REPORT OF THE

WORKING GROUP ON

OUTREACH OF INSTITUTIONAL FINANCE,

COOPERATIVES AND

RISK MANAGEMENT

FOR THE 12TH FIVE YEAR PLAN(2012-17)

PLANNING COMMISSION

NOVEMBER 2011

Contents

Foreword

Guided by the 12th Five Year Plan's objective of faster, more inclusive and sustainable growth, the Working Group has approached the given task. We believe that making quantitative projections is important, but equally important is to deal with the emerging issues relating to the architecture, content and the direction of institutional credit. Our recommendations therefore have focused on these issues also.

In this endeavour, we have benefitted immensely from our interactions with Prof. Abhijit Sen, Member, Planning Commission and other Members of the Steering Committee. I would like to thank all the Members of the Working Group and the Chairmen of the Sub Groups for their valuable contributions. I have a special word of commendation for Dr. Prakash Bakshi, Chairman, NABARD and Member Secretary of the Working Group who not only gave off himself freely and without reserve but also placed institutional resources at the disposal of the Working Group. I would also like to acknowledge the team of Officers from the Department of Economic Analysis & Research, NABARD for their unstinted support to the Working Group.

Dr Y.S.P. Thorat
Chairman
15th November 2011

LIST OF TABLES

LIST OF CHARTS AND BOXES

LIST OF ANNEXURES

List of Abbreviations

ADWDR:	Agriculture Debt Waiver and Debt Relief Scheme
AIC:	Agriculture Insurance Company
AIDIS:	All India Debt and Investment Survey
AP:	Andhra Pradesh
ASP:	Application Service Provider
BC:	Business Correspondent
BR Act:	Banking Regulation Act
CAGR:	Compound Annual Growth Rate
CB:	Commercial Banks
CBS:	Core Banking Solution
CCB:	Central Cooperative Bank
CCE:	Crop Cutting Experiment
CCIS:	Comprehensive Crop Insurance Scheme
CD:	Credit-Deposit
CEO:	Chief Executive Officer
CMIE:	Centre for Monitoring Indian Economy
CSA:	Cooperative Societies Act
CSMS:	Core Subsidy Management System
DICGC:	Deposit Insurance and Credit Guarantee Corporation
FCIC:	Federal Crop Insurance Corporation
FYP:	Five Year Plan
GDP:	Gross Domestic Product
GHG:	Green House Gas
GIC:	General Insurance Corporation
GIPSA:	General Insurance Public Sector Association
GLC:	Ground Level Credit
GoI:	Government of India
HRD:	Human Resource Development
IARI:	Indian Agriculture Research Institute
ICB:	Institutional Capacity Building
ICOR:	Incremental Capital-Output Ratio
IMD:	Indian Meteorological Department
IPDSS:	Institutional Protection and Deposit Safety Scheme
IRDP:	Integrated Rural Development Programme
JLG:	Joint Liability Group
KCC:	Kisan Credit Card
KYC:	Know Your Customer
LTCCS:	Long Term Cooperative Credit Structure
MCI:	Mutual Crop Insurance
MCII:	Mutual Crop Income Insurance
MFI:	Micro Finance Institutions
MIS:	Management Information System
MNAIS:	Modified National Agriculture Insurance Scheme
MoRD:	Ministry of Rural Development
MoU:	Memorandum of Understanding

MPCI:	Multiple Peril Crop Insurance
MSCSA:	Multi State Cooperative Societies Act
NABARD:	National Bank for Agriculture and Rural Development
NABFINS:	NABARD Financial Services
NAIS:	National Agriculture Insurance Scheme
NBFC:	Non-Banking Financial Company
NCDC:	National Cooperative Development Corporation
NGO:	Non- Governmental Organisation
NIA:	National Insurance Academy
NREGA:	National Rural Employment Guarantee Act
NRLM:	National Rural Livelihood Mission
NSSO:	National Sample Survey Organisation
PACS:	Primary Agricultural Credit Societies
PCIS:	Pilot Crop Insurance Scheme
PSF:	Price Stabilisation Fund
RBI:	Reserve Bank of India
RCS:	Registrar Cooperative Societies
RFID:	Radio Frequency Identification
RRB:	Regional Rural Bank
S&M:	Small and Marginal
SCB:	State Cooperative Bank
SF/ MF:	Small Farmer/ Marginal Farmer
SFDA:	Small Farmer Development Agency
SHG:	Self Help Group
STCCS:	Short Term Cooperative Credit Structure
TOPS:	Terrestrial Observation and Protection System
ToR:	Terms of Reference
TSU:	Technical Support Unit
WBCIS:	Weather risk-Based Crop Insurance Scheme
WG:	Working Group

Chapter I
Introduction

1.1 **Context**

In the context of preparing the Twelfth Five Year Plan (2012-2017), Planning Commission, GoI constituted a Working Group with the following composition and Terms of Reference:

1.2 The composition of the Working Group is as under:

(i)	Dr. Y.S.P. Thorat , Former Chairman, National Bank for Agriculture and Rural Development, Indu Niketan, 226 E, Tarabai Park, Gen Thorat Road, Kolhapur 416 003	- Chairman
(ii)	Deputy Governor, Reserve Bank of India, Mumbai	- Member
(iii)	Prof. M.S. Sriram, Indian Institute of Management, Wing 6-E, Indian Institute of Management, Vastrapur, Ahmedabad,380015, India Telephone++91-79-66324891, Fax:91-79-66324855 email: mssriram@iimahd.ernet.in	- Member
(iv)	Shri Y.C. Nanda, Former Chairman NABARD, Flat No. 14/C-GH4 Orchid Garden, Sector 54, Gurgaon-122002. Mobile 9810877060 e-mail: yc.nanda@nic.in	- Member
(v)	Dr. Gopal Naik, Professor, Indian Institute of Management, Bannerghatta Road, Bangalore- 560 076, Fax 080-26582450	- Member
(vi)	Dr. R. Kannan, Member, (Actuary) Member, Insurance Regulatory & Development Authority, Parasirama Bhavanam, Basheerbagh, Hyderabad-500 004, Fax No. 040-5582 3334	- Member

(vii)	Shri D.N. Rao, Centurion School of Rural Enterprise Management, P.O.R. Seethapur, Via Uppalada, besides JITM Campus, Paralakhemundi - 761 211. Gajapati, Orissa Tel – +91 (6815) 224200	- Member
(viii)	Dr. Rajinder Singh Sidhu, Dean College of Basic Sciences & Humanities, PAU. Ludhina. Tel: 0161-2401960-79, Ext-323, deancobsh@pau.edu	- Member
(ix)	Joint Secretary-(Banking & Insurance), Deptt. of Finacial Services, Ministry of Finance, New Delhi.	- Member
(x)	Managing Director, Agriculture Finance Corporation Ltd., Dhanraj Mahal, 1st Floor, CSM Marg, Mumbai-400 0041.	- Member
(xi)	Executive Director, National Federation of State Cooperative Banks, J.K. Chambers,Fifth Floor, Sector 17, Plot No. 76, Vashi, Navi Mumbai – 400 703.	-Member
(xii)	Joint Secretary (Credit, Cooperation & Crop Insurance), Deptt. of Agriculture & Cooperation, Krishi Bhavan, New Delhi.	- Member
(xiii)	Joint Secretary (Plantation), Ministry of Commerce, Udyog Bhawan, New Delhi.	- Member
(xiv)	Chairman-cum-Managing Director, State Bank of India, Mumbai.	-Member
(xv)	Chairman-cum-Managing Director, Punjab National Bank	- Member
(xvi)	MD and CEO, ICICI – Lombard Ltd., Mumbai.	- Member
(xvii)	Managing Director and CEO**,** IFFCO- TOKIO General Insurance Ltd., IFFCO Tower, PlotNo.3, Sector 29, Gurgaon, Haryana 122 001	- Member
(xviii)	Chairman-cum-Managing Director, Agriculture Insurance Company of India Ltd. 13th Floor, Amba Deep Building, Kasturba Gandhi Marg, New Delhi110001.	- Member
(xix)	Shri Vijay Mahajan, BASIX, D-9, First Floor, Greater	- Member

	Kailash Enclave-I, New Delhi-1100048, Tel: 011-41730252, 41730454	
(xx)	Shri A P Fernandez, Executive Director, MYRADA, Head Office No.2 Service Road, Domular Layout, Banglore, 560071	- Member
(xxi)	Managing Director, National Cooperative Development Corporation, NCUI Building, 4, Siri Institutional Area, August Kranti Marg, Haus Khas, New Delhi-110 016.	- Member
(xxii)	Director General, Vaikunthlal Mehta National Institute of Co-operative Management, University Road, Pune	- Member
(xxiii)	Shri K.U.B.Rao, Officer-in-Charge, Department of Economic & Policy Research, Reserve Bank of India, Central Office Building, 7th Floor, Mumbai-400 001.	- Member
(xxiv)	Shri Kapil Mandal, Vivekanand Seva Kendra, Uion, 24, Paraganas, West Bengal.	- Member
(xxv)	Adviser(Agriculture), Planning Commission	-Member
(xxvi)	Dr. Prakash Bakshi, Executive Director, NABARD, Bandra Kurla NABARD Complex, Mumbai	Member – Secretary

1.3 The **Terms of Reference (ToR)** of the Working Group were as follows:

(i) To review the flow of credit to the agriculture and allied sectors during the 12th Plan, giving sub-sectoral analysis, and to recommend measures to ease the flow of credit at reasonable rates of interest throughout the country, with special consideration of disadvantaged sections such as small and marginal farmers, women farmers, tenant farmers, oral lessees and landless labourers and to assess the short term and long term credit requirement of agricultural credit during XII plan.

(ii) To review the contribution and performance of credit cooperatives towards outreach of credit to agriculture and allied activities and recommend measures for their increased proactive participation.

(iii) To study the performance, efficacy and adequacy of risk management policies, strategies and programmes being implemented for the agriculture and allied sectors, and recommend course to be followed in Twelfth Plan.

(iv) To study the issues concerning micro-financing institutions such as their costs and rates of lending, their contribution in credit outreach, and recommend future course of actions.

1.4 Keeping in view the TOR and the expertise available within the Working Group (WG), four Sub Groups (SGs), each dealing with the major subjects were formed viz., Credit, Cooperative Credit Institutions, Risk management in agriculture and Microfinance. Nomination of Chairmen for each sub group is as under:

i. Credit - Prof. M.S. Sriram

ii. Cooperative Credit Institutions - Dr Prakash Bakshi

iii. Risk Management in agriculture - Dr Rajas Parchure

iv. Micro Finance – Shri. A.P Fernandez

Composition of each of the SG is given in Annexure (Page 156).

1.5 Details of the meetings

The Working Group had 4 formal meetings besides numerous informal meetings and meetings of the sub groups. The details of the formal meetings are given in Table 1.

Table1: List of meetings held by the Working Group

Sl No.	Date	Venue
1	07/04/11	New Delhi
2	01/07/11	Mumbai
3	05/09/11	Mumbai
4	15/11/11	Mumbai

1.6 Approach of the Working Group

One of the objectives of the 12th FYP is "faster, more inclusive and sustainable growth". Viewed in this light, better and more inclusive performance of agriculture automatically becomes a part of the mandate of the WG. The WG's approach, projections and the recommendations therefore were guided primarily by the objective of more inclusive growth.

1.7 The Group's deliberations were based on the following major considerations.

Firstly, while over time, the flow of credit has increased significantly, it has also raised several concerns about the destination of matrix of credit. On the background of these concerns, the WG has projected credit requirements not only in quantitative terms, but has looked into qualitative aspects **beyond** credit growth which have a bearing on agriculture growth.

Secondly, the WG was of the opinion that the credit strategy should be aligned to agriculture growth strategy which in turn has to address broader macro economy concerns of supply management and issues like inflation control, food, nutrition & livelihood security.

- Historically, agriculture growth strategy has been driven by concerns of increasing production and productivity. While in many ways, this strategy may still be relevant, it may be necessary to give a thrust on the post production phase, including storage, processing, distribution, marketing, etc.
- Over the years, the emerging trend is that GDP in agriculture is increasingly being contributed to by sectors such as horticulture, animal husbandry and fisheries, more than the pure crop sector. The growth of the crop sector being stagnant – at least in the recent past and which shall possibly continue into the immediate future implies that the other sub sectors have to grow faster, so as to achieve an overall growth of about 4% in agriculture.

- Further**,** in consonance with the needs of a diversified economy reflecting changing consumption patterns and emerging nutritional security requirements also, these sub sectors need more support so that they can grow faster.
- Keeping in view the relative contribution of the rainfed agriculture, credit needs of rainfed agriculture have to be given a priority.

Thirdly, for enhanced productivity of credit, financial sector initiatives must be harmonized with the real sector initiatives. When the real world is characterized by constraints such as low seed replacement rates, uncertain input quality, yield fatigue, virtually non-existent extension services, problems relating to land laws and tenancy related issues, weak prices, need for better and more affordable productivity risk mitigation initiatives etc., merely enhancing the flow of credit will not yield the expected results. The WG therefore believes that support services including infrastructure, storage, processing, marketing etc., should be reinforced and regulatory mechanisms for ensuring quality of inputs and reorienting extension services to enhance the impact of credit be put in place.

Fourthly, Keeping in view the emerging agrarian structure which is increasingly becoming small farm oriented, aggregation models are essential to reach out to small and marginal farmers.

Fifthly, Keeping in view the biological nature of agriculture, the WG felt that it is necessary to broaden the scope of risk mitigation wherever possible, beyond insurance. More importantly, it may be necessary to align risk mitigation for post production phase also.

1.8 In addition to the deliberations internally, the WG had the benefit of outside consultation also with Industry Associations and representatives of States on 23rd June 2011. Some of the important issues that came up during the discussions are as follows:

i. Agriculture needs to be looked into holistically which should include not only crops but horticulture, livestock, fisheries also.

ii. A related issue highlighted was the differential rate of interest as applicable to the above sub sectors. The opinion was that all sectors need to be treated uniformly.

iii. It was suggested that if agriculture has to grow at the desired level, then enhanced credit support for horticulture, fisheries and livestock is a must.

iv. There was a criticism regarding violation of certain regulatory prescriptions at the ground level. As an example, insistence on collateralized lending at the Branch level was cited, despite contrary instructions from the top and agreements reached at the SLBC level.

v. Similar sentiments were expressed about issuance of KCC where conditionality of mutation was being cited and used by the bankers for not issuing KCCs.

vi. A view was expressed that such problems call for setting up a decentralized ground level mechanism to address regulatory violation.

vii. The Assam State delegation made a specific reference to KCC. In their view, the bankers are extremely reluctant to issue KCC, despite a lot of ground work done by their Departments. Govt of Assam has issued an internal circular to complete the formalities relating to identification of farmers, certifying their land records and completing all formalities duly countersigned by the Agri. Dev Officer in a standardized manner. Still, bankers are not taking the initiative.

viii. In Assam, the potential of the dairy sector also was reportedly ignored by the bankers. Creating storage facility also is a priority in the state, but the bankers as also potential entrepreneurs, are ignoring this, despite a heavy dose of subsidy.

ix. The need to increase investment credit was emphasized in almost every discussion. Some of the senior level Officers (Maharashtra)

were also of the view that crop loan is practically a consumption loan and though considerable resources get invested in agriculture, it does not lead to capital formation.

x. In this context, emphasis on promoting investment credit – even if in a mandated manner – came up for discussion. A number of states advocated allowing interest subvention for investment credit as they felt that unless interest subvention is available, investment cannot be pushed.

xi. Suggestions for reclassifying priority sector loans, emphasis on direct lending to agriculture and setting aside a specified percentage for investment credit were made. TN delegates raised the issue of gold loans and stated that reporting of huge investment in agriculture was fine but was effectively of little consequence as far as capital formation is concerned.

xii. Labour shortage experienced for agricultural operations was highlighted and in this context, the need for farm mechanization in a big way was brought out.

xiii. For ensuring adequate flow of credit, the need for reconsidering setting up of adequate number of brick & mortar branches was highlighted (eastern UP) on the background of the ineffective functioning of the BC model.

xiv. The discussions also indicate that credit needs of pockets like Bundelkhand need to be looked into separately, keeping in view the natural resources, their development through public investment or absence of it, and its implications for agriculture.

xv. Similar sentiments were expressed for Uttarakhand which pursues a different kind of agriculture. In Uttarakhand, it appears that protected agriculture is increasing at a fast pace and the State Government is also promoting it. Protected agriculture needs a specific insurance product. Agricultural products (which includes horticulture and floriculture) in the state are highly perishable. Floriculture is growing reportedly at about 45% per annum. In the context of developing suitable infrastructure, it was reported that

rope ways for quick transport systems have been tried by the state. They have worked, but not to their complete satisfaction.

xvi. The discussion probably suggests that specialized treatment/ products may be required to address location specific production systems.

xvii. A few suggestions were made by the Maharashtra group. It was suggested that the Warehousing (Regulation and Development) Act, 2007 has tremendous potential which needs to be tapped as far as credit is concerned.

Based on the analysis of the WG, deliberations of the Sub Groups and external inputs, this report has been finalized. Analysis and recommendations relating to each of the four TORs are presented in the subsequent chapters and the Summary and Recommendations have been incorporated in chapter VI.

Chapter II

Flow of Credit to Agriculture

Review

2.1 The 11th plan period was a period of action. During the period, policy focus was on increasing the flow of agricultural credit. Firstly, target was given to the banking sector to double the flow of credit to agriculture in a matter of three years, and later came the announcement of agricultural debt waiver [and one time settlement scheme for large farmers]. This period saw an increase in the flow of credit to agriculture from ₹ 2,54,657 Crore (2007-08) to ₹ 4,46 ,779 crores (2010-11).

2.2 The period was an interesting one not only because of the thrust in the flow of agricultural credit and increased policy attention towards the growth of credit, but also from the perspective of institutional reform. During the past decade, the formal sources of credit lost market share to the moneylenders (Table 2.1).

Table 2.1: Share of Debt# of Cultivator Households from Different Sources
(%)

Sources of Credit	1951	1961	1971	1981	1991	2002
Institutional	**7.3**	**18.7**	**31.7**	**63.2**	**66.3**	**61.1**
Cooperative Societies/Banks, etc	3.3	2.6	22.0	29.8	30.0	30.2
Commercial Banks	0.9	0.6	2.4	28.8	35.2	26.3
Non-Institutional	**92.7**	**81.3**	**66.3**	**36.8**	**30.6**	**38.9**
Moneylenders	69.7	49.2	36.1	16.1	17.5	26.8
Unspecified	-	-	-	-	3.1	-
Total	100.0	100.0	100.0	100.0	100.0	100.0

Debt refers to outstanding cash dues.
Source: Reserve Bank of India (RBI), *All-India Rural Credit Survey, 1951-52*; RBI, *All India Rural Debt and Investment Survey, 1961-62* and NSSO, *All India Debt and Investment Surveys, 1971-72, 1981-82, 1991-92* and *2003*.

2.3 The 11th plan period possibly laid a foundation for the takeoff of the next phase of reform and rejuvenation. The acceptance and implementation of the Vaidyanathan Task Force on Co-operatives is

expected to start showing results in the next plan period, though some developments which are of mixed nature are visible even now. These have implications for making co-operatives an effective channel for dispensing agricultural credit.

2.4 The banking system has moved forward in terms of technological improvements, with almost all the scheduled commercial banks [including RRBs] expected to be on the core banking solution platform which makes transactions more efficient, data capture more elegant and decision making more objective. The same database will also help in making more informed policy decisions as well.

2.5 While there has been significant action on the institutional front, there are some concerns as well. The policy focus on agriculture *per se* has been through the credit lens. While it is important to acknowledge the role of credit, it is also important to flag the important issues that would make credit more effective – which would be in reducing risk and uncertainty in agriculture – both at the level of yields and at the market place, making agriculture economically viable and ensuring that there are sufficient surpluses generated from agriculture which in turn is ploughed into the household level savings/capital which would act as a cushion in times of adversity. Overall the concerns are that there is a disproportionate growth of credit in relation to "savings" and there is also a disproportionate growth of credit in relation to the agricultural productivity itself. This is happening in the context of:

a. The agricultural GDP not keeping in pace with the overall GDP (Table 2.2)
b. The amount of loan and the average size of a loan account going up; (Table 2.3)
c. The number of loan accounts going down;(Table 2.3)
d. The average land holding size reducing; (Table 2.4)

Table 2.2: Growth of GDP(Overall) and GDP(Agriculture) during 10th & 11th FYP		
	10th Plan Av (2002-03 to 2006-07)	11th Plan Av (2007-08 to 2010-11)
GDP	7.8	8.2
GDP-Agri	4.65	2.9
Source: Planning Commission, Government of India		

Table 2.3: Trends in the Number of Accounts(in Lakh) and Amount(in ₹.crore) in 11th FYP(2007-08 to 2009-10) in Ground Level Credit Flow under Agriculture-All India

	2007-08		2008-09		2009-10		2010-11	
Agency	No of accounts (in Lakh)	Amount (₹ in crore)	No of accounts (in Lakh)	Amount (₹ in crore)	No of accounts (in Lakh)	Amount (₹ in crore)	No of accounts (in Lakh)	Amount (₹ in crore)
CBs	174.79 (40)	1,81,087 (71)	202.45 (44)	2,28,951 (76)	205.30 (43)	2,85,800 (74.3)	233.94 (41)	3,32,706 (74.4)
Coop	201.81 (46)	48,258 (19)	178.18 (39)	45,965 (15)	203.92 (42)	63,497 (16.5)	260.17 (46)	70,105 (15.7)
RRBs	62.74 (14)	25,311 (10)	75.47 (17)	26,764 (9)	73.08 (15)	35,217 (9.2)	72.03 (13)	44,702 (9.9)
Total	439.34 (100)	2,54,657 (100)	456.1 (100)	3,01,908 (100)	482.30 (100)	3,84,514 (100)	566.14 (100)	4,47,513 (100)
Per acc. Credit(Rs)		58,000		66,208		79,775		79,066

Note: CB denotes commercial banks, Coop denotes Cooperative Banks and RRB denotes regional rural banks. Figures in parentheses are in percentages to the total for the respective years. Source: NABARD

Table 2.4: Change in the average size of holding over decades (Ha)				
Category of Farmers	**1990-91**	**1995-96**	**2001-02**	**2005-06**
Marginal(less than 1 ha)	0.4	0.4	0.4	0.38
Small(1.0 to 2.0 ha)	1.44	1.42	1.42	1.38
Semi-medium(2.0 to 4.0)	2.76	2.73	2.72	2.68
Medium(4.0 to 10.0)	5.9	5.84	5.81	5.74
Large(10.0 and above)	17.3	17.21	17.12	17.08
All Groups	1.57	1.41	1.33	1.23
Source: Agricultural Census, GOI. Data downloaded from www. Agricoop.nic.in				

2.6 All these would only lead us to conclude that while agricultural credit is growing at a disproportionate rate unlike the growth of agriculture itself, this growth might be coming from a very large institutional credit gap and the gap has still not been filled up and there is scope for further credit absorption or that the ultimate amounts are possibly not being utilized for agriculture.

2.7 Irrespective of the conclusions, it is clearly evident that the credit flow from the institutional sources has moved towards much larger accounts, with the average account size growing over time. Assuming that when the institutions fail, the informal sector takes over, and the poorest would be the first to approach the informal structure, the fact about the formal system is catering largely to the bigger farmers is also supported by the growth in the share of moneylenders as reported by AIDIS, NSSO.

Direct Vs Indirect credit

2.8 Is the robust credit growth driven considerably by indirect credit?

Table 2.5. Outstanding Credit of Scheduled Commercial Banks

Year	Share of DF(%)		Share of IF(%)		Per account O/s (₹)		
	Acc	Amt	Acc	Amt	DF Agri	IF Agri	Total Agri
2000	98	84	2	16	19,076	2,22,184	22,227
2001	99	84	1	16	22,194	2,97,639	26,069
2002	97	74	3	26	24,027	2,71,296	31,452
2003	97	78	3	22	29,243	2,61,681	36,436
2004	97	73	3	27	33,832	4,47,547	45,177
2005	98	76	2	24	36,384	4,60,570	46,662
2006	98	72	2	28	43,832	7,40,416	59,407
2007	98	75	2	25	52,796	7,99,986	69,300
2008	98	78	2	22	56,660	8,93,869	71,755
2009	98	77	2	23	60,806	9,77,168	77,405
2010	96	76	4	24	72,399	5,28,499	91,256
CAGR (2000 to 2010)					14	15	15
CAGR (2004 to 2007)					16	25	16

DF-Direct finance, IF- Indirect Finance.
Source: Computed from the data provided in Banking and Statistical Returns, RBI (Various issues)

There has been a distinct shift in the preference of commercial banks towards indirect finance (IF) vis-à-vis direct finance (DF) to agriculture. Of the total credit outstanding to agriculture, the share of indirect finance was 16% in 2000 which increased to 28% in 2006 and stood at 24% in 2010 (Table above). The share among the two categories in terms

of accounts has more or less remained the same during the period 2000 to 2010. In recent times, the increase in the commercial banks' indirect financing could be due to their financing the value chain and as well as the increasing role of urban and metropolitan branches in rural financing. However, the present data does not make it amenable to reach a firm conclusion in this aspect.

2.9 The per account outstanding among the two categories grew at the same rate during the period 2000 to 2010. However, if we dissect for the doubling period we observe that per account outstanding for indirect finance grew at 25% per annum while for direct finance the CAGR was 16% (Table 2.6). The per account O/s for indirect finance was ₹ 2, 22,184 in 2000 which increased to ₹ 9, 77,168 in 2009 and then has decreased to ₹ 5, 28,499. The O/s for direct finance has increased from to ₹ 19,076 in 2000 to ₹ 72,399 in 2010. Credit deepening in the indirect finance category is more pronounced compared to direct finance category.

Table 2.6: Outstanding Credit of Scheduled Commercial Banks According to Occupation, BSR(Various issues)

Period	Direct Finance to Agri		Indirect Finance to Agri	
	No of accounts	Amt	No of accounts	Amt
CAGR(2000 to 2010)	9	25	13	30
CAGR(2004 to 2007)	15	34	7	34

Source: Computed from the data provided in Banking and Statistical Returns, RBI(Various issues)

2.10 For the period 2000 to 2010, the growth in outstanding of both number of accounts and amount of indirect finance (to agriculture) by commercial banks was higher than direct finance (to agriculture). However, for the DACP, the growth in direct finance (amount) was equal to growth in indirect finance (amount).

2.11 Implications

(i) During the doubling period both 'credit widening' and 'credit deepening' was witnessed with respect to direct finance whereas there was 'credit deepening' for indirect finance.

(ii) Both direct and indirect finance is essential for the growth of agriculture however, a balance between the two categories in terms of outreach and impact needs to kept in focus for optimising the overall impact of credit. While there may be a case for increased role of indirect finance to agriculture in the context of increased role of corporate, agri-business in agriculture however the trends and shifts within the "indirect finance" category needs to be analysed further. It is equally important to emphasize that growth in indirect finance as a category should be not at the cost of direct finance.

(iii) While the share in amounts between indirect and direct agriculture has changed there has hardly been any compositional shifts in terms of share in a counts. The aggregate nature of the data does not make it amenable to further analysis which is needed to arrive at insights about the nature and composition of indirect finance category.

Regional variation

2.12 In addition to the above, it is important to look at the disparity in flow of credit. The flow of credit for the XI plan period on the basis of three different cuts. The first task is to look at the regional variations, the second cut is to look at what is happening to the various agencies purveying credit and how their relative shares are panning out and the third is to look at the granular data on agricultural credit to understand what is happening on "direct" versus "indirect credit" and within direct, examine the private capital formation, and examine in particular what is happening to the investment/term credit (Tables 2.7 and 2.8).

Table 2.7: Trends in Production and Investment Credit in the Tenth and Eleventh Five Year Plan

(in ₹. Crore) – All India

Year	Production Credit(PC)	Share of PC to Total Credit	Investment Credit(IC)	Share of IC to Total Credit	Total
2002-03	45586	61	28923	39	74509
2003-04	54977	63	32004	37	86981
2004-05	76062	61	49247	39	125309
2005-06	105350	58	75136	42	180486
2006-07	138455	60	90945	40	229400
2007-08	181394	71	73264	29	254658
2008-09	210461	70	91447	30	301908
2009-10	276656	72	107858	28	384514
2010-11					
10th Plan(average)	84086	61	55251	39	139337
11th Plan(average)	222837	71	90856	29	313693

Source: Annual Report, NABARD, Various Issues

Table 2.8: Region wise share in Agriculture Credit- Tenth and Eleventh Five Year Plan

Regions	10th FYP (average share)	11th FYP (average share)	Share in GCA
Northern	28.69	27.44	20.11
North Eastern	0.38	0.44	2.83
Eastern	6.67	7.27	14.65
Central	15.10	13.20	27.26
Western	14.17	14.10	16.47
Southern	34.99	37.55	18.68
Total	100.00	100.00	100.00

GCA- Gross Cropped Area, *- for the four year period 2007-08 to 2010-11.

Source: Credit figures from NABARD and GCA from Centre for Monitoring Indian Economy, Mumbai

2.13 The review suggests that while there is substantial growth in credit disbursement, the increased numbers do not necessarily increase the comfort level. The available analysis and literature suggest that quality of lending and direction of it in the incremental lending leaves much to be desired. Emerging evidences of regional imbalances in credit flow, term

lending taking a backseat, sluggishness of the share of small and marginal farmers, dilution in synchronisation of credit flow with agricultural seasonality, increase in the share of indirect finance and poor MIS which is unable to decipher the direction of flow, are such concerns which imply that the sense of priority is getting deteriorated, even while credit is being pushed in the sector in a big way. **The WG recommends that there is need to look into the definition of priority sector keeping in view the emerging concerns.** The Reserve Bank of India has already appointed a Committee and the WG is hopeful that the Committee will look into the concern.

Approach to the 12th FYP

2.14 An attempt has been made to review the changes in the cropping pattern over the XI plan period and its implications. The idea is to check whether cropping pattern shows significant movements in terms of relative shares for food and non-food crops, broken up into cereals, pulses, oilseeds, plantation and horticulture on one hand and commercial crops on the other.

2.15 Indian agriculture has been witnessing a paradigm shift -the view in several academic and policy making circles that a shift in terms of cropping pattern, from foodgrains to non- foodgrain crops has been taking place in recent decades. An analysis of the same is presented below (Table 2.9)

Table 2.9: Compound Growth Rate of Area under Major Crops (%)

Year	**1990-91 to 1999-2000**	**2000-01 to 2009-10**
Total cereals	0.04	0.09
i. Rice	0.68	-0.03
ii. Wheat	1.72	1.21
Total pulses	-0.6	1.17
Foodgrains	-0.07	0.29
Oilseeds	-0.86	2.26
Commercial crops	2.25	1.47
Non foodgrains	1.18	2.19
All crops	**0.27**	**0.84**

Source: Agricultural Statistics at a Glance, Ministry of Agriculture, GoI, 2010

2.16 The increase in the area under foodgrains was meagre during the period from 2000-01 to 2009-10. The rate of growth of area under rice was negative at -0.03% during 2000-2010 compared to a growth rate of 0.68% in the previous decade. The rate of growth of area under wheat also declined, though the decrease was less pronounced than in the case of rice. An increasing trend was observed, with regard to the growth in area under non- food grain crops. While it was 1.18% in the 90's, it increased to 2.19% in the next decade signifying a significant shift from cultivation of food grain to non- foodgrain crops. It ought to be examined whether such a shift in cropping pattern shall have its impact on food security in general, particularly when the country is reeling under the pressure of food inflation. It is an encouraging trend that area under pulses has recorded an increased CAGR of 1.17% compared to the negative growth rate in the previous decade. Pulses, as a source of protein, can ensure increased nutritional security, although concerns regarding productivity also need to be factored in.

