underprivileged sections to think, act and exercise their choices to their maximum potential.

Project FI 2012-13

SMART believes in creating awareness to enable people to exercise their choices. In line with this mission it started its project on Financial Inclusion with support from NABARD in 2012. This initiative was a first of its kind. Never

before had any organization worked with the community on FI and informed them about the advantages of engaging with banks. Majority of the community was in the clutches of petty lenders and they had no idea about how to access banking facilities or build linkages with financial institutions. The objectives of the programme were:

- [1] To build an environment in favour of financial inclusion
- [2] To inform and educate the masses through 200 radio programs and repeat broadcast.
- [3] To help the community access banking services.
- [4] To help overcome reduce hurdles in accessing financial services.
- [5] To work closely with the banking staff and help in completing the standard procedures for opening account and accessing services.
- [6] To help the community benefit from the services provided by the banks. The idea was to inform the community about borrowing and lending facilities, low rates of interests, Self help groups, Joint liability groups, Kisan credit cards, Farmers Clubs and more.

SMART in consultation with NABARD fixed targets for itself. It adopted a two pronged approach- firstly it created awareness on all components of FI through its community radio and second, it facilitated access to banks and the banking services through its field workers. SMART with support from NABARD and the other banks succeeded in meeting all its targets and more. The targets were:

- [1] 200 programs to be broadcast on Radio Mewat (a community radio station licensed to and operated by SMART).
- [2] Open 10,000 accounts, 50 SHGs, 20 JLGs, 50 KCCs, 50 SCC/GCC, 10 Farmer Clubs, 50 general loans and deep engagement with the community and the banks.

The program was the first of its kind, at least in Mewat, Haryana, where access to banking services for women, landless and petty farmers was limited. Through over 200 fresh programs, the community was apprised about things like a cheque book, its use, need to open accounts, form SHG groups, establish linkages with banks, education loan, vehicle loan, farm loan, crop insurance, micro insurance, life insurance, Kisan credit card, farmers clubs etc. As a result of this intervention Radio broadcast 205 fresh programs, and repeated each program at least twice. It helped open 10000 accounts, 52 Self Help Groups, 28 Joint Liability groups and helped each of the groups get a loan of ₹25000 each, got 112 KCCs issued, 73 SCC/GCC issued, got 60 general loans sanctioned and helped form 29 farmer clubs in a period of 13 months. This was the highest number achieved, in a year, by any organization through information and hand holding. A number of group discussions were held, interaction with banks and insurance agencies were organized, success stories were broadcast, facilitators were provided for ensuring that the



beneficiary did not face any hurdle. The list achievements along with documentary evidence in the form of account numbers etc were submitted to NABARD and the project came to a close in a little over a year.

Financial Inclusion project 2013-14

The aim was to reach out to every household in the identified villages. Using FI as an empowering tool for poor communities, it was felt that information on all components would be essential for establishing economic goals that facilitate the management of cash flows, minimize debt and support informed financial decisions that guarantee economic security. These skills are particularly important for the rural and urban poor and can help mitigate the risks associated with unpredictable economic and social circumstances. Financial literacy can contribute to building capacities and increasing confidence in decision making and money management- the transfer of these skills can be particularly empowering for women, and can translate into increased bargaining power within the household.

Impact of financial inclusion on community people

The FI project in Mewat benefited approximately 50,000 households directly. Benefits of the project reached to the farmers, small businesses, self help group members, students, youth, entrepreneurs and labors. The program was very timely as the Gurgaon Grameen Bank was being changed to Sarva Haryana Grameen Bank and as it was also expanding its base and the branches in villages where the demand had been created through the programs. The Prime Ministers Jan Dhan Yojna was also launched at a time when the ground had already been set for opening of accounts. The environment for FI and its products had been created. The lack of belief in insurance has been a major gap in the FI process. Efforts were made to make people realize the benefits of insurance be it for crops, life or accidents. A culture of loan repayment was also inculcated through personal interactions and special programs on need for loan repayment and consequences of default were also produced. The success stories were documented and became a source of inspiration for others.

The program had several deliverables. The Radio was used as a medium to inform and educate the masses about the advantages of the banking services, the easy payment of loans, the access to a wide range of financial services etc. A list was drawn up of all the services available and accessible in Mewat, through the banks. Programs were divided into different sectors and each of the sector was accompanied by success stories of people who had benefited, interviews with Bank managers, to

make them accountable and accessible etc. Radio Mewat, with support from its parent NGO, SMART, delivered much more than the targets set. The achievement rate was far more than expected. There is a demand for the continuous broadcast of the programs. The business model is very simple. Information is given, people access the financial services and benefit directly. The Radio station serves as a tool for information dissemination and empowerment of local communities. The sustainability is not an issue. Once the programs are produced they can be broadcast without any further costs towards production. The banks have to take care of all other modalities. The banks are able to meet their targets, the people are able to get information and benefit through general loans, vehicle, education, and other loans, SHG revolving funds, insurance of crops etc, get a kisan credit card against their land etc. Basically it is an immediate relief and a continuous engagement with the bank. To ensure that 10,050 households open a savings account with the banks and get networked through the Aadhar card or Voters card is itself a big success. The other services are a bonus! The program was launched in October 2011, with a week-long training and orientation. The program had a direct impact on the community and the local grameen banks. The level of activity in the year of its implementation was furious and unparalleled. As at that point of time though Aadhar card was not popular, and two identity cards were required for opening accounts, the people rushed to get their Aadhar card numbers. Also discrepancies in Voter card and ration card came out in large numbers and corrective action was undertaken by the community. The banks became more sensitive to the community's needs and the demand from the ground for loans and financial services. This forced even the reluctant managers to loosen the purse strings and start giving loans. A grievance mechanism was set up by the team of Radio Mewat and a team of the lead Bank Manager, District Development Manager NABARD and District officer Gurgaon Grameen Bank and Director Radio Mewat was formed, all grievances received were immediately redressed by personal visits or through phone calls. The targets achieved are more than what was mandated. Clearly this is an indication of what a well coordinated project can achieve.

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Green banking in India

Dr. N Ganesan

Abstract

Change is the need of hour to for survival in all spheres. Most of the processes in the name of development have resulted in enormous loss of biodiversity, climatic change, environmental damage, etc. This in turn has raised an important issue of environmental protection among environmentalists, government and organization from all over the world. Environmental sustainability and sustainable development have become the important agenda in the international community. Financial Institutions such as banks which are one of the major economic agents influencing overall industrial activity and economic growth are also not the exception for this. Environmental protection has become a part of strategy in most organizations in the developed countries and started offering environment friendly or green products and services to the consumers. Learning from their western counterparts, the Indian organizations have to adopt environmental friendly practices within the organization. Looking at the necessity Green products, especially in the financial institutions in India, this study explores the importance of Green Banking and status of Green Banking in India.

Introduction

The financial institutions play an important role in the economic development and growth of country in terms of quality and quantity. Environmentalism is a broad philosophy and social movement regarding concerns for environmental conservation and improvement of the state of the environment. Climate change is the single biggest environmental and humanitarian crisis of our time. As environmental issues gain greater attention, pressure is being placed on all industries, including financial institutions. The warming effect of certain man-made gas emission such as carbon-dioxide, methane, nitrous oxide and hydro-fluro carbon is found responsible for distortion in climate changes. The rapid change in climate will probably be too great to allow many eco systems to



suitably adapt, since the changes have direct impact on bio diversity, agriculture, forestry, dry land, water resources and human health. Hence, like other sectors, the banking sectors have also a high level of social responsibility by encouraging environmentally responsible investments and prudent lending. It is necessary for financial institutions to provide services under environmental by influencing their employees and customers. Hence as a responsible financial organization of the country with its crucial role in financing the economic and developmental activities of the country, banks have to play in addressing the above issues, both in terms of its obligations and opportunities by virtue as a responsible corporate citizen and as a financier. Environmentalism and environmental concerns are often represented by the color 'green'. By taking into consideration the above factors, this article makes an attempt to find out the ways to Go Green through 'Green Banking'.

Green banking

Green banking is like a normal bank, which considers all the social and environmental/ecological factors with an aim to protect the environment and conserve natural resources. It is also called as an ethical bank or a sustainable bank. They are controlled by the same authorities but with an additional agenda toward taking care of the Earth's environment, habitats and resources. For banking professionals green banking involves the

Director, Regional Institute of Cooperative Management, Bangalore.



tenets of sustainability, ethical lending, conservation and energy efficiency. The aim of Green Banks is to provide good environmental and social business practices such as lending a loan to the project after checking all the environmental safety standards. Some forms of Green Banks are using online banking instead of branch banking, paying bills online instead of mailing them, opening up accounts at online banks instead of large multi-branch banks and finding the local bank in your area that is taking the biggest steps to support local green initiatives. In Green Banking, both banks and customers benefit the environment by reducing the carbon footprint. Green banking avoids as much paper work as possible and rely on online/ electronic transactions for processing so that we get green credit cards and green mortgages. Less paperwork means less cutting of trees. It also involves creating awareness to banking business people about environmental and social responsibility enabling them to do an environmental friendly business practice. Thus Green banking means combining operational improvements and technology, and changing client habits.

Peattie Ken (2001) mentioned that Green Business has evolved through three phases namely. The First Phase: 'Ecological' Green Business, The Second Age: 'Environmental' Green Business, and Towards the Third Age: 'Sustainable' Green Business. The first phase sought to identify the products, companies or industries which were having a direct negative impact on the environment. These were mainly front line industries such as automobiles, oil & refineries and agro-chemicals. The second phase was focused mainly on the front line industries and starts considering all manners of products used in homes (such as carpets, white goods, paper, cleaning products, electronic appliances etc.) along with service sectors such as banking and tourism. The third phase created the need of including sustainability in the system along with already established economic and social system.

Importance of green banking

The banking and financial institutions are not directly affected by the environmental factors like degradation. Due to strict environmental disciplines imposed by the competent authorities across the countries, the banks and financial institutions would have to follow certain standards to run their business. Also But there are indirect costs to banks which do not follow environmental disciplines and every banks has social responsibility. In most of the western and European countries, banks integrated environmental concerns into banking business operations. The banks can arise indirectly where banks are lending to customers whose businesses are adversely affected by the cost of cleaning up pollution or due to

changes in environmental regulations. Banks can add restrictions while advancing to the projects which are violating environmental policies. There will be a credit risk associated with lending on the security of real estate whose value has diminished owing to environmental problems (additional loss in the event of default) and risk of loan default by debtors due to environmental liabilities because of fines and legal liabilities and due to reduced priority of repayment under bankruptcy. Each bank should create an environmental management system helps a bank to reduce risks and costs, enhance its image and take advantage of revenue opportunities. Heim, G et al (2005), in his report, pointed out that due to growing awareness about environment safety, banking institutions are more prone to loose their reputations if they are involved in big projects, which are viewed as socially and environmentally damaging.

Methods of green banking

Green banking strategies involves managing environment factors and identifying opportunities for innovative environmentally oriented financial products (IFC, 2007). The banks have to design proper environmental management systems to evaluate the risks involved in the investment projects. Green banking entails creating financial products and services that support commercial development with environmental benefits. These includes investment in renewable energy projects, biodiversity conservation, energy efficiency, investment in cleaner production process and technologies, bonds and mutual funds meant for environmental investments etc.

Mobile banking

Mobile banking is a term used to refer to systems that allow customers of a financial institution to conduct a number of financial transactions through a mobile device such as a mobile phone or tablet. Mobile banking is having the ability to check balances, transfer funds or pay bills from phone. Thus, it saves time and energy of the customers and it also helps in reducing use of energy and paper of the bank. Most of the banks in India has started to introduce the paper-less facility.

Solar and wind energy

Renewable energy such as wind, solar, geothermal, hydroelectric, and biomass provides substantial benefits for our climate, our health, and our economy. Banks in India can make an attempt to venture into generation of green power by installing windmills for captive use. Some banks like State Bank of India has installed 10 windmills with an aggregate capacity of 15 MW in the states of Tamil Nadu, Maharashtra and Gujarat, as a part of its green banking. Other banks have started similar path to use renewable energy in banking activities.



Green credit cards

Green credit card is truly unique, with a set of features designed to fight climate change and sustain the planet. Green credit card reduces your carbon footprint, fights climate change and preserves the rainforest. The main features of this Green Credit Card include: Reduces your personal carbon footprint, Funds rainforest preservation and reforestation and Biodegradable. The benefit of using a green credit card is that banks will donate funds to an environment-friendly non-profit organization from every rupee you spend on credit card to a worthwhile cause of environment protection.

