NABARD

സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ
स्टेट फोकस पेपर
STATE FOCUS PAPER

2016-17

ദേശീയ കൃഷി ഗ്രാമവികസന ബാങ്ക്
കേരള റീജിയണൽ ഓഫീസ്, തിരുവനന്തപുരം

NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT
KERALA REGIONAL OFFICE

Mission

Promote sustainable and equitable agriculture and rural prosperity through effective credit support, related services, institution development and other innovative initiatives

സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ 2016-17
State Focus Paper 2016-17

“കാർഷിക കാർഷികേതര മേഖലയിലെ മൂലധന നിക്ഷേപം ത്വരിതപ്പെടുത്തൽ”

“Accelerating the Pace of Capital Formation in Agriculture and Allied Sector”

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National Bank for Agriculture & Rural Development
Kerala Regional Office

നബാർഡ്

ആമുഖം

സംസ്ഥാനത്തെ കാർഷിക-ഗ്രാമീണ മേഖലയുടെ പുരോഗതി ത്വരിതപ്പെടുത്തുക എന്ന ലക്ഷ്യത്തോടെ വർഷം തോറും സംസ്ഥന തലത്തിൽ നബാർഡ് തയ്യാറാക്കി വരുന്ന വായ്പ സാന്നിദ്ധ്യതാ പദ്ധതിയുടെയും അതിന്റെ വിജയകരമായ നടത്തിപ്പിനുതകുന്ന വിധത്തിലുള്ള സൂചനകളുടെയും ഒരു സംക്ഷിപ്ത മാർഗ്ഗരേഖയാണ് സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ.

കാർഷികമേഖലയിലും ഗ്രാമീണ മേഖലയിലും വികസനപ്രവർത്തനങ്ങളിൽ ഏർപ്പെട്ടിട്ടുള്ളവരും, സഹവർത്തികളുമായ സ്ഥാപനങ്ങളുമായി പ്രസ്തുത മേഖലയുടെ ഉന്നമന പ്രവർത്തന പ്രക്രിയകളിൽ അവർ നേരിടുന്ന പ്രശ്നങ്ങൾ ചർച്ച ചെയ്യുന്നു. ചർച്ചയിൽ ഉരുതിരിയുന്ന ആശയങ്ങളെ സമന്വയിപ്പിച്ച് ഓരോ ജില്ലയി ലെയും വിഭവ ലഭ്യതയ്ക്കനുസൃതമായി അതാതു ജില്ലകൾക്ക് അനുയോജ്യമായ വായ്പാപദ്ധതികൾക്ക് രൂപം നൽകുന്നു ഇതാണ് വിഭവ ലഭ്യതയ്ക്കനുസൃതമായ വായ്പാ സാദ്ധ്യത പദ്ധതി. അഥവാ പൊട്ടൻഷ്യൽ ലിങ്ക്ഡ് ക്രെഡിറ്റ് പ്ലാൻ പി എൽ പി.

നബാർഡ് ഇപ്രകാരം ഓരോ ജില്ലയ്ക്കും വേണ്ടി തയ്യാറാക്കുന്ന പി.എൽ.പി യെ സമന്വയിപ്പിച്ച് സംസ്ഥാന തലത്തിൽ സ്റ്റേറ്റ് ക്രെഡിറ്റ് പ്ലാൻ തയ്യാറാക്കി അതിന്റെ വിജയകരമായ നടത്തിപ്പിനുതകുന്ന നിർദ്ദേശങ്ങൾ ഉൾക്കൊള്ളിച്ച് സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ പ്രസിദ്ധീകരിക്കുന്നു റിസർവ്വ് ബാങ്കിന്റെ മുൻഗണനാ വിഭാഗത്തെ സംബന്ധിച്ച നവീകരിച്ച മാർഗ്ഗരേഖ പ്രകാരമാണ് 2016-17 ലെ സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ തയ്യാറാക്കിയിട്ടുള്ളത്.ഇതിൻപ്രകാരം മുൻഗണനാ വിഭാഗത്തെ (പ്രയോറിറ്റി സെക്ടർ) 8 ഉപവിഭാഗങ്ങളായി തിരിച്ചിരിക്കുന്നു. 1)കൃഷി 2)മൈക്രോ, ചെറുത്, ഇടത്തരം 3) എക്സ്പോർട്ട് ക്രെഡിറ്റ് 4) വിദ്യാഭ്യാസം,5) ഭവന വായ്പ 6) സാമൂഹിക അടിസ്ഥാന സൗകര്യങ്ങൾ 7) ആവർത്തനയോഗ്യമായ ഊർജ്ജം 8)മറ്റുള്ളവ.. കാർഷികമേഖലയിലും കാർഷിക അനുബന്ധമേഖലയിലും മൂലധന രൂപീകരണം കുറഞ്ഞു വരുന്ന സാഹചര്യത്തിൽ കാർഷിക-കാർഷിക അനുബന്ധ മേഖലയിലെ മൂലധന രൂപീകരണം ത്വരിതപ്പെടുത്തുക എന്നതാണ് ഈ വർഷത്തെ സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പറിന്റെ പ്രമേയം