2.17 An analysis of the growth in area under major crops during 2004-05 to 2009-10 is presented in Table 2.10. The area under commercial crops, viz., cotton, sugarcane, Jute& Mesta had a faster growth in comparison to other crops. The increase in area under commercial crops has been more marked at 3.12%, compared to any other group. This can be viewed more or less, as an indicator of a perceptible shift in the cropping pattern. The area under cereals during this period did not show a remarkable increase, although it recorded a positive growth rate. Although on a decadal basis, the area under pulses seemed to have recorded substantial growth, the trend during the period from 2004-05 to 2008-09 is not very encouraging, showing a negative growth rate of -0.1%. The area under oilseeds also recorded a negative growth during this period.

Table 2.10: Area under Major Crops (million hectares)					
Year	**Cereals**	**Pulses**	**Oilseeds ***	**P&H** **	**Commercial Crops @**
2004-05	99.7	22.8	27.5	19	13.37
2005-06	99.2	22.4	27.9	20	13.78
2006-07	100.5	23.2	26.5	20.8	15.23
2007-08	100.4	23.6	26.7	21.6	15.43
2008-09	100.7	22.1	27.5	20.65	14.73
CAGR	**0.81**	**-0.107**	**-0.44**	**2.47**	**3.12**
***** : Includes nine oilseeds- groundnut, rapeseed and mustard, sesamum, linseed, castor oil, nigerseed, safflower, sunflower and soyabean **: Plantation crops include tea, coffee and rubber @: Includes cotton, sugarcane, jute& mesta					

2.18 It would be worthwhile ascertaining how the yield figures have moved, and in terms of overall farm level viability and profitability has there been any shift. (Table 2.11).

2.19 In the case of commercial crops, the most spectacular increase in yield was observed in the case of cotton, which was more than commensurate with the increase in area under cultivation, probably due to the introduction of Bt cotton. The increase in the yield of sugarcane was marginal during the past decade, as compared to the 90's.

Table 2.11: All India Compound Growth Rates of Area, Production and Yield of Major Crops						
Crop	**1990-91 to 1999-2000**			**2000-01 to 2009-10**		
	Area	Prod	Yield	Area	Prod	Yield
Rice	0.68	2.02	1.34	-0.03	1.59	1.61
Wheat	1.72	3.57	1.83	1.21	1.89	0.68
Coarse Cereals	-2.12	-0.02	1.82	-0.76	2.46	3.97
Total Cereals	0.04	-0.02	1.59	0.09	1.88	3.19
Total Pulses	-0.60	0.59	0.93	1.17	2.61	1.64
Food grains	-0.07	2.02	1.52	0.29	1.96	2.94
Sugarcane	-0.07	2.73	1.05	0.77	0.93	0.16
Oilseeds	-0.86	1.63	1.15	2.26	4.82	3.79
Cotton	2.71	2.29	-0.41	2.13	13.58	11.22
Non-food grains	1.18	2.69	1.09	2.19	2.86	1.78
All crops	0.27	2.29	1.33	0.84	1.83	2.82
Source: Agricultural Statistics at a Glance, Ministry Of Agriculture, GOI, 2010						

2.20 As stated earlier, a very plausible trend that has been emerging of late, is the shift in cropping pattern from foodgrain to non- foodgrain crops. However, in terms of yield, the trend is quite encouraging, as the yield of foodgrains registered a growth of 1.52% in the 1990s, which

further increased to 2.94% during the period from 2000-01 to 2009-10 despite the slow growth in area under the same. Under food grains, the yield in cereals has been showing an upward trend with a CAGR of 3.19% in the past decade, which is almost double the CAGR it witnessed in the decade of the 90's. In the case of pulses, both production and yield figures have shown an increase.

Major priorities for the XII plan period:

2.21 Focus on public capital formation and investments on agriculture [particularly on the support systems] so that the overall risk in agriculture is minimized and agriculture is made more and more viable:

a. More weather stations
b. Warehouses for inputs
c. Warehouses for outputs and cold chains
d. Focus on extension
e. Investments in irrigation structures, local watersheds etc
f. Focus on the biggest constraints in accessing credit for the genuine customers:
g. Land records
h. Tenancy rights
i. Examine the AP ordinance to ensure that farmers having a right to cultivate can access credit
j. Examine the WB system
k. Focus on term finance and investments
l. Make it mandatory for a part of the agricultural credit to go to term finance.

2.22 Public investment is usually non-discriminatory in nature unlike a subvention, since it goes to an individual who is, by definition self-selected. Given the nature of agricultural advances, it can be safely argued that there could be an elite capture.

Interest Subvention

2.23 The interest subvention scheme of the GoI for crop loans envisages that the farmer receives short- term credit @ 7% p.a with an upper limit of Rs. 3 lakh on the principal amount per year. This policy came into effect from Kharif 2006-07.

2.24 The general observation is that the interest subvention for prompt repayee farmers introduced during 2009-10 was not made available by the bankers to the full extent. Concerns have been articulated regarding the banks' reluctance to pass on the benefit of interest subvention to farmers for prompt repayment and claim the same from NABARD. Another concern is regarding the delay in submission of claims by banks and what can be done to redress the same.

Impact of Debt Waiver

2.25 According to the Report of the Task Force on Credit Related Issues of Farmers, as a result of the debt waiver, the percentage of accounts benefited as a proportion of operational holdings ranged from 0.79% in Sikkim to 37.58% in Odisha and the per account debt waiver ranged from Rs. 6,391 in Manipur to Rs. 81,652 in Delhi. According to the Report, on the one hand, there were farmers who obtained gold loan for agricultural purposes and could not benefit from the waiver as the loan was recorded under 'other' purposes. There were also a category of non-farmers who benefited from the waiver who had taken gold loan from non- agricultural purposes, as the loan was recorded in the bank ledger as 'agricultural', to meet its priority sector target.

Approach for Estimation of Likely Credit Flow for the Agriculture Sector-12th FYP

2.26 This section elaborates the methodology adopted for estimation of credit flow to agriculture by various methods. Broadly, the following approaches were used for projecting GLC flow in Agriculture.

1.Projections based on Trend (Trend rate of growth approach).

2.Projections based on various GDP growth rates (Term Structure wise).

3.Projections based on trend in ratio of GLC to GDP in Agri.

4.Projections based on sectoral requirement (Sectoral approach).

Estimates based on Trend

2.27 The actual disbursement to the agriculture sector since 1992 has been analysed. The trend growth rates for aggregate credit flow, production credit and investment credit have been estimated for various periods. Based on the credit flow disbursements achieved in 11th FYP the likely flow for 12th plan period has been estimated. Most appropriate trend value, (using linear) were used for the agency-wise estimations. For estimating the equation GLC figures have been converted into logform and regressed against time.

Linear trend

$Y = a + bt$

Where:

Y = GLC flow during the year.

a = Y - intercept

b = The slope of the line(unit change over the year).

t = Year.

Projection Based on the Required Rates of Growth

2.28 A prominent method that seeks to estimate the level of investment in a particular period is the Harrod-Domar modal, which is based on the envisaged growth rates. Based on predetermined growth rates (overall GDP growth, growth in GDP in agriculture sector), desired levels of

investment can be arrived at using the incremental capital output ratio (ICOR).

2.29 Likely flow of investment credit was determined based on the share of public and private sector in total investments as well as the share of institutional credit involved in the sector.

2.30 For estimating the short-term credit requirement in the sector the trends in the value of purchased inputs used in the crop production was considered. Since, the value of inputs series is dated with the latest available figures being of 2007-08, the projections based on these would necessarily underestimate the requirements of short-term credit. To overcome this deficiency, we have resorted to estimating the production credit requirements based on existing ratio between investment and production credit. With a view to give a thrust to investment credit changes the ratio has been incrementally raised by one per cent for each year of the 12th FYP. The method adopted has been explained with the help of following equations:

$GLCA_{12fyp(e)} = GLCA_{inv.c} + GLCA_{pdn.c}$ …… *(1)*

Where :

$GLCA_{12fyp(e)}$ = *Projected ground level credit flow in agriculture during the 12th FYP*

$GLCA_{inv.c}$ = *Projected investment credit in agriculture during the 12th FYP*

$GLCA_{pdn.c}$ = *Projected production credit in agriculture during the 12th FYP.*

$GLCA_{inv.c} = GDP_{m(cu.p)} * Ag_{(s)} * G_{ag(p)} * ICOR_{(e)} * PvtS_{(s)} * InsS_{(s)}$ ……*(2)*

Where: $GDP_{m(cu.p)}$ = *GDP at market price(current price).*

$Ag_{(s)}$ = *Share of Agriculture inGDP.*

$G_{ag(p)}$ = *Projected growth in agriculture sector.*

$ICOR_{(e)}$ = *Incremental capital output ratio.*

$PvtS_{i(s)}$ = *Share of private sector in total investment in agriculture.*

$InsS_{i(s)}$ = *Share of institutional credit(investment) in total investment in private sector.*

Projections based on trend in ratio of GLC to GDP in Agriculture

2.31 Since the year 2000, the share of GLC (in agriculture) in the overall GDP emanating from agriculture has been rising and there exists a strong correlation between the two variables. Total GLC in agriculture as a proportion to GDP in agriculture in the country was very low till 1999-2000 when it reached 10 per cent for the first time. The ratio showed substantial growth since 1999-2000 to reach almost 24 per cent by 2005-06. We have fitted a linear trend since 2000-01 and we estimate that the ratio is likely to grow and reach almost 37 per cent by the terminal year of the 11th FYP. With the targeted growth rate in agriculture GDP, the projected GLC agri. GDP in agri ratio, likely credit flow in agriculture has been estimated.

Sub-Sectoral requirement based estimates

2.32 For the major sub-sectors as far as investment credit is considered we have attempted to estimate sub-sectoral investment requirements. An attempt was also made to assess the likely investment credit flow in the sector by assessing from the point of view of sectoral demand. The existing trend, growth prospects of various sectors, were analysed to arrive at the likely credit flow for the major sub sectors in agriculture and allied activities. Two sets of estimation were attempted (i) using sub sector wise estimation for the sectors(wherever available) and using projections based on trend in GLC in the sub sector; and, (ii) based on projections based on trend in GLC in each of the sub sectors.

Data Sources accessed and used

2.33 The exercise is based on secondary data collected from suitable and authentic sources. The following data sources were used :

1. Publications of Central Statistical Organisation (accessed online)

2. Documents / Reports of the Planning Commission
3. Data/documents from Ministry of Agriculture, GoI (accessed online)
4. Publications of Commission on Agricultural Costs and Prices (CACP)
5. Economic Survey, Various Years, GoI
6. RBI publications (accessed online)
7. NABARD Publications
8. Various Committee Reports (Vyas Committee on Rural Credit, Vaidyanathan
Committees I & II, Investment Credit Committee, CD Ratio Committee, etc.)
9. Publications of Centre for Monitoring Indian Economy(CMIE)

Ground Level Credit Flow during 12th FYP – Projections

2.34 The credit flow to agriculture increased from ₹2, 85,146 crore during the Ninth Plan [1997-2002] to ₹ 6, 85,146 crore during the Tenth Plan [2002-07]. In all likelihood, the credit disbursement target of ₹ 4,75,000 crore set for the last year of the Eleventh Plan shall also be achieved which would in turn take the total disbursements to ₹18,62,859 crore for the 11th FYP period. This section discusses the likely credit flow in agriculture during the 12th FYP based on the various methods that have been used to arrive at the projections of agriculture credit flow.

Projections Based on Various Required Rates of Growth
Aggregate GLC Flow- Projections

2.35 Four broad scenarios have been projected for estimating the total GLC in agriculture during the 12th FYP period. In order to achieve the overall GDP growth envisaged in 12th FYP period, agricultural sector needs to grow at 3% annually for 8.5% overall GDP growth and at 4% annually for overall GDP growth of 9 to 9.5%. Of the total required investment in the sector, share of the private sector was arrived at based on the past trend (10 years). Similarly, the ratio of institutional sources

in the total private investment has been estimated and used for estimating the credit flowthrough the banking channel. The GLC flow for the total plan period has been estimated in the range of ₹ 33,89,261 crore to ₹ 42,08,454 crore, depending upon the various scenarios.

Table 2.12: Aggregate Ground Level Credit Flow to Agriculture Sector during 12th FYP-Projections (₹.crore)

Scenario	2012-13	2013-14	2014-15	2015-16	2016-17	Total	CAGR
Scenario 1	**564293**	**616095**	**672652**	**734402**	**801820**	**3389261**	11
Scenario 1A	**672919**	**734693**	**802138**	**875774**	**956170**	**4041694**	15
Scenario 2	**575303**	**634214**	**699158**	**770751**	**849676**	**3529102**	12
Scenario 2A	**686049**	**756300**	**833745**	**919121**	**1013239**	**4208454**	16
Assumption:							
For Scenario 1: GDP Agriculture grows at 3% annually, ICOR (agri) at 4							
For Scenario 1A: GDP Agriculture grows at 3% annually, ICOR (agri) at 4.5							
For Scenario 2: GDP Agriculture grows at 4% annually, ICOR (agri) at 4							
For Scenario 2A: GDP Agriculture grows at 4% annually, ICOR (agri) at 4.5							
Other Ratios common to all Scenario's							
1 Annual Inflation assumed at 6%							
2 Private sector share in total investment in agriculture is at 80%(existing share)							
3 Private sector investment financed by institutional sources is 80%of the total private sector investment (existing share)							
*-Compound Annual Growth Rate (calculated over terminal year of 11th FYP target of ₹4,75,000 **crore**)							

2.36 For each of the four scenarios, further bifurcation of the estimates in terms of agency-wise division along with short term (production credit) and long term (investment credit) credit has been estimated. These estimates are elaborated in Tables below:

Share of various agencies-Projections

2.37 To start with (for the first year of 12th FYP) the existing shares among the three agencies viz. Commercial Banks (CBs), Co-operative Banks and Regional Rural Banks (RRBs) have been used to arrive at the contribution of each agency in the credit flow. **But to provide a thrust to the credit needs of small and marginal farmers for each subsequent year, the share of cooperative banks in the short term**

credit flow has been increased by 0.75% per year so that the share of cooperatives shall reach 30% by the terminal year of the 12th FYP. Similarly, for RRBs an increase of 0.5% has been envisaged so that their share by the end of the 12th FYP reaches 13.5 % in the short-term credit flow. The recent impetus and policy measures due to the implementation of the Vaidyanathan Committee have made it possible for the cooperatives to reach a higher share in the short term credit (production credit). Some of the measures in view of the sub-group that the implementation Short Term Cooperative Credit Structure (STCCS) Revival Package and its Impact that would increase the share are as follows:

- As implementation of the GoI revival package progressed, 25 States joined the Package. Cooperative State Acts (CSAs) have been amended in 21 states. Professional CEOs or Directors have been or are being appointed in most of the states. Statutory audit by Chartered Accountants have commenced in 16 states. The GoI has released ₹ 9,016.6 crore so far for recapitalisation of 52,000 PACS in 16 states and the process for further releases is on.
- The most significant activity carried out under the Revival Package is that of HRD initiatives. Moreover 80,000 staff and secretaries of PACS, 1.09 lakh elected members of PACS, 370 CEOs of CCBs and SCBs, 2,000 elected Board Members of CCBs and 1,500 branch managers of CCBs have been trained within two years through modules, specially designed by NABARD. The focus of these training programmes has been business diversification and prudent financial and business management. This is a continuing initiative.
- Standardised Accounting and MIS package has been designed and implemented in PACS and the process of computerising the same in all the PACS that have received assistance under the package is underway. NABARD is in the process of organising a CBS based package for interested CCBs and SCBs on application service provider (ASP) basis outside the GoI package and 125 banks have already joined the initiative.

- These efforts, together with the financial cleansing received by the cooperatives under the Agriculture Debt Waiver and Debt Relief Scheme (ADWDR) of the GoI has seen agri-credit by cooperatives increase substantially from ₹ 48,000 crore disbursed to 2.02 crore farmers to ₹ 63,500 crore disbursed to 2.04 crore farmers. Given, however, that PACS have a membership of over 12 crore and CCS has issued more than 3.79 crore KCC, there is substantial scope for increasing agri-credit dispensation by cooperatives.

2.38 In the case of long-term credit (investment credit) the average contribution of each agency achieved in the 11th FYP has been kept intact and the same has been used for arriving at the share of each agency in long-term credit. Since, the long term cooperative structure is weak the sub-group is of the opinion that given its status an increase in cooperative banks share in investment credit may not be realistic to strive for and at best they can hold on to their existing share.

Table 2.13: Scenario 1A: Projections of GLC for agriculture and allied activities for XII FYP (2012-17)

(GDP Agriculture grows at 3 % annually, ICOR (agric) at 4.5) (₹ Crore)

Agency	2012-13	2013-14	2014-15	2015-16	2016-17	Grand Total
Short –Term	471043	506938	545454	586769	631072	2741276
Cooperatives	127182	140675	155454	171630	189322	784263
Regional Rural Banks	54170	60833	68182	76280	85195	344659
Commercial Banks	289692	305430	321818	338859	356556	1612354
Term Credit	201876	227755	256684	289005	325098	1300418
Cooperatives	14131	15943	17968	20230	22757	91029
Regional Rural Banks	9084	10249	11551	13005	14629	58519
Commercial Banks	178660	201563	227165	255770	287712	1150870
Total Credit	672919	734693	802138	875774	956170	4041694
Cooperatives	141313	156618	173422	191860	212079	875292
Regional Rural Banks	63254	71082	79732	89285	99824	403178
Commercial Banks	468352	506993	548983	594629	644267	2763224

Notes:

1. Private Sector Share in Total Investment in Agriculture is 80%.
2. Private Sector investment financed by institutional sources is 80% of the total investment in private sector
3. Ratio of Production to Investment credit assumed at 70:30(existing share) and by the end of the terminal year to reach 66:34.
4. For ST: The existing shares of Cooperatives, RRBs and CBs in the total credit are 27,11.5 and 61.5 per cent respectively.
5. For LT: The shares of Cooperatives, RRBs and CBs in the total credit are 7, 4.5 and 88.5 respectively

Table 2.14: Scenario 2: Projections of GLC for agriculture and allied activities for XII FYP (2012-17)

(GDP Agriculture grows at 4 % annually, ICOR (Agri) at 4) (₹ Crore)

Agency	2012-13	2013-14	2014-15	2015-16	2016-17	Grand Total
Short –Term	**402712**	**437608**	**475427**	**516403**	**560786**	**2392936**
Cooperative	108732	121436	135497	151048	168236	**684949**
Regional Rural Banks	46312	52513	59428	67132	75706	**301092**
Commercial Banks	247668	263659	280502	298223	316844	**1406896**
Term Credit	**172591**	**196606**	**223730**	**254348**	**288890**	**1136165**
Cooperative	12081	13762	15661	17804	20222	79532
Regional Rural Banks	7767	8847	10068	11446	13000	51127
Commercial Banks	152743	173997	198001	225098	255668	1005506
Total Credit	**575303**	**634214**	**699158**	**770751**	**849676**	**3529102**
Cooperative	120814	135199	151158	168852	188458	764481
Regional Rural Banks	54078	61360	69496	78578	88706	352219
Commercial Banks	400411	437655	478503	523321	572512	2412402

Notes:

1. Private Sector Share in Total Investment in Agriculture is 80%.
2. Private Sector investment financed by institutional sources is 80% of the total investment in private sector
3. Ratio of Production to Investment credit assumed at 70:30(existing share) and by the end of the terminal year to reach 66:34.
4. For ST:The existing shares of Cooperatives, RRBs and CBs in the total credit are 27,11.5 and 61.5 per cent respectively.
5. For LT: The shares of Cooperatives, RRBs and CBs in the total credit are 7, 4.5 and 88.5 respectively.

Table 2.15: Scenario 2 A: Projections of GLC for agriculture and allied activities for XII FYP (2012-17)

(GDP Agriculture grows at 4 % annually, ICOR (Agri) at 4.5) (₹ crore)

Agency	2012-13	2013-14	2014-15	2015-16	2016-17	Grand Total
Short –Term	480234	521847	566947	615811	668738	**2853577**
Cooperatives	129663	144813	161580	180125	200621	**816802**
Regional Rural Banks	55227	62622	70868	80055	90280	**359052**
Commercial Banks	295344	314413	334499	355631	377837	**1677723**
Term Credit	205815	234453	266799	303310	344501	**1354877**
Cooperatives	14407	16412	18676	21232	24115	94841
Regional Rural Banks	9262	10550	12006	13649	15503	60969
Commercial Banks	182146	207491	236117	268429	304884	1199066
Total Credit	686049	756300	833745	919121	1013239	**4208454**
Cooperatives	144070	161224	180256	201356	224736	**911643**
Regional Rural Banks	64489	73172	82874	93704	105782	**420021**
Commercial Banks	477490	521904	570615	624060	682720	**2876790**

Notes:

1. Private Sector Share in Total Investment in Agriculture is 80%.
2. Private Sector investment financed by institutional sources is 80% of the total investment in private sector
3. Ratio of Production to Investment credit assumed at 70:30(existing share) and by the end of the terminal year to reach 66:34
4. For ST: The existing shares of Cooperatives, RRBs and CBs in the total credit are 27,11.5 and 61.5 per cent respectively
5. For LT: The shares of Cooperatives, RRBs and CBs in the total credit are 7, 4.5 and 88.5 respectively

Projections Based on Trend (Trend Rate of Growth Approach)

2.39 The trend in GLC flow to agriculture during the 10th and 11th FYP has been considered for projections of the likely credit flow during the 12th FYP. Agency-wise trends in GLC flow during the 10th and 11th FYP were considered to estimate total likely GLC during the 12th FYP. Since the tenth plan period incorporated the GOI's "Special Farm Package" which sought for doubling the agriculture credit flow in three years starting 2004-05, which led to high rate of growth in agriculture credit. Keeping this in view the projections have used the trend growth rate

achieved during the first four years of the 11th FYP. If the tenth plan period data is incorporated then it would lead to over estimation of the growth rate. Based on the above the total GLC flow to agriculture during the 12th FYP is estimated at ₹ 37,39,022 crore at an annual growth rate of 15.53%.

Projections based on trend in the ratio of GLC to GDP in Agriculture

2.40 The proportion of total GLC to GDP in agriculture in the country was low till 1999-2000, the year when it reached 10% for the first time. The ratio has seen a substantial growth since 1999-2000 and became 24% by 2005-06. Incorporating this aspect by the end of 11th FYP the ratio is estimated to reach 37 per cent. Based on this trend and anticipated 4.0% growth in agriculture and 6.0% inflation, the total GLC flow in agriculture during the 12th plan period is estimated at ₹ 31,24,624 crore.

Table 2.16: Projections of GLC for agriculture and allied activities for XII FYP (2012-17)

(GLC TO GDP RATIO METHOD)

(₹ Crore)

Twelfth Five Year Plan						
Agency	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**Grand Total**
Short –Term	411976	418273	424578	430884	437187	**2122898**
Cooperatives	111234	116071	121005	126034	131156	**605499**
Regional Rural Banks	47377	50193	53072	56015	59020	**265677**
Scheduled Commercial Banks	253365	252010	250501	248836	247010	**1251722**
Long Term	176561	187920	199801	212226	225217	**1001726**
Cooperatives	12359	13154	13986	14856	15765	**70121**
Regional Rural Banks	7945	8456	8991	9550	10135	**45078**
Scheduled Commercial Banks	156257	166309	176824	187820	199317	**886528**
Total Credit	588537	606193	624379	643111	662404	**3124624**
Cooperatives	123593	129225	134991	140889	146921	**675619**
Regional Rural Banks	55323	58649	62063	65565	69155	**310755**
Scheduled Commercial Banks	409622	418319	427325	436656	446328	**2138250**

Note:

1. Ratio of Production to Investment credit assumed at 70:30(existing share) and by the end of the terminal year to reach 66:34
2. For ST: The existing shares of Cooperatives, RRBs and CBs in the total credit are 27,11.5 and 61.5 per cent respectively.
3. For LT: The shares of Cooperatives, RRBs and CBs in the total credit are 7, 4.5 and 88.5 respectively

Investment Credit: Major Sub Sector Projections

2.41 The credit flow projections for the various major sub-sectors is estimated by projecting the trend in the share of each of the sectors in the Ground Level Credit Flow to Agriculture.

Summary of various projections

Table 2.17: Summary of various projections of GLC for agriculture and allied activities for XII FYP (2012-17)

Sr.No.	Method	Total Projection for 12th FYP period (₹ Crore)
1	Scenario 1- GDP Agriculture grows at 3% annually, ICOR (Agri) at 4	33,89,261
2	Scenario 1A - GDP Agriculture grows at 3% annually, ICOR (Agri) at 4.5	40,41,694
3	Scenario 2- GDP Agriculture grows at 4% annually, ICOR (Agri) at 4	35,29,102
4	Scenario 2A -GDP Agriculture grows at 4% annually, ICOR (Agri) at 4.5	42,08,454
5	Trend Method	37,39,022
6	Ratio of GLC to GDPA method	31,24,624

2.42 The total projections by various methods are in the range of ₹ 31,24,624 crore to ₹ 42,08,454 crore.

Limitations of the Projection

2.43 As with all projections, these are also constrained by the assumptions and the premises on which these are built. The behaviour of the macroeconomic parameters on the suggested lines influences the estimates. An area of concern is the likely behaviour with regard to inflation. Though in the short term, the assumption of 6% inflation may not be very realistic but it is very much plausible if a five year period is kept in horizon.

Direct Cash Transfer Policy of Government of India

2.44 The Government of India intends to implement the direct cash transfer scheme proposed by a panel headed by Shri. Nandan Nilekani, being tested on a pilot before finalization. Under this new system, the beneficiary gets cash to make his purchase of inputs etc., instead of the current system in which they get subsidised products (e.g. fertilizers). This may result in better targeting and checking of leakages. In direct cash transfer mechanism, the Finance Ministry provides money for cash payments to the States, from where it is transferred to the Nodal Bank that allocates money to beneficiaries through the payment network after checking with the Core Subsidy Management System (CSMS). The CSMS will maintain information on entitlements and subsidies and carry out a comprehensive check on beneficiaries. As a result, likely boost in demand for credit per annum is expected to be around ₹ 55,000 crore.

Strategies for meeting the Projections

Increase Credit Flow to small and marginal farmers

2.45 With commercial banks constituting 75% of the total GLC to agriculture it is imperative that the commercial banks should step up their financing towards the small and marginal farmers. In terms of share in account for the respective agency cooperatives and RRBs have

shown a distinct preference for financing small and marginal farmers. Recent trends indicate that commercial banks have shown a distinct preference for financing large farmers and this aspect is captured in the widening gap in terms of per account credit disbursed between the three categories of farmers especially since 2001-02. The policy makers should impress upon the commercial bankers that they have to step up financing to small and marginal farmers.

Expanding the role of Regional Rural Banks (RRBs)

2.46 The share of RRBs has been hovering around 10% in total GLC Flow. There is a need to further push it up by at least 10% in the next five years. In the next three years, their branch network needs to be upscale (or adopt the tech route).

Big Push to Collectives of SF / MF, tenant farmers

2.47 For increasing the share of tenant farmers, oral lessees, marginal and small farmers in their agricultural financing, commercial banks need to take up the formation and financing of JLGs on a 'mission mode'. There is a need to push this intervention aggressively on the Central and Eastern region of the country where 84% and 90% of the total number of holdings in the respective regions are less than 2 hectares. Further, if these groups have to be mainstreamed and benefit from the organized retail chains, there is a need to give a push to formation of **'producer companies'** and other such collectives like '**Farmers Clubs'**. Formation of these collectives should not be an end in itself but importantly handholding and skill development with respect to marketing aspects is also an essential. This brings into focus the need for adopting the 'credit plus' approach to development but with a reorientation.

Understanding the current trends in marketing of rural products

2.48 Rural production needs to be increasingly undertaken in tune with the trends in the market, if development needs to be market-led. For achieving this, the role of market intelligence and its dissemination in the form required by farmers is essential. A systematic network of 'market intelligence' for farmers need to be created as currently the efforts are sporadic and hence do not really add up.

Coping Mechanism for risk management for SF / MF

2.49 Given the increasing trends towards commercialization of agriculture, farmers are also prone to risks-increasingly happenings in the world markets. For SF / MF agricultural insurance markets have to be made 'friendlier' so that they can access it better. In coming times, volatility in prices would increasingly erode the income realization of farmers. The instrument of Price Stabilization Fund (PSF) for such designated commodities is the way out to absorb the price shock.

Exploit the Complementarities between Public and Private Investment to the fullest

2.50 Public sector investment in agriculture is imperative for creation of necessary infrastructure, whereas private investment in agriculture feeds the necessary momentum to the sector by improving productivity, by optimizing the existing infrastructure as well as by providing enhanced income to the farmers. Thus, development of the sector necessitates that both grow in tandem with each other. The Rural Infrastructure Development Fund (RIDF) has emerged in recent years as a major rural infrastructure creation initiative and can be made more effective if this complementarity can be exploited to the fullest. The creation of Public infrastructure through RIDF investment provides an opportunity for bank finance (Private Investment) to be channalized for long-term development of agriculture, if the enabling factors viz., extension services, research and development etc are in place. Bank financed ' **Area**

Development Plan' can be formulated by the banks to effectively work the above complementarity.

Dispel the notion that agricultural financing is 'necessarily' risky

2.51 There is a perceived notion on the part of bankers that financing to small and marginal farmers is "risky" vis-à-vis large farmers. This perception however, is not based on any empirically validated data. This perception stems out of the perception that agricultural financing is risky and the first casualty are the small and marginal farmers. The evolving concept of "aggregation" in Indian agriculture ought to be examined in the broader context of the need to enhance productivity and improving farmer livelihoods. Economic theory speaks of the problem of indivisibility of fixed capital and how it is linked to the economies of scale. Aggregation models on the one hand help benefitting from the scale, on the other hand help in creating credit absorption capacity and in accessing technology and markets. **With its experience in promoting ground level, people centric institutions in the past, NABARD may be advised to initiate pilots in this area.** JLGs promoted by NABARD could also serve as intermediate interventions within this framework.

Recommendations

2.52 There is a need to completely re-look at the philosophical approach to agricultural credit. Instead of looking at credit as a "push" of one more input for agriculture, it should be seen as a product that would delight the customer. Therefore, it is important to ensure that subsidies that could be earmarked for this sector and the subventions for the sector are designed and delivered smartly.