Online banking

Online banking is an electronic payment system that enables customers of a financial institution to conduct financial transactions on a website operated by the institution, such as a retail bank, virtual bank, credit union or building society. Online banking is also referred as internet banking, e-banking, virtual banking and by other terms. Online banking helps in additional conservation of energy and natural resources. Online banking includes Paying bills online, Remote deposit, online fund transfers and Online statements. It creates savings from less paper, less energy, and less expenditure of natural resources from banking activities. Customers can save money by avoiding late payments of fees and save time by avoiding standing to queues and paying the bill from home online.

Checking accounts

Green checking of account means that customers can check their accounts on ATM or special touch screens in the banks. Using a green checking account helps the environment by utilizing more online banking services including online bill payment, debit cards, and online statements. Banks should promote green checking by giving some incentives to customers by giving higher rate of interests, waiver or discount in fees etc.

Use green loans for home improvements

Customers have been encouraged to buy solar equipments by the Ministry of Non-renewable Resource in association with some nationalized and scheduled banks which undertook an initiative to go green by paying low interest loans to the rate of interest is as low as 4% p.a. In the similar fashion, all the banks and financial institutions should come forward in sanctioning advances with lower rate of interest for energy-saving projects and eco-friendly projects.

Building-less banking

The advent nature of IT infrastructure like setting up of ATM, Net Banking, mobile banking, anywhere banking and the concept of banker going to the doorstep of prospective loan seeker and offering different repayment options have made the customers not go to the banks and

refer to files for all transactions. Today, Banks and banking have become virtual in nature. More and more banks have come forward for these type of banking because it saves not only their time and money, but also protects the environment.

Recycling

Bank should purchase recycled paper products with the highest post-consumer waste content possible. This includes monthly statements, brochures, ATM receipts, annual reports, newsletters, copy paper, envelopes etc. Whenever available, vegetable-based inks are used instead of less environmentally friendly oil-based inks. Instead of using electronic storage media, banks should use cloud computing for storage and transactions.

Status of green banking in India

The United Nations Environment Programme Finance Initiative (UNEPFI) was launched to integrate the environmental and social dimension to the financial performance and risk associated with it in the financial sector (Jeucken, 2001 and UNEP (2002)). A global coalition of NGOs formed a network named 'Bank Track' came up with a resolution constituting six principles promoting environmental protection and social justice by banks and this is popularly known as Collevocchio Declaration.

A small group of banks along with IFC had made guidelines known as Equator Principles (Wright 2006). The Equator Principles is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in project finance. It is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. Equator Principles Financial Institutions (EPFIs) commit to implementing the EP in their internal environmental and social policies, procedures and standards for financing projects and will not provide Project Finance or Project-Related Corporate Loans to projects where the client will not, or is unable to, comply with the Equator Principles. The Equator Principles have greatly increased the attention and focus on social/community standards and responsibility, including robust standards for indigenous peoples, labour standards, and consultation with locally affected communities within the Project Finance market. All these concerns for sustainable finance or green finance have compelled the banking institutions to devise a common and coherent set of environmental and social policies and guidelines that can be used to evaluate the projects.

Indian industry faces the challenges of controlling environmental impact of their business i.e. reducing pollution and emission of their clients. India is the world's sixth largest and second fastest growing country in terms of producing green house gases. One of the major polluting industries in India is paper and pulp. As compared

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to the international initiatives of Green Banking, the banking and financial institutions in India are running behind the schedules compared to global trends in respect of green banking. Neither the banks of financial institutions in India have adopted equator principle nor are signatory to the UNEPFI. There was no systematic attempt to

integrate the environmental concerns into the business operation here by nationalized banks in India. However with all limitations, some of the banks in India has taken the initiatives for green banking, which are summarized in the following Table 1.

Table 1: Summary of Status of Green Banking in India

Name of Bank	Initiatives on Green Banking
State Bank of India	<ul style="list-style-type: none"> - Launching of Green channel counter facilities, an environmental friendly approach that helps to make paperless banking up to some extent. - Use wind power/ thermal power in its business operations. - Initiated the carbon disclosure projects in the financial sector in India, for the sake of environmental concern and safety. - Providing loan with lower interest for setting up of solar plants
Punjab National Bank	<ul style="list-style-type: none"> - Using energy efficient appliances and conducting the electricity auditing of their offices and accenting on green infrastructure. - Regular audit on green banking activities using a separate green audit. - Advancing term loans to the business units and commercial projects that are producing Renewable energy in priority basis. - Sanctioned commercial projects of wind energy
Bank of Baroda	<ul style="list-style-type: none"> - Addition of Internet Banking and Mobile Banking. - Virtualization of Physical Computing Devices. - Giving preference in financing of projects dealing with windmills and solar power projects. - Insisting customers to implement water treatment plant and Pollution Control while lending advances.
Canara Bank	<ul style="list-style-type: none"> - Introduction of internet banking, tele-banking & mobile Banking and Solar power biometric ATMs. - Not financing to units which are involved in producing and consuming Ozone depleting substances. - Giving preference in financing for implementing solar power systems. - Insisting customers to implement water treatment plant and Pollution Control while lending advances.
ICICI Bank	<ul style="list-style-type: none"> - Providing green banking facilities such as mobile banking, net banking - Have Green Business Centre which focus on promoting green building, energy efficiency, recycling etc. - Associated in providing Environment Management System Certification. - Providing 50% relinquishment on the processing fee of selective car models that uses alternate mode of energy like LPG (Liquefied petroleum Gas) & CNG (Compressed Natural Gas). - Giving preference in advance to companies who are venturing into energy economical and environment friendly process.
HDFC	<ul style="list-style-type: none"> - Issuing e-transaction advices to corporate customers & encouraging e-statements among retail customers. - Energy conservation by conventional light options by CFLs, and establishing green data centers. - Focusing on green procurement by purchasing energy star rated electronic products
Axis Bank	<ul style="list-style-type: none"> - Uses the theme of Reduce, Recycle, and Reuse. - Providing facilities like internet banking, mobile banking. - Distribution of tree saplings and creating awareness among society.
Kotak Mahindra Bank	<ul style="list-style-type: none"> - Encourage the consumer to sign for e-statement. - Providing net banking, SMS based transaction detail. - Built and maintain energy-efficient & highly reliable green data center.



Green banking and sustainable growth

Bahl (2012) claimed that Green Banking plays an important role in sustainable growth. Most of the commercial lending process in different parts of the world scrutinizes projects with a set of tools by incorporating environmental concerns in their day-today business. In India, Sustainability has become a major concern for the banking sector (both public as well as private sector). Adopting the environmental friendly practices within banking sector not only benefiting the natural environment but also providing the benefit to the organization as it helps in earning carbon credit, cost reduction etc. Banks can cut carbon intensity by a small amount of 30% so that by 2020 they provides tremendous opportunities for Indian activity to help the environment banks from funding sustainable projects to offering innovative products and services. Even though the financial institutions will have a financial burden for green policy, it will increase the sustainability. The environmental friendly activities such as using energy efficient appliances, implement green data centers help in improving their operational efficiency as well as cost saving in the long run. Therefore, for sustainable banking, Indian banks should adopt green banking as a business model without any additional postponement.

Conclusion

There has not been much initiative in this regard by the banks and other financial institutions in India though they play an active role in India's emerging economy. Small banks, including Cooperative Banks or financial institutions have not adopted equator principle even for the sake of records. Banks are not only responsible for economic growth but also responsible for welfare of the society. Banks have to believe that every small 'GREEN' step taken today would go a long way in building a greener future and that each one of them can work towards to better global environment. While financing, the financial institutions should encourage projects which take care of sustainable development and use of natural renewable natural resources, Protection of human health, Bio-diversity, Occupational health and safety, efficient production, delivery and use of energy, Pollution prevention and waste minimization, pollution controls (liquid effluents and air emissions) and solid and chemical waste management. With the growing problems of climate change in India, it is

time now that India takes some major steps to gradually adhere to the equator principles-guidelines that use environment-sensitive parameters, apart from financial, to fund projects. Further, environmental impact might affect the quality of assets and also rate of return of banks in the long-run. Thus the banks should go green and play a proactive role to take environmental and ecological aspects as part of their lending principle, which would force industries to go for mandated investment for environmental management, use of appropriate technologies and management systems.

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- ₹ 148241.39 lakhs
- ₹ 71664.46 lakhs
- ₹ 64234.87 lakhs
- ₹ 30885.10 lakhs
- ₹ 1934.41 lakhs
- ₹ 181399.10 lakhs

As on 31.03.2015

- ₹ 12948.76 lakhs
- ₹ 169084.53 lakhs
- ₹ 93134.67 lakhs
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- Loans for SRTO
- Consumer Durables Loans
- Loans to Technocrats & Professionals
- Loans to educated unemployed youths
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Orobanchae management in Indian mustard (*Brassica juncea* (L.) Czernj. & Cosson)

Dr. Vinod Kumar
Dr. Ahar Singh
Dr. K. S. Ahlawat
Dr. Satish Kumar

Rapeseed-mustard is the third important oilseed crop in the world after soybean (*Glycine max*) and palm (*Elaeis guineensis* Jacq.). India is the fourth largest oilseed economy in the world. Among the seven edible oilseeds cultivated in India, rapeseed-mustard contributes 28.6% in the total oilseeds production and ranks second after groundnut sharing 27.8% in the India's oilseed economy. The mustard growing areas in India are experiencing the vast diversity in the agro climatic conditions and different species of rapeseed-mustard are grown in some or other part of the country.

The rapeseed-mustard group broadly includes Indian mustard, yellow sarson, brown sarson, raya, and toria crops. Indian mustard (*Brassica juncea* (L.) Czernj. & Cosson) is predominantly cultivated in Rajasthan, UP, Haryana, Madhya Pradesh, and Gujarat. The country witnessed yellow revolution through a phenomenal increase in production and productivity from 2.68 MT and 650 kg/ha in 1985-86 to 6.96 MT and 1022 kg/ha in 1996-1997, respectively. In spite of these achievements, there exists a gap between production potential and actual realization. In India rapeseed-mustard is grown on an area of 5.53 Mha with production and productivity of 6.41 MT and 1157 Kg/ha, respectively.

A mustard seedbed should be firm, moist, and uniform which allows good seed-to-soil contact, even planting depth and quick moisture absorption leading to a uniform germination. Weeds cause alarming decline in crop production ranging from 15–30% to a total failure in rapeseed-mustard yield. The critical period is 15–40 days. Weeds compete with crop plants for water, light, space, and nutrients. Therefore, timely and appropriate weed control greatly increases the crop yield and thus nutrient use efficiency. Witch weed (*Striga* spp.) and broomrape (*Orobanche* spp.) are the most economically important notorious and destructive parasitic weeds in cultivated crops. Broomrape (*Orobanche*) is a major devastating parasitic weed of mustard. *Orobanche* or broomrape



Director, Directorate of weed Research, Jabalpur while visiting orbanche managed field at

(*Orobanche* spp.) locally known as margoja, rukhri, khumbhi or gulli or bhuiphod is a phanerogamic, obligate, troublesome root parasite that lack chlorophyll and obtain carbon, nutrients, and water through haustoria which connect the parasites with the host vascular system. The attached parasite functions as a strong metabolic sink, often named "super-sink", strongly competing with the host plant for water, mineral nutrition and assimilate absorption and translocation. Depending upon the extent of infestation, environmental factors, soil fertility, and the crops' response damage from *Orobanche* can range from zero to complete crop failure. This parasitic weed has the tendency to proliferate well in coarse textured soils with high pH, low in nitrogen status having poor water holding capacity where the crop cultivation is either rain fed or dependent on sprinkler systems for irrigation.

Among *Orobanche* spp., *O. aegyptiaca* is one of the most important parasitic weed causing severe yield and quality reducing factor in rapeseed-mustard. It is endemic in semiarid region and may reach epidemic proportions depending upon soil moisture and temperature. KVK intervention : Mustard (*Brassica juncea*) is major rabi crop grown on an area of approximately 1.6 lakh ha in Bhiwani

Krishi Vigyan Kendra Bhiwani, Chaudhary Charan Singh Haryana Agricultural University, Hisar.