കാർഷികമേഖലയിലെ മൂലധന സ്വരൂപീകരണത്തിന് ആക്കം കൂട്ടുക എന്ന ഉദ്ദേശ്യത്തോടെ നബാർഡ് രൂപം കൊടുത്ത പദ്ധതിയാണ് ഏരിയാ ബേസ്ഡ് അപറോച്ച് ഈ പദ്ധതിപ്രകാരം ഓരോ പ്രദേശത്തിന്റെയും പ്രാദേശിക പ്രത്യേകതകൾ, വികനസനത്തിനുതകുന്ന വിഭവങ്ങളുടെ ലഭ്യത, നിലവിലുള്ള അടിസ്ഥാന സൗകര്യങ്ങൾ, സാങ്കേതിക വിദ്യയുടെ ലഭ്യത, സംഘാടകത്വ മികവിന്റെ ലഭ്യത നിലവിലുള്ള അടിസ്ഥാന സൗകര്യങ്ങൾ വിപണന സാധ്യതകൾ എന്നിവ കണക്കിലെടുത്ത് അതാതു പ്രദേശത്തിന് അനുയോജ്യമായ പദ്ധതികൾ തിരിച്ചറിഞ്ഞ് രൂപം കൊടുക്കുന്നു.

ഗവൺമെന്റ് ഉദ്യോഗസ്ഥരും ബാങ്കർമാരുമടങ്ങുന്ന ജില്ലാതല കമ്മിറ്റി, അവരുടെ മേൽ നോട്ടത്തിൽ മാതൃകാപദ്ധതികൾക്ക് ക്രെഡിറ്റ് പ്ലാൻ തയ്യാറാക്കി നടപ്പിലാക്കുന്നു. ഇപ്രകാരം നടപ്പിലാക്കുന്ന പ്രാദേശിക പദ്ധതികളെ ആധാരമാക്കിയാണ് ബാങ്കുകൾ അവരുടെ വായ്പ പദ്ധതികൾ ആസൂത്രണം ചെയ്യുന്നത്.ഇത്തരത്തിലുള്ള ഏരിയാ ബേസ്ഡ് അപറോച്ച് കാർഷിക മേഖലയിലേയ്ക്കുള്ള ക്രെഡിറ്റിന്റെ ഗതി വർദ്ധിപ്പിക്കുമെന്ന് കണക്കാക്കുന്നു.

നബാർഡ്

മുൻഗണനാ വിഭാഗത്തിൽ 11% വർദ്ധന ലക്ഷ്യമിടുന്ന 2016-17 വർശഷത്തെ സ്റ്റേറ്റ് ഫോക്കസ് പേപ്പർ സമർപ്പിക്കുന്നതിൽ എനിക്ക് അതിയായ സന്തോഷമുണ്ട്. 2015-16 കാലയളിവിൽ 107833.37 കോടി രൂപയുടെ പദ്ധതി വിഭാവനം ചെയ്ത സ്ഥാനത്ത് 2016-17 ൽ 119391.95 കോടി രൂപയുടെ വായ്പ സാദ്ധ്യത പദ്ധതിയാണ് സമർപ്പിച്ചിട്ടുള്ളത്. കൃഷി അനുബന്ധ വിഭാഗത്തിൽ 5503 കോടി രൂപയുടെ ക്രെഡിറ്റ് സാദ്ധ്യതയാണ് കണക്കാക്കിയിട്ടുള്ളത്. ഇതിൽ 29.50% കാർഷിക മേഖലയിലെ ദീർഘകാല നിക്ഷേപയമായി കണക്കാക്കുന്നു.