The Changing Landscape

2.53 The approach to agricultural credit should keep in mind the changing landscape and build in those elements. The changing landscape can be described as follows:

UID project: The ambitious Unique Identity project of the central government is moving towards not only providing bio-metric identity, but alongwith it linking the project with the financial inclusion agenda. Banks are active partners in the project by being registrars and the central government has issued a notification indicating that the UID number would be sufficient evidence for opening accounts as necessary documentation for meeting the Know Your Customer [KYC] requirements. The implication of the UID project is that it makes the opening of accounts much simpler. It might not remove the hasseles in transactions.

2.54 Policy thrust towards having transactions in formal channels: By mandating that all payments such as wages under MGNREGA, pension payments and possible future cash transfers of subsidies to be routed through bank accounts, the policy has almost made it mandatory for the beneficiaries to open and operate bank accounts.

2.55 Policy thrust on Financial Inclusion: There has been a major thrust in the policy of financial inclusion which has been undertaken both by the central government as well as the Reserve Bank of India. Both these initiatives ensure that all the villages with more than a population of 2,000 will be covered by banking services. The definition of banking services includes [a] offering a savings account [with overdraft], [b] a remittance service, [c] a accumulating savings service in the form of a recurring deposit, and [d] an enterprise loan. All these initiatives are being taken up through multiple channels including banking correspondents and thus the services are getting individualised. In addition The Reserve Bank of India has:

- Liberalized its licencing policy in favour of unbanked areas by allowing the banks to open branches in locations that have less than 50,000 population without the need for a licence.

- Asked the banks to submit a financial inclusion plan and how they would provide banking services to villages that have less than 2,000 population in a clear timeframe.
- Taken initiatives to extend banking to the last mile by allowing the appointment of business correspondents, allowing them to undertake cash transfers to a limited extent and by encouraging mobile companies to be a part of the financial inclusion initiatives.
- Removed caps on interest rates on all forms of loans [except agricultural loans and loans by MFIs using the banks loans under priority sector lending] so that the banks can operate in the markets freely by fixing a fair interest rate that gives them a decent risk adjusted return.

2.56 Reform of Co-operatives: The agricultural co-operatives are being revived and revitalized through the implementation of the Vaidyanathan Task Force recommendations. Most of the states have signed an MOU with the central government and the co-operative structure is being brought back to life. Several states have passed a new, parallel and liberal co-operative legislation. In addition the states have also amended the old legislation to bring it in line with the recommendations of the Vaidyanathan Task Force. This people-friendly legislation will foster more and more self-managed financial institutions in the days to come and hopefully will revive a vibrant primary co-operative movement.

The post offices have a significant presence in the last mile. We will have to examine ways of using this infrastructure for products that is natural to this channel.

2.57 Technology, Infrastructure: The next big change that is going to happen pertains to the technology platform. All the commercial banks, and now the regional rural banks will be on a Core Banking Platform, providing seamless connectivity. The telecom infrastructure will play a significant role. The accounts of the individuals will become branchless

and inter-operable through multiple channels and the pressure on the banking at the "counter" will significantly reduce. If there are innovative ways in which cash-in, cash-out transactions can be avoided, then the hierarchy of customers in banking might shrink as the technology will be capable of undertaking very small transactions as well. The technology is in place and the infrastructural costs are borne by a purpose other than banking and banking can benefit by providing marginal revenues on the marginal costs of an existing infrastructure.

2.58 The cost of the client end equipment is ported to the client unlike the smart card technology where a POS terminal had to be present. Given that the instrument is in the hands of the client, almost always, that could potentially become a wallet, with settlements happening without the necessary exchange of physical currency. Technology is growing at this pace and evolving fast to meet the poorest, it is possible that the access to financial services will be fundamentally redesigned in the coming years.

2.59 A major part of the attractiveness of the evolution of technology [unlike in the past] is that most of the technological interventions [except CBS] is not being developed exclusively for banking. Therefore the banking channel need not bear the full cost of the evolving technology. It just will have to bear the carrying cost. With mobile phones and signals being available in the remote parts, this would turn out to be a POS device, which essentially could also increase the banking penetration at the individual level. All this means that an individual data capture will happen on the banking platform. The transaction trail will partly remove the information asymmetry that the banking system suffers from.

Approach

2.60 The approach to the delivery of credit should be based on the principle of data, information, technology and flexibility. There should be

a constant monitoring of where the credit is going, how effective is credit and whether the horizon is that of creating a long term sustainability.
If we look at why it is necessary for an individual to make multiple trips to the bank, we clearly realize that initially it is for the purposes of documentation. The next stage, the individuals have to visit the bank in order to either withdraw or deposit the cash. At present, there is enough technology available that can minimise this cash-in cash-out transactions. For this to happen, a KCC for instance has to be literally a credit card that is not only inter-operable across bank branches, but also swipable with the local commercial establishments. If the basic mantra of the plan period is to shift agricultural credit towards limits and cashless transactions, we would find that this would lead to two benefits:

a. the overall transaction costs for the farmer, particularly her/his out of pocket expenses will significantly reduced
b. the transactions can be potentially captured by the usage pattern. This data can be mined [without violating the privacy norms] on a gross basis to understand the usage patterns and to understand how policy could be directed.

2.61 All subsidies intended for this sector should be directed towards building robust and friendly systems that make banking and credit accessible – that instead of reducing the interest cost – which gives rise either to arbitrage at the farmer level or transactional arbitrage, it should be directed towards making systems and technology work for the purpose of reaching a larger set of people. While it is true that agricultural subsidies in India are much less when compared to the rest of the world, especially European countries, and the Indian farmers do need support; the question of affordability of subsidies and direction of subsidies to the appropriate segments cannot be sidelined. In the context of credit subsidy, it is pertinent to note that those who really deserve subsidies are perhaps not covered under the institutional credit. Theoretically, as well as empirically, evidences of subsides creating market distortions are

available. The WG has flagged the issue of subvention/subsidy in the above context. The recommendation is to rationalize subsidy in such a way that it creates minimum distortion in the market and also the amount involved is used more productively.

2.62 A simple exercise to calculate interest subvention/subsidies over the projected short term credit requirement for the 12th FYP (for all agencies together) was carried out. The subsidy or interest subvention amount is the difference between the interest amounts at two different rates viz., 10% (assumed) and the prevailing 7%. The crop loan amount has been assumed to be outstanding over a period of six months. With this assumption, over the projected Short term credit of about Rs.28,53,577 crore, subvention works out to Rs. 42,000 crore at the prevailing rate of interest of 7%, implying an average expenditure of Rs. 8500 crore on subsidies per year. This amount does not include the state government subsidies which have brought down the interest rates further to about 4%, indicating involvement of roughly similar quantum of subsidy. These two sets of subsides thus, together, represent a pool of resources which can be utilized more rationally. The WG is of the view that with this pool of resources, it may be possible to retain the interest rate at 7% and also create a corpus to take care of risk mitigation requirements or weather based instabilities and climate change. These resources could also be dedicated to creation of rural infrastructure, especially 'soft infrastructure' which will go a long way in meeting the needs of the farmers. Large public investment in either case, will facilitate building confidence of the bankers and the farmers in investing in agriculture.

Chapter III

Cooperative Credit Institutions

3.1 The XII Plan Sub Group on cooperatives was appointed with the ToR to review the contribution and performance of credit cooperatives towards outreach of credit to agriculture and allied activities and recommend measures for their increased proactive participation. Cooperative Credit Structure in the country consists of two wings,viz., Short Term Co-operative Credit Structure (STCCS) and Long Term Co-operative Credit Structure (LTCCS). The STCCS deals with Short and Medium Term Credit requirements for agricultural purposes and it is largely federal in character. The federal structure based on a three-tier pattern with the State Cooperative Banks (SCBs) at the Apex level, District Central Co-operative Banks (DCCBs) at the intermediary level and Primary Agricultural Credit Societies (PACS) at the village level. Under the LTCCS, the Agricultural and Rural Development Banks (ARDBs) cater to the investment credit requirements in the rural areas and, thus, promote fixed capital formation in the agriculture sector. The organisational pattern is not uniform all over the country. Majority of states have a federal set-up with the State Cooperative Agriculture and Rural Development Banks (SCARDBs) at the state level and affiliated Primary cooperative Agriculture and Rural Development Banks (PCARDBs) at the district or taluka levels while in some states, the structure is of unitary type, the operational units below the SCARDBs being its branches (Table 3.1).

Table 3.1: Structure of co-operative credit institutions	
Type of Institution	**Number**
Short-term	
PACS	**95614**
DCCB	**370**
SCB	**31**
Long-term	**Number**
PCARDB	**69**
SCARDB	**20**

Agricultural credit flow from cooperatives during X and XI Plans

3.2 During the X Five Year Plan, agricultural credit flow from all institutional agencies was ₹ 6,47,101 crore, the share of cooperative banks, being 25.3 per cent (₹ 1,63,626). There had been regional variations in the share of cooperative banks and the shares ranged from 3.49 per cent in the NE region to 33.98 per cent in the western region (Table 3.2).

Table 3.2: Share of different agencies in total GLC disbursements during the X Plan

(₹ crore)

Region	Comml Banks	Share (%)	SCB/ DCCB	Share (%)	SCARDB/ PCARDB	Share (%)	RRB	Share (%)	Total
Northern Region	118945	64.2	52244	28.2	4384	2.4	9723	5.2	**185305**
NE Region	2112	80.5	87	3.3	4	0.2	418	15.9	**2622**
Eastern Region	28691	65.6	9707	22.2	333	0.8	5007	11.4	**43764**
Central Region	52438	55.7	19392	20.6	4799	5.1	17456	18.6	**94085**
Western Region	57765	62.1	31342	33.7	287	0.3	3319	3.6	**93074**
Southern Region	161267	70.7	38861	17.0	2185	1.0	25790	11.3	**228251**
Total	**421218**	**65.1**	**151634**	**23.4**	**11992**	**1.9**	**61713**	**9.5**	**647101**

Year wise disbursements in respect of co-operatives are given in Annexure 1

3.3 During the first three years of XI Five Year Plan, viz. 2007-08, 2008-09 and 2009-10, agricultural credit flow from institutional sources was ₹ 9,39,161 crore; the share of cooperative banks declining to 15.95 per

cent. However, the annual average credit flow from cooperatives was ₹ 32,725 crore during the X Plan and ₹ 50,030 crore during XI Plan. (Table 3.2 & 3.3).

Table 3.3: Share of different agencies in total GLC disbursements during the XI Plan (First 3 Years**)**

(₹ crore)

Region	**CBs***	**Share (%)**	**SCB/ DCCB**	**Share (%)**	**SCARDB / PCARDB**	**Share (%)**	**RRB**	**Share (%)**	**Total**
Northern Region	185155	71.8	53044	20.56	2276	0.9	17328	6.7	**257947**
NE Region	3279	79.8	119	2.89	2	0.1	710	17.3	**4110**
Eastern Region	48226	70.4	11399	16.64	422	0.6	8429	12.3	**68493**
Central Region	78018	62.8	17069	13.74	1657	1.3	24535	19.8	**124195**
Western Region	98210	74.5	24503	18.60	226	0.2	4101	3.1	**131757**
Southern Region	281032	79.7	38054	10.79	1321	0.4	32190	9.1	**352657**
Total	**693920**	**73.9**	**144187**	**15.35**	**5904**	**0.6**	**87294**	**9.3**	**939161**

**: Commercial Banks*
Year wise disbursements in respect of co-operatives are given in Annexure 2

Growth in agricultural credit by cooperatives

3.4 Agricultural credit from cooperatives which registered a compound annual growth rate (CAGR) of 17 per cent during the X Plan, decelerated to 7 per cent during the XI Plan. While the STCCS registered a positive growth in credit, the LTCCS registered negative growth during both the Plan periods. This is an area of concern as it can jeopardize capital formation in the farm sector (Table 3.4).

Table 3.4: Growth in flow of agricultural credit from cooperatives during X and XI plan						
Region	**Growth in Credit flow (CAGR %)**					
	X plan			**XI plan**		
	SCB/ DCCB	**PCARDB SCARDB**	**Total**	**SCB/ DCCB**	**PCARDB SCARDB**	**Total**
Northern Region	22	-3	20	8	8	8
NE Region	12	-2	11	20	-4	20
Eastern Region	24	-3	23	25	17	25
Central Region	16	-23	7	9	23	10
Western Region	21	13	21	18	-16.0	17
Southern Region	16	-11	14	23	-7.0	22
ALL INDIA	20	-13	17	7	-12.00	6.7

Number of agricultural accounts and SF/MF coverage

3.5 Number of accounts and GLC for agricultural credit for 2007-08 and 2008-09 are presented in Table 3.5. It could be seen that during 2007-08, cooperatives had the largest number of total accounts and SF/MF accounts under agricultural credit .

Table 3.5: Number A/Cs and GLC for agricultural credit (Number of A/Cs in lakh and GLC in (₹ crore)

	2007-08			**2008-09**			**2009-10**		
Financial Institutions	**Total No. of A/Cs**	**No. of SF/MF A/Cs**	%	**Total No. of A/Cs**	**No. of SF/MF A/Cs**	%	**Total No. of A/Cs**	**No. of SF/MF A/Cs**	%
Comm. Banks	174.79	97.44	**55.75**	202.45	105.59	**52.16**	**205.30**	**106.72**	**52.0**
Co-op Banks	201.81	117.86	**58.40**	178.18	97.05	**54.47**	**203.92**	**128.17**	**62.9**
RRBs	62.74	42.21	**67.28**	75.47	42.71	**56.59**	**73.08**	**49.84**	**68.2**
Total	**439.34**	**257.51**	**58.61**	**456.1**	**245.35**	**53.79**	**482.30**	**284.73**	**59.0**
	GLC	**SF/MF**	**%**	**GLC**	**SF/MF**	**%**	**GLC**	**SF/MF**	**%**
Comm. Banks	181087.61	52230.75	**28.84**	228951.31	121859	**53.22**	**285799.73**	**67668.93**	**23.6**
Co-op Banks	48258.19	22608.79	**46.85**	45965.61	26188.43	**56.97**	**63496.85**	**29519.12**	**46.5**
RRBs	25311.65	15018.97	**59.34**	26764.68	16443.96	**61.44**	**35217.62**	**21089.06**	**60.0**
Total	**254657.45**	**89858.51**	**35.29**	**301681.6**	**164491.39**	**54.52**	**384514.20**	**118277.11**	**30.8**

Source: NABARD

Credit flow projections for XII plan

3.6 Four broad scenarios have been projected for estimating the total GLC in agriculture during the 12th FYP period. In order to achieve the overall GDP growth envisaged in 12th FYP period, agricultural sector needs to grow at 3% annually for 8.5% overall GDP growth and at 4% annually for overall GDP growth of 9 to 9.5%. Of the total required investment in the sector, share of the private sector was arrived at based on the past trend (10 years). Similarly, the ratio of institutional sources in the total private investment has been estimated and used for estimating the credit flow through the banking channel. Rrequirement of agricultural credit flow during XII plan are presented in Table 3.6.

Table 3.6: Summary of various projections of GLC for agriculture and allied activities for XII FYP (2012-17)

(₹ crore)

Sr. No	Particulars	Total Projection for 12th FYP period (₹ crore)	Share of Co-operatives (₹ crore)	% Share of co-operatives	Per anuum average credit from co-operatives during 12th FYP period (₹ crore)
1	**Scenario 1- GDP Agriculture grows at 3% annually, ICOR (Agri) at 4**	33,89,261	7,33,998	21.66	1,46,800
2	**Scenario 2 - GDP Agriculture grows at 3% annually, ICOR (Agri) at 4.5**	40,41,694	8,75,292	21.66	1,75,058
3	**Scenario 3 - GDP Agriculture grows at 4% annually, ICOR (Agri) at 4**	35,29,102	7,64,481	21.66	1,52,896
4	**Scenario 4 - GDP Agriculture grows at 4% annually, ICOR (Agri) at 4.5**	42,08,454	9,11,643	21.66	1,82,329
5	**Scenario 5 -Trend Based Projections**	37,39,022	8,25,252	22.07	1,65,050
6	**Scenario 6-Ratio of GLCA to GDPA method**	31,24,624	6,75,619	21.62	1,35,124

Notes:

1. Private Sector Share in Total Investment in Agriculture is 80%.
2. Private Sector investment financed by institutional sources is 80% of the total investment in private sector
3. Ratio of Production to Investment credit assumed at 70:30(existing share) and by the end of the terminal year to reach 66:34
4. For ST: The existing shares of Cooperatives, RRBs and CBs in the total credit are 27,11.5 and 61.5 per cent respectively
5. For LT: The shares of Cooperatives, RRBs and CBs in the total credit are 7, 4.5 and 88.5 respectively

Issues in increasing credit flow through cooperatives

Poor resource base

3.7 PACS have an average membership of about 1,400 and owned funds of ₹ 13 1akh per society. As PACS were almost always set up due to state initiatives, which were themselves driven on provision of credit, hardly any attempts were made towards making primary cooperatives (PACS) self sufficient through share capital and member deposits in most states. Thus, excepting about 22,000 PACS in the four southern states and West Bengal where average PACS deposits are about ₹ 90 lakh, the average deposits in the remaining 74,000 PACS in the country even today hardly average ₹ 9 lakh, or less than ₹ 650 per member. Continued poor governance, management and institutional infrastructure in PACS also did not aid the cause. The poor resources of PACS were expected to be supplemented by the upper tiers, CCBs and SCBs, by tapping deposits from non agricultural areas and clients. Over a period, they also seem to have lost way, and although deposits of CCBs are close to ₹ 1.25 lakh crore, and their CD ratio is also high at 72%, the ratio of their agricultural credit[1] to deposits (or, the agricultural-credit deposit ratio) is less than 35%. In other words, even CCBs have started shying from agricultural credit, the primary reason for which they were set up, and are finding other businesses for themselves. The story of SCBs is not much different. The ST CCS has therefore continued to rely heavily on refinance support from apex institutions like NABARD, an approach that was initiated by the RBI a long time ago.

Table 3.7: Resource base of co-operatives as on 31 March 2009 (₹ crore)

Agency	Share cap.	Reserve	Deposits	Borrowings	Total
SCB	1390.48 (1.35)	8763.95 (8.50)	71315.07 (69.20)	21582.21 (20.94)	103051.71 (100.00)
DCCB	6071.41 (3.45)	17808.01 (10.11)	123721.82 (70.26)	28477.64 (16.17)	176078.88 (100.00)
PACS	7007.32 (8.05)	4888.5 (5.61)	26245.38 (30.14)	48938.44 (56.20)	87079.64 (100.00)

[1] primarily, their liquidity support to PACS

3.8 The limited loanable resources of PACS forced them to initiate credit rationing by setting credit ceilings per member[1]. Simultaneously, their borrowing capacities, limited because of low share capital contributed by members and poor profitability, were sought to be enhanced by infusion of state funds as share capital. State funds, coupled with poor human resources in both governance and management structures proved to be the ideal backdrop for state-led interference in their administrative and financial decision-making.

3.9 The net result of this approach that continued for over 50 years was that the cooperatives never became member driven and member centric, and could not be relied on for a massive increase in provision of agricultural credit that the country needed for boosting agricultural production under the grow more food campaign in the 1970's. It is this failure of the ST CCS that first mandated commercial banks to move to rural areas and provide agricultural credit, and later prompted designing of small sized localised banks called RRBs[2] that were expected to have the local touch of cooperatives and financial management abilities of commercial banks.

Financial health

3.10 The financial health of the credit institutions is a cause for serious concerns. While the majority of the institutions in the STCCS are in profit and the accumulated losses are also coming down over the years, the LTCCS presents a totally different picture. Not only do the LTCCS as unit register increasing losses over the years, its accumulated

[1] Such ceilings are called individual maximum borrowing power (IMBP) and were designed to ensure that a few dominating members do not usurp the limited resources available. In most cases, IMBP has not been revised for years, and members often do not get adequate credit even if resources are available. Another reason is that the PACS tries to avoid large defaults by limiting the loan size itself.

[2] Commercial banks and RRBs now have about 50,000 rural and semi-urban branches

losses in 2010 was to the extent of ₹ 5,275 crore by end-2010, i.e., it has eroded its owned funds to the extent of 59%.

Share of Cooperatives in Agricultural Credit

3.11 Despite the entry of commercial banks and RRBs in the 1970's, cooperatives continued to provide significantly larger portion of agricultural credit for another two decades. Even until early 1990's, cooperatives provided almost 62% of the agri-credit in the country, with commercial banks providing a little more than 30%, and the RRBs meeting a meagre 7%. By the turn of the century, however, the commercial banks had overtaken the cooperatives, and were providing 74% of agri-credit by 2010-11 and the share of cooperatives dwindling to a meagre 10%.

Status of Implementation STCCS Revival Package and its Impact

3.12 As implementation of the GoI revival package progressed, 25 States joined the Package. Cooperative State Acts (CSAs) have been amended in 21 states. Professional CEOs or Directors have been or are being appointed in most of the states. Statutory audit by Chartered Accountants have commenced in 16 states. The GoI has released ₹ 9,016.6 crore so far for recapitalisation of 52,000 PACS in 16 states and the process for further releases is on.

3.13 The most significant activity carried out under the Revival Package is that of HRD initiatives. Moreover 80,000 staff and secretaries of PACS, 1.09 lakh elected members of PACS, 370 CEOs of CCBs and SCBs, 2,000 elected Board Members of CCBs and 1,500 branch managers of CCBs have been trained within two years through modules, specially designed by NABARD. The focus of these training programmes has been business diversification and prudent financial and business management. This is a continuing initiative.

3.14 Standardised Accounting and MIS package has been designed and implemented in PACS and the process of computerising the same in all the PACS that have received assistance under the package is underway. NABARD is in the process of organising a CBS based package for interested CCBs and SCBs on application service provider (ASP) basis outside the GoI package and 125 banks have already joined the initiative.

3.15 These efforts, together with the financial cleansing received by the cooperatives under the Agriculture Debt Waiver and Debt Relief Scheme (ADWDR) of the GoI has seen agri-credit by cooperatives increase substantially from ₹ 48,000 crore disbursed to 2.02 crore farmers to ₹ 63,500 crore disbursed to 2.04 crore farmers. Given, however, that PACS have a membership of over 12 crore and CCS has issued more than 3.79 crore KCC, there is substantial scope for increasing agri-credit dispensation by cooperatives.

Is the CCS capable of meeting the future challenges?

3.16 While crop loans in the banking system grew at 28% during 1997 to 2007, crop loans by the CCS grew only at 14%[1]. Crop loans outstanding were 65% of the deposit base of CCBs in 2007[2]. The overall CAGR for crop loans was 24 per cent during the first three years of the XI Plan and are expected to grow at at least 20% in the next five years. Agricultural credit by the CCS would continue to increase but the pace of growth is expected to flatten to about 16% and the amount expected to be disbursed would be ₹ 2.05 lakh crore by 2018, or three times the disbursements in 2011.

3.17 The deposits of CCBs grew only at about 8% from 2002 to 2007 compared to 15% by RRBs. Even if the growth rate of deposits in CCBs increases by another 50% to touch 12% in the next decade, these

[1] Crop loans by RRBs grew at 31 % during the corresponding period.

[2] As mentioned earlier, deposits were negligible in PACS excepting in a few states, and CCBs were therefore, meant to mobilise deposits from the semi urban and small town areas so as to provide loanable funds to PACS.

deposits would still not support more than ₹ 1.40 lakh crore of crop loans thereby needing NABARD refinance support of at least ₹ 65,000 crore by 2018, if cooperatives have to even maintain their share in the total agri-credit provided by the banking system. With this limited, but still fast growth of credit flow in PACS which would in any case not be matched by deposits mobilised from members of PACS, the concept of mutuality of thrift and credit would continue to be weak in PACS and PACS would continue to be poorly governed despite implementation of Vaidyanathan recommendations.

3.18 To sum up the WG is of the view that, the revival package represents one of the largest programmes of the Government to bring back the STCCS on rails to take care of outreach especially to the small and marginal farmers. The implementation is now more or less over and it can be seen that while the revival package has helped in financial terms, it has still raised concerns like states not making changes in the law and some states reverting to tight control by RCS, external interferences after receiving assistance waivers etc.. **The WG recommends that unless legal and institutional reforms in the package are implemented in letter and spirit, cooperatives cannot be rebuilt.**

3.19 An area of concern that needs to be addressed with a sense of urgency is the debilitating financial health of the LTCCS and their inability to finance capital formation in the agriculture sector, the purpose for which they were set up in the first place. Such a situation could have long time deleterious consequences on sustaining growth in the agriculture sector. A decision, perhaps, may have to be taken quickly on the package for revival of the LTCC and its implementation can commence forthwith.

Action for the Future

Improving Share Capital and Deposit Safety

3.20 The critical issue for the future is therefore increasing member participation in the affairs of PACS and ensuring that members have a substantial financial stake in the cooperative. As PACS were often formed as state led initiatives in the name of the "poor farmer", the face value of membership fee or a share in a PACS has often remained at a paltry ₹ 10, or at best ₹ 100 per member, and more often than not, even this was provided by the state under "universal membership" campaigns. It is clear that in today's world, such a low share-price has no value as far as capital of even a small financial institution like a PACS is concerned. True that the share capital of a member is linked to the quantum of loan, thereby, notionally increasing the capital base of the cooperative but the fact remains that unless dividend is paid on such share capital, the cost of credit from a cooperative becomes much higher than that from competing banks, i.e., RRBs and Commercial Banks. Unfortunately, even profit making PACS were often denied permission for paying dividend. In any case, half the PACS were making losses. It is therefore necessary to increase per member share capital to at least ₹ 500 which, technically, is not even two or three day's wages of a single member of a rural family.

3.21 Members today are hesitant to keep deposits even with their own PACS as they are rightfully concerned about the safety of their deposits. Since such deposits would not be covered by DICGC, and the deposit insurance schemes of states have remained only on paper, NABARD has formulated an "Institutional Protection and Deposit Safety Scheme (IPDSS) for PACS on the lines of similar schemes operating in Germany and Hungary[1]. Sustained campaign, incentivising a habit of making regular thrift among farmers, a la SHGs, is therefore necessary as part of

[1] The very fact that most loans of a PACS are concentrated in a small geographical area of a few villages and for a single economic activity, agriculture, makes the assets of a PACS riskier. A variety of safety nets other than crop insurance are therefore essential. The "institutional protection" part of the scheme focuses on preventing a PACS from failing by taking remedial action as soon as any disturbing signs emerge. The action may include mandating managerial intervention, liquidity support, temporary or long term restructuring, or even merger with another PACS and so on. Entry barriers are proposed under the scheme to ensure serious participation. Only when closure of a PACS becomes inevitable does the "deposit safety" aspect gets activated which is a pure pay-out from a deposit safety fund. The scheme has been sent to DFS for establishing a Central IPDSS Fund.

the financial literacy and counselling initiatives. Immediate launching of IPDSS would give a boost to this initiative.

Increasing Member Participation

3.22 Farmers have become used to treating themselves as mere "clients" of PACS from where they avail credit with their responsibility limited to voting in the occasional elections in the PACS. Even these votes are often cast on party affiliations with little reference to functioning of the PACS or the capability of the Committee Members. This needs to change immediately. Campaigns to make members aware of their rights and responsibilities, and formation of village committees of members to monitor and activate members in the regular functioning of PACS would have to be immediately planned and executed.

3.23 With the increasing number of small and marginal farmers and oral tenancy, formation of JLGs within these village committees then becomes the next necessary step[1]. NABARD has already initiated such a move that needs to be converted into a mission mode.

3.24 The central theme for increasing member participation in the affairs of the PACS is take steps which increase the number of contacts between the member and the PACS. It is easy to surmise that the most effective contact can only be through fruitful business between the two, and the product range offered by the PACS therefore needs to widen significantly.

Improving product Range of PACS.

3.25 PACS today primarily offer crop loans and have been legally enabled to provide loans for farm investment and other activities. Some

[1] Though oral tenants are being financed by banks through JLGs, such tenants still find it difficult to get services like crop insurance, various subsidies, etc. It is time land tenancy laws are changed in all the states. In W Bengal, sharecropping is legalized and A.P. is contemplating issuing a land use certificate valid for a crop season to such tenants to help them get bank loans. Similar initiatives are necessary in all the sates.

PACS also stock fertilisers. Most members, however, have to look to other agencies not necessarily located in their village to even get other products and services required for their farming operations. This increases the farmer's transaction costs.

3.26 It would be necessary to convert PACS into one stop shop for farmers – the member farmer must first think of his PACS whatever he needs for his farming operations and also otherwise, and the PACS needs to be enabled to either itself provide that product or service or arrange for that expeditiously. Examples of PACS engaged in procurement, providing warehousing facilities, stocking and providing other inputs including seeds and saplings, leasing out farm equipments, becoming e-enabled common service centres providing land records and information on weather, market prices, and extension advisories, and so on are now available in some states[1]. PACS also need to provide other financial products, especially insurance, and enhance their fee based income. A planned initiative to develop at least 5 such multi-purpose PACS in each district within one year could be the first step of a national drive. These will have demonstration and demand effect and help other PACS in the district to develop similarly. Substantive and well planned HR initiatives will be part of any such drive including providing managerial support and manpower wherever required.

3.27 In Punjab, some of the cooperative societies have started maintaining a stock of farm machinery including tractors which can be hired by farmers at will. This model was found to be highly successful as the farmers are relieved from the stress of having to buy the equipment from the market at high costs. This initiative in Punjab is mainly cooperative- driven and is amenable for replication in areas where cooperatives have a strong presence. Such initiatives are particularly significant as they help in relieving the debt burden on farmers. Whether

[1] Some PACS have even been found to be selling cooking gas (rather than diesel for farm operations) to households because they believed the womenfolk also need to be closely associated with the PACS to improve member participation and loyalty !

this has to be taken forward as a state-driven or cooperative-driven initiative, if replicated in other states, was deliberated by the Working Group. It was suggested that well- functioning PACS in different states should be identified, so that the model could be implemented. The successful functioning of the Cooperative Development Fund in Tamil Nadu was also cited, wherein, the amount aggregated under the fund was disbursed as interest- free loans to farmers by several cooperatives.

Legal and Regulatory Enablement

3.28 As mentioned earlier, Cooperative Societies Acts (CSA) have been amended in 21 states on the sidelines of the Vaidyanathan Committee recommendations[1]. These amendments aimed at providing flexibility to the CCS entities to make them more efficient. For example, any CCS entity can now take loans from any financial institution regulated by RBI. Technically, this enables a PACS or CCB to take loans from any other cooperative bank, commercial bank or an RRB or even refinance directly or indirectly from NABARD. However, consequential amendments in NABARD Act to provide refinance to any PACS directly or through a commercial bank or RRB are yet to be made which practically nullifies the enablement created through the CSA amendments. Likewise, amendments are yet to be made to enable cooperatives registered under the parallel cooperative societies Acts or the multi state cooperative societies Act (MSCSA) to be recognised as banks[2]. Consequential amendments would also be required in the DICGC Act, BR Act, and RBI Act. Without such amendments, the intended reforms of the Vaidyanathan package will go only half the way and leave sufficient scope with the states to continue interfering in the affairs of the cooperatives.