Orobanche infestation on mustard plant



Farmer Scientist interaction in vill. Mandi haria village



Orobanche infested plant

district. Bhiwani is characterized by light textured soils with low fertility status, high infiltration rate, low water holding capacity and undulated topography. The mean annual rainfall is less than 300 mm. The ground water depletion is a serious problem in the tubewells areas as it is going 3-5 ft. deeper every year. Under these circumstances mustard used to be a very remunerative crop for the farmers of Bhiwani district. But the infestation of *Orobancha aegyptiaca*, a parasitic weed has emerged as a serious threat to its cultivation in last decade. Severe infestation of *Orobancha* causes heavy losses i.e. upto 70 per cent in yield of mustard.

Keeping in view the above facts Krishi Vigyan Kendra, Bhiwani conducted multi- locational field trials during Rabi 2014-15 in Bhiwani district. The experimental site in the study domain represents coarse-textured soils with high pH, low in nitrogen, and with poor water holding capacity where the crop cultivation is either rainfed or dependent on sprinkler irrigation systems. The crop was sown in the month of October for control of *Orobancha* with glyphosate a non selective systemic herbicide with very

low concentration i.e. @ 62.5 ml (product) at 30 DAS (Days After Showing) and @ 125 ml (product) per ha at 55-60 DAS. Field days, trainings, campaigns, group meetings, farmers-scientists interactions were done in the demonstrated plots to sensitize farmers of the area.

Output: The results of our present study very convincingly show that glyphosate, if used as recommended, may prove to be very effective in reduction in *Orobancha* weed infestation and subsequent improvement in seed yield in mustard i.e 70 per cent control of parasitic weed *Orobancha* infestation, and increasing yield of 60 per cent of mustard.

Outcome: It is estimated that the technology was adopted on 40000 ha in rabi 2014-15.

Impact : Economic impact assessment of this technology on minimal scale shows that use of this technology on *Orobancha* infested area of 40000 ha in the district increased yield of mustard @ 5 q per ha which is immediately sold in market @ ₹3300 per quintal, the total outcome is ₹66.0 crore on this year only in Bhiwani district.



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

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**RECIPIENT OF FIRST EVER INDIRA PRIYADARSHINI VRIKSHA MITRA AWARD PROUDLY
ANNOUNCES JUST A FEW OF ITS RESPLENDENT ACHIEVEMENTS**

Advances (From inception to 30-09-2016)	Over ₹5083.59 Crores
No. of loan cases sanctioned as on 30-09-2016	17.93 Lakhs
Share of Small & Marginal Farmers in Bank's financial assistance.	54.66%

STRIKINGLY INNOVATIVE PROGRAMMES INTRODUCED BY THE BANK

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Non-Farming Rural Enterprises, Rural Housing, S.R.T.O. ● Sericulture, Integrated Horticulture / Floriculture, Medicinal Plant ● Individual Dairy Development and Sheep / Goat rearing / Poultry / Piggery / Rabbit Rearing / Fisheries and Fishing Boat ● Big and Small Lift Irrigation Schemes. ● Rural Godowns / Agri Clinic & Agri Business Centres ● Purchase of Agriculture Lands ● Solar Lights / Solar Pumps ● Purchase of Two Wheelers | <ul style="list-style-type: none"> ● Rain Water Harvesting Structures ● Vermi Compost Units ● Bio-digester ● Farm Mechanisation ● Combined Harvester ● JCB/Dozers ● Coffee curing, Drying yards (Paddy, Areca, Coffee etc.) ● Agricultural Implements ● Short term crop loan ● Gold Loan, Salary Loans etc. |
|---|---|

BANK ACCEPTS FIXED DEPOSITS

- | | |
|--|--|
| 1. 91 days - 7.00% | 5. 0.50% of additional Interest to Senior Citizens |
| 2. 181 days - 8.00% | 6. Bank advances Gold, Vehicle, Salary, House Mortgage Loans etc. at an attractive rate of interest. |
| 3. One year and upto two years - 9.50% | |
| 4. Two years and above - 9.75% | |

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FOR DETAILS, PLEASE CONTACT US OR OUR BRANCH OFFICES OR ANY PRIMARY CO-OPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD. IN THE STATE.

K. Shadakshari, MLA
President

M. Shivanna
Secretary

A. C. Diwakara
Managing Director

Shri Urjit Patel is new RBI governor

Shri Urjit Patel took charge of RBI Governor on 4 September 2016. Shri Patel is well versed with the changing dynamics of Indian Economy since early 1990s. Even during the tenure under Dr. Raghuram Rajan, the RBI governor-designate is best known for preparing a report that helped India shift to an inflation targeting



regime for setting interest rates. He was one of the four deputy governors at the RBI. First appointed on 11 January 2013 as deputy governor to replace Subir Gokran, he was reappointed in January 2016 for another 3 years. He has also served at the International Monetary Fund (IMF).

Farmers can get short-term crop loans at 4%: RBI

The Reserve Bank of India has said farmers can avail short-term crop loan of up to ₹3 lakh at subsidised interest rate of 7% and the rate could go down to 4% if they repay promptly.

"A subvention of 2 % per annum will be made available for short-term crop loan up to ₹3,00,000 per farmer, provided the lending institutions make available short-term credit at the ground level at 7% per annum to farmers," the RBI said in a notification. An additional interest subvention of 3% per annum will be available to the "prompt payee farmers". "This also implies that the farmers paying promptly would get short-term crop loans at 4% per annum during 2016-17. This benefit would not accrue to those farmers who repay after one year of availing such loans," the RBI said.

In order to discourage distress sale by farmers and

encourage them to store their produce, the subvention will be given to small and marginal farmers with a Kisan Credit Card for a further period of up to six months post-harvest on the same rate as available to crop loan against negotiable warehouse receipt. To provide relief to farmers affected by natural calamities, the interest subvention of 2% will continue to be available to banks for the first year on the restructured amount. Such restructured loans may attract a normal rate of interest from the second year onwards as per the policy laid down by the RBI. In another measure, relaxing chequebook norms, the RBI has left it to the lender's discretion on whether to issue fresh chequebooks in cases of dishonour of ₹1 crore and above. As per existing norms, banks are not authorised to issue fresh chequebooks in such cases.

A Note: AQR and its impact on banks

Typically, Reserve Bank of India (RBI) inspectors check bank books every year as part of its annual financial inspection (AFI) process. However, a special inspection was conducted in 2015-16 in the August-November period. This was named as Asset Quality Review (AQR). In a routine AFI, a small sample of loans is inspected to check if asset classification was in line with the loan repayment and if banks have made provisions adequately.

However, in the AQR, the sample size was much bigger and in fact, most of the large borrower accounts were inspected to check if classification was in line with prudential norms. Banks were given two quarters, October-December and January-March of 2016 to complete the asset classification.

The RBI believed that asset classification was not being done properly and that banks were resorting to ever-greening of accounts. Banks were postponing bad-loan classification and deferring the inevitable. "At the Reserve Bank, corporations and banks come to us saying: 'Give us some forbearance. Don't call our loans bad even if it has not been paid for three years. Allow us to postpone recognition.' This is a wrong way to go about it," former RBI governor Raghuram Rajan had once said. Mr. Rajan had

also said 'band-aids' would no longer work and banks need deep surgery. Investors were also facing uncertainties as guidance by banks on bad loans was erratic. So finally, Mr. Rajan decided to end the uncertainty as he committed to cleaning up bank balance sheets by March 2017.

The AQR created havoc on banks' profit & loss accounts as many large lenders slipped into losses in both the said quarters, which resulted in some of them reporting losses for the full financial year. Record losses were posted in Q4 of FY16 by many large lenders. Almost all public sector banks were impacted, while the impact in the private sector was limited to biggies such as ICICI Bank and Axis Bank.

Bad loans in the Indian banking system jumped 80 % in FY16, according to RBI data, mainly on account of the AQR. The impact of the AQR is not over. In the last two quarters of the previous financial year, banks have classified AQR-identified accounts (which were termed as stressed assets) as NPAs which resulted in an increase in provisioning, to 15% as compared to 0.4% provisioning requirement for standard assets.

In the four quarters of the current financial year, banks



have to increase provisioning of accounts that were restructured (known as standard restructured assets, and which attract 5% provisioning) earlier but are still weak (that is, repayment is not regular) – to 15% over the four quarters, but are not mandated to classify them as NPA. Accounts that were classified as sub-standard (first

category of NPA), will slip into doubtful category if it stayed sub-standard for 12 months. Doubtful assets attract 40% provisioning. Further down the line, if loan is not serviced, banks have to treat it as a loss account with 100% provisioning.

32 lakh Maharashtra farmers face uncertainty over crop loans

The refusal of district cooperative banks to restructure loans of farmers with more than one-year-old outstanding debts is likely to deprive 32 lakh farmers of fresh loans in the kharif and rabi season having payments pending since 2010-11, and owe ₹12,000 crore to the cooperative banks. This means while the government has hiked its credit crop plan from ₹42,000 crore last year to ₹54,000 crore this year, the benefits may not reach the farmers. The government had directed national and district cooperative banks to restructure loans of all farmers, but they have refused, claiming the order has to come from Reserve Bank of India and NABARD.

Restructuring involves keeping interest rate zero for the first year and extending period of repayment of loans to five years from three. Banks are reluctant to offer this benefit to farmers with long-standing debts as they do not wish to increase non-performing assets (NPAs). Farmers cannot be eligible for new loans unless they pay existing

debts. Banks argue that under the Banking Negotiation Instrument Act, the restructuring of loans can be confined to crop loans availed by farmers for only a year.

At agriculture review meeting, Chief Minister Devendra Fadnavis had directed NABARD officials and district cooperative banks to evolve a mechanism to accommodate larger sections of farmers in the increased credit plan. There are 28 district co-op banks under the nodal Maharashtra State Cooperative Bank, which account for 60% of crop loans extended. The remaining 40% is through national banks. "At present, 78% of farmers have land-holdings of less than two hectares, and almost 80% of the land is non-irrigated. As a result, they have to make higher investments to cultivate crops," said Fadnavis. This means it is difficult for farmers to do without fresh loans. Experts said the government needs to come up with a mechanism to tackle the outstanding loans of ₹12,000 crore owed to the banks.

RBI suggests wider definition of banking outlet

The Reserve Bank of India proposes to give a breather to banks, especially small finance banks, by bringing all places of their business, including extension counters, satellite offices, ultra small branches, fixed point business correspondent outlets, and manned ATMs, within the definition of a banking outlet to help them fulfil the criteria of opening 25% branches in un-banked rural centres.

In light of the rapid developments in technology and the advent of differentiated banks — small finance banks and payments banks — the RBI said it is necessary to redefine branches and permissible methods of outreach keeping in mind the various attributes of banks and types of services that are sought to be provided. An RBI internal working group on rationalisation of branch authorisation policy has recommended that all domestic scheduled commercial banks (DSCBs) be advised to open at least 25% of their 'total banking outlets' (as per the expanded definition) opened during a year in un-banked rural centres (URCs).

A 'part-time banking outlet', opened in any centre, will be counted and added to the denominator as well as numerator on pro-rata basis for computing the requirement as well as compliance with the norm of opening 25% banking outlets in URCs. A part-time banking outlet is a fixed point service delivery unit of the bank, which does not comply with the 'banking outlet' norm

regarding minimum four working hours per day for at least five days a week.

The proposed expansion of the definition of banking outlet is in view of non-banking finance companies/micro-finance institutions, which are converting to small finance banks, flagging concerns on the requirement of meeting the 25% norm of opening branches in URCs within a year of their commencement of operations. The Group, headed by Lily Vadera, Chief General Manager, RBI, recommended that opening of a 'banking outlet/part-time banking outlet in any centre in the North-Eastern States and Sikkim as well as in any of the 106 left-wing extremism (LWE) affected districts in 10 States, notified by the Government of India, may be considered as equivalent to opening a banking outlet/part-time banking outlet in a URC. Banks, according to the Group, may be allowed the benefit of the 'banking outlets', if any, opened in the URCs/N-E States, Sikkim and LWE affected districts, in excess of 25% of the total 'banking outlets' during a year which may be allowed to be carried forward for a maximum period of two years. The Group suggested that the current prescription of branches in Tier I centres not to exceed branches in Tier II to VI centres may be removed. As a corollary, it has also been recommended that the incentive of allowing Tier I centres for opening the branches in under-banked districts of under-banked States be withdrawn. In view of the



constraints expressed by small finance banks relating to closing/conversion of their existing large network of branches focussed on asset servicing or complying with 25 % norm of opening branches in URCs within a year, the Group felt that the regulatory framework needs to provide an enabling environment to preserve the advantages of the MFI/NBFC structure of these entities with a view to further financial inclusion.

"...they may be given a reasonable time period of three years to close or convert all their existing branches into 'banking outlets'...Till such time the existing structures may continue and would be treated as 'banking outlets' though not immediately, reckoning for the 25% norm.