യാഥാർത്ഥ്യബോധത്തോടെയുള്ള ഇത്തരമൊരു വായ്പ പദ്ധതി തയ്യാറാക്കാൻ വിലയേറിയ നിർദ്ദേശങ്ങൾ തന്ന് സഹായിച്ച ബഹു:കേരള മുഖ്യമന്ത്രി, മറ്റു മന്ത്രിമാർ, ചീഫ് സെക്രട്ടറി, അഗ്രികൾച്ചറൽ പ്രൊഡക്ഷൻ കമ്മീഷണർ, സ്റ്റേറ്റ് പ്ലാനിങ്ങ് ബോർഡ് മറ്റ് വകുപ്പ് തലവൻമാർ, റിസർവ്വ് ബാങ്ക് റീജിയണൽ ഡയറക്ടർ, സംസ്ഥാന ബാങ്കേഴ്സ് കമ്മിറ്റി കൺവീനർ, സീനിയർ ബാങ്ക് ഉദ്യോഗസ്ഥർ, ലീഡ് ഡിസ്ട്രിക്ട് മാനേജർ കൃഷി വിജ്ഞാന കേന്ദ്രങ്ങൾ സന്നദ്ധ സംഘടനകൾ തുടങ്ങിയവരോടുള്ള അളവറ്റ നന്ദി രേഖപ്പെടുത്തുന്നു.

ഗ്രാമീണ കേരളത്തിന്റെ സമൃദ്ധവും, സുസ്ഥിരവുമായ വികസനം മുൻ നിർത്തി യാഥാർത്ഥ്യബോധത്തോടു കൂടിയുള്ള വികസന മാർഗ്ഗരേഖ തയ്യാറാക്കാൻ ഈ സ്റ്റേറ്റ്ഫോക്കസ് പേപ്പർ ഒരു മാർഗ്ഗ ദർശിയാകുമെന്ന് എനിക്ക് പരിപൂർണ്ണവിശ്വാസമാണ്.

ഈ സ്റ്റേറ്റ്ഫോക്കസ്പേപ്പർ മെച്ചപ്പെടുത്തുന്നതിനുതകുന്ന ഏതു തരം നിർദ്ദേശങ്ങളും ഹാർദ്ദവമായി സ്വാഗതം ചെയ്യുന്നു.

രമേഷ് ടെങ്കിൽ

ചീഫ് ജനറൽ മാനേജർ

नाबार्ड

प्राक्कथन

कृषि एवं ग्रामीण विकास के क्षेत्र में सभी हितधारकों को शामिल करते हुए सहभागिता और सलाहकार दृष्टिकोण अपना कर एक व्यवस्थित और व्यापक अभ्यास के माध्यम से नाबार्ड केरल राज्य के प्रत्येक जिले के लिए प्रतिवर्ष संभाव्यता युक्त ऋण योजनाएं तैयार करता है. विविध क्षेत्रो के अंतर्गत आने वाली इन सभी संभाव्यताओं को राज्य स्तर पर एकत्रित कर स्टेट फोकस पेपर के रूप में प्रस्तुत किया जाता है.

2016-17 हेतु केरल राज्य के लिए स्टेट फोकस पेपर का निर्माण भारतीय रिज़र्व बैंक द्वारा जारी किए गए प्राथमिकता प्राप्त क्षेत्र को ऋण वितरण हेतु संशोधित दिशा निर्देशों के साथ तालमेल रखते हुए बनाया गया है. प्राथमिकता प्राप्त क्षेत्र को मुख्यत: आठ श्रेणियों अर्थात (i) कृषि (ii) सूक्ष्म, लघु और मध्यम उद्यम (iii) निर्यात ऋण (iv) शिक्षा (v) आवास (vi) सामाजिक आधारभूत ढांचा (vii) नवीकरणीय ऊर्जा और (viii) अन्य में वर्गीकृत किया गया है.