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[1] States like Punjab and Uttarakhand, apart from some NER states, have not amended their Coop Societies Acts so far.

[2] The present MSCSA allows a primary multi state cooperative to be recognized as a bank but does not allow a federal cooperative to be recognized as a bank. A recent Supreme Court ruling that a cooperative working the whole of a state is deemed to be automatically functioning under the MSCSA if the state is divided has created a legal impasse as some of the SCBs are now deemed multi state cooperatives but the MSCSA itself has no provision for such federal coops to be recognized as banks.

To Sum Up

3.29 A national programme for PACS focussing on the following may be designed and launched :

(a) Design and run a media based sustained campaign to increase awareness among members of PACS on their rights and responsibilities and how they can fulfil the same to improve its functioning to help the members themselves. The campaign to propagate importance of savings and encouraging the members to keep deposits with their own PACS has to be initiated.

(b) Launch Institutional Protection and Deposit Scheme for PACS. Using the inputs from the above campaign, transform five PACS in each district to provide a range of financial and non-financial products to its members which improve the profitability of member farmers themselves.

(c)Design and execute the required HRD plan for this initiative. Immediately amend MSCSA, Parallel Cooperative Societies Acts of various states, NABARD Act, BR Act, DICGC Act, and RBI Act.

Annexure 3.1: Year-wise credit flow from ST cooperatives and their share in GLC during X Plan

(₹ lakh)

Region	2002-03			2003-04			2004-05			2005-06			2006-07		
	SCB/ DCCB	**Total credit**	**%**	**SCB/ DCCB**	**Total credit**	**%**	**SCB/ DCCB**	**Total credit**	**%**	**SCB/ DCCB**	**Total credit**	**%**	**SCB/ DCCB**	**Total credit**	**%**
Northern Region	693930	1745488	**39.76**	782457	2181869	**35.86**	1020760	3212464	**31.77**	1276005	5044838	**25.29**	1451261	6345800	**22.87**
North Eastern Region	1399	15386	**9.09**	1258	29994	**4.19**	1392	40733	**3.42**	3113	93571	**3.33**	1564	82529	**1.90**
Eastern Region	114774	386889	**29.67**	168308	504740	**33.35**	172796	723769	**23.87**	225853	1221627	**18.49**	289009	1539356	**18.77**
Central Region	280569	100257	**27.97**	329681	1248734	**26.40**	383645	1714180	**22.38**	426099	2313365	**18.42**	519222	3129312	**16.59**
Western Region	447994	914223	**49.00**	451247	1012247	**44.58**	578206	1411102	**40.98**	745424	2617793	**28.48**	911333	3352062	**27.19**
Southern Region	555358	215794	**25.76**	639112	2613740	**24.45**	725263	3683078	**19.69**	1057903	6351206	**16.66**	908473	8021263	**11.33**
ALL INDIA	**2094024**	**6220737**	**33.66**	**2372063**	**7591324**	**31.25**	**2882062**	**10785326**	**26.72**	**3734397**	**17642400**	**21.17**	**4080862**	**22470322**	**18.16**

Annexure 3.2: Year wise credit flow from ST cooperatives and their share in GLC during XI Plan (₹ lakh)

Region	2007-08			2008-09			2009-10		
	SCB/ DCCB	Total credit	%	SCB/ DCCB	Total credit	%	SCB/ DCCB	Total credit	%
Northern Region	1701746	6828000	**24.92**	1617527	8434283	**19.18**	1985158	10532500	**18.85**
North Eastern Region	3433	95798.31	**3.58**	3499	151407	**2.31**	4966	163786	**3.03**
Eastern Region	313745	1782180	**17.60**	333768	2239780	**14.90**	492338	2827339	**17.41**
Central Region	657717	3382004.94	**19.45**	556820	3829524	**14.54**	783940	5207987	**15.05**
Western Region	906514	3725131	**24.34**	759805	4225070	**17.98**	1255342	5225528	**24.02**
Southern Region	1066578	9583525	**11.13**	1116457	11234265	**9.94**	1622342	14447948	**11.23**
ALL INDIA	**4649733**	**25396639.3**	**18.31**	**4387876**	**30114329**	**14.57**	**5360146**	**33197101**	**16.15**

Annexure 3.3: Year wise credit flow from LT cooperatives and their share in GLC during XI Plan (₹ lakh)

Region	2007-08			2008-09			2009-10		
	PCARDB / SCARDB	Total credit	%	PCARDB/SCARDB	Total credit	%	PCARDB/ SCARDB	Total credit	%
Northern Region	64947	6828000	**0.95**	86733	8434283	**1.03**	75912	10532500	**0.72**
North Eastern Region	87	95798.31	**0.09**	61	151407	**0.04**	81	163786	**0.05**
Eastern Region	12057	1782180	**0.68**	13672	2239780	**0.61**	16457	2827339	**0.58**
Central Region	44796.9	3382004.94	**1.32**	53045	3829524	**1.39**	67885	5207987	**1.30**
Western Region	9059	3725131	**0.24**	7090	4225070	**0.17**	6410	5225528	**0.12**
Southern Region	45139	9583525	**0.47**	48084	11234265	**0.43**	38854	14447948	**0.27**
ALL INDIA	**176086**	**25396639.3**	**0.69**	**208685**	**30114329**	**0.69**	**137714**	**33197101**	**0.41**

Annexure 3.4: National Cooperative Development Corporation (NCDC)

1. NCDC is a Development Financing Institution with the aim to promote the Cooperative Sector. In recent years, in order to extend the outreach of credit availability for cooperatives, NCDC has amended its Scheme and included newer areas of funding. For NCDC to continue to play an effective role to provide support and assistance to cooperatives for their overall development, in the 12th Five Year Plan period, NCDC will continue to provide support and assistance to cooperatives for their overall development. Moreover, with a view to broaden its scope of funding, NCDC has taken following measures:

- ✓ New services such as tourism, hospitality & transport, electricity and power, rural housing, hospital, health care and education cooperatives have been notified and suitable schemes, pattern of assistance etc. have been introduced and intimated to the States/UTs.

- ✓ A proposal for amendment in NCDC Act to include 'Producer Company' in the definition of 'Cooperative Society' has been moved and the same is under consideration of the Government of India so as to enable producer companies to avail financial assistance from NCDC.

- ✓ Creation of Enterprise Development Fund for financing new and smaller cooperatives, which could not be earlier covered under direct funding norms by liberalizing financing terms.

- ✓ A Corporation Social Responsibility Programme has been introduced by creating a non-lapsable fund for financing community welfare oriented projects through small intervention of grant in aid as a natural corollary to NCDC's Schemes/activities.

- ✓ A scheme for working capital assistance to credit cooperatives for all activities covered under the purview of NCDC and for disbursement of loans by women credit cooperatives to their members for activities/services under the purview of NCDC has been introduced. NCDC has also introduced scheme for assistance towards creation of infrastructure facilities by credit cooperative.

- ✓ The Corporation has laid special emphasis for sanctioning smaller cooperatives/projects in large numbers to enlarge its coverage.

ι) With a view on sustaining a higher growth path for the cooperatives, it is imperative that cost of funds to be made available should be cheaper than prevailing market rates. The existing rate of interest being charged by NCDC ranges between 11% to 13%. Cooperatives in general are unable to sustain higher rate of interest and have been from time to time, requesting for reduction in the rate of interest. Hence, an additional proposal for 3% interest subvention amounting to ₹ 825.00 crore on loans is moved to be included in the prospective 12th Five Year Plan Programme. The funds so earmarked will be entirely passed on to the cooperatives availing financial assistance from NCDC.

ιι) In order to overcome the constraints of adequate security coverage under Direct Funding Scheme, it is proposed that a Guarantee Fund Scheme in the line of Credit Guarantee Fund Scheme for micro and small enterprises be introduced to cover financing by NCDC to cooperative societies to obviate the need for collateral security cover, thereby giving scope to large number of cooperatives to avail assistance directly from NCDC. NCDC should be allowed to run the trust fund Scheme with a corpus of ₹ 100 crore provided for the purpose.

iii) NCDC is providing assistance for computerisation to SCB/DCCB involving a subsidy component ranging from 20% – 25% of the project cost to Under Developed and Least Developed States. The Scheme for computerization of SCB/DCCB was introduced by NCDC in 2005-06 and met with success. So far NCDC has sanctioned ₹ 91 crore to 23 projects. As per Vaidyanathan Committee recommendation, for computerisation of Primary Agriculture Credit institution there is a provision for 100% grant. Accordingly to widen the reach of this Scheme , the GOI may earmark ₹ 150 crore as 50% subsidy to assist 100 units @ ₹ 3 crore per unit with in the 12th Plan period.

Keeping in view the requirement of funds during the 12th Plan period, NCDC's requirement of subsidy and grant from Govt. of India during the 12th Plan period is as under:

S.N.	Details	₹ in crore
i	Subsidy:	
	a. under Restructured Central Sector Scheme for on going projects	720.00
	b. Rehabilitation of Coop. Processing units	50.00
	c. MIS Scheme for SCBs & DCCB's	150.00
	Sub Total:	920.00
ii.	Interest Subsidy:	
	a. under Restructured Central Sector Scheme for on going projects	90.00
	b. Rehabilitation of Coop. Processing units	265.00
	c. Interest subsidy of 3% from GOI for loans by NCDC	825.00
	Sub Total:	1180.00
iii.	Grants:	
	a. Contribution to Corpus Fund of NCDC	1500.00
	b. Creation of Corpus for rehabilitation of sick Coop. units	150.00
	c. Corpus Fund for creation of Cooperative Credit Guarantee Fund Scheme	100.00
	Sub Total:	1750.00
	GRAND TOTAL (i+ii+iii)	3850.00

Chapter IV

Risk Mitigation

Introduction

4.1 Agriculture in India despite its relatively diminishing contribution to Gross Domestic Product (GDP), accounts for over 50 percent of employment, and sustains close to 70 percent of the population. In addition to satisfying the food and nutritional requirements of the nation, agriculture also provides important raw materials to many key industries and accounts for a significant share of total exports. Another salient feature of the Indian agriculture sector is the large number of small sized landholdings. Of the estimated total 120 million farm-holdings, 63 per cent of farm-holdings were less than one hectare in size, with average holding size of merely 0.4 hectares. The performance of agriculture is vital not only for the Indian farmers and the agribusiness entities, but also for the Indian economy as a whole.

Climate of India and Climate Variability

4.2 The Indian Meteorological Department (IMD) was established as a National agency in 1875 merging various provincial meteorological services which existed in the 19th century. However, instrumental data and records for a few stations in India existed since the 18th century. Broadly, the climate of India revolves around the South-West Monsoon (June to September) that contributes nearly 3/4th of the annual rainfall received by the country (IMD). Floods and droughts in India are two key aspects of the weather arising from the excess or shortfall of monsoon rains. A large number of studies are available on various aspects of floods and droughts. One of the studies ranks 1918 as the year with the worst drought of the 20th century: a year when about 68.7 percent of the total area of the country was severely affected by drought.

4.3 Because of the dominant influence of the monsoon, the climate and weather profile of India exhibits the heaviest seasonal concentration of precipitation in the

world. Nearly 2/3rd of the land of the country is rain-fed, and almost 20 percent of the total land area is perennially drought prone. The Ganges-Brahmaputra and the Indus river systems are highly prone to flooding. The magnitude of flooding has increased in the recent decades, from approximately 19 million hectares affected 50 years ago to 40 million hectares in 2003, about 12 percent of India's geographic area. Though agriculture faces a multitude of risks including price risks, financial risks, institutional risks, personal risks etc., **production risk** however is the most important one from the perspective of scale and severity. Indian agriculture is often and rightly termed as **'the gamble of monsoon'** and is characterized by high variability of production outcomes. Many exogenous and endogenous factors in play during the production season make it impossible for entities to forecast the output from agricultural production reliably.

4.4 The agriculture sector in India is thus subject to a great many uncertainties. Uncertainty of crop yield is one of the fundamental risks, which farmers face, more or less, in all countries, whether developed or developing. These risks are particularly high, in developing countries particularly in the 'tropics' as in most of these countries, the overwhelming majority of farmers are poor, with extremely limited means and resources. Given these limitations, they cannot bear the risks of crop failure of a disastrous nature.

Crop Insurance

4.5 Benjamin Franklin is likely to be the first person to have thought of Crop Insurance. Based on a severe storm of 24th October 1788 in French countryside which destroyed crops, he observed – *"I have sometimes thought that it might be well to establish an office of insurance for farms against the damage that may occur to them by storms, blight, insects etc. A small sum paid by a number of farms would repair such losses and prevent much distress"*. However, the first crop insurance programme in the form of hail insurance started in 1820s in France and Germany for Grapes, while it started in USA in 1883 for tobacco crop. The earliest Multi-

Peril Crop Insurance (MPCI) started in USA in 1939, with formation of Federal Crop Insurance Corporation (FCIC).

4.6 Agriculture, particularly prone to systemic and co-variant risk, doesn't lend itself to insurance easily. Lack of historical yield data, small sized and fragmented farm holdings, low value crops and the relatively high cost of insurance, have made it more difficult to design a workable crop insurance scheme.

4.7 A brief evolution and present status of Indian crop insurance is presented below:

(i) Program based on 'individual' approach (1972-1978): The first ever crop insurance program started in 1972 on H-4 cotton in Gujarat, and was extended later, to a few other crops & states. The program by the time it wound up in 1978, covered merely 3,110 farmers for a premium of Rs. 454,000 and paid claims of Rs. 37.90 lakhs.

(ii) Pilot Crop Insurance Scheme – PCIS (1979-1984): PCIS was introduced on the basis of report of Prof. V.M. Dandekar and was based on the 'Homogeneous Area' approach. The scheme covered food crops (cereals, millets & pulses), oilseeds, cotton, & potato; and was confined to borrowing farmers on a voluntary basis. The scheme was implemented in 13 states and covered about 627,000 farmers, for a premium of Rs. 197 lakhs and paid indemnities of Rs. 157 lakhs.

(iii) Comprehensive Crop Insurance Scheme – CCIS (1985-1999): The scheme was an expansion of PCIS, and was made compulsory for borrowing farmers. Sum insured which was initially 150 percent of the loan amount, was reduced to a maximum of Rs. 10,000 per farmer. Premium rates were 2 percent of the sum insured for cereals & millets and 1 percent for pulses & oilseeds, with premium and claims, shared between the Centre & States, in 2:1 ratio. The scheme when wound up in 1999, was implemented in 16 States & 2 Union Territories and cumulatively covered about 763 lakh farmers, for a premium of Rs. 403.56 crore and paid indemnities of Rs.2319 crore.

National Agriculture Insurance Scheme –NAIS (1999)

4.8 NAIS replaced CCIS starting from Rabi 1999-00 season, presently administered by Agriculture Insurance Company of India Limited (AIC) that provides coverage to approximately 35 different types of crops during the Kharif season and 30 during the Rabi season. Till Rabi 2010-11, NAIS cumulatively covered 269.26 million hectares of crops grown by 176.18 million farmers covering a risk of Rs. 221260 crore for a premium of Rs. 6592 crore and paying indemnities of Rs. 22176 crore. The overall loss cost (indemnities to sum insured) stands at 10.02 percent (Source: Agriculture Insurance Company of India Limited). The following provides details of coverage and benefits under NAIS.

Table 4.5: Coverage and Benefits under NAIS (from Rabi 1999-2000)

				Rs. Crores			
Season	States/UTs Covered	Farmers Covered (millions)	Area covered (million ha)	Sum Insured	Premium	Claims	Farmers Benefited
Kharif							
2000	17	8.41	13.22	6903.38	206.74	1222.48	3635252
2001	20	8.70	12.89	7502.46	261.62	493.54	1741873
2002	21	9.77	15.53	9431.69	325.47	1824.31	4297155
2003	23	7.97	12.36	8114.13	283.33	652.68	1712269
2004	25	12.69	24.27	13170.62	458.94	1038.17	2674743
2005	25	12.67	20.53	13519.10	449.95	1059.94	2666221
2006	25	12.93	19.67	14759.46	467.29	1774.91	3131511
2007	25	13.40	20.75	17007.96	524.32	915.20	1591277
2008	25	12.99	17.64	15665.41	511.92	2376.72	4216435
2009	27	18.25	25.83	27616.68	862.85	4564.38	7958106
2010	26	12.68	17.20	23706.45	721.69	1268.63	1787491
TOTAL		**130.46**	**199.89**	**157397.34**	**5074.12**	**17190.96**	**35412333**
Rabi							
1999-	9	0.58	0.78	356.41	5.42	7.69	55288
2000-	18	2.09	3.11	1602.68	27.79	59.49	526697
2001-	20	1.96	3.15	1497.51	30.15	64.66	453325
2002-	21	2.33	4.04	1837.55	38.50	188.55	926408
2003-	22	4.42	6.47	3049.49	64.06	497.06	2098125
2004-	25	3.53	5.34	3774.21	75.85	160.59	772779
2005-	25	4.05	7.22	5071.66	104.82	338.30	980748
2006-	25	4.98	7.63	6542.21	142.88	515.96	1390430
2007-	25	5.04	7.39	7466.64	158.71	810.05	1578608
2008-	26	6.21	8.86	11148.59	295.72	1508.84	1977328
2009-	26	5.65	7.87	10875.61	287.35	566.61	1034504
2010-	25	4.88	7.51	10640.36	286.31	266.87	404771
TOTAL		**45.72**	**69.37**	**63862.92**	**1517.56**	**4984.67**	**12199011**
Grand Total		**176.18**	**269.26**	**221260.26**	**6591.68**	**22175.63**	**47611344**

Note: 2010-11 figures are provisional and doesn't include all claims

4.9 NAIS despite best suited for Indian conditions, has some shortcomings. The most important one is 'basis risk' as the area (insurance unit) is rarely homogenous. Efforts are being made to lower the size of the area for minimizing basis risk. As the index is based on yield, the insurance cover primarily operates from 'sowing till harvesting', and for this reason pre-sowing and post-harvest losses are not reflected in the yield index. Yet another challenge is the infrastructure and manpower required to conduct over a couple of million crop cutting experiments across the country to estimate the yields of crops. The process also contributes to delay in settlement of indemnities as the crop cutting experiments takes around three months and further data compilation, & final claims settlement can sometimes take upto a year after harvest. Moreover, yield index based insurance can be designed only for those crops where historical yield data for at least 10 years (at insurance unit level) is available. Despite these shortcomings, the area yield index crop insurance operational in India is still regarded as one of the most illustrious crop insurance programmes in the world.

Modified National Agricultural Insurance Scheme (MNAIS)

Overview

4.10 The government announced a pilot on improved version of NAIS titled 'Modified NAIS' (MNAIS) w.e.f. Rabi 2010-11 season for experimentation in 50 districts. The new version has to a large extent taken care of the lacunae in the existing NAIS. During Rabi 2010-11 season the pilot was implemented in 34 districts across 12 States.

Features

4.11 The following are a few salient features of MNAIS:

(i) Insurance Unit for major crops is village panchayat or other equivalent unit;

(ii) In case of prevented / failed sowing, claims upto 25 percent of the sum insured is payable, while insurance cover for subsequent period gets terminated;

(iii) Post-harvest losses caused by cyclonic rains are assessed at farm level for the crop harvested and left in 'cut & spread' condition upto a period of 2 weeks;

(iv) Individual farm level assessment of losses in case of localized calamities, like hailstorm and landslide;

(v) On-account payment up to 25 percent of likely claim as advance, for providing immediate relief to farmers in case of severe calamities;

(vi) Threshold yield based on average yield of past seven years, excluding upto two years of declared natural calamities;

(vii) Minimum indemnity level of 70 percent is available (instead of 60 percent as in NAIS); and

(viii) Premium rates are actuarial supported by up-front subsidy in premium, which ranges from 25 percent to 75 percent, equally shared by Centre and States. Insurer is responsible for the claims liabilities, hence the government liability is only limited to premium subsidy which helps them in planning their finances better.

4.12 MNAIS pilot has been approved for three seasons starting from Rabi 2010-11 season and it is quite likely that the pilot may gradually replace NAIS over next two to three years.

4.13 Issues

1. Insurance unit for major crops has been lowered to village / village panchayat which is good for the farmers, but exponentially increases the work load required for crop cutting experiments (CCEs). Many States are shying away from the pilot because of the enormity of the workload. Some states are requesting GoI to share part of the cost of CCEs. From the insurer's point of view, accurate and timely data is needed to price the product accurately and to make timely pay-outs. It may be worthwhile in

the long run to employ technologies like satellite imagery for estimating the yield.

2. Present premium subsidy structure does not provide much support for lower to medium risk layers. For example for Rabi 2010-11 season farmers' share of premium was Rs. 23.23 crore (out of total Rs. 47.30 crore). In other words, farmers paid 50 percent of the cost of the insurance under MNAIS compared to only about 30 percent under NAIS & WBCIS. There is a strong need for increasing the premium subsidy for lower and medium tiersStates also requesting for coverage of all local events/perils in the category of 'localized calamities', which presently includes only hailstorms and landslides.
3. Weather index based insurance caught the imagination of policy makers at the beginning of the 21st century. Development institutions like the World Bank initiated pilots of this form of crop insurance in low income countries where traditional crop insurance could not take off for various reasons that include unavailability of historical yield and/or loss data. The underlying principle for 'weather index' insurance is the quantitative relationship between weather parameters and crop yields. There are various crop modeling and statistical techniques to estimate the impact of deviations in weather parameters on the crop yields.

4.14 It is noteworthy that a model of weather index insurance, as a mechanism to compensate crop losses, was conceived as early as 1912 by Shri JS Chakravarti of Mysore state. It was between 1912 and 1920 that he published technical papers on the subject of 'Rainfall Insurance' and a book entitled **'Agricultural Insurance: A Practical Scheme Suited to Indian Conditions'**, in 1920, describing how rainfall index could be used to guarantee payouts to farmers due to adverse deviations. He used rainfall data from 1870 to 1914 from India Meteorological Department (IMD) to demonstrate the utility of the index. Surprisingly, the piece of pioneering work from Chakravarti, probably one of the earliest monographs on the subject, does not seem to have been taken into account in the analytical literature on agricultural insurance. It was some 85 years later that the idea for developing a

weather index based insurance for managing the production risks of farmers in low income countries was put forth by international development finance institutions and academicians.

Weather Index: Key Advantages

4.15 One key advantage of weather index based crop insurance is that the payouts can be made faster, besides the fact that the insurance contract is more transparent and the transaction costs are lower. Because index insurance uses objective, publicly available data it is less susceptible to moral hazard. Most importantly there are many low income countries where no historical data whatsoever is available, except weather data, affording an opportunity to try out index insurance of some sort. Now a large amount of literature is available on weather index insurance, mostly commissioned by the World Bank.

4.16 By virtue of the advocacy by the World Bank, many countries are piloting weather index based crop insurance. Countries like Mexico, India, Ukraine, Malawi, Ethiopia and China have been running pilots of weather index based crop insurance for quite some time, while others like Tanzania, Nicaragua, Thailand, Kazakhastan, Senegal, Morocco, Bangladesh, Vietnam etc. are witnessing the development and fine-tuning of weather index products for pilots.

Weather Index Insurance: Indian Experience

4.17 An impressive repository of historical weather data, high dependence on rains for crop production and huge pool of scientific resources place India at the forefront when it comes to piloting different models of weather index insurance. The government, on realizing the need for encouraging pilots of this promising risk management tool has supported the weather index insurance program from 2007 onwards by providing financial support in the form of premium subsidy, paid up-front. Boosted by the state support, private sector insurers, along with AIC, have been running pilots in various parts of the country. The weather parameters that have so far been incorporated in weather index insurance include rainfall (deficit,

excess, dry-spell, wet-spell), temperature (minimum, maximum, mean), humidity, wind speed etc.

Pilot Weather Risk based Crop Insurance

4.18 The first pilot on weather index insurance was carried out in 2003 by ICICI Lombard which was followed by pilots on weather risk index-based insurance by Agriculture Insurance Company of India (AIC) and IFFCO-Tokio, both during 2004. Building on the existing weather risk insurance products, the Government asked AIC in 2007 to design the Weather risk-Based Crop Insurance Scheme (WBCIS) as a pilot.

4.19 Through WBCIS, location specific (Tehsil / Block) products were introduced by AIC during Kharif 2007 season along with a composite weather risk index-based insurance that included perils like rise in temperature, un-seasonal rainfall, humidity, frost risks, etc. relevant for the Rabi season. In its quest for more scientifically robust weather insurance products, AIC availed technical assistance from Indian Agriculture Research Institute (IARI) to enable product structuring using Crop Growth Simulation Modeling platform. AIC has been using various constructs based on weather parameters, some of which are enlisted in the following table.

Table 4.6: Constructs Used in Weather Index based Insurance

S. No.	Weather Parameter	Components
1	Rainfall	Deficit rainfall, Consecutive Dry Days (CDD), Number of Rainy Days, Excess rainfall
2	Temperature	Max. Temperature (heat), Min. Temperature (frost), Mean Temperature, Hourly Chilling units
3	Relative Humidity	High Humidity
4	Wind Speed	High Wind Speed

5	Disease proxy	Combination of Weather parameters like rainfall, temperature & humidity

4.20 From the Rabi 2007 season, insurers from private sector were also allowed by the Government to participate in WBCIS; initially for non-loanee farmers and subsequently for both loanee and non-loanee farmers. The insurers from private sector along with AIC developed parametric weather risk based crop insurance for a variety of crops ranging from seasonal to perennial crops and low value to high value crops. Crops presently covered under Weather Index based Insurance are listed in the table below.

Table 4.7: Crops covered by AIC under Weather Index based Insurance

CEREALS &		
S.NO	**CROP**	**SEASON**
CEREALS & MILLETS		
1	Paddy	Kharif & Rabi
2	Sorghum	Kharif
3	Pearl millet	Kharif
4	Maize (Corn)	Kharif
5	Finger millet	Kharif
6	Wheat	Rabi
7	Barley	Rabi
PULSES		
1	Blackgram	Kharif
2	Greengram	Kharif
3	Pigeon Pea	Kharif
4	Chick Pea	Rabi
5	Peas	
6	Lentil	Kharif
OILSEEDS		
1	Groundnut	Kharif
2	Soyabean	Kharif
3	Linseed	Rabi
4	Rape Seed &	Rabi
5	Sunflower	Kharif
6	Sesamum	Kharif

ANNUAL COMM / HORT CROPS		
S.N	**CROP**	**SEASON**
COMMERCIAL CROPS		
1	Potato	Rabi
2	Coriander	Rabi
3	Cumin	Rabi
4	Fenugreek	Rabi
5	Isabgol	Rabi
6	Onion	Kharif
7	Garlic	Rabi
8	Chilly	Kharif-Rabi
9	Cotton	Kharif
10	Tomato	Kharif & Rabi
11	Banana	Annual
PERENNIAL HORTICULTURAL CROPS		
1	Grapes	Rabi
2	Mango	Rabi
3	Cashew nut	Rabi
4	Pepper	Kharif
5	Apple	Rabi
6	Coffee	Annual
7	Orange	Annual
8	Kinnow	Rabi
9	Pomegranate	Annual

4.21 During 2010-11, as many as 15 States have implemented the pilot WBCIS in over 100 districts covering more than 800 blocks/tehsils. Most importantly,

Rajasthan became the first state of India to implement pilot WBCIS across the entire state. Bihar did not lag behind by much as it took WBCIS to all but three districts of the state. During 2010-11, AIC piloted weather index based crop insurance for over 35 different crops. As per estimates it insured nearly 8 million farmers constituting acreage of more than 12 million hectares for a sum insured of approximately Rs. 9635 crore at a premium of ₹ 883 crore. The cumulative number of Indian farmers covered under Weather Index based Insurance during 2010-11 is estimated to have crossed 9.27 million. These farmers have contributed a coverage of over 13.23 million hectares and risk exposure of ₹14300 crore which were insured at a premium of ₹ 1290 crore.

4.22 *Going by the spectacular growth witnessed in the past four years, there appears to be greater awareness and acceptance of Weather Index based Crop Insurance by majority of states and other stakeholders, though a segment of farmers and a few states still see advantage in NAIS.*

Weather Risk Insurance: Challenges

4.23 The two biggest weaknesses and challenges of the present weather risk index-based insurance product are (i) designing a proxy weather risk index with predictive capability to realistically measure crop losses and (ii) basis risk. Basis risk results if the actual experience of weather risk (rainfall) in the neighborhood significantly differs from the data recorded at the weather station. The two aspects led to compounding of the problem: both may not trigger a payout despite the occurrence of damages at an individual farm, or these may trigger a payout when loss did not occur. The combined effect of the two challenges represents a significant barrier to the scale up of the product. Nevertheless, weather risk index-based insurance performs well on data accuracy, transparency and quick claims settlement, which are very attractive to both farmers and the reinsurance market.

Weather Index Insurance: Moderate and Catastrophic Losses

4.24 State of Knowledge Report[1] brought out a few important observations on using weather index for small, moderate and large losses, which are briefly discussed in this section.

4.25 When rainfall is around the optimal level for a crop, many other important factors affect crop yields (e.g., soil quality, fertilizer use, pesticide use, crop husbandry practices, etc.). Around this level, the correlation between rainfall and crop yields is likely to be not very strong. When rainfall is extremely low, however, the relationship between rainfall and yields is expressed more strongly, because at low levels of rainfall, other variables such as use of fertilizers, pesticides have very little effect on yields.

4.26 Due to high transaction costs, insurance is perceived to be a rather expensive financial instrument, However with increasing awareness, penetration and efficiency, the per unit cost is going down rapidly. The schemes like WBCIS are in fact more desirable as they have ***the ability to mitigate even small to moderate losses and also provide extended coverages like*** for pre-sowing periods and quality of output which are difficult to cover under other schemes.

4.27 On the other hand, catastrophic events affect not just yields, but assets and long term income. A 'generic' insurance product (in place of a sophisticated product), therefore, can do well for mitigating such losses. Moreover the data requirements for catastrophic cover are relatively lower and hence the basis risk is lower. Insurance, therefore, can create much higher 'recognition' for index insurance. Cost of administration is lower for catastrophic covers. Premium for catastrophic cover is generally affordable, which leads to extending insurance for almost all important assets, which in-turn can lead to increased demand for insurance and ultimately high level of insurance penetration.