"Thus, at the end of three years, all SFBs should have opened 25% of their total banking outlets in URCs, failing which appropriate restrictive measures on further branch expansion by such banks will be considered and imposed, as deemed appropriate," said the Group.

According to the RBI, the total number of banked and un-banked centres (where no physical brick and mortar branch of a bank is present) as on December 31, 2015, stood at 49,686 and 555,782, respectively. This data does not include the banking services rendered through other modes, such as satellite offices, extension counters, mobile branches or the presence of business correspondents which have significant outreach.

RBI eases operating norms for payments banks

Reserve Bank of India, in its operating guidelines for payments banks (PBs), said it will have no objection to these banks making arrangements with any other scheduled commercial bank/small finance bank, whereby amounts in excess of the prescribed limit of ₹1 lakh is swept into an account opened for the customer with the latter. This arrangement should be activated with the prior written consent of the customer, the central bank said.

According to RBI directions, PBs can accept only savings and current deposits. The aggregate limit per customer cannot exceed ₹1 lakh, as provided in the Licensing Guidelines. The prescribed limit will apply to customer deposits and not to any security/earnest money deposit the bank may collect from any of its service providers in the ordinary course of business. According to the operating guidelines, PBs need not issue passbooks for deposit accounts. They may provide a statement of account in paper form on request on chargeable basis, or otherwise.

PBs may provide account information through multiple user-friendly modes, such as SMS and/or internet banking, and they should provide electronic confirmation through

SMS/e-mail/printed proof for each account transaction. The RBI said the annual plans for opening of physical access points by the PBs for the initial five years would need its prior approval. The first of such plans should be submitted to the RBI before commencement of business. After the initial stabilisation period of five years, and after a review, the RBI may liberalise the requirement of prior approval.

An employee of the PB should be available for sufficient duration, at a fixed location known to the customers at the district level, to attend to customer grievances and support the agent supervision. This fixed location may also be used to conduct the banking business of the PB, and it will be considered as a physical access point for the purpose of assessing the requirement of opening at least 25 % physical access points in rural centres. The PBs will be exempted from the requirement of having a base branch for a certain number of business correspondents (BCs)/access points managed by BCs as currently stipulated in the RBI guidelines to scheduled commercial banks.

Small finance banks exempted from inter-bank borrowing ceiling

Small finance banks (SFBs) will be allowed exemption from the existing regulatory ceiling on inter-bank borrowings till the existing loans mature or up to a period of three years, whichever is earlier, according to the operating guidelines issued by the Reserve Bank of India. Thereafter, SFBs' inter-bank borrowings will be on par with scheduled commercial banks. In this context, the RBI clarified that the borrowings made by the SFB after commencement of operations will be subject to inter-bank borrowing limits.

The exemption from the existing regulatory ceiling on inter-bank borrowings is only applicable to the legacy borrowings that are migrated to the opening balance sheet of the SFB on the day of commencement of an SFB's

operations. The RBI said SFBs are permitted to purchase portfolios of loans classified as standard assets only from banks and NBFCs for the specific purpose of meeting the sub-targets within the 40% priority sector lending target as applicable to commercial banks. They are not permitted to purchase non-performing loans.

The SFBs may engage all permitted entities, including the companies owned by their business partners and own group companies, on arm's length basis as business correspondents. These companies can have their own branches managed by their employees operating as "access points" or may engage other entities/persons to manage the "access points" which could be managed by the latter's staff. According to the operating guidelines,



SFBs may, at their discretion, issue passbooks for the deposit accounts; they should give written/printed proof of the first time deposit, in addition to the electronic confirmation of the deposit. These banks should send a statement of accounts once every six months to the registered address free of cost, if passbooks have not been issued. They may provide the statement of accounts in

paper form on request on chargeable basis or otherwise, if passbooks have not been issued. SFBs may provide account information through multiple user-friendly modes, such as SMS and/or Internet banking; and they should provide electronic confirmation through SMS/e-mail/printed proof for each account transaction.

Nabard to provide funds to Centre for irrigation projects

For the first time, National Bank for Agriculture and Rural Development (Nabard) will provide funds to the Centre for irrigation projects. Till date, Nabard was providing assistance only for roads. The bonds will have a tenor of 15 years and carry average cost of 6% for the government. A memorandum of agreement has been signed between Nabard and the Water Resources Ministry — in the presence of Union Water Resources Minister Uma Bharti — for providing Central assistance to 99 prioritised irrigation projects under PMKSY.

Nabard will make available the entire estimated ₹77,000 crore for PMKSY over the next four years, Nabard Chairman Dr. Bhanwala told. Elaborating on the plans for

the fund mop-up this fiscal, Bhanwala said that Nabard will raise the funds in several tranches under two types of bonds.

One type will be in which the Centre will take the liability for repayment, and the other in which Nabard will bear the obligation to repay the bonds. Of the targeted funds mop-up of close to ₹20,000 crore this fiscal, the Water Resources Ministry will bring in ₹1,500 crore (budgetary allocation), the bonds for which Centre will take the repayment obligation will amount to about ₹6,000 crore, and the balance amount of about ₹12,000-13,000 crore will be directly raised by Nabard under its own books.

Paddy fields vanish in Kerala's rice bowl

Though Palakkad district is still considered the traditional rice bowl of Kerala, its paddy fields are vanishing at an alarming rate with farmers taking to other lucrative crops and the real estate mafia altering the land-use patterns. According to studies done by the geography department of the Government College in Chittur, near here, the district has lost 1,03,980 hectares of paddy fields in the last four decades.



The decline in paddy cultivation and large-scale reclamation of traditional rice fields have started adversely affecting groundwater availability in the district. As paddy fields can regulate atmospheric temperature to some extent, study by the department attributes the increasing daytime temperature in Palakkad district to large-scale reclamation of paddy fields. "The district had 1,83,181 hectares of rice fields in the beginning of the 1970s. At present, it has hardly 79,201 hectares. Even the Kerala Conservation of Paddy Land and

Wetland Act of 2008 to conserve paddy fields has failed to arrest the trend," said Richard Scaria, an assistant professor with the department.

"Though rice fields in Palakkad constitute hardly 38.51% of the acreage under paddy cultivation, it still accounts for 62% of rice production in the State," he said. As per surveys conducted by the department, about 25 hectares of rice fields are reclaimed every year to cultivate cash crops and to convert to real estate. Lack of government support, delay in release of

procurement price, climate change impact, and change in land-use patterns are preventing farmers from continuing with paddy cultivation. Besides, there is a growing preference among farmers for ginger cultivation. Rice fields are being leased out to farmers from outside the State to cultivate ginger. Real estate lobbies also buy paddy fields from farmers at cheap rates and convert them to housing plots.

Future tense: Tech disruptions threatening the very existence of banks, says RBI's R Gandhi

The very existence of banks in future is under threat due to disruptions caused by technology, and changing consumer preferences besides tightening regulatory requirements on capital and leverage, according to R Gandhi, Deputy Governor, Reserve Bank of India. Sounding a caution to existing banks, Gandhi invoked Bill Gates'

statement: 'Banking is necessary, but banks are not adding... it is the emerging trends in technology, regulatory changes, and consumer behaviour and expectations which are redefining banking and banks' role and even endangering banks' existence.'

He chided banks for overlooking the small and medium



enterprise (SME) business — a \$2-trillion opportunity for banks in emerging markets, according to IFC report. “You vacated SMEs because of your lacklustre attitude. It is there for your rightful reclaim if only you make a concerted and conscious effort.” He observed that SME financing was neglected the world over despite being the size of half the world’s GDP and employing about two-thirds of the workforce. He said that fintech companies and marketplace lending companies had entered this vacuum and had become successful. It was imperative for banks to change their current reluctant attitude towards SME financing for making themselves socially relevant besides having hopes of existing in the future.

This trend has the potential to be a game-changer for small businesses. Fintech is efficient/effective and their disruptive power at good display. If only banks can change their reluctant attitude towards SME financing they can be a good antidote for these risks and, therefore, will display

Agriculture Ministry to set up ‘Grams’ for conserving native cattle breeds

Agriculture Minister Radha Mohan Singh laid the foundation stone of a ‘Gokul Gram’ for conservation and development of native cattle breeds. He also announced that 14 such ‘Grams’ (villages) would be established across the country as part of the ‘Rashtriya Gokul Mission’. “The first Gokul Gram is going to be established in Pandit Deen Dayal Upadhyay’s birth place, Mathura,” Singh said on the occasion.

their socially relevant role which, in turn, can justify their existence for the future. Gandhi said: “The clear prognosis is that either banks will be dead or least the banks of the future are not going to be the banks of yesterdays and today’s. What to do. I regret that I sound a little pessimistic. I have to paint such a dismal future for your existence as banks. We have to recognise the realities of the day.” He urged banks to take advantage of tech to meet customer expectations. “The new consumer is addicted to connectivity convenience and freedom. They don’t just want value-added services, but such services anywhere, anytime, anyhow.” “Banking is no longer what a bank does but it is also what a non-bank does. Banks are no longer those entities which do banking exclusively. Now others, the non-banks, also do those,” he said. “Is there any element of banking today which remains the exclusive privilege of banks? Sadly no,” he concluded.

The proposed Gram will work as a centre for conservation and development of native cattle breeds, he said in a statement. Singh said the country is set to harvest record 270 million tonnes (mt) of foodgrains in 2016-17 crop year (July-June) on account of good monsoon after two years of drought, while pulses output is expected rise to 21 mt.

Simplify farm loan processes and speed up disbursements, banks told

Public sector banks should simplify their loan processes as well as disburse farm loans speedily as the government has set a target to double farmers’ income by 2022, the Reserve Bank. Acceleration in income generation is significantly dependent on better capital formation in agriculture, RBI said in a notification to State Level Bankers’ Committee (SLBC) Convener Banks and Lead Banks. “Towards this, banks should revisit their documentation for crop loans, simplify them where required and ensure speedy sanctioning and disbursement of loans within specified time limits,” RBI said.

RBI has asked them to work closely with Nabard to prepare potential linked plans and annual credit plans towards the goal to increase farm sector income. They will also be required to keep ‘Doubling of Farmer’s Income by 2022’ as a regular agenda under Lead Bank Scheme in

various forums such as SLBC, District Consultative Committee, District Level Review Committee meetings and Block Level Bankers’ Committee.

For the purpose of monitoring and reviewing the progress, lead banks may use the benchmarks as may be provided by Nabard, it said. The Lead Bank Scheme, through its various forums, monitors and reviews banking performance in states/districts/blocks with special reference to annual credit plans, government sponsored programmes, flow of credit to priority sector for enhancing the flow of bank finance, particularly to rural areas. “The Scheme, which ensures inter-departmental/governmental coordination in financial sector, should therefore be leveraged to further the objective of doubling farmers’ income by 2022,” RBI added.

Banks can do better on provisioning for loan losses: RBI Deputy Governor

The Reserve Bank of India wants banks to be aggressive on the provisioning front so as to protect their balance sheets from any future shocks from ageing non-performing loans. The current level of provision coverage ratio (PCR) in banks is low and even declined in recent months, NS Vishwanathan, Deputy Governor, RBI, said at an Assocham-organised national conference on risk

management. “They (banks) will do that (improve PCR). At one time, their (banks) PCR was as high as 70%,” he noted.

PCR is a measure that indicates the extent to which a bank has provided for the troubled parts of its loan portfolios. This indicates the extent of funds that a bank has kept aside to cover loan losses. The RBI expects addition to NPAs (non-performing assets) to moderate but



the provisioning needs, as the NPAs age, will put pressure on the profit and loss account. Speaking at the conference, Vishwanathan said that the total stressed assets of public sector banks (PSBs) have risen to 14.5% as at end-March 2016. They still contain some element of restructured assets indicating potential for some more pain, albeit of lesser intensity. He also highlighted that the annual recovery of NPAs had fallen from 20% in 2013-14 to 9% in 2015-16. This indicated that the NPA problem has assumed greater significance. Incremental accretion of NPAs has been high in recent years, especially after the

Asset Quality Review (AQR) exercise. Vishwanathan noted that a strong underwriting system that is properly steeped in understanding and mitigating risks is the first element of credit risk management. This could happen only when risk culture permeates across the bank, he said. Spreading the risk culture is the function of the board and top management of banks, he added. The RBI Deputy Governor also wanted banks to be wary of "hitting their exposure limits" to large corporates. The central bank has allowed banks to have an exposure of up to 15% of their capital to a counter-party and 40% to a group.