इस वर्ष के स्टेट फोकस पेपर का विषय "कृषि और संबद्ध क्षेत्र में पूंजी निर्माण की गति में वृद्धि करना" है. कृषि क्षेत्र में पूंजी निर्माण में लगातार गिरावट के संदर्भ में, जो कि एक गंभीर चिंता का विषय है, यह विषय बहुत ही प्रासंगिक है. कृषि क्षेत्र में पूंजी निर्माण को बढ़ावा देने के प्रयास में, नाबार्ड एक क्षेत्र आधारित दृष्टिकोण का समर्थन करता है. इस दृष्टिकोण के तहत, स्थानीय परिस्थितियों, विकास के लिए उपलब्ध क्षमता, मौजूदा आधारभूत सुविधा, आवश्यक प्रौद्योगिकी, उद्यमशीलता की क्षमताओं, विपणन की व्यवस्था आदि को ध्यान में रखते हुए जिले में गतिविधि/गतिविधियों के समूह की पहचान की जाती है. जिला स्तरीय समिति, जिसमें सरकारी विभागों के सदस्य एवं बैंकर्स शामिल है, के द्वारा अभिनिर्धारित गतिविधियों के लिए एक मॉडल ऋण योजना तैयार, अनुमोदित, कार्यान्वित की जाती है एवं इसकी निगरानी रखी जाती है. ये क्षेत्र आधारित योजनाएं बैंकों द्वारा वित्तपोषण के लिए आधार स्वरूप होती है. इस दृष्टिकोण से अभिनिर्धारित क्षेत्र में कृषि दीर्घावधि ऋण प्रवाह को बढ़ावा मिलने की आशा है.

वर्ष 2016-17 के लिए स्टेट फोकस पेपर प्रस्तुत करते हुए मुझे हर्ष हो रहा है, जिसमें कि प्राथमिकता प्राप्त क्षेत्र के लिए अनुमानित ऋण संभाव्यता में 2015-16 के लिए रु. 107,833.37 करोड़ से 2016-17 के लिए रु.119,391.95 करोड़ की 11% की वृद्धि का प्रस्ताव है. वर्ष 2016-17 के लिए कृषि और संबद्ध गतिविधियों के लिए अनुमानित ऋण संभाव्यता रु. 55030.87 करोड़ है, इसमें से 29.5% को कृषि में दीर्घावधि निवेश हेतु संभाव्यता के रूप में प्रक्षेपित किया गया है.

स्टेट फोकस पेपर, 2016-17 को तैयार करने के लिए मै माननीय मुख्यमंत्री और अन्य मंत्रियों, मुख्य सचिव, कृषि उत्पादन आयुक्त, राज्य योजना बोर्ड, सचिव (कृषि), केरल सरकार के विभिन्न लाइन विभाग के सचिवो एवं प्रमुखों, क्षेत्रीय निदेशक-भारतीय रिजर्व बैंक, संयोजक-राज्य स्तरीय बैंकर्स समिति, सभी वरिष्ठ बैंकर, अग्रणी जिला प्रबंधकों, कृषि विज्ञान केंद्र एवं गैर सरकारी संगठनो का उनके बहुमूल्य सुझावों और संपूर्ण समर्थन के लिए हार्दिक आभार व्यक्त करता हूँ.

मुझे पूरा विश्वास है कि यह दस्तावेज सभी हितधारकों को उनकी रणनीति बनाने में मार्गदर्शक सिद्ध होगा, जो कि हमारे लिए अधिक स्थायी एवं समृद्ध ग्रामीण केरल की ओर ले जाने वाले मार्ग का पथप्रदर्शन करेगा.

इस दस्तावेज में और भी अधिक सुधार लाने हेतु सुझावो का स्वागत है.

रमेश टेंकिल

मुख्य महाप्रबंधक

NABARD

FOREWORD

NABARD prepares Potential Linked Credit Plans (PLPs) every year for each district in Kerala State through a systematic and comprehensive exercise adopting a participative and consultative approach involving all stakeholders in the field of agriculture and rural development. These potentials under various sectors are aggregated at the State Level and presented as the State Focus Paper (SFP).

The State Focus Paper for 2016-17 for the State Kerala has been prepared to align with the revised Priority Sector Lending (PSL) guidelines issued by RBI. Priority Sector has been broadly classified into eight categories viz, (i) Agriculture (ii) Micro, Small and Medium Enterprises (iii) Export Credit (iv) Education (v) Housing (vi) Social Infrastructure (vii) Renewable Energy and (viii) Others.