[1] 'State of Knowledge Report – Data Requirements for the Design of Weather Index Insurance' by Global AgRisk, Inc. (June 2010)

Government Evaluation of Weather Index Insurance

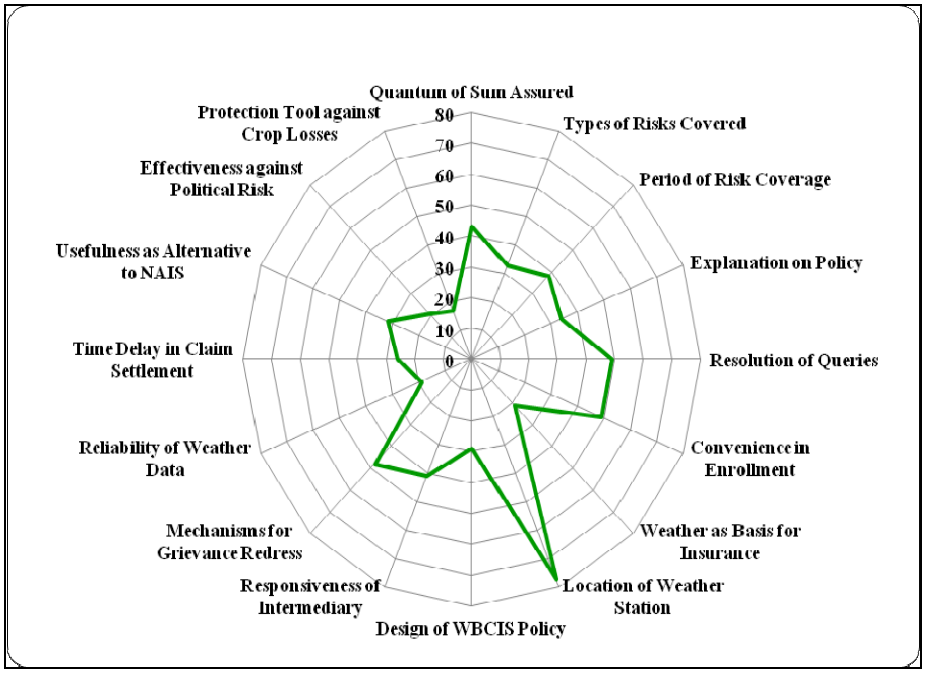
4.28 Government of India conducted an evaluation study on WBCIS through Agriculture Finance Corporation (AFC) during 2010. The farmer beneficiaries of WBCIS were asked to share their satisfaction w.r.t. 16 different aspects of weather index insurance. An overview of the key findings is presented with the help of the radar chart on the next page:

4.29 In the following radar chart, the aspects of weather index insurance with the **maximum 'not satisfied'** respondents are indicated. Based on the sample study, as many as 80 percent of the respondents highlighted basis risk (location of weather station), and 57 percent were not satisfied with the grievance redressal mechanism and an almost equal proportion with the convenience in enrollment.

4.30 Considering the **minimum 'not satisfied'** respondents, only 17 percent and 19 percent were not satisfied with transparency and reliability of weather data, while about 25 percent were not satisfied with weather index as a substitute for yield index insurance.

4.31 From the chart below, it can be seen that weather risk index-based insurance performs well on data accuracy, transparency and quick claims settlement, which are very attractive to both farmers and the reinsurance market.

Chart 4.1: Percentage of Farmer Respondents 'Not Satisfied' with 16 Aspects of WBCIS



Source: Report on Evaluation of WBCIS, Government of India, October 2010

4.32 Insurers have to find a way to offer a technically sound product that is, at the same time, simple and easily accessible to farmers. Farmers must be able to understand the products sufficiently in order to calculate claims and expect realistic payouts. The lack of benchmarking for Weather Index-based Insurance products erodes the value of financial support provided by the state under WBCIS.

4.33 By their very nature, weather insurance products are difficult to comprehend for a typical Indian farmer who is equipped with limited capabilities and experience. The multitude of weather insurance products offered by various weather insurance providers necessitates the need for benchmarking the various products to enable the farmer to make an informed choice. Through benchmarking, it may be ascertained whether the products offered by different insurance companies carry at least comparable benefits (Protection vis-a-vis Premium). The complex weather insurance products may be disintegrated into the constituent covers for different perils.

Weather Insurance: Requirements and Way Forward

4.34 The WBCIS program is perceived by States as a good alternative to NAIS, but there seems to be a few bottlenecks in universalizing it. Some of the key requirements for scaling up the scope and benefits of Weather Index based Crop Insurance in India are as following:

1. Scope of WBCIS is limited to parametric weather exigencies like rainfall, temperature, humidity etc. Quite often, crops also suffer due to hailstorm, flooding, pests & diseases, etc. which to a large extent are difficult to cover under the scheme. *However, over the years, with increasing understanding between weather parameters and effects on crops, indices have been designed which do provide cover against pests and diseases by including combinations of various weather parameters, resulting in the inclusion of weather conditions conducive for infestation as well.*

2. Product design under WBCIS is challenging as crop yield and weather relationship is not only complex, but also influenced by the date of sowing, soil type, crop variety, etc. The experience reveals that there were instances of crop losses due to weather deviations, which could not be entirely captured by the weather index. It requires focused research by ICAR and State Agriculture Universities (SAUs) to fine-tune the weather-yield relationship; *However with evolution of the scheme and perils, insurance companies are trying to offer products with dynamic risk commencement dates. It must be noted that such dynamic products may not be suited for 'mass subscription' as is the case with WBCIS.*

3. The growth of WBCIS demands that every village has a weather station so that basis risk in Weather Index based Insurance is minimized. The acceptable radius for insuring rainfall constructs is about 5 km and for other constructs is 10 km. For achieving these levels, nearly 50,000 weather stations are required as against about 5000 stations which are presently available including both public and private stations. Calibration of sensors and data at weather station is another challenge, as presently weather data providers are using stations of

different make and quality. This would require third party accreditation and calibration services to vouch for reliability and accuracy of the data. Maintaining weather stations properly and making them tamper-proof is another challenge even if the aforementioned requirement of 50,000 stations is met through public-private partnerships or other arrangements. It may be worthwhile to explore technologies like Terrestrial Observation & Prediction Systems (TOPS), which uses many available meteorological satellites and the ground data to generate village level weather surfaces. *Nevertheless, with consistent increase in coverage under WBCIS, the penetration of weather stations is also increasing. The weather stations are now available at about a radius of 15 Km for locations where they were available at more than 30 Km a few years ago. Also, in order to cater to the above concerns, Ministry of Agriculture (Government of India) has already set up a committee under guidance of the Indian Meteorological Department (IMD) to look into the standardization of the weather stations that are installed by various vendors across the country.*

4. Insurance products are generally finalized after discussions with States, but still lack proper bench-marking standards among the insurers. In order to pass on the best value to the farmers, it's imperative that proper bench-marking standards are created.

4.35 States under NAIS are used to financing the claims at the end of the season if the claims exceed the premiums collected from farmers. However, under WBCIS the entire support of the Government comes as an up-front subsidy towards premiums. Many times, states are not able to release premium subsidy to insurance companies timely as required by the insurance laws.

Improvements in Crop Insurance

4.36 Index based products are the staple form of crop insurance products. The two major products are yield index based NAIS & MNAIS and weather index based WBCIS. Though these products are doing well, the need for product innovation and combinations to meet the risk management is being increasingly felt. At the

same time, there is a need to streamline the delivery and distribution of crop insurance products. Some of the improvements in both the design and implementation of crop insurance products are discussed below.

Weather 'Index Plus' Crop Insurance Products

4.37 Index insurance products (yield or weather) by nature are 'area' based and, to a large extent, may not be effective in covering localized perils like hailstorm, cloud burst etc. Moreover, in weather index, the scope of the cover is limited to parametric weather exigencies like rainfall, temperature, humidity etc. and, at present, has no scope for covering hailstorm. Cloudburst - a high intensity rain over a short span and a localized event is unlikely to be captured by a weather station.

4.38 Given the inadequacies of index based insurance products in covering localized weather exigencies like hailstorm and cloudburst, there has been a demand from growers of horticulture crops that insurance coverage be extended to guard against these important perils.

4.39 The existing weather index insurance product available for perennial / tree crops shall continue. An additional insurance cover protecting the growers against hailstorm and cloudburst is provided to every grower who availed weather index product, as 'add-on' cover. The grower in effect gets insurance cover called '**Index Plus**', which is a combination of 'weather index' and 'traditional insurance'. Under 'Index Plus' the losses arising out of parametric weather adverse deviations would be paid strictly as per the present WBCIS, while the losses due to hailstorm and cloudburst would be assessed at individual farm / orchard level by the loss assessors. The insurance companies providing 'Index Plus' insurance have to strengthen their field staff, so as to assess farm level losses from time-to-time, if and when they occur. Additionally, insurance companies can explore if technology like hail sensors and satellite imagery based hail loss estimation can be employed to minimize dependence on humans for assessing crop losses.

Double Trigger Insurance Products

4.40 Area Yield Insurance (the earlier Comprehensive Crop Insurance Scheme and the present National Agricultural Insurance Scheme) have had its share of shortcomings, despite serving a broader objective. Some of these shortcomings like delay in the settlement of claims, large size of insurance unit (basis risk), non-availability of historic yield data for some crops, requirement of huge infrastructure and man-power for conduct of crop cutting experiments, etc. have already been highlighted during the reviews undertaken by the Government.

4.41 Weather Insurance products that are being tried from Kharif 2007 under a pilot project supported by the Government have proven to be reasonably successful. However, technical limitations like restricted scope of weather index (losses arising out of events like hailstorm, thunderstorm, flooding, besides biological incidences like pests and diseases are presently not covered under weather index), imperfect correlation between weather index and the production process for some of the crops, lack of historical weather data at sub-district or lower level, requirement of huge density of weather station network etc. have tended to reduce the effectiveness of weather insurance.

4.42 Besides the relative shortcomings of yield index and weather index based insurance products as mentioned above, there are a few issues like adverse selection and moral hazard which can significantly alter the viability of the crop insurance programme. In an actuarial regime (supported by up-front subsidy in premium by the Government) with the insurance unit as Gram Panchayat, it would not be perverse to assume a certain degree of pressure on the crop cutting machinery to report the yields in a manner that benefits the local farming community. Until we move onto a technology platform like satellite imagery based yield estimation (which may take 5-10 years despite huge break-through in the technology), the insurer and the reinsurer would be wary of possible interferences in yield estimation at the grass-root level. No amount of 'audit' procedures including random witnessing of crop cutting experiments, near real-time reporting

of yield data of individual crop cutting experiments, etc. can prevent the systematic interference at the grass root level.

4.43 Keeping in mind the above, i.e., relative strengths and shortcomings of yield index and weather index insurance products, it would be worthwhile to pilot an insurance product, the claim payout of which is based on both the yield index and the weather index, instead of any one exclusive index . The proposed product is based on **'Double Trigger'**, deciding the final claim partly based on the weather index and partly on yield index. This way it would be possible on one hand to enhance the strong points of these indices, and on the other to minimize the adverse impact of weaknesses of the indices.

4.44 The model is based on bifurcating/distributing the total sum insured for a crop insured by the farmer under two different categories, keeping in mind relative influence of weather on the yield. For a crop like wheat where the major issue contributing to yield loss is 'rise in heat', weather index could be given higher weightage. As an illustration it could be 60% distribution of sum insured under weather and the balance 40% under yield. Similarly for a crop like groundnut, where rainfall and other factors like pests and diseases affect the yield equally, the distribution of sum insured could be- weather 50% and yield 50%. In other words of the total sum insured by a farmer under the groundnut crop is bifurcated on 50-50 basis under weather and yield index. Assuming a farmer growing groundnut crop on 2.5 hectares is insured for a sum of ₹ 50,000, it's distributed as ₹ 25,000 each under weather index and yield index. For settlement of claims, the payout on a sum insured of ₹ 25,000 under weather index would be purely dealt as per the applicable weather insurance product, while the balance ₹ 25,000 under yield index is strictly as per yield data. For illustration sake, let's assume that the claim payout rate under weather insurance is 25% and that under yield is 40%. The total claim received by the farmer in this case is ₹ 6,250 (25% of Rs.25,000) under weather index and ₹ 10,000 (40% of ₹ 25,000) under yield index. In all, the farmer would receive ₹ 16,250 of which ₹ 6,250 (weather index) is expected to be received early, possibly within a month of crop harvest, and ₹

10,000 (yield index) by about 3-4 months from the crop harvest. In this way the 'Double Trigger' product can actually obviate the need for 'on-account' claim payment envisaged under the proposed mNAIS.

4.45 In a nut shell, the 'Double Trigger' product can be a unique solution in improving the crop insurance programmes making it affective and farmer friendly. An illustration with more details worked out is appended.

Savings Linked Weather Insurance Product

4.46 A few studies conducted by the insurance companies and independent researchers were unanimous in confirming that cultivators are less enthusiastic to avail weather insurance if there is no pay-out during the previous crop season. In other words, every 'claim-free season' throws-up a challenge to the insurance company. The problem gets compounded if the cultivator doesn't receive a pay-out in the initial two or three years, and more so when he suffered a loss which could not get reflected because of basis risk either in product-design or weather station.

4.47 For a seasonal insurance like weather insurance, a cultivator gets the payout if the season is adverse; but he would have a sense of loss of the premium amount if it is a normal season. One way to address the problem would be to sell a multi-season / year weather insurance, assuming that the cultivator would at least get one payout in a multi-year contract of five years, which should help him to understand the value of insurance. However, weather insurance is still evolving and neither the cultivators nor the insurance company is comfortable to buy / sell multi-year contracts. In order to circumvent the challenge, a majority of weather insurance products are designed as 'working insurance covers' with regular (every 2nd or 3rd year) small payouts which are neither here nor there.

4.48 Agriculture Insurance Company of India (AIC) has come up with a pilot for testing the concept of savings-linked crop insurance. As part of this pilot, AIC shall work with a grass-root level entity, possibly an NGO which has a strong

presence and good reputation in the area. A customized weather insurance product shall be developed by AIC keeping in mind the specific requirements of the cultivators in that area and if necessary, a third party automatic weather station would also to be set-up to minimize the basis risk.

4.49 In an attempt to popularize the insurance concept and create understanding of the value of insurance, cultivators shall be encouraged to buy the insurance year after the year (irrespective of the pay-outs). In order to encourage the cultivators to regularly buy weather insurance, a small amount of premium paid by the cultivator would be transferred to the **'saving basket'**. As an illustration, if a cultivator has two acres of paddy on which he has paid a premium of ₹ 1200 covering a risk of ₹ 12,000, an amount of ₹ 200 from the premium amount of ₹ 1200 would be transferred to the **saving basket**. This money shall be invested on behalf of the cultivator, to earn a reasonable investment return. Cultivators can access the saving component only if they participate in the insurance programme continuously for 5 years. As a matter of fact, a cultivator could take the money from the saving basket at the end of the fifth year. Alternatively, he could be allowed to access the money at the end of the third year up to 50% of the savings component, if there has been a 'bad year'.

Catastrophic Insurance: Universal Coverage of Farmers

4.50 Despite the existence of country-wide crop insurance programme for over 25 years, only about 1/5th of the farmers or cropped area could be insured. Only a minority of non-loanee (institutional non-borrowers) who constitute about 60 percent of the total farmers participate in crop insurance despite high level of premium or claim subsidies. Moreover, there are many crops particularly vegetables & fruits etc. for which insurance products are not available. At present, though there are provisions to extend relief to such farmers in case of catastrophic weather events or crop disasters, but the quantum of such relief is largely ad-hoc, limited and subject to availability of funds. In order to protect the non-borrowing farmers from extreme financial distress and to provide basic economic security,

the Government can introduce 'Catastrophe Protection' or 'Non Insured Crop Loss Assistance' for farmers, drawing inputs from a similar program in the USA. The following box gives details of such programs in USA.

Box 4.3: Catastrophic Risk Protection (CAT) and Non-Insured Crop Disaster Assistance Program (NAP) in USA

Catastrophe Risk Protection (CAT)

Catastrophe Risk Protection in USA is the lowest level of Multiple Peril Crop Insurance (MPCI) coverage. Premiums for the CAT portion of all crop insurance policies are fully subsidized by the Federal Government, although most farmers will pay an administrative fee for document processing of approx. US $ 50. Farmers with limited resources may be eligible for a waiver of the administrative fee for CAT coverage. Any crop insurance agent can assist producers in determining if they are eligible for a fee waiver.

CAT is a 50/55 coverage, meaning the losses exceeding 50 percent are payable @ 55 percent. In other words, in the event of 100 percent of loss, CAT cover pays a maximum of 27.5 percent loss to the farmer (55 percent of 50 percent loss).

Non Insured Assistance Program (NAP)

NAP covers crops not insurable under typical crop insurance programs. These can be any crops, including those for feed. The program protects against yield losses and prevented plantings due to catastrophic events such as drought, excessive rain, floods, earthquakes, and other adverse natural occurrences. Conditions related to these events such as fires or insect problems are also covered by NAP. Producers, landowners, and tenants with shares are eligible for the program. Protection is offered at the basic unit level.

NAP coverage pays an indemnity if the expected crop yield drops below 50 percent or when the producer is prevented from planting more than 35 percent of the insured acreage. The indemnity payment is calculated by multiplying the approved yield with the amount of production loss covered.

4.51 Such protection in India can also become an effective conduit for channelizing calamity and disaster relief funds from central and state governments. By linking relief funds to Catastrophe Protection or Crop Disaster Assistance, the benefit of such relief can be passed on to the targeted groups with greater efficiency and transparency.

Mutual Crop Insurance by People's Mutuals of Dhan Foundation

4.52 Mutual Crop Income Insurance (MCII) was piloted in Nattarampalli, in Vellore district of Tamil Nadu through support of DHAN Foundation. After three years of experience with rainfall insurance, it was decided to abandon this project because of the inability to design a product that reflects the relationship between crop yields and rainfall accurately. The search for an alternative brought them to Eureko Re, a Dutch reinsurance company offering its support to crop insurance.

4.53 Under MCII, farmers are indemnified based on actual losses, with loss assessment and price monitoring done by older and wiser farmers. As participating farmers are already organized into various collectives, the necessary social capital for piloting Mutual Crop Insurance (MCI) is already in existence. The covariant nature of rainfed agriculture, which makes it difficult to insure, was addressed through pooling of risks of diverse collectives, each with different risk profile.

4.54 To design the MCII product, the data on past experience of rain-fed groundnut cultivation in Nattarampalli was collected from a group of farmers. This included frequency, levels and causes of loss, variations across the location and cost of cultivation. The preliminary product was discussed in detail with the Mutual Insurance Committee (MIC) which customized it in terms of sum insured and premium per acre. The design of the product was such that cost of cultivation was considered as the benchmark for compensation and not the expected income, to make the product affordable.

4.55 Moral hazard risk was addressed by introducing retention, requiring farmers to pay a pre-determined percentage of their loss themselves. The insured farmers own the mutual pool and thus critically assess the farmers accepted as members of the insurance pool. This environment of social control and familiarity of colleague farmers with production circumstances have resulted in avoiding farms that repeatedly face loss, thereby addressing adverse selection.

Collaboration with AIC

4.56 While it was purely a mutual insurance programme during the period of 2007 to 2009, a giant leap forward came out during 2010 by way of collaboration with AIC. The products are designed in tune with the needs of the farmers and the payout would be based on the rainfall at the village level rain gauges established by DHAN Foundation.

4.57 At the community level, the programme is not in any way different from that of the earlier years. Only difference being that the risk is transferred / ceded to AIC under insurance contract. The product designed jointly with AIC is comparatively more affordable with wider range of risk coverage and benefits. The claims are duly received from AIC and paid to the farmers immediately after the risk period is completed. Since the farmers know about the triggers and eligible benefits, the time delay in receiving claims is minimal for eligible farmers. The daily rainfall data is shared with the farmers through SMS and black boards at the federation offices and common places.

4.58 During Rabi 2010 crop season, when the programme was implemented in 12 locations, claims were triggered only in 5 locations. Even within these five locations, only 15 rain gauges out of 50 rain gauges crossed the eligibility. This underlines the existence of microclimates within small geographies. During the past two years, about 2064 hectares of dry land crops cultivated by 6284 farmers were covered under crop insurance by this approach. It is proposed to cover over 10000 acres of crops cultivated by about 20000 farmers during Rabi 2011.

Important Interventions for Sustaining Improvements in Crop Insurance

Agriculture Risk Protection Act

4.59 Agriculture insurance is specialty insurance, and different from traditional general insurance in many respects. As an illustration, agriculture insurance,

particularly crop insurance programme is conceived as a 'multiple-agency' approach in which Rural Financial Institutions (RFIs), State government, Central government etc. are actively involved, with the government providing significant financial support. Moreover the programme is compulsory for loanee farmers. The programme, thus, is seen more as a social instrument of the government rather than a commercial instrument. A programme of this nature and magnitude is unlikely to be effectively administered unless backed by a statute. It may be worthwhile to note that the countries like United States of America, Canada, Spain, Japan, Philippines etc. where crop insurance is being used as an integral part of 'agriculture risk management', a separate statute is in force, thus facilitating smooth implementation of the programme.

4.60 A number of countries also have clearly articulated their policy commitment through specific legislations for agricultural protection. It may be interesting to note that many countries in European Union have specific guidelines delineating the role of agriculture insurance vis-à-vis ad-hoc and disaster relief. For example, in Austria, Spain, Portugal, Greece and Sweden no payments are made from a public fund if there is insurance available. Similarly the status of agricultural risk protection in a few countries of European Union is provided in the box below:

Box 4.4: Agriculture Risk Protection in EU Countries

- **France**: Payments include those damages for which there is no insurance at all or that insurance has not reached yet a significant diffusion level.
- **Italy**: Only subsidized risks are excluded from public ad-hoc payments after natural disasters.
- **Romania**: Only payments from the public budget are given to farmers in the case of natural disasters if they have insured risks called "standard risks" like hail.

Source: Agriculture Insurance Schemes by European Union (Modified Report of February 2008)

Financial Literacy

4.61 Despite agriculture insurance existing in the country for over 25 years, its awareness levels regarding it are poor not only among the farmers, but also among

policy makers and key government functionaries. Only a sustained capacity building for stakeholders and financial literacy programme aimed at the farming community could help in understanding the merits of agriculture insurance, which in-turn shall be helpful in increasing the spread of agriculture insurance.

Incentives for Sustainable Agriculture Practices

4.62 While subsidies are must in agriculture insurance, it would be equally important to build risk management stipulations and incentives into the programme for sustainable agricultural practices, like integrated pest management, low Green House Gases (GHG) crops, etc.

Service Tax Exemption

4.63 The Government exempted service tax on the premium for index based crop insurance schemes financially supported by Ministry of Agriculture (GoI). As a result, NAIS, pilot WBCIS and pilot MNAIS are exempted from service tax provision. There are crop insurance schemes which are either financially supported by other ministries (like Ministry of Commerce in cased of Coffee etc.) or traditional crop insurance schemes supported by Ministry of Agriculture (through Coconut Development Board) and also weather index insurance and other schemes where there is no premium subsidy from the Government, and these deserve service tax exemption as much as the schemes already exempted. In view of this, there is a strong need to exempt all agriculture insurance schemes from service tax provision.

NEW TECHNOLOGIES IN CROP INSURANCE

4.64 Currently, there is a critical gap between our need to efficiently manage our limited resources and the proliferation of information collected by a variety of sensors, processed through sophisticated computer models and algorithms. There are a number of state, federal agencies and institutions already in place to collect,

collate, curate, and analyze information about economically important aspects of ecosystems and the environment such as crop yields, pollution, groundwater, and weather. What we lack is a broad environmental monitoring capacity that can deliver on-demand information at regional to national scales. Secondly, we also lack the infrastructure to create information as needed by the end-user. For example, we provide information about weather, including forecasts to farmers, but they are rarely tailored to what the farmers need at a given time and place in a format that they can understand and act upon.

4.65 There is a growing recognition of this problem around the world. **Terrestrial Observation and Prediction System (TOPS)** is an attempt at organizing disparate streams of information into a cohesive framework to serve a variety of societal needs. This need for information synthesis for producing actionable information is greatest in rural India where nearly 70% of the population lives and works.

Ecological Forecasting: Taking Weather and Climate Forecasts Further

4.66 Ecological forecasts are akin to weather and climate forecasts, but deal with biological systems instead of the physical climate system. They seek to predict the effect of changes in the physical, chemical and biological environment on biological organisms, communities, and ecosystems. Ecological forecasting provides an important capability for optimizing resource use and supporting decision making for a wide range of applications, from forecasting irrigation demand for agricultural crops, to identification of precursors of outbreaks of crop pests or epidemics of vector-borne diseases, to monitoring habitat conditions for threatened and endangered species, to tracking ecosystem conditions and forecasting potential climate change impacts.

New Frontiers in Technology-enabled Ecological Forecasting

4.67 Terrestrial Observation and Prediction System (TOPS) is a software modeling system designed to produce ecological forecasts. TOPS brings together advances in information technology, weather/climate forecasting, ecosystem

modeling, and satellite remote sensing to enhance management decisions related to floods, droughts, crop condition, human health, forest fires, and forest production. TOPS provides a suite of ecosystem 'nowcasts' (measures of current conditions) and forecasts. These data products include measures of vegetation condition and productivity, snow dynamics, soil moisture, and meteorological conditions and forecasts.

4.68 A key feature of TOPS is the ability to integrate surface, satellite, and climate data using ecosystem simulation models. TOPS component models can be used together or independently to support modeling at multiple spatial and temporal scales ranging from hourly or daily irrigation forecasts for individual agricultural fields to countrywide monthly estimates of ecosystem productivity.

4.69 Another key feature of TOPS is an automated system for ingesting climate observations from local, regional, and global networks of meteorological stations in real-time to produce spatially continuous gridded meteorological fields. This capability allows TOPS to provide continuous estimates of ecosystem conditions for any location in the country, even regions that are remote or sparsely instrumented. In addition to the gridded meteorological surfaces, multiple meso-scale weather models have been integrated into TOPS to provide short-term forecasts. TOPS also incorporates scenarios from global climate models, such as those used in the IPCC assessments, to produce long-term simulations of ecosystem conditions and to assess potential climate change impacts on patterns in snow melt, soil moisture, stream-flow, phenological cycles, and vegetation growth.

Role of Social Networks in TOPS

4.70 With advances in mobile computing, mobile phones and ready access to the web, it is now possible to facilitate two-way communication that allows systems such as TOPS to be informed of near-real time conditions and also help disseminate the knowledge. Preferred social networks include progressive farmers,

retired and current scientists, and others interested in contributing or help in transmitting the forecasts.

Scalable Infrastructure Reduces Costs of Implementation

4.71 TOPS integrates the utility of information gathered by existing networks such as orbiting satellites and weather stations. By integrating the time continuous observations of weather stations with spatially explicit data from satellites, TOPS provides the ability to map, monitor and assess ecosystem conditions at a variety of space and time scales. Assuming that various observing networks (satellite, weather, etc.) are in place, maintained by state or federal agencies and that the data are available, it costs about $900,000 a year per state to implement TOPS and produce various products in a 1KM resolution. The products include daily gridded weather data, weekly satellite measures of surface conditions, modeled fluxes of evapotranspiration losses, gross and net primary production, crop condition and stress, flood risk maps, forest fire risk maps, along with forecasts of these variables at weekly and monthly time-scales up to 6 months in advance. Studies in a number of western countries particularly in a number of states in US particularly California, Texas, North Carolina found the return on investment to be 1:28.

Benefits of TOPS to Society

4.72 Information from TOPS can benefit the society in a number of ways. Some examples are:

1. **Risk Mitigation through Crop Insurance:** Insurance against catastrophic crop failures is becoming an important tool for managing climate variability and change. However in several regions of the world, the process of insurance is complicated by the lack of adequate quality data. For example, there may be few weather stations with sufficient data to assess the basis risk. This situation is common in many parts of India with highly vulnerable communities. By blending data from a few weather stations with satellite data available for over 30 years, TOPS creates **high-quality information at village level**. Similarly

the integrated information from TOPS allows one to verify fraudulent claims, in a way acting as third party verification.

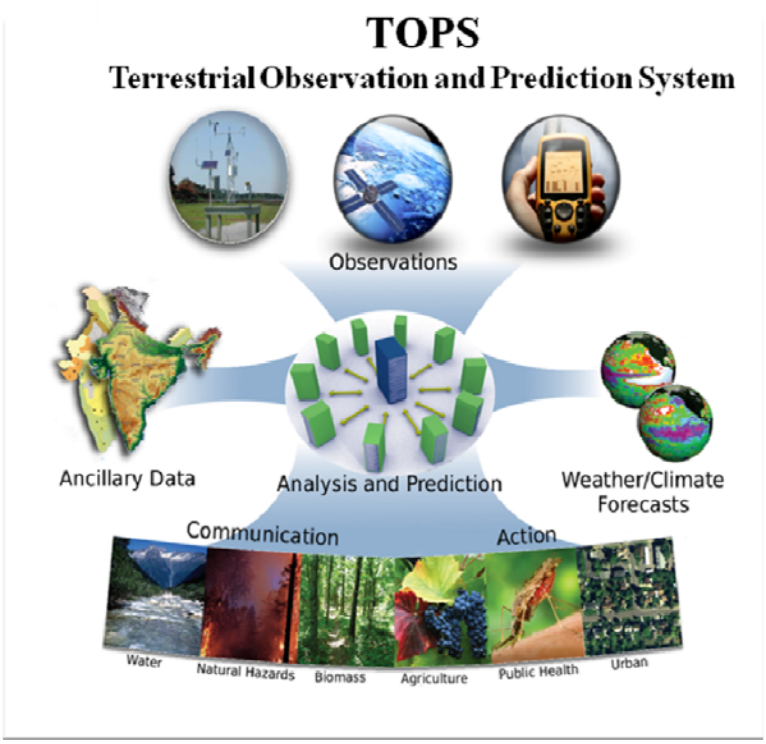
2. **Climate Variability and Change:** Climate change has the potential to alter patterns in snow dynamics, hydrology, vegetation phenology and productivity, and habitat for insects that transmit disease. Using TOPS capabilities for long-term simulations of vulnerabilities, key insights about the potential consequences of climate change in a variety of sectors can be generated and disseminated.

3. **Food Security:** TOPS aims to support the sustainable management of agriculture by disseminating weather forecasts, early warnings of storms and other extreme events, water pollution, long-term forecasts of likely climate change impacts, and information on water supplies. These and other data are being integrated so that they can be used in models for simulating and predicting agricultural trends.

Network of Virtual Weather Stations Network: Boon for Weather Insurance

4.73 At present, weather index insurance is serviced using on an average, one weather station per tehsil / block. Ideally we should have weather stations in each village to minimize basis risk. However this needs huge investment in weather station networks. Still the stations are not total tamper-proof, as also maintenance cost is high and being electronic machines, the life time of a weather station would 5 or 6 years. Keeping in mind these constraints, we should use the concept of 'virtual weather station network' based on '**Terrestrial Observation and Prediction Systems (TOPS)** platform, which can actually produce the daily weather data at one km grid. Moreover, the system can generate past 10 years data at this level. The expected cost of generating village level daily weather data for the country for the entire XII Plan period could be only about ₹ 200 crore. It's worthwhile to conduct experiments by making use of technology, in order to prepare a comprehensive weather data base for the entire XII Plan period, along with past 10 years' data. The data thus generated can be placed in public domain

for the larger public good. This would hugely help in scaling up the weather insurance products.



The Terrestrial Observation and Prediction System (TOPS) integrates a wide variety of data sources at various spatial and temporal scales to produce spatially and temporally consistent input data fields, upon which ecosystem models operate to produce ecological nowcasts and forecasts.