RBI proposes to start work on Islamic financing

India's central bank has proposed working with the government to introduce interest-free banking to tackle financial exclusion for religious reasons, potentially opening Islamic finance to the largest Muslim minority population in the world. The Reserve Bank of India (RBI) made the proposal in its annual report marking a shift in stance by the RBI, which has previously said Islamic finance could be offered through non-bank channels such as investment funds or cooperatives. That has meant an estimated 180 million Muslims in India, the country's second-largest religious group, have been unable to access Islamic banking because of laws that require banking to be based on interest, which is forbidden in Islam.

The RBI said it would explore introducing interest-free banking products in consultation with the government, a key detail as this opens the prospects of supportive legislation. "This is definitely a significant development as it is the first time that the RBI has concretely mentioned that it will now work with the government to introduce Islamic banking," said Saif Ahmed, managing partner at Bangaluru-based Infinity Consultants, which specialises in Islamic finance. "For Islamic banks to function in India, separate parallel legislation or an amendment needs to be passed by Parliament and that can only happen with the active support of the incumbent government."

Banks' boards should be tough on KYC compliance, embrace tech: SS Mundra

Lack of Board-level oversight and commitment from executive managements have led to several instances of banks allowing transactions in their customers' accounts, without due consideration to their declared business profiles in recent times, according to RBI Deputy Governor SS Mundra.

While regulations on Know Your Customer (KYC)/Anti-Money Laundering (AML) are robust across jurisdictions, the RBI, however, has often found banks not having robust systems to comply with regulations. "At the time of on-boarding of customers, banks are required to assess them, their business and expected turnover in their account, source of such transactions, etc. "In recent times, we have come across several instances of banks having allowed transactions in their customers' accounts without due consideration to their declared business profiles," said Mundra at the International Seminar on Cyber Risk and Mitigation for Banks, organised by the CAFRAL in Mumbai.

He observed that the accounts received multiple RTGS (real time gross settlement)/ NEFT (national electronic funds transfer) inward transactions and several such remittances were sent out of these accounts as well. Several accounts were abused to send money abroad in the form of advance import remittances. "Despite the disproportionate activity in such accounts, the monitoring mechanism of banks fell short of expectations. I wonder why banks are not able to devise fool-proof technology-

based solutions to identify such transgressions. "As you may be aware, the RBI had to impose penalties on 13 banks for non-compliance with extant KYC/AML instructions, including failure to categorise their customers in line with their risk profiles," said Mundra. When it comes to the process of system-based identification of non-performing assets (NPAs), the Deputy Governor felt that there is much scope for improvement in this area. "While we appreciate that banks use multiple systems, the rules are elaborate and at times qualitative, thus posing challenges to capture the parameters in computer systems. However, with the progress in technology, this problem should have been solved much earlier.

"What we expect is a robust system-based identification of NPAs, not only for the regulator's use but also for the banks' internal use so as to facilitate timely recovery/resolution," Mundra said. The central bank, according to the Deputy Governor, expects the Board of Directors of banks to get actively involved in technology-related aspects. IT strategy needs to be closely aligned with the business strategy. "With strides in technology, it will be difficult for Boards that do not have members having expertise in technology-related areas to effectively adopt the technologies. "Technology risk, including cyber-risk, is to be treated just like any other inherent risks faced by the banks – credit, market, operational risks – and thus, the Boards need to articulate what their risk appetite is,



which residual risks they would like to carry out, and what kind of mitigation strategy would they like to follow," said Mundra. He cautioned that cyber criminals were increasingly exploiting vulnerabilities in smartphone

softwares by infecting operating systems with malware. The banks, which are big on mobile banking as a service delivery tool, must also look to guard against this emerging risk.

Loan recovery through agents unlawful: Kerala High court

The Kerala High Court has taken strong exception to the practice of banks and financial institutions engaging agents to recover loans through strong arm tactics. This is not only unlawful but also unethical, Justice PB Suresh Kumar observed, while recently dismissing an appeal by Smart Security and Secret Service Agency against State Bank of India.

The practice is also opposed to public policy and against protection of public interest. Recovery of loans is enforced on the pretext that delivery of justice through court of law is a slow process. "I have no hesitation to hold that agency created by the bank for realisation of loan dues...is an agreement opposed to the public policy and hence not enforceable," the judge ruled.

The plaintiff is a firm engaged in detective investigation. The defendant bank had engaged it as its agent to recover the dues of the loan disbursed to one of the borrowers. The plaintiff said it had pressurised the borrower to settle the loan dues. As per the agreement, the bank was supposed to pay five per cent of the amount

recovered as commission. But the bank refused to pay the commission of ₹72,050; being five per cent of ₹16,41,000 recovered from the borrower.

The bank contested the claim by saying that on the same day the plaintiff was engaged, the borrower approached the bank and offered to settle the dues by selling the property mortgaged as security. The bank stated that the borrower had gone on to liquidate the outstanding loan in two instalments. He had remitted the dues voluntarily and therefore the plaintiff was not entitled claim any commission. The trial court had found that recovery of the dues was made possible only on account of efforts taken by the plaintiff.

The bank took up the matter in appeal. The appellate court dismissed the suit reversing the direction of the trial court, following which the plaintiff had approached the High Court of Kerala. But the High court dismissed the appeal 'on other grounds' during the course of which it derided the practice of banks engaging agents to forcefully recover loan dues from borrowers.

India Post Payments Bank gets RoC nod

The India Post Payments Bank has received the Certificate of Incorporation from the Registrar of Companies, Ministry of Corporate Affairs, making it the first public sector unit under the Department of Posts (DoP). With the incorporation, the board of the India Post Payments Bank (IPPB) is likely to be constituted soon, the DoP said. "The incorporation of IPPB Ltd is a significant step forward as this also paves the way for it to begin hiring professionals to set up the bank and start its operations in 2017," it said.

The Department is expected to complete the roll-out of its branches throughout the country by September 2017. This could be the fastest roll-out of a bank anywhere in the world, it said. The Cabinet, on June 1, had cleared the proposal to set up the India Post Payments Bank with a

corpus of ₹800 crore and 650 branches. The ₹800 crore will be made available in the form of ₹400 crore of equity and ₹400 crore grant. The bank will be run by a chief executive officer and will be professionally managed. It will have representations from various other government departments, including the Department of Posts, Department of Expenditure, and Department of Economic Services, among others.

At present, core banking network of post offices, at 22,137, is more than State Bank of India's 1,666 core banking branches. Coupled with the physical presence across 1.55 lakh post offices (of which around 1.39 lakh are in rural areas), India Post Payments Bank aims to become a powerful and effective vehicle of real financial inclusion in the country.

Madhya Pradesh, first state to propose law on tenant farmers' right

Madhya Pradesh has become the first state to propose a new legislation to allow maximum use of agricultural land while protecting the rights of both tenant farmers and landowners. The proposed law would enable tenant farmers' access to bank credit and crop insurance while keeping intact legal ownership of farm owners over their land.

As per estimates, in more than 20% of the land holdings in the country, tenant farmers carry out

agricultural activities which prevents them from getting bank credit and payment of insurance claim or relief from the state government in case of crop loss in the absence of ownership of land. In Andhra Pradesh, tenancy farming is prevalent in estimated 60% of land holdings.

An agriculture ministry official pointed out, because of absence of legally binding tenancy laws, disputes often arise between landowners and tenant farmers, leading to a many preferring to keep the land as fallow or barren.



Madhya Pradesh Bhumiswami (landowners) and Bataidar (tenant farmers) ke Hitonka Sanrakshan (protection of rights) Vidheyak, 2016, which was introduced in the Assembly recently, has provisions where both landowners and tenant farmers enter into a legally binding agreement for a period of five years for sharing income from agricultural activities. Under the proposed legislation, the agreement between the two parties has to be submitted to the tehsildars who would adjudicate the matter in case of any dispute.

The Bill also has the provision that in case of damage to agricultural crop due to natural calamity, the relief given by the state government and amount of claim by insurance company would be shared as per agreement between tenant farmers and landowners. Following the culmination of the contract or breach of contract by tenant farmers, land would be automatically reverted to landowners.

The Madhya Pradesh Bill on tenancy farming has been currently circulated to the states by NITI Aayog which had earlier formed an expert committee on land leasing chaired by former Commission for Agricultural Costs and

Prices (CACP) chairman T Haque. The expert panel in its report to Aayog in April had stated that most states have either legally banned or imposed restrictions on agricultural land leasing. "Kerala and Manipur prohibit leasing out agricultural land without any exception. Bihar, Karnataka, Madhya Pradesh and Telangana allow leasing out only by certain categories of landowners such as those suffering from a disability, widows, members of armed forces, etc," the report had stated.

According to the report, Punjab, Assam, Gujarat and Maharashtra do not prohibit leasing, but the tenant acquires the right to purchase the leased land from the owner after a specified period of creation of tenancy. "In West Bengal, while leasing is not banned, land can only be leased on the basis of share cropping (tenant uses the land in return for a share of the crops) and in Andhra Pradesh, leasing has to be for a minimum period of six years," the report noted. It also stated that the current restrictions on land leasing have reduced the occupational mobility of landowners who want to take up employment outside agriculture, but are forced to stick to their land due to the fear of losing it.

More farmers covered under Pradhan Mantri Fasal Bima Yojana

Going by the latest estimates of coverage under Pradhan Mantri Fasal Bima Yojana (PMFBY) — the flagship insurance scheme for farmers and the sum insured it has seen a marginal increase vis-a-vis last year. "We are still compiling the numbers, but the latest number we have got is that about 3.15 crore farmers have been insured this kharif season as opposed to 3.08 crore last year. The sum insured has also increased and nearly doubled for some states. It is a big achievement as last year was a drought year and insurance was being sold till the end of the sowing season (September 30) by which time farmers knew that they would need it," an Agriculture Ministry official told.

As opposed to that, under the PMFBY, the deadline for insurance in most States was July 31, which was extended by ten days to August 10 this kharif as most States notified the new scheme late and the coverage was low. "It was a one-time extension that we allowed as the scheme was new and without the extension most farmers would have been left uncovered. In the rabi season, coverage would be higher as States now know about the scheme. It is unlikely that we will extend deadlines again as it spoils the premium calculations made by insurance companies," the official said. The older insurance schemes were not very good insurance products as they were available for such a long period that the whole concept of safeguarding against risks was defeated.

"As a result, the premium paid by the farmers was much higher and the sum insured was also low as the government could not afford to insure against large amounts," the official said. The PMFBY, which replaced the older National Agricultural Insurance Scheme (NAIS) and the modified NAIS, seeks to provide comprehensive insurance to farmers against the vagaries of nature at very low premia of 2% of the insured value for the kharif crop and 1.5% for the rabi season. More important than increased coverage under the PMFBY this kharif is the increase in the sum insured this year. "Because there is no cap on the sum insured, the entire loss to a farmers' crop can be covered. So, the sum insured has increased significantly and for about five-six States it has actually doubled," the official said.

The Agriculture Ministry has approached the Finance Ministry for more funds as there is a "huge increase" in government support because higher coverage would mean higher claims and higher premium charged by insurance companies. The Centre and States share the burden of the difference between the premium charged by the insurance company and that paid by the farmer. The PMFBY has covered about 23% of India's farmers this kharif against a target of 30%, but the coverage is likely to increase in the rabi season as States are expected to carry out bidding for insurance companies in time, the official said. The scheme seeks to cover 50% of the country's farmers in three years.

Seizing the cotton's desi advantage through improved breeding

Even as Monsanto's threat to "reevaluate" its presence in India — following a government move to slash royalty on the US life sciences giant's proprietary Bt cotton technology — has created uncertainty in the cotton trade, the Central Institute for Cotton Research (CICR) here sees this as an opportunity for revival of native desi varieties incorporating improved fibre characteristics.

Scientists in various state agricultural universities have developed eight new improved desi varieties under the CICR-spearheaded All India

Coordinated Research Project on Cotton. These are claimed to not only be more resistant to drought, salinity, diseases and insect pests, compared to the 'American' cottons occupying much of the cotton area in the country today, but also produce fibre of good quality. Their fibre length ranges between 28 to 30.5 mm, with tensile strength of 27-30 grams/tex and fineness of 4.5-5 micronaire. This makes them superior to the traditionally cultivated desi varieties that produce coarser fibre (7-8 micronaire) with shorter staple length (20-22 mm) and less bundle strength (19-20 grams/tex).