The theme of this year's State Focus Paper is "Accelerating the pace of capital formation in Agriculture and allied sector". The theme gains relevance in the context of the constant decline in capital formation in agriculture which is a matter of grave concern. In order to provide necessary thrust to capital formation in agriculture, NABARD advocates an area based approach. Under this approach, a set of activity/ies are identified in the district keeping in view the local conditions, potentials available for development, existing infrastructure, technologies required, entrepreneurial capabilities, marketing arrangements etc. A model credit plan for the identified activity/ies is designed, approved, implemented and monitored by the District Level Committee consisting of members from Government Departments and Bankers. These area based schemes form the basis for financing by the Banks. This approach is expected to boost Agriculture long term credit flow to the identified sector.

I am delighted to present the State Focus Paper for the year 2016-17, which proposes an increase of 11 % in the estimated credit potential to priority sector from ₹.107833.37 crore for 2015-16 to ₹.119391.95 crore for 2016-17. The potential for credit to agriculture and allied activities is estimated at ₹.55030.87 crore for the year 2016-17, out of which 29.5% is projected as potential towards long term investment in agriculture.

I place on record my sincere gratitude to the Hon'ble Chief Minister and other Ministers, Chief Secretary, Agriculture Production Commissioner, State Planning Board, Secretary (Agriculture), Secretaries and Heads of various line Departments of Government of Kerala, Regional Director, Reserve Bank of India, Convenor, State Level Bankers' Committee, all senior bankers, LDMs, KVKs & NGOs for their valuable suggestions and whole hearted support for the preparation of the State Focus Paper, 2016-17.

I am confident that this document would be a guide to all the stake holders to draw their strategies that will put us on the path towards a more sustainable and prosperous rural Kerala.

Suggestions to further improve the document would be welcome.

Ramesh Tenkil
Chief General Manager

STATE FOCUS PAPER 2016-17

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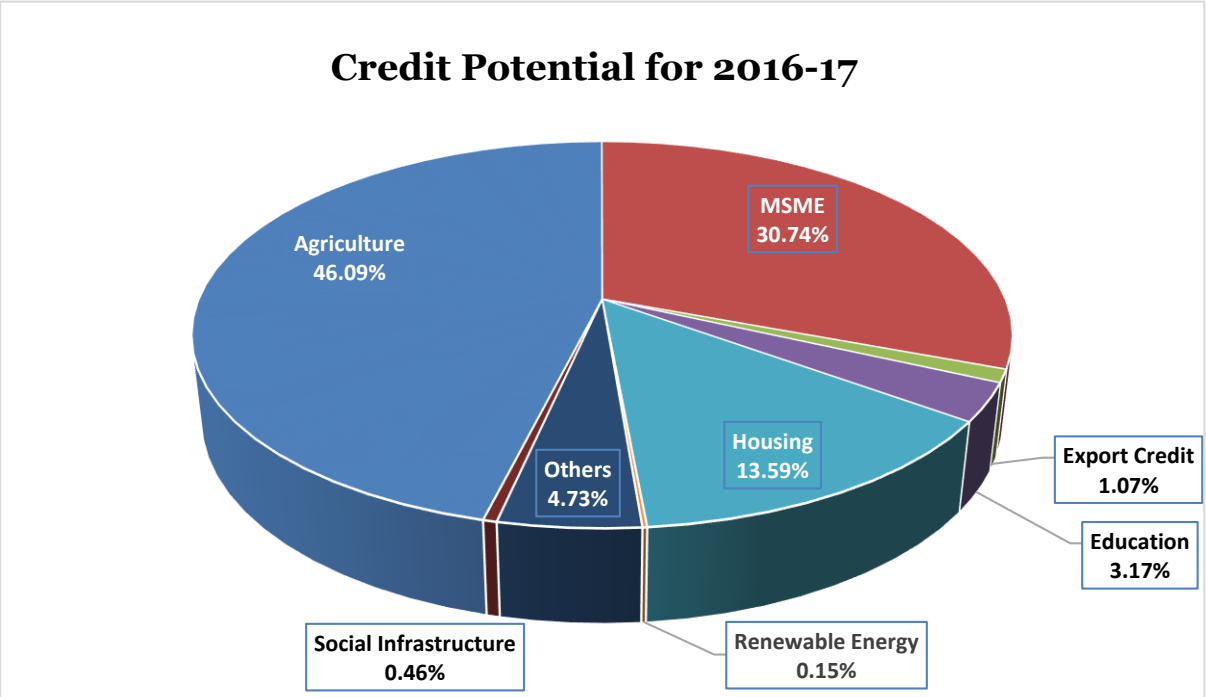
Sector wise projections of credit potential for 2016-17