Crop Insurance Subsidy Mechanism

4.74 The insurance premium calculated by the insurance companies for bearing the risk is more than what is affordable to the farmer. It makes sense for the government to offer financial assistance in the form of the subsidies to the farmers to educate them about the importance of the insurance in the long run. Insurance can help the farmers to mitigate the drastic impacts of risks and at the same time, reduce the volatility of losses which could have jeopardized their livelihoods in the absence of insurance.

4.75 It is very difficult to model the transfer of assistance from the government to farmers keeping every stakeholder satisfied and meeting their demands. The approach to understand the determinants which can have an impact on subsidy transfers can lead us to draw some conclusions. It is sure to lead to policy measures having far reaching implications.

4.76 Following are some of the determinants that have an impact on the subsidy models

a) Mode of Transfer
b) Nature of the Recipients
c) Calculation Methodology of the Subsidy
d) Nature of Beneficiary Regions
e) Type of Crops to be Insured
f) Nature of the Risk

Mode of Transfer

4.77 The subsidy can be transferred from the government to the farmers either directly or indirectly. Direct transfer can be made in the form of the re-imbursement on claims made by farmers after getting enrolled in the insurance scheme. The drawback in this approach is time delay. The farmer has to pay premium upfront for buying insurance. Some of the farmers may not have enough funds to pay the insurance premium. They may have to take recourse to money lenders or other financial institutions for taking the loan. Secondly, the issue is of timely transfer of claims to the farmers. Delays in transfer of claims will deter farmers from enrolling themselves under the insurance scheme. An alternative would be to pass on the subsidy to the farmers through the insurance companies. Insurance companies will be responsible for enrolling farmers under the insurance scheme. Under this arrangement, farmers will not be paying that part of the premium covered by the subsidy. The subsidy in turn will be transferred to the

insurance companies by the government, based on the data furnished by them. There is a drawback associated with this arrangement. The penetration of insurance companies may be low and may not be across all regions and across all categories of farmers. There is also the possibility of reporting of wrong data or misuse of the scheme if the control processes are weak.

Nature of the Recipients

4.78 The nature of recipients should play a role in deciding to whom the subsidies should be directed. The beneficiaries can be decided based on the factors such as irrigation availability, farm size. In terms of irrigation availability, farmers can be demarcated into rain-fed farmers and irrigated farmers. Since the resources are limited, any preferential treatment to rain-fed farmers will not evoke great interest in the insurance scheme among the irrigated farmers. It will also create moral hazard problem as the rain fed farmers may not build the irrigation infrastructure or report their irrigation status correctly. In terms of size, the farmers can be classified as small & marginal farmers, medium farmers and large farmers. It may not be possible to cover all of them because of resource constraints. The suggested approach will be to extend the coverage to the entire category with more focus on the small & marginal farmers, as they do not have enough resources to pay the insurance premium. The inclusion of large farmers with resource constraints is based on the premise that the pool of participants in the crop insurance scheme is constituted by farmers of varying risk levels thus minimizing adverse selection. The rates of subsidy can be modulated to provide differential benefits to specific segments of farmers which are disadvantaged. In any case, the objective to make farmers understand the importance of the insurance scheme in the long run should not take a back-seat and emphasis must be laid to overcome difficulties in this regard.

Calculation Methodology for the Subsidy

4.79 The subsidy can be calculated based on a number of factors which include inputs from yield loss distributions, demographic distributions and risk profiles

having a bearing on the livelihood of the farmers. After arriving at the numerical figure, the next puzzling question is the distribution of the subsidies. As it is impossible for inclusion of the farmers on a pan-India level, it is of utmost importance that subsidy should make an impact for the majority of them, if not all. The distribution can be flat, proportionate, and disproportionate. In case of flat subsidy, a farmer will be getting a fixed amount as incentive for enrolling in the insurance scheme. Small and marginal farmers shall be benefited the most as all farmers are being paid the same amount, whereby large farmers will have to pay the premium from their own pocket. This will create a disincentive for large farmers and they may opt out of the insurance scheme making the insurance pool lopsided. In case the subsidy is rolled out on a proportionate basis, each farmer will be allocated a certain portion of the insurance premium. It will incentivize the farmers to bring more area under insurance coverage. This will create a moral hazard problem as farmers who have infrastructure and equipped to bear the risks will drive out the limited resources available with the government. Also farmers having access to irrigation facilities will benefit from the scheme even if they don't require it. Small & marginal farmers will have to pay a higher amount of their production costs and earning towards premium. They may decide to withdraw from the scheme in case of no-claims for 2-3 seasons of coverage. In case, the subsidy is rolled out on a disproportionate basis, the farmers who are more vulnerable and have to be prioritized for greater benefits will get a higher level of subsidy than farmers who are less vulnerable and can afford the cost of the premium relatively easily.

Nature of Beneficiary Regions

4.80 Regions or zones can be classified as high, medium and low risk based on a detailed assessment of their vulnerability to agricultural risks. Based on this classification, the government can earmark higher subsidies for regions with higher risks and poor endowments, to mitigate disparities and to bring the farmers of such regions on an equal footing. The farmers from the low risk region may not welcome this move of the government and may find it discriminatory,

leading to non-enrolment or less enrolment from the farmers belonging to low risk and medium risk regions.

Type of Crop Insured

4.81 The government can provide higher level of subsidy to crops of national importance or vital from the perspective of food security. However, this may impact the cropping pattern and also impact agricultural diversification and crop rotation. Farmers will be interested to grow the crops for which government is offering higher level of subsidy towards insurance premiums. This may affect soil fertility and the balance in the cropping system adversely.

Nature of the Risk

4.82 The nature of the risk covered in the insurance scheme is one of the most important factors that must be considered while deciding the model of the subsidy. It is practically impossible to cover all the risk events. The risk events can be classified on the two important attributes – frequency and impact.

4.83 The government can allocate higher subsidies to high impact and high frequency risks. The rationale is that such risks have a devastating impact on the livelihoods of the farmers. Besides most instruments or tools for risk management are unable to provide a solution for such risks. Such occurrence does not follow any definite trend and therefore, it may be difficult to predict the occurrence and therefore the insurance companies will also price this factor leading to high premium. The government can decide to allocate medium subsidy to high impact and low frequency events. Another point for consideration is that if the government does not subsidize this insurance and no high-risk event occurs during a certain period, the farmers get a feeling that they have wasted significant amount of the money and it will lead to dropouts as insurance companies will be factoring such risks at a higher premium due to limited history or data on such risks.

4.84 The government can allocate low subsidy to the high frequency and low impact events to create balance in the risk pool and to generate interest of farmers in crop insurance schemes. It can gradually facilitate these farmers to shift from coverage of high frequency low impact risks to low frequency and high impact risks.

Livestock Insurance

4.85 Agriculture provides only seasonal employment. Therefore majority of those engaged in agriculture are unemployed or underemployed except during the intensive activity periods in a crop season. Due to non-availability of irrigation facilities most of the cultivated area is mono-crop area. Most of the farmers still adopt traditional farming practices and so crop yields are poor even during seasons when weather is favourable. The average farmer, who depends exclusively on agriculture for subsistence, continues to be poverty-ridden. Hence, the Government of India has encouraged livestock rearing as an ancillary livelihood activity for small, marginal, landless farmers by providing technical training, funds for capital and working expenditure, and easy access to efficient marketing facilities.

4.86 Livestock constitutes a significant proportion of rural assets and is an important livelihood activity across the country. Livestock-related economic activities are an integral component of the agricultural ecosystem in India. Moreover livestock-related activities are the only source of income for some rural communities in India.

4.87 As a result of the pioneering efforts of the General Insurance Corporation (GIC) and its (erstwhile) four subsidiary companies and financial institutions which finance purchase of cattle by dairy farmers, the authorities of the Rural Development Projects as well as all the well-organised dairy co-operatives in the country realised the valuable support that cattle insurance can provide to their dairy development programmes. If the milch animal financed by them dies or

becomes disabled due to accident or disease or natural calamities like floods or cyclone, then all their efforts are set at naught unless the animal is insured. In such a context, the uninsured farmer's indebtedness increases, whereas the insured farmer can purchase another animal promptly with the insurance claim proceeds. It is in this sense that cattle insurance is considered an essential input of great strategic importance for the development of the dairy industry in India.

4.88 India boasts of having 16 percent of cattle and 57 percent of the global population of buffaloes (Basic Animal Husbandry Statistics, Deptt of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, GOI) with a total livestock population of over 485 million and poultry of 490 million.

Table 4.8: Key Data from Census of Livestock & Poultry

(Numbers in million)

Item	**1977**	**1987**	**1997**	**2003**
Livestock	**369.50**	**445.40**	**485.20**	**485.20**
Cattle	**180.10**	**199.80**	**198.80**	**185.20**
Males over 3 yrs	74.90	74.70	68.70	57.60
females over 3 yrs	57.60	62.10	64.40	64.50
young stocks	47.60	63.00	65.70	63.10
Buffaloes	**62.10**	**76.00**	**89.90**	**98.00**
males over 3 yrs	8.40	7.50	7.90	6.70
females over 3 yrs	31.90	39.10	46.80	51.00
young stocks	21.80	29.40	35.20	40.30
Other Livestock	**127.30**	**169.60**	**196.50**	**202.00**
Sheep	40.90	45.70	57.50	61.50
Goats	75.60	110.20	122.70	124.40
Horses & ponies	0.90	0.80	0.80	0.80
Others	9.90	12.90	15.50	15.30
Poultry	**160.90**	**275.30**	**347.60**	**489.00**
Fowls	149.30	251.00	315.40	457.40
Ducks	10.10	23.50	30.90	30.00
Others	1.30	0.80	1.30	1.70

Livestock & Dairying accounts for about 25 percent of the agriculture GDP, valued at approx. INR 2 Trillion (Report of the Working Group on Crop Husbandry, Agricultural Inputs, Demand and Supply Projections and Agricultural Statistics for the Eleventh Five Year Plan (2007-12)). The value of output of milk is much higher than either of the two dominant crops of India, i.e. rice and wheat (Working Group-RMA).

4.89 Apart from the absolute size of the livestock sector, it should be recognized that livestock related economic activities have some unique features, in terms of income generation, for the agricultural community. For instance, livestock is often the source of continuous income for many, or at least one that generates income more frequently, than regular agriculture. While conventional agricultural activity produces seasonal incomes (typically twice a year in lump sums), it is left to the individual farmers to manage their cash flow uncertainties over the rest of the year. In contrast, livestock related activities may give a regular flow of income as in the case of dairy, poultry etc.

4.90 Policy paper No. 15 of National Centre for Agricultural Economics & Policy and Research (NCAP), 'Assessment of Research Priorities for Livestock Sector in India', 2003, projects the livestock economy, which at present is 25 percent, would eventually grow to 40 percent. The contribution of livestock to Agricultural GDP, which was 18 percent in 1980s grew to 22 percent in 1990s and to 25 percent in 2000s. Since 1980, livestock GDP has been growing at an annual rate of about 6 percent, which is higher than the growth in overall agricultural GDP. This indicates that livestock sector is likely to emerge as the engine of growth of the agricultural sector in the near future.

4.91 Prior to nationalization of the General Insurance Industry in 1973, some insurance companies made efforts to introduce cattle insurance on a very limited scale, but due to adverse claims experience, these efforts were abandoned. The premium rate was over 6 percent. Cattle insurance was introduced on a regular

countrywide basis by the General Insurance Corporation (GIC) in 1974 during which about 30,000 animals were insured. The main objective was to effectively protect the cattle owners against financial loss due to death / accident to the cattle (subject to certain exclusions).

GIC introduced 'Market Agreement' came into force from 1.4.1976. Under the Agreement uniform premium rates, policy terms and conditions and procedures were adopted by the four subsidiary insurance companies of GIC. Basic premium rate was 4 percent gross and 1 percent for permanent total disability (PTD). A Central Cattle Committee consisting of representatives of GIC and the four companies was set up (a) to ensure smooth implementation of the Market Agreement and (b) to fix special rates and terms for cattle within the purview of major co-operative dairies and those owned by well-managed dairy farms.

4.92 In order to protect the assets (animals) financed under the government schemes like Integrated Rural Development Programme (IRDP) / Small Farmers Development Agency (SFDA) etc, to the weaker sections such as small and marginal farmers, landless labourers, rural artisans, members of scheduled castes and tribal communities who suffer from economic and social handicaps, the government introduced special premium rates for (a) Insurance of milch cattle (b) Insurance of cross-bred female calves/ heifers and (c) Insurance of bullocks used for agricultural operations. Concessional premium rate under these schemes is 2.25 percent (net) p.a. The long-term premium rate for a 3 year policy is 4.80 percent. For any additional year over 3 years, the premium would be at1.60 percent p.a. For PTD cover, the premium for 3 years policy would be 1.80 percent.

The livestock insurance products in India are largely of "plain vanilla" nature, neither varying geographically, nor varying with the insurance service provider, these being almost exclusively the public sector general insurance companies, at least till 2004-05.

4.93 The insurance policies cover basically two contingencies:

1. Death of the animal due to all causes except ageing
2. The policy can be extended to cover permanent total disability. This is optional and requires payment of additional premium.

4.94 Livestock insurance of public sector general companies provides coverage to Milch cows (Indigenous /Cross-bred / Exotic), Milch buffaloes, Stud bulls (Cattle / buffalo species), Indigenous/ Cross-bred / exotic calves /heifers, Bullocks (castrated bulls and male buffaloes), sheep, goats, horses, ponies, donkeys, camels etc. Identification of the animal is done by putting polyurethane ear tags. At the time of underwriting, the proposed livestock is identified by applying polyurethane tags on the ears by the Veterinarian who performs the health inspection also and issues the Veterinary Health Report, as one of the valuable documents of underwriting.

Claims experience of Livestock insurance for the General Insurance Public Sector Association (GIPSA) companies for the period upto 2004-05 is shown in Table 5. Incidentally, private sector general insurance companies started operating from the year 2001, but hardly any livestock insurance has been done by these companies till 2004-05. A few private insurance companies are now showing interest in livestock insurance as these insurers see livestock insurance as not merely a way of meeting rural insurance obligations stipulated by IRDA, but also as a business proposition. Private sector insurance companies like ILGI, Royal Sundaram General Insurance, Bajaj Allianz General Insurance etc. are among the insurers who are now developing livestock insurance. As a business strategy for the fast growing rural economy, other private sector insurers are likely to follow suit.

Table 4.5: Key Details on Livestock Insurance in India				
Year	**Animals covered (in Millions)**	**Premium (in INR Millions)**	**Claims Paid (in INR Millions)**	**Claims Ratio (%)**
1997-98	6.3	1434.50	801.10	56.00
1998-99	7.9	1520.20	1260.80	83.00
1999-00	9.8	1371.40	1142.80	83.00
2000-01	8.9	1446.80	1359.30	90.20
2001-02	9.1	1338.00	1070.10	79.41
2002-03	6.3	1204.50	1105.10	92.45
2003-04	6.7	1093.50	955.10	83.41
2004-05	7.9	1376.80	893.60	66.24
(Source: GIPSA Companies)				

Pilot Livestock Insurance Scheme of the Government

4.95 The Livestock Insurance Scheme, a centrally sponsored scheme, which was implemented on a pilot basis during 2005-06 and 2006-07 of the 10th Five Year Plan and 2007-08 of the 11th Five Year Plan in 100 selected districts. The scheme is being implemented on a regular basis from 2008-09 in 100 newly selected districts of the country. Under the scheme, the crossbred and high yielding cattle and buffaloes are being insured at maximum of their current market price. The premium of the insurance is subsidized to the tune of 50%. The entire cost of the subsidy is being borne by the Central Government. The benefit of subsidy is being provided to a maximum of 2 animals per beneficiary for a policy of maximum of three years. The scheme is being implemented in all states except Goa through the State Livestock Development Boards of respective states. The scheme is proposed to be extended to 100 districts that were covered earlier during pilot period and more species of livestock including indigenous cattle, yak & mithun.

4.96 The Livestock Insurance Scheme has been formulated with the twin objective of providing protection mechanism to the farmers and cattle rearers against any eventual loss of their animals due to death and to demonstrate the benefit of the insurance of livestock to the people and popularize it with the ultimate goal of attaining qualitative improvement in livestock and their products.

4.97 Till 31st December 2006, close to 200,000 animals were insured and more than 500 claims were also settled giving immediate benefit to the concerned farmers. The GOI expenditure on this scheme was INR 242.1 Million during 2005-06 and INR 251 Million during 2006-07 (Annual Report of Dept. of Animal Husbandry & Dairying – 2006-07).

Constraints in growth of livestock insurance

4.98 A few major constraints in the growth of livestock insurance are discussed below:

(1) The claims ratios for livestock insurance stand on the brink of un-profitability – the average of 1997 to 2004 is 80 percent. If we consider that 15 percent are paid as commissions, and management expenses are another 10 percent of premiums, with other administrative costs 10 percent more, then the ratio of claims to premiums would stand at about 115 percent of premium. The adverse claims ratio and hence, adverse profitability is what is preventing the supply-side, from extending livestock insurance vigorously.

(2) There is a severe constraint from the demand side too, viz., the demand for livestock insurance, is extremely price elastic. Any attempt to increase the livestock insurance premium rate rapidly, brings drown the number of animals insured, as well as the premium income. As illustrations, two actual market experiments analyzed by National Insurance Academy (NIA) are presented below:

i. Mehsana District Co-operative Milk Union, Gujarat, was experiencing an adverse claim ratio of 180 percent during the period 1999-2001. To control the claims ratio, the premium rate was hiked up from 5 percent to 6 percent in 2001. The result was sharp decline in the number of animals covered from 39,000 to 14,000 and annual premium collection from INR 10.8 Million to INR 5.8 Million between 2001 and 2005.

ii. The second example is that of the Sabarkantha District Co-operative Milk Union (Gujarat), which also had an adverse claims experience. The lead insurer, United India Insurance, decided to correct the premium rate and tighten the claims procedure in the year 2001. The number of animals insured dropped sharply from 25,000 to 15,000 and the annual premium collections from INR 11.0 Million to INR 6.5 Million between 2002 and 2005.

Both the case studies above, show how large is the price elasticity of demand for livestock insurance is. There is widespread withdrawal from insurance, with even a small increase, in the premium rate. The cause for such high price elasticity is obviously the low income. Raising the premium rate to make the livestock insurance operation viable may prove to be self-defeating.

(3) At present, the livestock penetration is just about 1.5 percent of total livestock population (see Table-6) and about 6.5 percent of the potentially insurable cattle. This is hardly anything given that a great majority of rural population derives a share of its income from the livestock.

Table 4.6 : Livestock Insurance Penetration

Year	Total Livestock (in Millions)	Livestock insured (in Millions)	Insurance Penetration
1997-98	485.20	6.3	1.30%
1998-99	485.20	7.9	1.63%
1999-00	485.20	9.8	2.02%
2000-01	485.20	8.9	1.83%
2001-02	485.20	9.1	1.88%
2002-03	485.20	6.3	1.30%
2003-04	485.20	6.7	1.38%
2004-05	485.20	7.9	1.63%

The probability of increasing levels of claims can be expected to improve, as the insurance penetration increases. As is the case with any other insurance, large number of insured cattle and geographical spread can bring down the incurred

claim ratios to below 50 percent, and thus, can help in lowering the premium rates to less than 3 percent.

4. Issues like, 'moral hazard' and 'adverse selection', a likely outcome of low insurance penetration, is perceived as one of the major reasons for high claim ratio and consequent high premium rates. Proper and tamper-proof devices to identify the insured animals, effective claim monitoring and control systems can go a long way in addressing the moral hazard.

5. Insurance awareness in general is very poor, and more so in the rural areas. Despite some efforts by GIPSA companies in the 1980s and 1990s, not many in the rural areas are aware of livestock insurance. Those who are aware and have a need for livestock insurance are skeptical because of perceived complex procedures, lack of transparency and cooperation on the part of the insurance staff. Concerted efforts on insurance education & awareness followed up with farmer friendly insurance procedures and prompt service is the need of the hour and this will go a long way in making livestock insurance very popular among the villagers.

4.99 Suggestions for Improving Coverage & Performance of Livestock Insurance

- A detailed actuarial investigation may be undertaken at a disaggregated level to ascertain the mortality and morbidity probabilities for various animal categories in different regions in India and to identify the extent and causes of mortality and morbidity. This would help the insurance providers to design appropriate and tailor-made insurance covers suiting the requirements of livestock owners.

- Insurance providers may think in terms of introducing an endowment type livestock insurance scheme, which combines both risk coverage as well as investment elements. From available experience of insurance in India, it

appears that poor Indian farmers are interested in obtaining some kind of a return on the insurance premiums that they pay.

- Despite allowing a number of private insurance companies the livestock insurance penetration is just a small fraction of the livestock population. The most important reason for very low penetration of livestock insurance is 'moral hazard' losses suffered by insurers. Despite technology like RFID, insurers are not sure to control moral hazards. In order to encourage insurers to promote livestock insurance, on one hand the government should provide some subsidy in premium, and on the other should be made indirectly compulsory. As an illustration, a livestock owner can avail free veterinary services only on the proof of availing livestock insurance. It's equally important to start identification of all livestock through unique ID, which can help both streamlining veterinary services, and in controlling moral hazard in case of insurance

- Insurance agencies should also consider using a strategy similar to what financial institutions have followed (in case of microfinance) by bringing in peer monitoring for control of moral hazard. However, insurers can continue to play their typical role by taking care of the covariant risks.

- Quality of the livestock insurance portfolio can also be improved through long-term plans. Through these plans the size of the maturity refund can be made to vary inversely with the actual claims experienced which will incentivize policyholders to make low claims and also attract and retain good risks into the pool. Also in cases of fraudulent claims the maturity refund can be forfeited so that moral hazard can be checked at least in part.

- Further ways to make livestock insurance policies more buyer friendly and better-suited to the payment capacities of the insured could be:

  i.Proportional and non-proportional risk through deductibles sharing arrangements so as to moderate the premium payable by the insured.

ii.In case of large farms with more than say 50 to 100 animals, profit and loss sharing arrangements can be worked out such that, at the end of say 5 years, depending on the profit or loss based on actual claims experience, it may be shared between insurer and insured.

iii.Staggered premium paying system can be introduced especially for milch animals in which the premiums can be collected by district co-operative societies from the weekly milk bills.

Technical Support UNIT FOR Crop Insurance

Background and Rationale

4.100 In recent years, the crop insurance domain in India has witnessed an increase in focus from key stakeholders amidst a quest for dynamism and constant improvement in design and delivery of crop insurance products. Weather insurance - introduced in the developing world through a pilot in India during 2003 instantly caught the fancy of policymakers and developmental entities by virtue of its potential for shielding the Indian farmers from the spectre of weather risks. Starting on a high note, the hopes from weather insurance started dwindling in India until the Indian Government lent a vital impetus to it through the launch of WBCIS in 2007. Ever since, the penetration and outreach of weather insurance in India has increased phenomenally.

4.101 The large quantum of financial support by the Government to weather insurance (mainly in the form of premium subsidy) in particular and to crop insurance (both as premium subsidy and claims subsidy to NAIS) in general, warrants that crop insurance delivers best value to farmer-subscribers. With the increased scope for blending of different types of crop insurance indices (yield/weather/remote-sensing) and resultant limitless number of designs possible for crop insurance products, the task of appraising a diverse portfolio of crop insurance products and their contextual suitability is a specialized task that

unfortunately has not been able to attract the level of attention and technical rigor which it truly deserves. The challenges in comprehensive evaluation of the current and upcoming crop insurance products are compounded by the fact that these insurance products lie at a crossover of multiple specialized fields of knowledge.

4.102 A need for a well-equipped Technical Support Unit (TSU) with a mandate for ensuring the best value from crop insurance and making the Indian crop insurance programme a shining example for other crop insurance programmes around the world cannot be overemphasized. India has already gained a leadership stature in implementation of weather insurance and is poised to become the innovation factory of the world with respect to new developments in crop insurance. Besides the argument for best value realization from public funds, the rationale for a specialized Technical Support Unit for crop insurance is reinforced by the following observations:

i. Besides Agriculture Insurance Company (AIC), presently at least four insurers from private sector have been empanelled for selling WBCIS, and more and more private insurers are showing interest, primarily driven by the level-playing field and premium subsidies. As the number of insurers grow, the need for bench-marking of insurance products increase, as the farmers buying insurance products from different insurers have to carry comparable benefits for farmer-subscribers. Benchmarking of crop insurance products would be a fundamental mandate of the proposed TSU which would ensure the roll-out of only those crop insurance products which can ensure balance between expectations of the demand side and deliverability of the supply side.

ii. In the current scenario when the cumulative annual premium for weather insurance for 2011-12 can be projected to exceed ₹ 2000 crores, which involve a premium subsidy of almost ₹ 1400 crores equally shared by the Government of India and participating States. Similarly, the Modified NAIS approved as pilot w.e.f. Rabi 2011 season is expected to mop up a premium of Rs. 300 crore during 2011-12, with subsidy element of almost ₹ 180 crore. Also, there is

every chance that present NAIS will be replaced by MNAIS in one or two years. In other words, the Government's outlay towards crop insurance premium subsidies in the next few years may go upto as much as ₹ 3000 crore per annum, and this figures will climb up with increased insurance penetration. Given this level of funding, the Government has to make sure that its getting full value out of the subsidy, which is possible when there is a strong technical team within the Government capable of not only understanding how insurance premium is set by insurers, but also guide them on larger issues of public good.

iii. Some of the key stakeholders in the crop insurance domain have indicated loopholes and weaknesses in the institutional design and process control of crop insurance. The relatively flexible stipulations related to underwriting and process control for a product like WBCIS, need to be reviewed rigorously and tightened which may be best carried out by a specialized agency like the proposed TSU

iv. Lack of adequate and reliable weather and crop loss data is considered to be a major constraint in developing an accurate understanding of the current and future crop production loss variability. An integrated data system for managing agricultural risk management initiatives in India is the need of the hour. The responsibility for development and implementation of such an integrated data system can be entrusted to the proposed Technical Support Unit. Improvements in crop and weather system will lend a cutting-edge to the Indian crop insurance programme in which long-term investments like development of an integrated databank for agricultural risk management, large investments in awareness/capacity building for crop insurance etc. have taken a backseat.

v. To complement the process for improving weather insurance products, medium-term research projects may be commissioned by the Government under the purview of the proposed Technical Support Unit. As part of these

projects, taluka level weather indices for catastrophic insurance can be developed as an initial step towards more robust systems to mitigate climate change impacts. Catastrophic risks being low probability and high severity events, have, in principle, a lower actuarially fair premium compared to more frequent and moderately severe crop loss events. The low premium catastrophic covers would ensure an excellent risk mitigation alternative to farmers at a higher level of granularity (e.g. at taluka level). Simultaneously, high quality weather data from IMD and other agencies may be analyzed through inter-disciplinary research exercises involving research institutions, agricultural universities and industry think-tanks which can take up region/crop specific calibration exercises for improvement of crop insurance through blending of indices and actual field pilots.

vi. Service delivery issues in crop insurance have emerged as the key concerns of farmers during the field research undertaken as part of this study. The proposed Technical Support Unit can develop service and quality guidelines for crop insurance and ensure their proper implementation through mechanisms like audits, monitoring, customer feedback etc.

Design and Composition of Technical Support Unit for Crop Insurance

4.103 The proposed Technical Support Unit (TSU) should ideally be a separate, independent unit operating under the overall leadership and guidance of the Ministry of Agriculture and Cooperation (GoI). The suggestions of insurers and premier research institutions can be invited for identifying such subject matters experts from India who can objectively assess crop insurance products and provide inputs for improving them. Since weather-based crop insurance and blended crop insurance products are relatively new financial instruments even globally, the possibility of involving international experts (like actuaries, crop-weather simulation experts etc) in such a body may also be considered. The proposed TSU can have both full-time and invited members and a small team of full-time professionals. A broad composition of the TSU is suggested below:

Table 4.7: Composition of Proposed TSU for Crop Insurance			
Role	**Background / Organization**	**Number**	**Membership Type**
Overall Direction	Expert with at least 20 years of experience in agriculture insurance	1	Full-time
Crop Insurance Experts	Insurance Companies / Crop Insurance Consultants	4	1 Full-time / 3 Invited
Field Crops Experts	Agricultural Research Institutions / Govt. Organizations / Agribusiness Companies	2	1 Full-time / 1 Invited
Horticultural Experts	Agricultural Research Institutions / Govt. Organizations / Agribusiness Companies	2	1 Full-time / 1 Invited
Plantation Crop Experts	Agricultural Research Institutions / Govt. Organizations / Agribusiness Companies	1	1 Invited
Actuarial Experts	Insurance Companies / Independent Practitioners	2	1 Full-time / 1 Invited
Agricultural Statistics Professionals / Data Modellers	Agricultural Research Institutions / Govt. Organizations / FIs	3	2 Full-time / 1 Invited
Agro-meteorology Experts	IMD/ Agricultural Research Institutions	2	1 Full-time / 1 Invited
Agricultural Economists	Agricultural Research Institutions / Govt. Organizations / FIs	2	1 Full-time / 1 Invited
Reinsurance Experts	Reinsurance Brokers / Insurance Consultants	1	1 Invited
IT Professionals (Database Mgmt & S/W Development)	IT Companies / IT Consultants	3	2 Full-time / 1 Invited
Legal & Regulatory Issues Expert	IRDA / Insurance Companies	1	1 Invited
Rural Insurance Marketing Experts	Insurance Brokers / Corporate Insurance Agents /	1	1 Invited
Rural Development Specialists	NGOs	2	2 Invited
System Development Experts (System Architects)	IT Companies / Risk Mgmt. or Insurance Consultants	2	1 Full-time / 1 Invited
GoI / State Representatives		3	3 Invited
Total Members in Proposed TSU			**12 Full-time & 20 Invited**

Operational Leadership of Technical Support Unit for Crop Insurance

4.104 The responsibility of the operational leadership of the proposed TSU should be assigned to an individual with a minimum experience of 20 years in handling major areas related to crop insurance. The operational head of TSU

should be at least a postgraduate in agriculture and should ideally have earned a doctorate in a relevant area. The ideal candidate would be someone who is familiar with the process for development of weather insurance products and other upcoming blended crop insurance. A judicious mix of implementation work, research, academic publication and relevant international experience in crop insurance will enhance the suitability of the candidate for the operational leadership of TSU and will enable a better utilization of the diverse profile of the TSU members.

Financing

4.105 In the current scenario when the cumulative annual premiums in 2011-12 can be projected to exceed ₹ 2000 crores under WBCIS, and ₹ 300 crores under MNAIS thus involving a premium subsidy of about Rs. 1500 crore from the Government. Assuming the Government levies a technical fee of 1% on the premium subsidy given by it to the insurance companies, an annual corpus of ₹ 15 crore per annum can be created easily to fund the proposed TSU, including the funds required for conducting specific research and pilot projects from time to time.