At the time of Independence, about 98% of India's cotton area was covered by desi varieties belonging to the *Gossypium* "arboreum" and "herbaceum" species. Their inferior fibre quality — modern spinning mills, unlike the old hand-spun yarn units, require longer, stronger and finer lint — led to their gradual displacement by 'American' cottons of the *Gossypium* "hirsutum" species. Even before Bt cotton's advent in 2002, the share of desi varieties in total acreage had fallen to 25%, and have shrunk further to under 2 % now. The coarse lint from desi cotton is used only for surgical and absorbent purposes or to make mattresses, denims and stuffed toys.

But if CICR's director K R Kranthi is to be believed, this will change with the newly-bred long-linted arboreum varieties. "For the first time in the world, an effort to revive native varieties is being done on such a big scale," he claims. In 2015-16, field trials of the improved varieties were conducted at 15 different locations across India to test for desired fibre traits as well as crop yields. The results have been encouraging. The varieties would be reevaluated in the coming planting season also to test for the stability of results.



THE NEW DESI COTTON BLOCKBUSTERS

VARIETY	DEVELOPER	FIBRE LENGTH (MM)	BUNDLE STRENGTH (G/TEX)	KAPAS YIELD (KG/HA)
PA-312	MAU	30.5	29.7	1,337
ARBa-1502	UAS	28.7	28.9	1,320
DVWDa-1502	UAS	28.2	27.3	1,342
GAM-221	NAU	29.0	27.2	1,403
PA-785	MAU	29.4	29.2	1,361
PA-778	MAU	28.1	26.9	1,143
PA-740	MAU	28.0	27.4	1,697
ARBa-1302	UAS	28.6	26.9	1,329

MAU: Marathwada Agricultural University, Parbhani;
 UAS: University of Agricultural Sciences, Dharwad;
 NAU: Navsari Agricultural University, Gujarat.

The new desi varieties, Kranthi says, can give 5-6 quintals per acre of raw un-ginned kapas with normal spacing of 20,000 plants in rain-fed conditions. These can go to 7-8 quintals and more if high-density planting or sowing in closer-spaced rows with average populations of 55,000 plants per acre is employed. This is comparable to the yields for the Bt American hybrids grown in rain-fed areas.

The new varieties are, moreover, of 5-6 months duration, as against 8 months for Bt hybrids. The shorter

maturity allows for optimal use of moisture from the monsoon rains within the available time window. It also makes these varieties ideally suited for cultivation in the 41 lakh hectares cotton area of Maharashtra and 17 lakh hectares in Telangana that was predominantly rain-fed.

"Farmers in the irrigated cotton belt can afford hybrids, but our concern is to breed varieties for rain-fed conditions. The new long-staple desi varieties are naturally sturdy and also produce fibre having the required market-worthy parameters," Kranthi points out. Besides, their seeds don't need to be bought each time. With varieties, the seeds stored from previous year's crop can be used for. Even if farmers want to sow new seeds, the cost per acre will be only around ₹800, as against ₹1,900 for Bt hybrids.

Kranthi hopes to make the new desi varieties available to farmers within the next four years. CICR is already working with NGOs like the Vidarbha Desi Kapus Utpadak Sangh, Yuva Rural Association and Neem Foundation for multiplication of the seeds.

Kranthi isn't averse to Bt genes in the new varieties. It is only expected to protect the crop from bollworm attacks. Yields per se are a function of the varieties or hybrids into which the foreign genes derived from the *Bacillus thuringiensis* or Bt soil bacterium — coding for proteins toxic to bollworm insect pests — are inserted. For best yield benefits, it is important that even the varieties or hybrids incorporating the Bt genes are well-suited for the specific agro-eco zones. For rain-fed regions like Marathwada, Vidarbha and Telangana, the best options are not long-duration American hybrids, but early-maturing desi varieties that are also amenable to high-density planting, adds Kranthi.



A farmer's 'natural solution' to agricultural crisis

Imagine an oasis in an arid region with a water table at 30 ft against nearly 1,000 ft in most parts of the region; or forest ecology in a barren landscape. That is what Kailashmurthy has achieved following the concepts of natural farming at Doddainduvadi village in Kollegal taluk of Chamarajanagar district. The 10-acre land has been a "natural farm" since 1988, as it entails no chemical inputs and has reversed the groundwater table-level, improved soil fertility and strengthened the biodiversity of the landscape.



In what is a rare example of reversing depleting ground water table, Mr. Kailashmurthy said, "The water table was at 35 ft in my farm in 1984, and after switching to natural farming methods, it came up to 30 ft." Inspired by Masanobu Fukuoka, a Japanese farmer and philosopher of the 'One Straw Revolution' fame, Mr. Kailashmurthy, a

retired bank official-turned-natural farmer, introduced two concepts — no ploughing and no weeding. "The author had advised against use of chemical fertilisers and pesticides to which I decided against ploughing and weeding," he said.

This was based on his conviction that the introduction of compatible plants would not only tackle the menace of weeds but add to soil fertility and the symbiotic relationship in

nature addresses any imbalance on its own obviating the need for human interference. And the results have been good, he added. The farmland is teeming with diverse horticultural crops ranging from mango to banana, papaya, guava, jackfruit, litchi, orange, butterfruit, and mosambi and has recreated a forest ecosystem, said the farmer. At a time when forest cover is shrinking adding to global warming and the resultant climate change, switching to natural farming will help address them, he said.

A new Anand cooperative model – this time, in solar farming

A Solar Pump Irrigators' Cooperative Enterprise (SPICE) was up and running in Dhundi, a village in Gujarat's Anand district. Members of this cooperative — the first of its kind in the world — are using solar power not only to run irrigation pumps, but also pool their surplus energy to sell to the Madhya Gujarat Vij Company Ltd (MGVCL) at ₹4.63/unit under a 25-year power purchase agreement (PPA). The Dhundi SPICE's six solar pumps, having an aggregate capacity of 56.4 kilowatts (kW), can generate nearly 85,000 units (kilowatt-hours) of energy annually, assuming 5 units per kW on an average daily over 300 sunny days. Of this, the six farmer-members would use 40,000 units for watering their total seven acres land and inject the balance 45,000 units into the grid, grossing over ₹2 lakh revenues from power sales to the distribution company or Discom.

Under the PPA contract, the six farmers have surrendered their right to apply for grid power connections for 25 years. Solar power for them comes much cheaper than diesel — roughly 3,600 litres are required to produce 40,000 units — and is also more reliable than subsidised grid power that is available for only 7-8 hours daily, with voltage fluctuations and during night-time in half of the days every month. Solar power, by contrast, is

uninterrupted, predictable, available during daytime, and free of cost. Further, this is a 'cash crop' that can be 'grown' without any seeds, fertilisers, pesticides, irrigation or backbreaking labour. Income from it is also free of risk from drought, floods, pests and diseases. All that is required is land for erecting panels. The Dhundi farmers initially were worried about the land-footprint of the solar panels. But they are already experimenting with a range of high-value crops like spinach, carrots, garlic, beet and a few medicinal plants that grow well under panels.

The Dhundi-pattern SPICE deserve a better feed-in tariff than what is being given now for megawatt-scale solar power plants or even roof-top installations. Megawatt scale plants require large public investments in transmission, whereas the micro-grid for the Dhundi SPICE was erected by farmers at their own expense. Roof-top solar plants, too, would probably only end up depriving Discoms of revenue from their highest-paying consumer segments. The Dhundi-pattern SPICE, on the other hand, will liberate the discoms and state governments from debilitating farm power subsidies. Had the Dhundi farmers obtained grid power connections for 56.4 kW instead of solar pumps, MGVCL would have been obliged to provide them over 162,000 units of electricity — taking 8 hours



supply for 360 days — at ₹0.7/unit, as against its cost of ₹4.5/unit to deliver. Even if only two-thirds of the power supplied was used, the annual subsidy burden on MGVCL would have worked out to well over ₹4 lakh. Besides, MGVCL would have had to invest ₹12 lakh on poles and cables to connect the tube-wells to the grid, at ₹2 lakh for every new connection. The annual interest and depreciation cost on this investment, even at a conservative 10%, would be ₹1.2 lakh.

But that's not all. The Dhundi SPICE will also enable MGVCL earn money from the sale of renewable energy certificates (REC). As per the PPA, the sale of RECs against the entire 85,000 units generated by the SPICE would accrue to the Discom. Taking the current value of ₹3,500/megawatt-hours for RECs being traded on electricity exchanges, it comes to an income of almost ₹3 lakh.

Taken together, the subsidy on grid power saved, not having to bear the amortised cost of connecting tube-wells, and sale of RECs, courtesy the Dhundi SPICE, would leave MGVCL better off by about ₹8.2 lakh annually for 25 years. That, over 45,000 units, translates into a gain of ₹18.2 per unit. Even if MGVCL shared a third of it with the Dhundi SPICE, the latter's members are entitled to a higher feed-in tariff of about ₹6.05 per unit. In buying solar energy from the SPICE, MGVCL's break-even feed-in tariff offer can be anything up to ₹6.05 plus its average power purchase

cost of ₹3.5/unit. Even after that, it would be better off than supplying grid power at ₹0.70/unit.

State governments have until now been promoting solar irrigation pumps by offering around ₹90,000/kW subsidy on capital costs to farmers opting out of grid power connections. A better way, however, would be through PPAs that guarantee attractive feed-in tariffs. The capital cost subsidy on solar pumps can actually be scaled down to, say, ₹50,000/kW and farmers, instead, be offered feed-in tariffs of ₹8-9/unit.

Discoms would, of course, loath the prospect of net-metering, billing and paying individual farmers supplying small marketable surplus of solar power; the transaction and vigilance costs would be just too high. But Dhundi-pattern SPICE can be the answer. In this case, even as new members join, MGVCL would meter the SPICE at a single evacuation point and pay it for pooled power sales. It will be the cooperative's work to meter each pump and pay each member based on the power evacuated by him/her.

With proper promotion, Dhundi-pattern SPICES could have the kind of impact on small farmer livelihood systems that the Amul-type dairy cooperatives have had in many parts of India. A 7.5 kW solar pump with an assured power buy-back contract at ₹8/unit can enable a one-hectare farmer to meet her irrigation needs and generate extra income of ₹60,000, equivalent to what three buffaloes give.

Poplar's popularity dipped

Sandeep Singh Randhawa grew paddy and wheat on his 65-acre land at Talwandi Lal Singh village in Gurdaspur district's Batala tehsil. That was till the late eighties, when he first planted poplar on the edges of his field. The returns encouraged him to expand the area under these trees — each giving 4-5 quintals of wood in around six years — to 57 acres by the mid-1990s. But in the last two years, Randhawa has stopped planting new poplars after felling mature trees, reducing overall acreage to 42 acres. "When I sold my first trees in the mid-nineties, I got ₹500 per quintal. That rate hasn't changed, even while plywood prices have gone up four times to ₹36-38 per square feet", he complains, adding "I'll wait for a few years before planting again.

Harmohan Ghuman from Khera Bet village near Ludhiana also started poplar farming in mid-eighties on 30 acres, before gradually raising it to cover his entire 150 acres. He, too, hasn't planted fresh trees for the past two years. "It's a mystery why poplar prices are falling when its products are selling at such a high rate. I've been asking farmers to reduce area. Unless we create a gap between demand and supply, the prices will not rise", says Ghuman, who is also secretary of the Tree Growers Association promoted by the Punjab Agriculture University.

Mandeep Singh of Adda Kanwa village in Gurdaspur too, had only poplars on his seven acres until recently.

After getting the trees from two acres axed, he hasn't replanted that area since. Mandeep, Ghuman and Randhawa are among Punjab's 10,000-12,000 farmers, who cultivate poplars over an estimated 90,000-100,000 acres — mostly in the northeast Kandi region districts of Ropar, Nawanshahr, Hoshiarpur and Gurdaspur in the Shivalik foothills. A common grouse uniting them is prices, which have halved from the ₹900-1,000 per quintal levels till 6-7 years back.

All this comes ironically even as Prime Minister Narendra Modi, few months ago at a Krishi Unnati Mela in New Delhi, encouraged farmers to undertake timber plantation along the edges of their fields. This, he stated, would help diversify their income and reduce risks from regular crop agriculture. Farmers, however, are a disillusioned lot. Many want to return to growing paddy and wheat, which bring comfort of government procurement at minimum support prices. The absence of any government regulation or organised market has allowed unscrupulous middlemen and ply-board factory owners to create a "false slump", they claim.