Sr. No	Sector	Estimated Credit Potential (₹crore)
I	**Credit Potential for Agriculture**	
A	**Farm Credit**	
i	Crop Production, Maintenance and Marketing	38798.00
ii	Water Resources	871.46
iii	Farm Mechanization	742.74
iv	Plantation and Horticulture (Including sericulture)	5045.95
v	Forestry and Waste Land Development	171.44
vi	Animal Husbandry - Dairy	2034.87
vii	Animal Husbandry - Poultry	460.77
viii	Animal Husbandry - Sheep, Goat, Piggery, etc	550.68
ix	Fisheries (Marine, Inland, Brackish water)	489.05
x	Others - Bullock, Bullock cart, etc.	9.82
	Sub Total	**49174.79**
B	**Agriculture Infrastructure**	
i	Construction of storage facilities (Warehouses, Market yards, Godowns, Silos, Cold storage units/ Cold storage chains)	267.88
ii	Land development, Soil conservation, Watershed development	1315.71
iii	Others(Tissue culture, Agri bio-technology, Seed production, Bio-pesticides/ fertilizers, Vermi composting)	131.54
	Sub Total	**1715.13**
C	**Ancillary activities**	
i	Food and Agro processing	4003.52
ii	Others (Loans to Cooperative Societies of farmers for disposing of their produce, Agri Clinics/Agri Business Centres, Loans to PACS/FSS/LAMPS, Loans to MFIs for on lending)	137.43
	Sub Total	**4140.95**
	Total Agriculture	**55030.87**
II	**Micro, Small and Medium Enterprises**	
i	MSME - Working capital	**8034.00**
ii	MSME - Investment credit	**28669.89**
	Total MSME	**36703.88**
III	Export Credit	**1278.98**
IV	Education	**3786.63**
V	Housing	**16220.33**
VI	Renewable Energy	**183.70**
VII	Others (Loans to SHGs/JLGs, loans to distressed persons to pre-pay non-institutional lenders, PMJDY, loans to state sponsored organisations for SC/ST)	**5643.54**
VIII	Social Infrastructure involving bank credit	**544.02**
	Total Priority Sector	**119391.95**

Broad sector-wise projections of credit potential for 2016-17

Sr. No.	Particulars	PLP Projections 2016-17 (₹crore)
I	Agriculture	
A	Farm Credit	
i	Crop Production, Maintenance and Marketing	38798.00
ii	Term Loan for agriculture and allied activities	10376.79
	Sub Total	49174.79
B	Agriculture Infrastructure	1715.13
C	Ancillary activities	4140.95
	Credit Potential for Agriculture (A+B+C)	55030.87
II	Micro, Small and Medium Enterprises	36703.88
III	Export Credit	1278.98
IV	Education	3786.63
V	Housing	16220.33
VI	Renewable Energy	183.70
VII	Others	5643.54
VIII	Social Infrastructure involving bank credit	544.02
	Total Priority Sector (I to VIII)	**119391.95**



Executive Summary

NABARD, as the apex developmental financial institution, is closely associated in the decentralized planning process with the preparation of individual district-wise potential based credit plans and the combined State level plan on an annual basis. At the state level, 'State Focus Paper' is prepared which presents an aggregation of all the district level projections made in the Potential Linked Plans (PLPs). The basic objective of such planning exercise is to assess the credit potential keeping in view the sector specific physical potential, infrastructure support, forward and backward linkages, local skill, natural resources, and credit absorption capacity of the sector. The credit projections made earlier in the Base State Credit Plan(2012-17) have been revised and updated by factoring in the changes in the socio economic conditions, change in priorities, policies of the GoI, State Govt. and the RBI. The State Focus Paper 2016-17 indicates an exploitable credit potential of ₹.1,19,392 crore towards priority sector lending by banks in the State, which is an increase of 11% over the previous year at ₹.1,07,833 crore.

Keeping in view the importance of capital formation in enhancing production and productivity of the agriculture sector, the State Focus Paper for 2016-17 has adopted the theme ***'Accelerating the Pace of Capital Formation in Agriculture and Allied Sector in Kerala'.***

State Profile

Kerala State, situated at the Southern tip of India has a total geographical area of 38.86 lakh ha, constituting 1.2 per cent of area of the country and is endowed with abundant natural and human resources. However, it is dependent on the rest of India (and abroad) for food, fuel, basic industrial goods, a variety of consumer goods and also migrant labour from other states.