4.106 Key Recommendations

- Introduction of a pilot Modified National Agricultural Insurance Scheme (MNAIS) with major improvements in NAIS is a good move. However, there are two key areas which merit further intervention: (a) premium subsidy structure requires amendment as premium subsidy is less for areas with lower to medium risk. There is a strong need for increasing the premium subsidy for lower and medium tiers; (b) Insurance unit for major crops has been lowered to village / village panchayat which is good for the farmers, but exponentially increases the work load of crop cutting experiments (CCEs). Centre may share part of the cost of CCEs in the short run while moving to technologies like satellite imagery to estimate the yield in the long run.

- Weather Insurance is fast expanding, with number of farmers insured expected to touch 10 million during 2011-12. Though its growth has been spectacular, there is still a concern about 'product design' of important crops wherein the weather indices designed so far have largely been unable to capture the crop losses reliably. It is therefore important that focused research be undertaken by ICAR and State Agriculture Universities (SAUs) for fine-tuning weather-yield relationship for crop insurance applications.
- Besides Agriculture Insurance Company (AIC), presently at least four insurers from private sector have been empanelled under WBCIS. More and more private insurers are showing interest, primarily driven by the level-playing field and premium subsidies. With increasing competition and understanding on the subject, involvement of state governments and local agricultural universities is also increasing. This is leading to development of products that are customized and most suitable for the area. Moreover with experience, insurance companies are also coming out with innovative approaches to provide better coverage and assess risk more accurately. In such a scenario it would be best to let the respective state governments set their internal guidelines for product evaluation and monitoring of scheme implementation by different companies under the overall benchmarking and standardizing at an aggregate level. However, in order to ensure proper implementation of the scheme and extract the best value for the government funds, a dedicated 'Technical Support Unit (TSU)' should be created under the aegis of the ministry of Agriculture (GoI).
- Presently most of the weather data requirement for computing weather insurance claims is met though private weather data providers who are using variety of sensors of different make and type. Often the data is challenged by farmers in courts of law, thereby creating problems in implementation of weather insurance. In order to maintain the sanctity of the weather data supplied by private data providers, the requirement of accreditation from a competent third-party designated by the Government should be mandatory. The accreditation of weather stations should

encompass both the equipment and the routine operation for ensuring consistent and high quality of weather data.

- At present Weather index insurance is serviced using on an average one weather station per tehsil / block. Ideally we should have weather station at each village to minimize basis risk. However this needs huge investment in weather station network. The stations still cannot be taken as completely tamper-proof; besides their maintenance cost is also high. Keeping in mind these constraints, the concept of 'virtual weather station network' based on 'Terrestrial Observation and Prediction Systems (TOPS) platform can be tested through suitable pilots. TOPS can actually produce the daily weather data at the level of one KM grid. Moreover, the system can generate past 10 years data at this level. The expected cost of generating village level daily weather data for the country for the entire XII Plan period is merely in the order of ₹ 200 crore. It may be worthwhile to test the technology to prepare a comprehensive weather data base for the entire XII Plan period, along with the data of past 10 yea₹ The data thus generated can be placed in public domain for the larger public good, including use in development of weather insurance products.
- While yield index and weather index products could be the mainstay of the Indian crop insurance programme, there is also need for product innovation in crop insurance. Some of such products include (a) community-based mutual insurance (b) savings linked insurance (c) double trigger (index) insurance (d) index-plus insurance products. These products not only provide better value but also help in establishing insurance principles and culture of insurance customization. The Government can look at promoting pilots on these new products during the period of the XII plan.
- Despite the existence of country-wide crop insurance programme for over 25 years, only about 1/5th of the farmers or cropped area could be insured. Only a minority of non-loanee (institutional non-borrowers) who constitute about 60 percent of the total farmers participate in crop insurance despite high level of premium or claim subsidies. At present, though there are provisions to extend relief to such farmers in case of catastrophic weather

events or crop disasters, but the quantum of such relief is largely ad-hoc, limited and subject to availability of funds. In order to protect the non-borrowing farmers from extreme financial distress and provide basic economic security, and other farmers cultivating crops which do not have insurance products the Government should introduce 'Catastrophe Protection' or 'Non Insured Crop Loss Assistance' for farmers.

- Agriculture insurance is special kind of insurance program with huge governmental intervention, and is different from traditional general insurance in many respects. Thus is seen more as a social instrument of the government rather than a commercial instrument. A programme of this nature and magnitude is unlikely to be effectively administered unless backed by a statute. This would also help in stream-lining agriculture relief.
- The most important reason for very low penetration of livestock insurance is loss suffered by insurers due to 'moral hazard'. Despite technology like RFID, insurers are not able to control the moral hazard. In order to encourage insurers to promote livestock insurance, the government should provide some subsidy in premium while it makes it mandatory in an indirect manner by making livestock insurance a pre-requisite for availing key government schemes for livestock development. As an illustration, a livestock owner can avail free veterinary services only after providing proof of insurance of the livestock. It is equally important to start enrolment of all livestock through unique ID, which can help in streamlining veterinary services as well as in controlling moral hazard under insurance. Other suggestions include endowment / long-term policies and mutual insurance on the lines of Dhan Foundation.
- **Service Tax Exemption:** The Government may exempt all crop insurance products from service tax, as is the case with NAIS, MNAIS and WBCIS.

Note: Some of the ideas discussed in this document are already under the consideration of the Government

Chapter V
Micro Finance Institutions

Have NBFCs/MFIs a role in the agricultural space?

Focus

5.1 The focus of this note is to explore the role in agriculture for Micro Finance Institutions like i) NBFCs/MFIs which borrow from Banks and other financial institutions and on-lend to individuals and to individuals in Joint Liability Groups (JLGs); ii) SHGs under the SHG Bank Linkage program, where SHGs borrow directly from Banks - one bulk loan is given by the Bank to a SHG - allowing the SHG to decide on the size and purpose of loans to individual members - (as envisioned by NABARD; refer Circular to all Commercial Banks dated 26 February 1992 , sd by Shri J.C. Nanda GM). Since the Kissan Credit Card is also a major instrument which plays an important role in financial inclusion in the agricultural sector, this note will also elaborate briefly on its potential to be relevant to the needs of Small & Marginal (S&M) farmers, provided it is restructured.

History of initiatives to provide credit to S&M Farmers

5.2 Small and marginal farmers (S&M) have been the "target" of financial inclusion policy and practice since 1904 when the first Cooperative Society was registered in Gadag Taluk-Karnataka.. Since then several major institutional steps have been taken to expand the network of financial institutions in order to "include" S&M farmers in to the country's financial sector. The major ones were: i) the nationalisation of Banks (1969); the launching of NABARD (1982); iii) of Regional Banks (1975-76); iv) of the SHG-Bank Linkage program (1992).Several micro finance schemes were introduced targeting S &M farmers, which were managed by these institutions, starting with the Integrated Agricultural Development program in 1960-67 to the SGSY in 2000. Under these various schemes, financial institutions provided small loans (later called Micro Finance) as

well as subsidies, opened no frills accounts, issued kisan credit cards etc. The latest addition to this range of financial institutions are : ii) the NBFCs/MFIs which mobilise credit from Banks/Financial Institutions and private investors for on lending M&S farmers, either to individuals or to individuals in JLGs and ii) the Self Help Groups incorporated in the SHG-Bank Linkage program where Banks advance one bulk loan directly to each SHG.

Impact not adequate

5.3 In spite of these initiatives of the Government to include the S & M farmers into the country's financial sector, studies show that the number of small loans provided by financial institutions for agriculture is declining steadily over the years. The credit-deposit ratio indicates an outflow of credit from the rural areas; the percentage of rural savings is less than urban and the overall growth in the agricultural sector has languished behind the services and manufacturing sectors. Though the government has taken several measures to increase credit flow to the rural sector (which is largely restricted to agriculture and on farm activities like livestock), the off-take is clearly not increasing

Major Reasons for shortfall

5.4 One reason why the off-take of credit has not improved is that the Government's policy remains restricted to "credit for agriculture". But the small and marginal farmer , in order to cope with several factors which have resulted in declining income from traditional agriculture, has increasingly taken up several activities outside agriculture in order to sustain the family for which credit is not available. A few of them who have the resources and networks have diversified into cash crops, which require much larger loans than provided under regular schemes. The majority however have evolved a "family livelihood strategy" consisting of several activities many outside agriculture for which credit is not available. Therefore they need financial institutions and instruments which provide credit for the set of activities (agricultural and non agricultural)which

comprise their livelihood strategy. Unfortunately none of the Government sponsored programs provides adequate space to cope with this diversity.

5.5 Secondly, in many areas, where S&M farmers have taken irrigated lands on lease, they do not have documents to prove ownership of land; this makes them ineligible to borrow from official financial institutions and makes them dependent on private money lenders. As this is an increasing trend, the gap needs to be filled.

5.6 Thirdly, banks are facing major staff shortages, which makes it difficult for them to lend directly to SHGs under the SHG Bank Linkage program and to JLG; hence they are increasingly moving towards extending large loans to NBFCs/MFIs under the priority sector. The assumption is that the purpose of loan stated by borrowers prior to availing of the loan sanctioned is actually true. Surveys indicate that this assumption is not valid. The clients have used the loan for a variety of purposes including purchase of household goods and gold. As a result they have resorted to multiple borrowing in order to repay.

5.7 Fourthly, as Banks amalgamate, they tend towards extending large loans which marginalises SHGs (under the SHG-Bank Linkage program). Banks have a practice of testing SHGs in the first loan and hence give them small amounts, often less than ₹ 50,000 in the first loan. Large banks do not find this small loan viable. This is particularly the case with Commercial Banks and increasingly with RRBs which have become large entities over the past few years. Here the banks' response is to lend to NBFCs/MFIs in bulk.

5.8 Fifthly, Banks find it extremely difficult to cover the last mile in spite of several Government directives to extend banking services to each village; this again pushes them to extend bulk loans to NBFCs/MFIs.

5.9 The stance of the WG is as follows:

1. *The SHG-Bank Linkage program is the most appropriate financial mechanism to extend credit to the poor who have no assets and to marginal dryland farmers* because:

    a. the SHG provides space for diversity in loan purposes and sizes and hence provides credit for all activities which the family selects as part of its livelihood strategy; in the case of marginal dryland farmers, evidence shows that the dependence on income from agriculture is minimal;

    b. the SHG does not require land records to extend a loan; the affinity which exists among the members who self select themselves and their stake in the group (common fund) provide the guarantee;

    c. SHGs are in the village and have first hand knowledge of whether the member needs a loan and how they use it

    d. Most importantly, inclusion must go beyond the provision of finance to include the poor into the growth process; for this, the SHG member requires other support besides credit. This support could range from building confidence and management skills to training in marketable skills, providing technical support for small investments in land or livestock. This support needs to be provided by the NGO which has formed and trained the SHG and is now, in many cases, acting as Business Correspondent. In other words for the poor to be included in the growth process, the strategy needs to go beyond financial inclusion. The Business Correspondent model where the NBFC/MFI works in partnership with an NGO, Federation of SHGs, Cooperative or Company, provides both credit and the support required to use it productively and earn an income . The NBFC promoted by NABARD called Nabard Financial Services (NABFINS) has found the BC model appropriate to include the poor into the growth process. NABFINS has also provided working capital to second level institutions like Companies and Cooperatives which aggregate, add value and market

commodities. The SHGs and their members have a stake in all these second level institutions which are required for their livelihood base to expand.

5.10 Challenges faced by the SHG Bank Linkage Program which need to be addressed:

i) The SHG-Bank Linkage was downgraded in recent years because it was considered to be too slow in extending credit.

ii) The quality of SHGs declined due to the haste in forming SHGs and above all because of the lack of Institutional Capacity Building (ICB). ICB Modules are provided by NABARD but seldom used.

iii) Shortage of Bank staff: Government needs to ensure that banks have a cadre of staff who can each out to SHGs

iv) Lack of adequate funds for Institution Capacity Building (not ICT): NABARD and Banks need to provide adequate funds for Institutional Capacity Building – both to form new SHGs and to upgrade the quality of existing ones which did not receive any ICB .

vi) The practice of breaking up SHGs to form JLGs which became common in some States must be contained.

vi) Funds (grants/loans) need to be provided to the Business correspondent/Company/Federation/Cooperative to provide the support required by the client to make the loans productive. These funds can take the shape of grants to promote watershed management programs which reduce the risk of investment in dryland agriculture, to provide skills training and the shape of soft loans for working capital to support second level institutions to aggregate, add value and market agricultural commodities. The need for working capital as well as for some infrastructure to enable these second level institutions (Producer companies, Companies, Cooperatives, Federations of SHG) achieve stability is acute. This need must be met by the NBFCs/MFIs lending to these second level institutions which is not being done. Credit from Banks is also very difficult to access since they lack physical security and the risk of failure is comparatively

high. As a result the livelihood sources of SHG members continue to be few, traditional and incapable of competing with market forces.

2. *The JLGs are appropriate for small farmers and livestock owners* –those who have productive assets but cannot access credit from banks because they have no land records; because they are too far from banks or because banks have problems in covering the last mile.

5.11 Challenges faced by the JLG program: While the features of a well functioning SHG and the inputs required to form one have been defined by NABARD, this is not the case with a JLG. Hence many JLGs failed to really develop a "joint liability" practice and culture. As a result the pressure to use loans for the purpose mentioned in the application is missing and the pressure to repay does not arise from the internal dynamics of the JLG but from the staff of the NBFC/MFI, which (together with repayment linked incentives to staff) resulted in coercive measures and multiple borrowings.

5.12 The suggestion given here is that the members of a JLG should self select themselves. A JLG should be given at least 3-4 months time before loans are extended. During these 3-4 months the members should meet at least 4-6 times and save regularly. The savings should be deposited in a group account. This will increase the sense of affinity and develop a sense of joint responsibility among the group members. Further the loan from the NBFC/MFI should be deposited into this group account and then extended to each member who opens an account in his or her name.

3. *NBFCs/MFIs have a role in the agricultural space*: Given the problems faced by banks, there is little doubt that the NBFCs/MFIs will play an increasing role in the agricultural space. Banks will once again provide bulk loans (after the stress created by the AP crisis is managed). The NBFCs/MFIs

have also been officially accepted as a separate category of institutions which have a legitimate role to play in financial inclusion. While the major bulk of their clients are not the asset less or marginal farmers, they still have a major stake in closing the credit gap in agriculture.

5.13 Challenges faced by the NBFCs/MFIs: However for the NBFCs/MFIs to really include their clients in the growth process (beyond financial inclusion), they need to re-engineer their business models, especially if they are to lend for agriculture and livestock. Their present practice to provide small loans of the same size together with standardised repayment schedules ranging from weekly to monthly, will not fit the cash flow pattern of the agricultural sector. Returns from agriculture are lumpy. No crop has a duration of less than 3-4 months and livestock are sold after a year (in the case of minor ruminants which are being neglected by credit institutions). Small poultry units need regular working capital and a customised recovery schedule. The present systems and procedures adopted by NBFCs/MFIs is entirely geared to reduce the risk to the NBFC/MFI and in many cases (especially where venture capital is invested) to maximise profits in a short time. This in turn increases the risk to the client by imposing a standard product and short repayment periods. Unless software is customised to the clients needs (which will add to transaction costs), this business model will continue to increase the risk of the clients and fail to include them in the growth process.

5.14 Since many NBFCs/MFIs find the recommendations flowing from RBI's norms based on Malegam Committee restrictive, many of them are shifting to gold loans which are the fastest growing sector in credit provision. Several senior Managers have left or are leaving since high profits and remunerations will no longer be possible. However, once the dust settles, there will still be a few that will adopt the RBI's norms and continue to function in the agricultural space. But for these to include the clients the growth process they need to re-engineer their business model.

5.15 It is relevant here to recommend that the Not For profit Section 25 Companies extending credit to SHGs and JLGs in the rural areas should be encouraged. Since they are not vulnerable to the pressures arising from venture capital (fast growth, profit maximisation and quick exit) and tend to have members on the governing boards who have a social mission, they can play a significant role in financial inclusion and beyond in inclusion in the growth process. However their place must be recognised in the overall financial structure. At present they have not been given official space.

5.16 Kissan Credit Card: While NBFCs/MFIs and the SHG Bank Linkage Program are promoted either by the private sector only or in partnership with formal financial institutions, initiatives taken by banks and the Cooperative sector are also present, which can fill the agricultural space is a much bigger way in the future, if they are re-engineered. One example is the Kisan Credit Card.

Re-engineering KCC

5.17 It is suggested that the farmer be allowed to use the KCC to draw credit for any livelihood activity including agriculture, on farm occupations, (livestock, poultry) fisheries, small micro business/enterprises, horticulture, as well as to acquire livelihood skills through training in farm and non farm occupations ; education and health loans should be included.

5.18 The repayment should be allowed in multiple, but non-rigidly structured instalments. This will enable the farmer to pay whenever he/she has liquidity. Though this is allowed in the present KCC product, each withdrawal is due to be repaid in 12 months. Such a due date determination should be withdrawn. Instead, in KCC, if credit in the account equals 50% or more of the total amount withdrawn in a period of 12 months, the account may be taken as a standard, performing loan.

5.19 Like the financial inclusion drive, a Farm Family Credit appraisal drive is needed. This could be assigned to Bank branches and/or outsourced. On the basis of this data the credit limits for each family could be decided. This can be met from an SHG loan or a JLG Loan or through the KCC depending on the ground situation.

5.20 The farm credit / KCC product may be enhanced to cover holding of produce by farmers. A credit arrangement from production credit to storage credit is required. If the farmer decides to keep his/her produce in a warehouse, the storage credit will take over. The FI/Banks need to lend for aggregation and storage through outreach programs.

5.21 Arrangements of door-step collection of repayments should be made through a single point contact. This will enable each farmer to handover cash whenever available with him/her.

5.22 Background data: The suggestions offered above are based on data and analysis of surveys done by Government and NGOs. A brief overview of this data and analysis is in place which may help to provide the background for the suggestions given in this paper.

1. One reason why Government policy continues to focus on agriculture activity is the data from surveys like the NSSO which show that about 60%-70% of the population are “farmers”. The question asked in the NSSO survey is: “During the past year, have you practised agriculture for 30 days?” If the answer is “yes” the person is listed as a “farmer” even if he is engaged in other activities for the rest of the year. Besides, other members of the family also take up activities which are often not related to agriculture for which the family needs credit. The output as a result, does not give an accurate picture of the diverse credit needs of an S&M farmer family. Loans

need to be given to the "S&M Farmer family" for all activities which comprise their livelihood strategy and not for agriculture alone.

2. Evidence of the various activities that comprise a dryland faming family's livelihood strategy: Two examples of the various activities that two marginal dryland farmer families selected to make up a family livelihood strategy bring out the diversity which the financial institutions/instruments (like KCC) need to be able to support. These two samples are drawn from SHG group members; the SHGs wee formed in Myrada's projects. Note that these SHGs were nurtured by Myrada for 2-3 years in a declining manner. Adequate institutional capacity building (ICB) was provided.

Table 5.1: Self Help Affinity group Chikkajajur, Holalkere Taluq,Chitradurga Dt.,Karnataka

Year	**Amount (Rs)**	**Purpose**	**Year**	**Amount(Rs)**	**Purpose**
(1) Kausar Banu			***(2) Nagarathnamma**		
1996	1,000	Trading	1997	2,000	Education
1996	3,000	Trading	1997	500	Education
1997	5,000	Trading	1997	2,000	Education
1997	500	Education	1998	4,000	LPG for home use
1997	5,000	Medical expenses	1998	5,000	Education
1997	300	Medical expenses	1998	5,000	Vehicle loan repayment
1998	4,000	Trading	1999	7,100	House repair
1998	5,000	Trading	1999	8,000	Vehicle loan repayment
1998	5,000	Trading	2000	8,000	Vehicle loan repayment
1999	5,000	Trading	2000	15,000	Vehicle loan repayment
1999	12,000	Trading	2000	325	To purchase SHG uniform
2000	25,000	To release house mortgage	2001	18,000	Business
2000	325	To purchase SHG uniform	2002	30,000	Vehicle repairs
2001	2,000	Education	2003	28,000	Vehicle loan repayment
2002	40,000	House purchase	2003	8,325	Sewing machine (SGSY)
2003	325	Household expenses	2004	2,300	LPG for home use
2003	8325	Sewing machine (SGSY)	2005	40,000	Vehicle repairs
2003	50,000	Agriculture land purchase	2005	1000	Jewellery loan

Table 5.1: Self Help Affinity group Chikkajajur, Holalkere Taluq,Chitradurga Dt.,Karnataka					
Year	**Amount (Rs)**	**Purpose**	**Year**	**Amount(Rs)**	**Purpose**
2004	2300	LPG for home use	2006	2,000	Jewellery loan
2005	58,000	To release agriculture land from mortgage	2007	62,000	Tempo purchase and gold
2005	6,000	House repair	2008	22,820	Tempo repair and insurance
2005	1,000	Jewellery loan	2009	11,000	Tempo repair
2006	2,000	Jewellery loan	2010	40,500	House repair and gold
2007	2,000	Gold			
2008	53,820	Cycle shop business and gold			
2009	Nil	-			
2010	500	Gold			
Total	**4,59,390**		Total	**3, 22,870**	
Note: Before SAG No Land – had mortgaged land which family had; After SAG 3 acres – released land and purchased. Installed irrigation. Continuing in SAG			Note: The family purchased a used tempo on loan; borrowed from the group to pay the loan in instalments and to repair and refurbish the vehicle. Note: Before SAG 2 ¾ acre dryland; after SAG 2 ¾ acre dryland, but no investment in dryland		

Box 5.1: Two examples

Kausar Banu: The major traditional activity of the family's livelihood strategy was trading; their land had been mortgaged before the Self Help Affinity Group (SAG) was formed for capital to do trading; later several loans were taken from the SAG for trading. As income from trading increased, the family reclaimed the mortgaged land and purchased land and dug a well. Income generating activities increased to three viz., : i) trading ii) cycle shop iii) agriculture and long term investment education. They took only one small loan for household expenses. Finally loans were taken for gold and jewellery- a sign that the family is now confident. The total investment was Rs 4.5 lacs.

Nagarathamma. The family owned dry land but decided not to invest in agriculture. Instead it opted to invest in a pre-owned Tempo. The SAG provided capital for maintenance. Alongside they gave priority to education. It also purchased gold Total investment in family livelihood strategy -Rs 3.2 lacs.

Conclusion

5.23 Food security is no longer achieved by a majority of small farmer families through agriculture alone. A one track approach in credit provision for agriculture therefore needs to expand into a systems **approach** where credit is extended for a variety of purposes many of which are not related to agriculture. Most small farmer families are in this transition process. They must be supported to make the adjustments so that the income from all activities undertaken by the family is enhanced. Most of them want to educate their children and need loans to do so, since they are keen to send their children to private schools. They also need loans to send their youth for training in non agricultural skills. Credit to the small farmer must include loans for these purposes as well.

5.24 The NSS shows that the percentage of employment in the rural non farm sector in total rural employment increased from 21.6 percent in 1993-94 to 23.8 % in 1999-2000. This trend has continued and has grown stronger during the past 10 years

5.25 Maybe it is time to suggest that the focus on credit for "agriculture" should shift to "credit to small farmer families" living in rural areas. The need for credit to support ground level institutions which aggregate, add value and market is also a priority. Initiatives must be taken by banks and Government to cover the higher risk involved at this second level.

5.26 The following part does not deal directly with agricultural credit although the issues listed here do have a bearing on implementation of the objectives to shift 400-500 million rural people out of agriculture.

5.27 If a more holistic or systems approach is to be adopted in the credit policy to support livelihood security for small and marginal farmers, it is necessary to bring

all Government funds allotted to various activities of a small farming family under one administration /management .At present this is highly fractured.

5.28 For example: At present NRLM is under the Ministry of Rural Development. Ministry of Human Resource Development and Ministry of labour (and a few others) also manage training courses like Skill development Initiative (SDI). Then there is the National Skill Development Council, National Skill Development Coordination Board and the National Skill development Corporation. There is little co-ordination between these bodies and the Ministries concerned.. Further these bodies have done very little since they were established. In this scenario the Government target of training 400-500 million youth by 2022 will be difficult to achieve.

5.29 How to achieve this coordination: Two suggestions: 1) Set up a Separate Ministry at the Centre and in each State for Skill development ii) Convert NRLM presently managed by MoRD into a Mission mode. It may be easier to opt for the latter.

Concerns in MFI sector

5.30 The SHG- Bank linkage programme has helped in enlarging the spread of the availability of financial services to the hitherto unbanked sections of the society for over 20 years now. It has been witnessing significant growth since it's inception. As on March 2010, total 69.53 lakh SHGs were having ₹ 6198.71 crores savings with banks. On the other hand a total of ₹ 14453.30 crores loan have been disbursed to 15.87 lakh SHGs during 2009-10 and leading to greater financial outreach for poor. The SBLP is a home grown programme that has elevated India to a respectable position in the global micro-finance scenario besides attracting the attention of international academia. Lot of theoretical as well as empirical research has been focussed on micro-finance in India.

5.31 Major benefits emanating from the SBLP are the positive impacts on income from linking SHGs to banks, broadening financial markets through provision of credit and other financial services to small scale entrepreneurs and thereby on reduction of poverty, attainment of the Millennium Development Goals, favourable impact on household income, labor market activity, health and education and helpful role in ushering in women's empowerment.

5.32 Several studies have demonstrated positive impacts of SHG on the socio-economic conditions of SHG members, like an increase in the average value of assets per household and average value of borrowing since the inception of SHG-BLP. With regard to social aspects, the SHGs have contributed significantly in raising the self-confidence of SHG members. As the SHG movement progressed and more and more SHGs were formed and linked to the banking system, second generation issues such as sustainability, financial aspects, community actions, issues of social harmony and social justice cropped up and subsequent studies focussed on these aspects.

5.33 The problem of financial exclusion of rural masses from institutional fold has been purportedly due to higher transaction and default risk costs of reaching them for purveying small ticket loans. SHG linkage has been put forth as a cost effective alternative to reduce transaction costs and reduce default risk through joint liability and peer pressure mechanism. Some studies have examined the viability and sustainability of SHG lending by banks and found that the financial return ratios for regional rural banks are more favourable in case of SHG lending than normal lending operations, as the financial risks are significantly less in the case of the former. Of late, MFIs have been found to operate only on financial terms, without providing training or capacity building to the SHGs or carrying out grading of the SHGs or encouraging group savings. These vitiate the very founding principles on which the SHG movement was built up by NABARD.

Chapter VI

Summary and Recommendations

6.1 The Working Group's approach, deliberations, credit projections and recommendations have been primarily guided by the 12th Five Year Plan objective of "faster, more inclusive and sustainable growth".

6.2 The Terms of Reference [TOR] of the Working Group [WG] deal with estimation and provision of institutional credit for agriculture, the ability of cooperatives to participate in enhanced credit dispensation, the status and role of agricultural risk management programmes and an assessment of MFIs as a delivery mechanism for agricultural credit. In order to provide focussed attention to the TOR, the WG constituted four Sub-Groups (SGs) – one each for the four areas related to the TOR. While the WG held meetings with various stake holders including representatives of States and Union Territories and with Industry Associations, the SGs held detailed discussions internally and with experts in their respective subject areas. This report is based on the inputs and WG's own analysis of the subject matter.

Stance of the Working Group

6.3 The Working Group recognizes that agriculture growth in the 12th FYP faces stiff challenges like less land, less water, adverse impact of climate change, pressure on farm labour and stagnant productivity. Rapidly diversifying food basket, related supply management & inflation concerns and urgency to minimise widening gap between rural & urban incomes are the other major emerging issues. The credit strategy therefore, will have to be aligned with the agriculture growth strategy, keeping in view the above considerations.

Issues and Concerns

6.4 After a detailed review of the institutional credit, the WG noted that despite significant reforms undertaken by rural financial institutions with regard to systems, processes and delivery, coupled with a sizable increase in the flow of institutional credit to agriculture, the sector continues to be characterised by a wide range of concerns. The WG believes that the achievement of quantitative 'credit flow' targets is necessary, but not sufficient for ensuring inclusive growth.

i. Despite robust credit growth, nearly 8 crore farmers are still outside the institutional fold. **The WG therefore, recommends that it is imperative to find ways, means and strategies for widening credit consistent and deepening it, so that those outside the purview of institutional credit are covered as quickly as possible, if not in the 12th FYP itself.**

ii. The increased numbers do not necessarily increase the comfort level on several counts. The available analysis and literature suggest that quality of lending and direction of it in the incremental lending leaves much to be desired. Emerging evidences of regional imbalances in credit flow, term lending taking a backseat, sluggishness of the share of small and marginal farmers, dilution in synchronisation of credit flow with agricultural seasonality, increase in the share of indirect finance, and poor MIS which is unable to decipher the direction of flow, are such concerns which imply that the sense of priority is getting deteriorated, even while credit is being pushed in the sector in a big way. **The WG recommends that there is need to look into the definition of priority sector keeping in view the emerging concerns.** The Reserve Bank of India has already appointed a Committee and the WG is hopeful that the Committee will look into this aspect.

iii. The WG's discussions on the emerging agrarian structure -heavily tilted towards 'small farming' - have important implications for the credit strategy. The number of small and marginal farmers (83%) and the area cultivated by them is also increasing and has reached around 41%.

However, credit dispensation by banks, (including by cooperative banks, which traditionally cater to the relatively smaller farmers), was at best sluggish. This disequilibrium posits the need to address the factors which constrain small-scale farming and suggest suitable and equitable forms of aggregation which can be supported by adequate and affordable credit flows.

iv. On credit flow to small and marginal farmers, the WG feels it necessary to look in to the composition of their incomes which has crucial bearing on the flow and composition of credit. One of the major reasons for small & marginal farm families pursuing a combination of agricultural and non-agricultural livelihood activities is the steadily diminishing size of household land holdings and the income there from. **For achieving more inclusive growth, if small, marginal farmers, landless labourers are on the centre stage, the WG is of the view that the extant policy needs to factor in the complexity of rural livelihoods and move from the "credit for agriculture" approach to a broader and more flexible, "credit for rural livelihoods" approach. Designing appropriate financial products and putting in place supportive risk mitigation measures will be required for this shift.**

Institutional issues

6.5 With regard to institutional issues, it was represented to the WG that branches of commercial banks at the field level have a tendency to interpret regulatory prescriptions in a manner most conducive to their own 'safety' and 'security'. Thus, for example, despite clear instructions to the contrary from their Head Offices etc., rural bank branches continue to insist on 'collateral' even for small loans. The existing set up (Ombudsman) at the state level perhaps may not be able to address these localised issues. **The Working Group therefore recommends setting up of decentralised ground level mechanism to address regulatory violations and keep a check on such tendencies.**

6.6 Spatial coverage and staff shortages are also issues in some remote areas. Other factors constraining the flow of institutional credit include delay in stabilisation of the BC model, increasingly larger exposures of bank to NBFC-MFIs for easy compliance with priority sector lending requirements and the inability, sometimes disinclination, of banks to bridge the 'last mile gap'.