Punjab's forest department has been promoting poplar, which it sees as a means to replenish the dwindling green cover in the state, which has a mere 6.5 % area under forests and trees. The department distributes poplar saplings free of cost, but has no authority for purchase or



supporting the prices of the trees they raise. "We can assist farmers by supplying good planting material and technical know-how. But price control isn't in our hands", admits Kuldeep Kumar, principal chief conservator of forests. Ashok Juneja, chairman of the Punjab Plywood Manufacturers' Association — the state has some 300 plywood units — expressing concern says, "as it is the backbone of our industry". He suggests that in order to encourage its cultivation, the plywood industry be given agro-based industry status. "We must not be charged commercial power rates, the 12 % central excise should be waived, and the state value-added tax reduced from 13.6 to 6 %".

But, farmers like Gurpreet Singh Sandhu of Rara village in Hoshiarpur's Tanda teshil, are not as pessimistic. Pointing to the neatly-lined poplars covering 70 out of his 90 acres, Sandhu believes farmers can make money even in slumps such as the present one. Farmers typically plant 290-325 trees per acre. Taking an average of 300 trees weighing four quintals each, the revenue would come to ₹6 lakh even at ₹500/quintal. As against this, expenses

would be ₹6,000-7,000 per acre annually, which works out to not more than ₹45,000 over six years. "You require very little labour, not much fertiliser or pesticides, and 15-20 % of the water that paddy consumes. True, the money comes after six years, but you can grow wheat or sugarcane during the first 2-3 years when the plants are still short. I have harvested 12 quintals of wheat in poplar fields, which isn't very low relative to the normal ... Besides, the trees have improved the quality of my soil", avers Sandhu.

Farmers were obviously making more money when prices were at ₹900-1,000/quintal. "They should instead wait for market prices to go up again. It is bound to happen sometime" is his advice. This waiting game, of course, not every farmer can play. The ones with smaller holdings would have most trees maturing at the same time; if prices are low at that point, profits will be hit. That is not the case with larger growers, who have trees in more area and maturing at different periods. They may make less on sale of trees during slumps, but that will be more than compensated when prices improve.

Smart crops getting more from less

V Ravichandran, a third generation farmer from Nannilam in Tiruvavur district of Tamil Nadu, says he is going to stop growing sugarcane in his fields. "I am switching over to pulses now," he says, pointing out that legumes overcome the cash crop's problems, including high water consumption. It helps that the government has raised the minimum support price for lentils. Ravichandran is just one among many farmers who are turning to smart crops, focussing on pulses, coarse cereals, vegetables and fruits that are climate smart.

The need is pressing as over 70% of India's poor live in rural areas and 52% of them are in agriculture. Successive droughts have led to a scarcity of water and crops have failed. Forced to borrow, farmers are now in a terrible debt trap. As global warming sets in, projections are that agricultural production worldwide will fall by 2% per decade, even as food demand rises by 14% each decade. Global bodies are also pushing climate smart farming in a bid to reduce agriculture's carbon footprint. According to the Consultative Group on International Agriculture Research (CGIAR), a global consultancy, one third of all human-caused-greenhouse gas emissions comes from our food system.

The solution is to go for climate resilient crops, diversifying the crop mix, using technology to reduce water use, enhance soil and cutting down on fertilizer use. Some of these solutions are now coming from Indian Council of Agricultural Research (ICAR)'s project NICRA (National Innovations on Climate Resilient Agriculture) set up in 2011. As part of this project a host of model, climate smart villages are being created across the country

supervised by the Krishi Vigyan Kendras (KVK).

It's an ambitious project but the fruits of labour have been sweet, says Pradeep Pagaria, Programme Coordinator of KVK at Barmer in Rajasthan, a dry land that is now flowering. Pomegranate orchards and medicinal plants are now being grown by the villagers in addition to the traditional bajra, guarphal and castor oil plant. Says Pagaria: "We have done four things - natural resource management, diversifying crops, building ecosystem and setting up VCRMs – village climate risk management committees." States like Haryana, Punjab, Bihar are also piloting climate smart villages, some of them assisted by the CGIAR. But others, besides the government, have been also working on climate smart crops.

Medak, which has the highest number of farm suicides in Telangana, is a story of contrasts. Even as farmers who have stuck to input-intensive crops such as sugarcane, cotton and paddy are in deep distress, one particular belt has survived the famine. This belt grows millet. Twenty years ago, the founder of the Millet Network of India (MINI), P V Satheesh set up the Deccan Development Society (DDS) and started an experiment with millets. DDS introduced hardy millet varieties in 75 villages in the area through a collective. "Water-guzzling wheat and paddy will face tough challenges as temperatures increase. Millets are the way forward for countries like India where food security and nutrient security are a major challenge," says Satheesh. "Growing crops with drought and heat tolerance is one method to adapt to the vagaries in climate. Millets are good candidates," says B Dayakar Rao, Principal Scientist at Indian Institute of Millets Research (IIMR).



Today MINI is a pan India alliance of over 65 institutions that promote different varieties of millet such as foxtail, kodo, pear millet and finger millet - ancient grains that had lost out to cotton and maize. Over 50,000 farmers are part of the alliance that has spread its activity to Uttarkhand, Nagaland, Odisha. A host of other organisations such as Canada's International Food Security Research Fund and the International Development Research Centre, which runs Project Dhan in Tamil Nadu and Karnataka, are promoting millet farming too. Professor M S Swaminathan's Foundation too has been working on millets for nearly two decades trying to preserve the germplasm. He rues that with wheat, rice, corn, soyabean and potato becoming important, India's food basket had shrunk with many of our old cereals – or coarse cereals – becoming near extinct. Now, as the health and environment benefits of these cereals percolate down, a revival of sorts is taking place.

Other crop experiments are also on. For instance agriculture scientists at the International Rice Research Institute (IRRI) are trying to create climate smart varieties of rice. Sahbhagi Dhan, a rice variety, is being tested in Odisha and Jharkhand. Drought resistant strains of maize too are getting into the fields. But resource scarcity expert Indira Khurana, who is with global consultancy IPE says crops are only part of the story. "What is required is a package of agricultural practices that will withstand the pressures of climate change." She explains these include a mix of biodiversity, technology and conservation. "Another important factor is to take care of marketing of this produce. Unless there are markets available these will not be cultivated by farmers," says Khurana. Significantly, bodies like ICRISAT, are intervening and companies have started putting these smart grains on supermarket shelves.

Centre plans alternative to Bt cotton

The Union government is working to develop a suite of Bt cotton genes that can be integrated into traditional varieties and be made available to farmers as a viable alternative to the current technology, which is largely sourced from Mahyco Monsanto Biotech India Ltd. (MMB).

The Indian Council of Agricultural Research has for many years unsuccessfully tried to develop Bt cotton, which contains insecticidal genes sourced from a soil bacterium and targeted at key cotton pests. However, officials told that this project would be led by the Council of Scientific and Industrial Research (CSIR) and the Department of Biotechnology (DBT).

There were already several genes available in various labs and stages of development, but the aim was "that India not be dependent on foreign technology," said a top official privy to the project. While Bt cotton has always been controversial, it is now in the throes of a new controversy with the Agriculture Ministry mooting a change in the way seed companies and seed-technology companies such as the MMB share royalty, technology and

determine the price as which farmers buy cotton seed. Different arms of government are split over whether seed tech companies have the right or are obliged to license their technology to seed companies on request. More clarity is expected to emerge on this issue within the next coming months.

Institutes such the National Botanical Research Institute, the Centre for Cellular and Molecular Biology and the National Bureau of Plant Genetic Resources will be among the key agencies for identifying and developing new genes. "We have a slew of technologies — GM as well as non-GM — in our public institutions that we can use to work on cotton," said K .Vijay Raghavan, Secretary, Department of Biotechnology.

Cotton is the only genetically-modified seed that's legally allowed in India. Gm food crops such as brinjal and mustard, which are in advanced stages of regulatory clearances, are yet to become available to farmers due to stringent opposition by anti-GM activist groups.

New Tube wells may deepen Punjab's groundwater troubles

For over a decade, the Punjab government has been taking steps to save underground water reserves by introducing policies like the Contract Farming (CF) programme (2002), New Agriculture Policy for State (2013) and passing the Punjab Preservation of Subsoil Water Act (2009) to divert areas under the water guzzling rice crop towards other kharif crops. However, all efforts of diversion seem to have fallen flat and the area under rice cultivation still remains between 27-28 lakh hectares.

Against this backdrop, the government's initiative to pledge nearly 1.25 lakh new tube well connections this

year is likely to deal a major blow to the already depleting underground water level. Currently, out of 141 agricultural development blocks in Punjab, 102 fall in the 'dark zone', where water is 200 ft or deeper.

Around 10,000 new tube wells have already been sanctioned this year and connection for another 5,000 would soon be released. Punjab State Power Corporation Limited (PSPCL) has been given the task of installing the new tube wells by the end of this year. Each tube well would cost farmers about ₹2-2.25 lakh with an average of 7.5 to 12 horsepower (HP) motors.



"The new connections would encourage farmers to go for more paddy cultivation which has an assured market and price," say experts in the state's Department of Agriculture, adding that the 'diversification scheme' — aiming to divert area from paddy to other crops — will receive a major setback. "Already, the area under cotton in the state has gone down by over 1.5 lakh hectares compared with last year's on fears of whitefly attack, and now a major portion of this cotton area may go under paddy." The figures procured from the Department of Agriculture, Punjab, reveal that while the number of electricity-operated tube wells increased from 5 lakh in early 1980s to 12.5 lakh in 2001-02, around 3.25 lakh tube wells were installed in just five years during 1996-01 as the state government had announced free power to farmers in 1997. The figures also reveal that the number of diesel-operated tube wells has been more or less same since early 1990s and currently stand at around 1.5 lakh.

Rajesh Vashishth, joint director at the Department of Agriculture's hydrology division says that during paddy season, when the rainfall is in deficit, running of 14 lakh tube wells simultaneously puts huge pressure on the

ground water of the state that has been witnessing an average level of 200 feet or deeper in major portions of central Punjab which includes the entire Majha, Doaba regions and some districts of Malwa region, including Patiala, Moga, Sangrur etc. (nearly 80 per cent of the state).

In the last 4-5 years, the average fall in groundwater level across the state has been between 1.2 and 25 metres, but in areas like Sangrur district it has been recorded at more than two metres in the past. Even in 2015, five districts (Bathinda, Tarn Taran, Nawanshahr, Sangrur and Mansa) witnessed a drop in water level post-monsoon due to deficient rainfall. Water level has gone down between 1 and 9 metres in these districts in the last 4-5 years. Experts say increasing the number of tube wells would deepen the groundwater crisis as Punjab has hardly received above-normal rain for the past one decade. The state witnessed drought in 2014 as rainfall was (-)50 per cent. Rainfall was deficient in 2012, 2009 and 2007 as well, but farmers saved their crop by running all 14 lakh tube wells, says Vashishth, adding that they had applied for these connections.

Fungal disease could wipe bananas out in 5 to 10 years

Researchers at the University of California, Davis discovered how three fungal diseases have evolved into a lethal threat to the world's bananas. The discovery better equips researchers to develop hardier, disease-resistant banana plants and more effective disease-prevention treatments. "

We have demonstrated that two of the three most serious banana fungal diseases have become more virulent by increasing their ability to manipulate the banana's metabolic pathways and make use of its nutrients," said Ioannis Stergiopoulos, from UC Davis. "This parallel change in metabolism of the pathogen and the host plant has been overlooked until now and may represent a 'molecular fingerprint' of the adaption process," he said. The banana is one of the world's top five staple foods. About 100 million tonnes of bananas are produced annually in nearly 120 countries. However, the global banana industry could be wiped out in just five to 10 years by fast-advancing fungal diseases. That would prove devastating to millions of small-scale farmers who depend on the fruit for food, fibre and income. Already, Sigatoka — a three-fungus disease complex — reduces banana yields by 40 per cent. The Sigatoka complex's three fungal diseases — yellow Sigatoka (*Pseudocercospora musae*),

eumusae leaf spot (*Pseudocercospora eumusae*) and black Sigatoka (*Pseudocercospora figiensis*) — emerged as destructive pathogens in just the last century. Eumusae leaf spot and black Sigatoka are now the most devastating, with black Sigatoka posing the greatest constraint to banana production worldwide.