The GSDP of the State for the year 2013-14, has grown at the rate of 6,27% over the previous year 2012-13 at constant price (Base year 2004-05) which is more than the GDP growth rate of the country during the corresponding period which is estimated at 4,47%. At the disaggregated level, at constant prices, the tertiary sector contributes 71% of the total GSDP with agriculture contributing only 9.17%.

As per the estimates of the Planning Commission, in 2011-12, Kerala emerged as the Second Best State in terms of lower poverty rates, next only to Goa. As per the report of "Expert Group to review the methodology for measurement of poverty", headed by Dr. C. Rangarajan, 3.8 million people were below poverty line (2.6 million urban and 1.2 rural). However, inequality between regions and communities within Kerala still exist due to various socio economic factors. As per the NSSO estimates, the per capita calorie intake in the State of 1964 kilo calories is below the National average of 2020 kilo calories.

The agricultural system in Kerala is unique and distinct from other states in terms of land utilization and cropping pattern. Kerala produces 97% of national output of pepper and accounts for 85% of the area under natural rubber in the country. Coconut, tea, coffee, cashew, and spices including cardamom, vanilla, cinnamon and nutmeg are the other major agricultural commodities.

There has been continuous decline in the average size of land holding indicating fragmentation of holdings. The predominance of small and marginal holdings increases the vulnerability of farmers to market forces and makes their operations unviable. This issue needs specific focus and attention of the policy makers. The falling rubber price has had a serious impact on the lives of the small and marginal farmers cultivating rubber.

Banking Profile

The banking network in the State, as on 31 March 2015, comprised 44 Commercial Banks (27 Public Sector Commercial Banks and 17 Private Sector Commercial Banks), one RRB, Kerala State Cooperative Bank (KSCB) with 14 affiliated District Cooperative Banks (DCBs), 1638 Primary Agriculture Co-operative Societies (PACS) and Kerala State Agriculture and Rural Development Bank with 44 Primary Co-operative Agriculture and Rural Development Banks (PCARDBs). Canara Bank is the Convenor of the State Level Bankers' Committee in the State.

Banking services in the State are provided through a network of 8556 branches (5420 branches of Commercial Banks, 565 branches of RRB and 2551 Branches in Co-operative sector) with per branch population of 4828 persons as against all India average of 11000. Kerala accounts for 5.0% of the total no. of bank offices, 3.53 % of the total deposits and 3.15% of the total advances of the country.

Some of the major issues facing the sector are the declining market share of the agriculture term loans in the total loans to agriculture, the predominance of agricultural gold loans in the loans to agriculture and the technological and administrative weaknesses of the Cooperative credit structure.

Government of India, Government of Kerala and NABARD have designed and have been implementing various schemes like Interest Subvention Scheme, Prompt repayment incentive scheme, Interest subvention for loans against Negotiable Warehouse Receipts, Long Term Rural Credit Fund and Credit linked subsidy schemes to promote investment in agriculture.

Agriculture in Kerala

Agriculture is important to Kerala's economy as approximately one fifth of the workforce is in the primary sector, directly dependent on agriculture and allied services. It also forms the resource base for a number agro based industries and agro services. Agriculture in Kerala is distinct from that of the rest of India in terms of cropping pattern as 90% of the State's Gross Cropped Area constitutes Plantation and Horticulture crops. There is a discernible shift in the cropping pattern towards cash crops especially rubber.

Increased level of capital formation in agriculture and allied sector of the state is hampered by limited public investment. Further, private investment supported long term capital assets have also not been up to the desired level. The share of Gross Fixed Capital (GFCF) in agriculture GDP remained much lower than the corresponding all India figures (Kerala 5.3% as against all India figure of 17% in 2009-10). Traditionally, agriculture is starved of investment resources because private capital is deterred by the risk involved in agriculture and institutional investment has also been less. As a major portion of bank finance for agriculture is directed towards crop loans. Bankers need to encourage and provide agricultural term loans for agriculture and allied activities to farmers to boost capital formation in agriculture.

Keeping in view the meagre land holdings, emphasis on high-tech agriculture holds the key to increased production and productivity and needs to be encouraged. In tandem with this, appropriate legislative mechanism may be evolved for promoting lease of agriculture land / fallow land to facilitate credit flow for farming. Digitisation of land records facilitating easy transfer of usage rights and ownership rights will also be give a fillip to the agricultural sector.