Cooperatives

6.7 The financial health of the long-term cooperative credit structure continues to deteriorate as evidenced by the fact that at the end of 2010, the accumulated losses of the LTCCS were of the order of Rs 5,275 crore translating into a 59% erosion in owned funds, leaving very little hope for revival of the structure, precisely at the time when an urgency is felt to accelerate the pace of asset generating investment credit. The WG therefore, feels that an alternate mechanism /dispensation needs to be put in place.

6.8 After a detailed review of short-term cooperative credit structure [STCCS], the Group observed that after implementation of the Debt waiver Scheme and the recapitalisation assistance, a large number of units in the short-term cooperative credit structure [STCCS] are now in profit and accumulated losses are beginning to show a declining trend. Notwithstanding a relatively better financial health of the STCCS than before, the share of the STCCS continues to show a declining trend. During the 10th FYP, in the agricultural credit flow share of cooperatives was around 25 per cent which has declined to around 16 per cent. This was notwithstanding the fact that the annual average credit flow to the sector during the 10th FYP increased from Rs. 32,725 crore to Rs. 50,030 crore during the 11th FYP. The declining share of cooperatives is worrisome because as an institutional sub-set, they support a very large number of small and marginal farmer accounts.

6.9 The poor resource base of Primary Agricultural Credit Societies (PACS), their poor management and governance and lack of effective member participation were identified by the WG as significant barriers to increasing credit flow through this institutional mechanism. It was noted that PACS have an average membership of about 1,400 and owned funds of Rs. 13 lakh per society. Barring around 22,000 PACS in the four southern states and West Bengal (where the average PACS level deposits are around Rs.90 lakh), the average deposits in the remaining 74,000 PACS in the country are around Rs.9 lakh per society or less than Rs. 650 per member.

6.10 The position is exacerbated by the fact that the upper tiers in the structure [Central Cooperative Banks (CCBs) and State Cooperative Banks (SCBs)] are not in a position to supplement the resources of ground level institutions by mobilising deposits from non-agricultural areas and clients. Over the last few decades they seem to have lost their way as evidenced, for example, by the fact that though, the deposits of CCBs are close to Rs. 1.25 lakh crore, and their CD ratio high at 72%, the ratio of their agricultural credit to deposits is less than 35%. In other words, CCBs appear to be shying away from supporting agricultural credit which was, and continues to be, the *raison de tere* for their existence. The story of SCBs is similar. Overall, the limited loanable resources at the PACS level lead to credit rationing, driving members to moneylenders for accessing the shortfall in their credit requirements. In fact, it is well known that the STCCS survives primarily on the refinance support received from NABARD.

6.11 The low level of member participation at the PACS level is also a cause for concern despite the initiatives taken in the wake of the Vaidyanathan Task Force. A critical issue for the future, therefore, is how to find ways and means of increasing member participation at the PACS level and ensuring that they have a financial stake in these organisations.

Risk management in agriculture

6.12 The agriculture sector is characterised by adversity of risks such as weather, yield, price, calamity etc. which, on occurrance, render farmers unable to service debt, provide sufficient nutrition to the family or meet health needs. The frequency and severity of these risks, particularly in last few decades, has increased on account of climate variability and change.

6.13 Risk management in agriculture ranges from informal mechanisms like avoidance of high risk crops, diversification across crops and income sources to formal mechanisms such as agricultural insurance, minimum support price system and futures markets.The primary crop insurance scheme in the country is currently, the credit linked NAIS. While the scheme has certain merit as a risk intervention mechanism, it suffers from several design and implementation defects such as low indemnity levels, delays in claim settlement, absence of cover for horticultural crops, poor servicing, low awareness levels, especially amongst non loanee farmers and inadequate loss coverage. The concerns of insurers include large insurance unit sizes, high claims to premium ratios, high costs of distribution and adverse selection particularly amongst non-loanee farmers who constitute the majority of the farming community. The fact that government subsidy is available for both premium and claims, makes the burden large and difficult to budget. Further, there is need for insurance products in other sectors such as horticulture and post production phases which requires to be addressed urgently.

Changes in financial landscape during 12th Plan

6.14 In addition to the concerns outlined above, the WG has also taken into account certain key developments and changes which, in its view, are likely to impact the financial landscape in the 12th FYP. The first of these is the UID project of the Government of India which by providing biometric identity will make the opening of bank accounts much simpler and give an

impetus to the Financial Inclusion agenda. Secondly, the Core Banking Platform will provide seamless connectivity and, together with the telecom infrastructure, help reduce pressure at bank counters and facilitate the emergence of a new architecture for accessing financial services. Similarly, the Business Correspondent model since fine-tuned to demand side requirements coupled with the encouragement now being given to mobile companies to be part of the financial inclusion agenda, will also contribute significantly. The Post Offices can have a significant role to play in providing last mile connectivity. There is a need to recognize and leverage this potential. The mandating of payments (e.g. wages under NREGA, pension dues etc.) through formal channels, including Post Offices, will significantly help in reaching the unreached with financial services.

Recommendations

6.15 In context of the concerns and changes likely to take place in the rural landscape, the WG has considered both quantitative and qualitative aspects of agricultural credit. The thinking of the WG and recommendations in regard to projected credit requirements, interest rate subsidies, a holistic approach to agriculture, institutional issues, agricultural risk management etc. is discussed in the following paragraphs.

Credit projections

6.16 On the basis of various macroeconomic parameters envisaged by the Planning Commission for 12th FYP, the Group has worked out different scenarios regarding the estimated flow of credit to the agriculture sector. These projections are summarised below:

Table 6.1: Projections of GLC for agriculture & allied activities for 12th FYP (2012-17)		
Sr. No.	Particulars	Total Projection for 12th FYP period (Rs crore)
1	Scenario 1- GDP Agriculture grows at 3% annually, ICOR (Agri) at 4	33,89,261
2	Scenario 2 - GDP Agriculture grows at 3% annually, ICOR (Agri) at 4.5	40,41,694
3	Scenario 3- GDP Agriculture grows at 4% annually, ICOR (Agri) at 4	**35,29,102**
4	**Scenario 4 -GDP Agriculture grows at 4% annually, ICOR (Agri) at 4.5**	**42,08,454**
5	Scenario 5 -Trend Based Projections	**37,39,022**
6	Scenario 6-Ratio of GLCA to GDPA method	31,24,624

6.17 It will be seen from the above that the projections arrived at by various methodologies vary between Rs 31,24,624 crore and Rs 42,08,454 crore. Building up of alternative scenarios had become necessary as important parameters like the expected rate of growth rate in agriculture and required ICOR had not been frozen. Now that the parameters have been fixed (Agriculture growth at 4% and ICOR 4.5) the band of the credit requirement can be restricted to scenarios at 3,4 and 5 in the above table, viz., between Rs.35 lakh crore and 42 lakh crore. This band appears reasonable, as the estimate based on the past trend works out about 37 lakh crore. Incidentally, WG on Savings under the Chairmanship of Dr Subir Gokarn also has adopted 4% growth in agriculture and ICOR of 4.5 in their recommendations. WG hopes that the Steering Committee will take an appropriate view in this regard.

6.18 The issue of choosing a growth rate for agriculture an appropriate ICOR was also was deliberated in the WG. For the 11th FYP the recommended ICOR was 4. It can be seen from the projections, that with a change in the ICOR from 4 to 4.5, the credit requirement jumps by about 7 lakh crore. Considering that most of the resources required are to be generated by the system, it was felt to stick to an ICOR 4.5. When the methodology of the credit projections was deliberated, the WG Group had observed that the approach has limitations, as the projections rest on the supply side considerations. However, with the inadequacies of data base, given

time frame & available manpower, it was not possible to address the task from the demand side. Even in such an exercise, we would have had to make several assumptions. Under the circumstances, the Group felt that the time tested methodology of approaching the issue from the supply side used for the 11th FYP be adopted.

6.19 While the WG hopes that the Steering Committee will take a final call on the preferred alternative, the projections of Ground Level Credit [GLC] for agriculture and allied activities have been firmed up among the three major credit purveying agencies viz. commercial banks, cooperative banks and RRBs on the basis of the trends observed in the shares of these agencies in the credit flow to agriculture over a ten year time frame. For the first year of the 12th FYP, the relative shares institutional shares have been kept constant, during the later four years the share of the cooperatives has been increased by 0.75% and that of RRBs by 0.50% every year. In doing so, the WG had taken to account the improved financials on account of debt waiver scheme and release of recapitalization assistance. The increase of disbursements from Rs. 2,54,658 crores to Rs. 3,84,514 crores during the past 3 years and the steady increase in the number of accounts also was kept in view.

6.20 The first issue in regard to the projected credit requirements is whether the system as a whole has the ability to finance the incremental 'load' out of its own resources. The Group is of the view that as far as commercial banks and most of the RRBs are concerned, their deposit growth is likely to cover the additional resources required for meeting the projected credit requirements from within the system.

6.21 The Group's primary concern relates to cooperatives where the deposit growth is not likely to be 'adequate'. The Group noted that in regard to crop loans (which constitute 70% of the aggregate agricultural credit flow), the requirements of the banking system had grown at around 28% between 1997 to 2007 while the loans purveyed by the CCS grew at only 14%. The overall CAGR for crop loans

which was around 24 per cent during the first three years of the 11th FYP is expected to grow at least 20% in the remaining period. The Group is, therefore, of the view that while agricultural credit purveyed by the CCS will continue to increase, the pace of growth is likely to flatten to around 16% translating into a credit disbursal of around Rs. 2.05 lakh crore by 2018, or three times the disbursements in 2011.

6.22 As against this, the deposits of CCBs during the same period, grew by only 8% as compared to 15% by RRBs. Even if the growth rate of deposits in CCBs increases by another 50% to reach 12% in the next decade, it will not be in a position to support more than Rs. 1.40 lakh crore of crop loans implying that NABARD may have to increase its refinance to enable the structure to maintain its share in the system!!

6.23 In the circumstances, The WG is of the view that NABARD may have to be adequately supported to augment its own resources and be given suitable instruments so that NABARD can access market resources for meeting the requirements of the cooperatives and of those RRBs which may not be able to generate adequate resources to meet the enhanced credit demand.

6.24 The revival package represents one of the largest programmes of the Government to bring back the STCCS on rails to take care of outreach especially to the small and marginal farmers. The implementation is now more or less over and it can be seen that while the revival package has helped in financial terms, it has still raised concerns like states not making changes in the law and some states reverting to tight control by RCS, external interferences after receiving assistance waivers etc.. **The WG recommends that unless legal and institutional reforms in the package are implemented in letter and spirit, cooperatives cannot be rebuilt.**

6.25 The Group also believes that eventually in the interest of the small farmers what matters is strengthening of the ground level tier which has the outreach.

Therefore, **the recent development of making financing of PACS possible through Commercial Banks where the higher tiers of the STCCS are not in a position, is a step in this direction and the WG endorses the measure.**

6.26 The Group also debated on the financial implications of the projected growth for the 12th FYP. Assuming that agriculture has to grow at 4% with ICOR at 4.5%, the Group has estimated that the projected credit flow in the 12th Plan period is likely to be significantly higher at Rs.42 lakh crore or double the flow anticipated during the 11th Plan translating into Rs. 8 lakh crore (+) per year, as against the present level of about Rs.4.5 lakh crore per year achieved during 2010-11.

6.27 As regards fiscal implications of such a growth, the Group is of the view that given the present mix of 70:30 for crop loans and investment credit, the projected credit flow is likely to entail a significant increase in subvention for banks and NABARD for production (crop loan) finance. If to this, are added the subsidies which different state governments are extending to farmers to make such loans still cheaper, the overall subsidy bill cannot but balloon. It is therefore clear that existing input subsidies taken together with the interest subsidies as above, are likely to have significant fiscal implications.

6.28 While it is true that agricultural subsidies in India are much less when compared to the rest of the world, especially European countries, and the Indian farmers do need support; the question of affordability of subsidies and direction of subsidies to the appropriate segments cannot be sidelined. In the context of credit subsidy, it is pertinent to note that those who really deserve subsidies are perhaps not covered under the institutional credit. Theoretically, as well as empirically, evidences of subsides creating market distortions are available. The WG has flagged the issue of subvention/subsidy in the above context. The recommendation is to rationalize subsidy in such a way that it creates minimum distortion in the market and also the amount involved is used more productively.

6.29 A simple exercise to calculate interest subvention/subsidies over the projected short term credit requirement for the 12th FYP (for all agencies together) was carried out. The subsidy or interest subvention amount is the difference between the interest amounts at two different rates viz., 10% (assumed) and the prevailing 7%. The crop loan amount has been assumed to be outstanding over a period of six months. With this assumption, over the projected Short term credit of about Rs. 28,53,577 crores, subvention works out to Rs. 42,000 crore at the prevailing rate of interest of 7%, implying an average expenditure of Rs. 8500 crore on subsidies per year. This amount does not include the state government subsidies which have brought down the interest rates further to about 4%, indicating involvement of roughly similar quantum of subsidy. These two sets of subsides thus, together, represent a pool of resources which can be utilized more rationally. The WG is of the view that with this pool of resources, it may be possible to retain the interest rate at 7% and also create a corpus to take care of risk mitigation requirements or weather based instabilities and climate change. These resources could also be dedicated to creation of rural infrastructure, especially 'soft infrastructure' which will go a long way in meeting the needs of the farmers. Large public investment in either case, will facilitate building confidence of the bankers and the farmers in investing in agriculture.

6.30 On the qualitative side, the experience of the 11th Plan so far shows that the increased credit flow has been achieved to a large extent through the process of credit deepening. Resultantly, small farmer coverage has increased only marginally. With about 8 crore farmers still remaining outside the fold of institutional credit, desired outcomes can only be achieved with a thrust on credit widening. **If small and marginal farmers have to effectively participate in the growth process, various aggregation methodologies including collectives, cooperatives, corporate and contractual arrangements need to be explored.** The evolving concept of "aggregation" in Indian agriculture ought to be examined in the broader context of the need enhance productivity and improvement of farmer livelihoods. Economic theory speaks of the problem of indivisibility of fixed capital and how it is linked to the economies of scale. Aggregation models on the

one hand help benefitting from the scale, on the other hand help in creating credit absorption capacity and in accessing technology and markets. enable dealing with the scale having economies of scale for production and marketing, on the other hand help in accessing marketing. **With its experience in promoting ground level, people centric institutions in the past, NABARD may be advised to initiate pilots in this area.** JLGs promoted by NABARD could also serve as intermediate interventions within this framework.

6.31 In light of the observations made earlier, the WG has deliberated on how to take PACS one step further in the reform process towards a more vibrant model. The WG recommends the following:

- Making PACS member driven and ensuring that members have a meaningful financial stake in the cooperative.
- Increasing the face value of membership fee or share price from the existing level of Rs.10 (or at best Rs.100) per member to Rs.500. The suggestion takes into account that within the cooperative structure, share capital is linked to borrowing. While this has the effect of notionally increasing the capital base, the fact that no dividend is paid makes the cost of credit from cooperatives higher than that from competing agencies such as RRBs and commercial banks.
- Inducing confidence among members regarding placement of deposits. Generally, members of cooperatives are hesitant to keep deposits even with their own PACS as they are rightfully concerned about the safety of their funds. This is quite understandable because such deposits are not covered by the DICGC, and the deposit insurance schemes of state governments are mostly on paper. In this context, the scheme formulated by NABARD [Institutional Protection and Deposit Safety Scheme (IPDSS)] for PACS on the lines of similar schemes operating in Germany and Hungary[1] needs to be considered. The scheme is already with the

[1] The very fact that most loans of a PACS are concentrated in a small geographical area of a few villages and for a single economic activity, agriculture, makes the assets of a PACS riskier. A variety of safety nets other than crop insurance are therefore essential. The "institutional protection" part of the scheme focuses on preventing a PACS from failing by taking remedial action as soon as any disturbing signs emerge. The action may

Ministry of Finance which needs to be approved quickly for implementation.

- Incentivizing member farmers to save regularly on the SHG pattern as part of financial literacy and counseling initiatives the premise being that this will give an impetus to members to keep deposits with their PACS and facilitate the IPDSS, when introduced.
- Increasing member participation and making members aware of their rights and responsibilities and to form village committees of such members to monitor and activate others to participate in the regular functioning of PACS.
- Supporting NABARD in the formation of JLGs to address the issues arising out of the increasing number of small and marginal farmers and oral tenancy.
- By mooting additional amendments to the Cooperative Societies Acts and related legislation so as to enable members to reap the full benefit of the extant reform package.

6.32 As regards the ways and means to accelerate investment credit, the deliberations of WG show that uncertain viability of the agriculture operations itself and limitations due to small size of the holding, together pose a major challenge. Under the circumstances, innovative approaches will have to be used and aggregation models could be the possible solutions. For example, labour shortages now being experienced across the sector point to the need for supporting enhanced farm mechanization initiatives through higher levels of investment credit. Farm mechanization is generally equated with tractors or harvesters where investments are heavy. Promotion of small equipments like seed dribblers, small power tillers, weeders etc., need to be popularised. Where investments are higher, either group mode may have to be explored or promotion of custom hiring services may be necessary. PACS could be encouraged to provide

include mandating managerial intervention, liquidity support, temporary or long term restructuring, or even merger with another PACS and so on. Entry barriers are proposed under the scheme to ensure serious participation. Only when closure of a PACS becomes inevitable does the "deposit safety" aspect gets activated which is a pure pay-out from a deposit safety fund. The scheme has been sent to DFS for establishing a Central IPDSS Fund.

custom hiring services in a big way. This will help in increasing effective 'contact' between members and PACS by widening and diversifying the products and services on offer and converting PACS into 'one stop shop' for farmers. In Punjab, some of the cooperative societies have started maintaining a stock of farm machinery including tractors which can be hired by farmers at will. This model was found to be highly successful as the farmers are relieved from the stress of having to buy the equipment from the market at high costs. This initiative in Punjab is mainly cooperative- driven and is amenable for replication in areas where cooperatives have a strong presence. Such initiatives are particularly significant as they help in relieving the debt burden on farmers. Whether this has to be taken forward as a state-driven or cooperative-driven initiative, if replicated in other states, was deliberated by the Working Group. It was suggested that well-functioning PACS in different states should be identified, so that the model could be implemented. The successful functioning of the Cooperative Development Fund in Tamil Nadu was also cited, wherein, the amount aggregated under the fund was disbursed as interest- free loans to farmers by several cooperatives.

6.33 In the recent years, capital formation in agriculture (as a percentage of GDP in agriculture) is showing steady increase. This increase however, is driven primarily by private investment. Considering that public investment has an enabling impact on private investment, increased public investment in rural infrastructure is essential. This will improve the confidence level of banks and farmers in undertaking investments.

6.34 While the scaling up investments for 'hard' infrastructure has often been emphasized, the need for putting in position 'soft' infrastructure remains relatively less articulated. Easy access by farmers to information (on prices, weather, etc.), demonstrative extension support and adequate and appropriate risk mitigation measures come under this category. Developing such an infrastructure is a challenging task. The solutions require innovative approaches and technology support so that the required scales can be achieved through low cost solutions. The WG feels that along with the development of hard infrastructure, NABARD

may be entrusted with the responsibility of development of soft infrastructure also.

Risk Mitigation

6.35 With regard to Risk Management, the WG has examined a range of modifications and options regarding agricultural risk reduction and mitigation. These include a comprehensive set of modifications relating to agricultural insurance, agricultural insurance support services and price support measures. In this context, the Group reviewed a NAIS pilot project implemented in 50 districts during the season of 2010/11 which had introduced a number of useful innovations. Some of the specific recommendations about the modified NAIS are summarized as under:

- Premium subsidy structure for modified NAIS requires amendment as premium subsidy is less for areas with lower to medium risk.
- Address the impact of lowering insurance unit for major crops to village / village panchayat which exponentially increases the work load of crop cutting experiments (CCEs).
  - Centre may share part of the cost of CCEs in the short run.
  - Shift to technologies like satellite imagery to estimate the yield in the long run.

6.36 In regard to insurance in the allied activities space, the Group noted that livestock related economic activities contribute 20% to the agricultural GDP. Some segments of the livestock economy are significantly larger than traditional agriculture, for example, the value of milk output is Rs 1,10,000 crores as compared to paddy which is Rs 78,200 crores or wheat which is Rs 48,450 crores. Notwithstanding this, the penetration of livestock insurance is very low and stands barely at 6.58% of the insurable livestock population. Clearly, the premium needs to be subsidized so that penetration can be raised to 30% or more during the 12th FYP. This is particularly relevant since the focus of the Group is on

sectors within agriculture rather than merely the crop sector. Some of the other recommendations about the livestock insurance are as under:

- The most important reason for very low penetration is loss suffered by insurers due to 'moral hazard'. Despite technology like RFID, insurers are not able to control the moral hazard.
- In order to encourage insurers to promote livestock insurance, the government should provide subsidy in premium while it makes it mandatory in an indirect manner by making livestock insurance a pre-requisite for availing key government schemes for livestock development. As an illustration, a livestock owner can avail free veterinary services only after providing proof of insurance of the livestock.
- Enroll all livestock through unique ID, which can help in streamlining veterinary services as well as in controlling moral hazard under insurance.
- Service Tax Exemption: The Government may exempt all crop insurance products from service tax, as is the case with NAIS, MNAIS and WBCIS.

6.37 Noting that there are assets such as agricultural implements, bullock carts, pump sets, etc. which seriously impact a farmer's ability to earn an adequate income, the Group recommends a single insurance policy covering all assets of the farmer under a single contract.

6.38 In making its recommendations on risk mitigation, the Group is cognisant of the role played by private insurance companies. It notes that a large number of private insurance companies have been operating in the Indian Insurance market since October 2000. Two of these have done pioneering work in agricultural insurance chiefly by way of introduction of weather insurance products. The Group believes that the issue of private sector involvement in agricultural insurance can be creatively addressed through a system of co-insurance under which the AIC will be the lead insurer (with underwriting responsibilities and contacts with multiple agencies) and private insurance companies will take shares according to their respective capabilities. The Group also recommends for greater customization most suitable for the area.

6.39 The WG, on their deliberations on its role the State governments, have recommended that State Governments may set up internal guidelines for product evaluation and monitoring of scheme implementation by different companies under the overall benchmarking and standardizing at an aggregate level. They may also create a dedicated 'Technical Support Unit (TSU)' under the aegis of the ministry of Agriculture (GoI) to ensure proper implementation of the scheme and extract the best value for the government funds.

6.40 Keeping in view the need and scope for putting in place pilots and product innovations the WG has recommended the following.

i. Mandatory accreditation from a competent third-party designated by the Government to ensure consistent and high quality weather data.
ii. Testing of 'Terrestrial Observation and Prediction Systems (TOPS) platforms through pilots.
iii. Developing innovative products like community-based mutual insurance, savings linked insurance , double trigger (index) insurance, index-plus insurance products for better value, and also in establishing insurance principles and culture of insurance customization.
iv. Broad based insurance- protect the non-borrowing farmers from extreme financial distress and other farmers cultivating crops which do not have insurance products, the Government may introduce 'Catastrophe Protection' or 'Non Insured Crop Loss Assistance'.
v. Agriculture insurance being specialty insurance with huge governmental intervention, is different from traditional general insurance. Thus, is seen more as a social instrument of the government rather than a commercial instrument. A programme of this nature and magnitude is unlikely to be effectively administered unless backed by a statute. This would also help in stream-lining agriculture relief.

6.41 The Group is of the view that for making insurance effective, it has to be surrounded by a set of mutually reinforcing support services. Of these, accurate

and timely data is one. Further, since insurance operates on the law of large numbers, it requires effective distribution channels. For the former, the working Group recommends large-scale use of remote sensing technology blended with rain gauge data to provide a single, comprehensive and nationally consistent data base. It believes that such a data base will entail timely settlement of claims including on - account payments and facilitate the introduction of new distribution channels like post offices and micro insurance agencies etc.

6.42 The Group notes that MSP is a vital tool in achieving food security while at the same time providing remunerative prices to farmers for their produce. Having said this, it feels that a number of modifications are needed to make the scheme more effective and is considering certain proposals in this regard.

6.43 As regards Commodity Derivatives markets the WG noted that though elsewhere such markets have a long history, they had only recently been reintroduced in India to enable farmers to derive the benefit of price discovery and protect them from adverse price fluctuations. Through the mechanism of these markets, farmers can 'hedge' by taking positions in the Futures Market and insulate themselves against adverse price fluctuations in the physical market. However, due to factors such as the predominance of small and marginal farmers and the lack of awareness and other restrictions, the participation of Indian farmers in the Commodity Futures market has been low. Creating conditions for farmers to access such markets is a challenge for agricultural policy planners and the WG is considering measures to encourage the participation of farmers in such markets.

6.44 The WG is also looking at contract farming as an instrument of risk management. It believes that if contract farming is properly and equitably structured, it can bring about beneficial changes in agricultural production and marketing. The chief aim of contract farming is to bring the management of agriculture in line with the best practices of agricultural production. The Group believes that facilitation, of contract farming requires support in terms of changes

in legislation e.g., the APMC Act, putting in position an effective conflict resolution mechanism and quality control facilities, prescribing flexible norms of pricing and education and training for stakeholders with a view to safeguard the common interests of all concerned.

6.45 The Group reviewed the initiatives taken by MFIs to provide credit to small & marginal farmers and concluded that, overall, the impact has been inadequate. One reason for this is that while the overall stance of policy has been restricted to 'credit for agriculture', field observations show that fragmentation of land over time and the consequent decline in income therefrom has 'forced' small and marginal farmers to take up several activities outside of agriculture to sustain their families. In the main, such activities have not been supported by bank credit. While few a farmers having education, networks and resources have diversified into cash crops requiring larger loans than admissible under regular schemes, the majority have adopted 'family livelihood strategies', in addition to or outside agriculture to sustain themselves. In the context of these findings, the strategic intervention needs to reorient institutions to provide credit for agriculture and non-agriculture purposes both on a standalone basis and within Government sponsored programmes.

6.46 The Group noted that a large number of small and marginal farmers undertake agricultural operations without having appropriate documents to prove their legal status. This being the case, they have no option but to take recourse to moneylenders as formal sector institutions are disinclined to extend credit to them. This needs to be addressed.

6.47 It also observed that banks have staff shortages - whether in sanctioned or operating strength - at the rural branch level which makes it difficult for them to lend directly to SHGs under the SHG Bank Linkage program and to JLGs. Further, the trend of 'consolidation' within the banking system has led to banks extending large loans which marginalize SHGs under the SHG-Bank Linkage Programme. Experience tends to suggest that banks do not find purveying of

small loans to SHGs an attractive commercial proposition. This is particularly the case with commercial banks and increasingly with RRBs whose response, by and large, is to gravitate towards the provision of bulk finance to the NBFCs and MFIs in preference to smaller loans to SHGs under the SHG-Bank Linkage scheme, primarily for easy compliance with priority sector requirements. Lastly, banks find it extremely difficult to cover the last mile despite Government directives exhorting them to extend banking services to each village. This too pushes them to extend bulk loans to NBFCs/MFIs.

6.48 The Group notes that the assumption underlying lending to the MFI sector is that the purpose of loans as stated by borrowers in the loan application forms are the true ones. Surveys, however, indicate that this assumption is not valid and MFI clients are known to use the loans taken for a stated purpose for a variety of other purposes including purchase of household goods and gold. As a result they resort to multiple borrowing to repay the same.

6.49 Notwithstanding the aforesaid, the deliberations of the Group point to the fact that given the predilections and problems faced by banks, NBFCs - MFIs are likely to play an increasing role in the agricultural space once the dust settles on the controversy surrounding the sector. The Group believes that following the recent regulatory pronouncements which include acceptance of NBFC-MFIs as a separate category of institutions, as long as they comply with the regulatory prescriptions, they will have a legitimate role in the agricultural and the financial inclusion space notwithstanding the fact that the major bulk of their clients are not asset less or marginal farmers.

6.50 However for the NBFC-MFIs to really include their clients in the growth process (beyond financial inclusion), they need to re-engineer their business models especially if they are to lend for agriculture and livestock. Their present practice of providing small loans of uniform size together with standardised repayment schedules ranging from weekly to monthly intervals, may not dovetail with the cash flow patterns in the 'real' (agricultural) sector. The fact is that

returns from agriculture are lumpy, since crops have diverse cultivation periods ranging from 3-4 months upwards; livestock are usually sold after a year, small poultry units need regular working capital support and customised recovery schedules has to be factored in the design structures of the products offered.

6.51 Further, it is observed that the extant systems and procedures adopted by NBFC-MFIs are geared primarily to reduce the risk to themselves and to maximise profits in the short run. This entails imposing standard products and short repayment schedules on borrowers thus increasing the risk to them. Unless the software used by these institutions is customised to the needs of the clients (which will, add to transaction costs), their business model will continue to enhance the risk of borrowers and impede their efforts, where made, to include them in the growth process.

6.52 The deliberations of the Group also indicate that the SHG-Bank Linkage programme is the most appropriate financial mechanism for extending credit to marginal and dry land farmers as it plays an important role in income smoothening. It is now established that SHGs provide space for diversity in loan purposes and sizes, and enable financing of a variety of activities which such families select as part of their livelihood strategies their income from agriculture being minimal.

6.53 In this context the Group believes that 'inclusion' must go beyond the provision of finance so as to include the poor in the 'growth process'. For this, 'supports' other than credit have to be provided to SHG members. These supports include confidence building, imparting management know-how, linking them to markets and providing technical support for small investments in land or livestock by "SHG – promoting – NGOs" acting as Business Correspondents. In other words, for the poor to be included in the growth process, the 'strategy' needs to go beyond financial inclusion. The Group notes that where the NBFC-MFI works in partnership with an NGO, Federation of SHGs, cooperative or company, the BC model ensures both credit and the support required to use the credit productively.

For example, NABFINS, a NBFC promoted by NABARD, uses the BC model to include the poor in the growth process. It also provides working capital to second level institutions like companies and cooperatives which aggregate, add value and market commodities. The SHGs and their members have a stake in these second level institutions which are required for the expansion of their livelihood base.

6.54 The Group is of the view that Joint Liability Groups (JLGs) are the appropriate mechanisms for farmers and livestock owners who have productive assets but cannot access credit from banks because they have no land records, are located too far from banks or have problems in covering the last mile.

Annexure

Nomination of Members

Credit Chairman- Prof. M. S. Sriram

1. G. Leeladhar
2. Shri Vijayendra – co-opted
3. Jt. Secy., Agriculture
4. Jt. Secy., Plantation (Min. of Commerce)
5. CMD, SBI
6. CMD, PNB
7. KUB Rao, RBI

Cooperative Credit Institutions Chairman – Dr. Prakash Bakshi

1. ED, NAFSCOB
2. MD – NCDC
3. Director, VAMNICOM

Risk Management Chairman- Dr. Rajas Parchure

1. Dr. Gopal Naik
2. Dr. R Kannan
3. Dr. R S Sidhu
4. MD & CEO, ICICI Lombard
5. MD & CEO, IFFCO-TOKIO
6. CMD, AIC
7. Kapil Mandal

Micro Finance Chairman – Aloysius Fernandez

1. D N Rao
2. MD, AFC
3. Vijay Mahajan