All commercial "dessert" bananas are of the Cavendish variety and are grown from shoot cuttings. "The Cavendish banana plants all originated from one plant and so as clones, they all have the same genotype — and that is a recipe for disaster," Stergiopoulos said, noting that a disease capable of killing one plant could kill them all. Researchers sequenced the genomes of eumusae leaf spot and black Sigatoka, comparing their findings with the previously sequenced yellow Sigatoka genome sequence. They discovered that this complex of diseases has become lethal to banana plants not just by shutting down the plant's immune system but also by adapting the metabolism of the fungi to match that of the host plants. As a result, the attacking fungi can produce enzymes that break down the plant's cell walls. This allows the fungi to feed on the plant's sugars and other carbohydrates. The research was published in the journal PLOS Genetics.

Unchecked proliferation of hybrids has led to Bt cotton's growing susceptibility to insect pests.

For the first five years after its introduction in India in 2002, 'Bollgard', the genetically-modified Bt cotton developed by Monsanto, effectively controlled bollworm

insect pests. Yields increased by 67% and use of insecticides — which couldn't contain the extensive damage from American bollworm prior to that —



decreased by 33%. True, yields may have also gone up due to other factors: a 36% increase in fertiliser use; doubling of area under hybrids; increase in irrigated cotton area in Gujarat; and the effects of seed treatment with imidacloprid and introduction of at least six new insecticides to control sap-sucking insects.



The scenario, however, changed after the introduction of 'Bollgard-II' Bt cotton, in 2006 containing a second gene, Cry2Ab, derived from a soil bacterium called *Bacillus thuringiensis*, in addition to the original Cry1Ac gene of 'Bollgard'. Average seed-cotton yields per hectare in India have stagnated at 1,500-1,700 kg since 2006, despite the share of Bt hybrids in overall acreage rising from 38% to 96% and fertiliser usage rising by 70%. More disturbingly, insecticide usage has gone up by 92%, because of increased sap-sucking insect pest attacks.

The blame for this can be laid largely on the whopping 734 Bollgard-II hybrids — compared to just about 20 in the first five years — being approved to saturate almost the country's entire cotton area. The bulk of these hybrids were highly susceptible to leaf hoppers and whiteflies. Increased insecticide use only accelerated the development of 'insecticide-resistance' in these pests. Even more worrisome was the pink bollworm, which was almost forgotten in India after 1980, but made a reappearance to rapidly develop resistance to Bollgard II.

The main reason why India has been unable to harness the full potential of Bt cotton technology is that it got caught in the hybrid trap. Strange but true, only India cultivates Bt cotton hybrids, whereas other countries grow only 'straight varieties'. The general perception is that hybrids give higher yields. With 95% of India's cotton area under Bt hybrids, its yields should have been the highest. The truth is that India's seed-cotton yields are way below the average 2,700 kg/hectare for the rest of the world, despite these countries predominantly cultivating straight varieties. In fact, Pakistan and China rejected the idea of 'Bt-cotton hybrids' and Monsanto doesn't have a presence there.

India's average yield is low mainly because of the unsuitability of hybrids for rain-fed regions which constitute 60% of India's cotton area. The crop duration, too, is longer, at 7-8 months, compared to 5-6 months in

other countries. The plant density in hybrids of about 11,000 to 16,000 plants per hectare is a tenth of the global average based on straight varieties. High-density planting is simply unviable with expensive and bushy hybrids producing more foliage. Because of low plant

population in hybrid cotton fields, each plant is required to produce more number of bolls, which extends into long duration. Long duration isn't good for rainfed conditions, where the crop suffers moisture and nutrient stress, especially during the critical flowering and boll formation stages from the 4th to 7th months, resulting in lower yields. Hybrids generally perform well under irrigated conditions with high chemical inputs, but even there long-duration hybrids provide opportunities for insects like pink bollworms to proliferate in multiple cycles. These feed mainly on developing cotton seeds in green bolls.

Bt cotton is a powerful and useful technology to control bollworms: American bollworm, pink bollworm and spotted bollworm. But since the technology in India was available only with private companies, they ensured it was incorporated only into hybrids and not in straight varieties enabling farmers to reuse the farm-saved seeds. They were left with no choice, but cultivate hybrids whether or not these suited their soils. In the irrigated belt of Punjab, Haryana and Rajasthan, the acreage under hybrid cotton was negligible prior to the introduction of Bt hybrids. But by 2008, the entire cotton area in the region was covered by commercial Bt-cotton hybrids, replacing all straight varieties. These included excellent publicly-bred high-yielding varieties tolerant to insects and diseases. Unfortunately, with the proliferation of hybrids since 2006, Punjab's cotton crop suffered heavy infestation of whitefly last year. Nor have yields gone up much. Yields in Pakistan under similar conditions have been 20 to 30% higher than in the adjoining North-West Indian states.

Bt cotton technology was messed up in India by the private seed industry, which underestimated the power of bollworms and undermined the need for implementing proactive insect resistance management strategies. No wonder, a small worm called 'pink bollworm' has brought Bollgard-II technology down to its knees. It needs to be asked why the pink bollworm developed resistance to Bt cotton only in India within just 5-6 years, and not



elsewhere in the world. The industry is instead blaming the Indian farmer for not planting non-Bt cotton seeds as refugia. But this could only have marginally delayed resistance development. China doesn't have any recommendation of 'refugia' planting along with the regular Bt cotton seeds. Yet, the pink bollworm hasn't developed resistance despite 18 years of Bt-cotton cultivation there.

There are three factors unique to Bt cotton in India, all of them related to hybrids, that have accelerated the development of pink bollworm resistance to Bollgard-II.

*1 Bt toxins are absent in 25% of seeds in the bolls of hybrid Bollgard plants and in over 6 % of seeds in the bolls of Bollgard-II plants. The young bollworms can, then, survive initially on non-Bt seeds and subsequently, as they get older, feed on the rest of the seeds containing Bt toxins. This accelerates resistance development. When Bt technology is available in 'straight varieties', all the developing seeds in bolls contain the toxins. Therefore, resistance development is delayed.

* 2 Hybrids take longer time to produce more

bolts/plant, thus providing continuous food source that help pink bollworm proliferate in multiple cycles and adapt to Bt toxins.

* 3 More than a thousand Bt cotton hybrids were approved in India without proper agronomic recommendations. These, in a matrix of combinations, provided synchronous and overlapping flowering and fruiting windows over a long stretch of time to support pink bollworm populations, thereby accelerating resistance development.

Next in waiting is the impending resistance threat from the most dreaded American bollworm. It is clear that for the next five years, there are no new genetically-modified solutions in the offing. One immediate option under the circumstances is for seed firms to explore the sale of Bt straight varieties under high density planting. All of them have such varieties that they use as parents for hybrid development. Also, they must promote only a few Bt cotton hybrids of 5-6 months duration. These can escape pink bollworm attacks occurring during November-February in central and south India.

Change in ARDBs

Shri A. C. Diwakara, has assumed charge as Managing Director of the Karnataka State Co-operative Agriculture &

Rural Development Bank Ltd, Bangalore. w.e.f. 04-08-2016.



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



SEMINAR ON 'ENHANCING PREPAREDNESS OF ARDBs FOR BANKING'

The NCARDB Federation organized a seminar on 'Enhancing Preparedness of ARDBs for Banking' on 2nd August 2016 at Hotel Supreme Heritage, Vashi, Navi Mumbai. Dr. U.S. Saha, Chief General Manager, IDD, NABARD was the Chief Guest. Shri Y.C. Nanda, Ex.Chairman, NABARD and Director, NCARDB Federation; Shri H.S. Sidhu, Managing Director, Punjab SCADB; Shri Shrikant Goswami, Managing Director, Uttar Pradesh SGVB and Smt. Aparna Prathap, General Manager, Kerala SCARDB made presentations. Seminar was attended by 19 Senior Executives from SCARDBs.

While welcoming the participants, Shri K.K. Ravindran, Managing Director, Federation briefed about the objectives of the seminar and said Federation is meeting the second level top management of SCARDBs who provide stability and strength in the administration and governance of the bank after a long gap and hoped that the seminar will serve as an excellent opportunity to interact on important policy issues and emerging challenges in the sector.

He pointed that the design of ARDBs as non-resource based lenders dealing in a single product is the main constraint in their working. Similarly, in the absence of other businesses, interest margin from loans issued out of borrowed funds is the only source of income for banks. Presently, ARDBs are unable to meet the entire demand for credit from members due to shortage of resources leading to deficiencies in services as also low business volumes.

He said the seminar is expected to deliberate on these challenges and come out with suggestions to meet them effectively. Maintaining capital adequacy at par with banking institutions is a difficult task for cooperatives as they cannot raise capital from the market. Quality of assets is another area which requires lot of improvement in ARDBs. While gross NPA more than 5% is generally considered

unacceptable for banks, ARDBs in most of the States have NPAs more than 20%. Technology and human resources are also major aspects in the preparedness. Recently, there has been significant improvement in technology adoption by ARDBs. It is expected that majority of SCARDBs will operationalise core banking solutions within one or two years, through tie up with NIC. Shortage of staff is a general problem in the sector. ARDBs need to take urgent steps to fill up vacancies and improve the quality of human resources which includes revamping of own staff training centres by SCARDBs in all States. The sector expects the support of NABARD in following areas in meeting the challenges in enhancing preparedness for banking.

Address by Guests of Honour

Shri Y.C. Nanda, Ex.Chairman, NABARD & Director, NCARDBF in his address said in spite of entry of commercial banks in agricultural credit in a big way, the requirement of long term loans by farmers for investment purposes is not adequately met. One major problem faced by ARDBs is insufficient margins. He requested NABARD to undertake a study on ARDBs focusing on the following areas.

- (i) Present margins and measures to ensure adequate margins.
- (ii) To study the staffing pattern at SCARDBs and PCARDBs. Ideally the staffing pattern should be linked to business volume with flexibility to maintain adequate staff in relation to business, procedural delays.
- (iii) The governance in ARDBs especially the role of govt and elected directors, need for independent directors etc.

He also suggested NABARD to play an important role in the selection and appointment of CEOs of SCARDBs. These are some of the basic requirements for enhancing preparedness for banking. ARDBs also need to step up their share in total agricultural credit,



to become relevant institutions in rural credit system.

He emphasised on ARDBs becoming banks to play their expected role in the agriculture and rural sectors.

Shri H.S. Sidhu, Managing Director, Punjab SCADB informed that Punjab SCADB is one of the few success stories in long term credit structure which can be attributed to the work culture in the state. He said that at present the bank is depending solely on NABARD for resources for lending and there is lot of scope for business expansion if funds are available. Govt guarantee is the main constraint in drawing funds from NABARD. NABARD should consider waiving the condition of Govt guarantee in the case of financially strong and good working banks like Punjab. He also said that there is a need to improve governance by redefining the role of elected directors and requested NABARD's intervention in evolving policies in this regard.

Smt. Aparna Prathap, General Manager, Kerala SCARDB said strong primary banks is the main source of strength for Kerala SCARDB. Business of the bank has almost doubled in the last three years without compromising on quality of loans. Recovery position continues to be comfortable for most of the primaries. Average NPA at ground level is high at 15%, though it is only 2% at SCARDB level. The bank wants to change the recovery year from April to March in order to give more focus on NPAs and has written to NABARD for permission. The staff training centre of the bank is

functioning well and getting financial assistance from NABARD.

Key Note Address by Dr. U.S. Saha, Chief General Manager (IDD), NABARD

ARDBs have a long history. They were the only institutions providing agricultural term loans. However, the structure could not keep pace with the changes taken place in the banking and credit sector over the years. NABARD wants to see the long term structure to survive and become stronger. Today, financial health of most of the institutions is not sound. Change in the business model is required for a turnaround. Small Finance Banks and Payment Banks in the private sector will intensify competition for cooperatives, especially ARDBs. Banks need to improve their working to obtain better rating in risk assessment. Normally, NABARD gives refinance only to SCARDBs in the categories of Low and Medium risks. Becoming banks will be easier if banks are ready to get registered under Companies Act.

In response to issues raised by banks, he said, it is difficult to waive the condition of Govt guarantee. He also said that extending CDF assistance except for training and capacity building will also be difficult since ARDBs are not banks under BR Act. He said that the suggestions of Mr. Y.C. Nanda, Ex-Chairman, NABARD, regarding studies on Margin and staffing pattern of ARDBs shall be considered by NABARD.



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- Crop Loans for Agriculture through KCC/
- Gold Loans
- Loans for Housing

Key Financial Indicators of the Bank as on 31.03.2019

Position as on

	2018-19	2017-18	2016-17
2 Reserves	454.04	472.48	4.06
4 Deposits	2871.57	3252.41	13.26
7 Loans & Advances	3435.43	4080.28	18.77
8 Provision (over/under)		16.77	

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