The change in approach of policy from sustenance to value chain based agri business approach is the need of the hour to offset the impact of global competitiveness faced by major crops and to cater to the increased income aspiration of young/ new farmers. This value chain approach is reflected in the programmes of the GoI/ GOK and specific programmes like livestock mission, increase in productivity, promoting sustainable agriculture, protein supplements and the emphasis on promoting producer collectives are reflections of such policy shift. Kerala State is set to become an organic state by 2016 and policy inputs and guidance is necessary to make this a reality. Bio- pharmacy outlets may be set-up in the State to ensure supply of organic inputs to the farmers and to realize the dream of making Kerala a fully organic agriculture state by 2016.

Micro, Small and Medium Enterprises

MSME sector, in addition to its significant contribution to the National economy, gives enormous scope for generation of employment in rural areas, minimizes migration of rural people to cities/urban areas and also reduces the pressure of population on agriculture. In Kerala, MSME sector is fast emerging into a major income generating and employment providing sector. As per the MSME survey & Quick Results of the 4th census, Kerala has 234251 units which accounts for 5.62% of the total MSME enterprises in India. The sector is providing gainful employment to more than 11 lakh people. The traditional strong holds of the state has been – Food Processing, Handlooms & Textiles, Coir, Cashew and Rubber industries, in recent times Footwear and Light Engineering industry has been added to this list.

Major factors impeding the growth of the sector is limited to access to formal financial sector and reliance on informal resources, infrastructure bottlenecks, high labour cost, perceived labour unrest and excessive bureaucratisation and over politicisation of the society. The gain in market share and quantum jump in production and productivity achieved by Light engineering, Rubber, PU footwear manufacturers and IT enterprises in the state should be showcased and nurtured to dispel the negative notions and doubts persisting about the viability and industrial climate in the state. The "made in India" brand to be promoted as an umbrella brand for all sectors

A sizeable number of SMEs in the manufacturing sector are located in developmental areas/parks and small industrial parks. Upgradation of infrastructure in these clusters needs to be undertaken. Setting up of an "MSME Equity participation Fund" for encouraging start-ups to be created by the State Industrial Development Corporation and State Financial Corporation. Exemption for payment of EMD and security deposit and price preference to MSMEs needs to be extended for a period of 5 years. Industrial Adalats at State/District levels may be undertaken regularly with a view to understanding the problems of MSMEs and settle pending issues. Encouraging bio-technology, nanotechnology and life sciences which have tremendous potential will help the sector. Small garment making units may be organised into garment clusters by providing design support, cluster brands, access to finance and establishing market linkages.

Financial Sector Development

SHG Bank Linkage Programme

Kerala is one of the forerunner in the SHG movement in the Country. However, regrouping of members, multiple membership, variations in the number of members in each group etc. are causes of concern as multiple loans increases indebtedness of the individual affecting the repayment to the group/ institutions. With the SHG movement reaching critical stage, the graduation of SHGs to income generating micro enterprises is the next logical step. Some of the major issues being faced by the SHG movement are increasing NPAs under lending to SHGs, multiple membership in different SHGs. Government should also extend stamp duty waiver to all the SHGs and should not limited to only registered SHGs.

Joint Liability Groups

Joint Liability Group (JLG) is an informal group comprising of 4-10 individuals coming together to engage in a similar type of economic activity in the Agriculture, Allied or non-farm Sector. JLG members are mostly members of SHGs who continue to retain their membership and activities as the members of their SHG and the JLG. NABARD in association with Kudumbashree prepared a JLG assessment tool to facilitate bankers to assess the credit worthiness of a JLG and provide credit linkage to the groups.

Farmers Club

The Farmers Clubs are envisaged as peer learning groups facilitating transfer of technology, knowledge and act as an agency to provide forward and backward linkages. In Kerala, there are about 2200 farmers clubs and 10 federations of farmer clubs. These clubs are provided assistance for capacity building of members like, exposure visits, skill based training etc. These clubs are expected to federate themselves into umbrella organizations and graduate to play the role of Producer Organizations. NABARD continues to support nurturing and handholding of SHGs, JLGs, and their linkage to banks, skill building and entrepreneurship capabilities among the members of JLGs / SHGs.

Financial Inclusion

Government of India, RBI and NABARD launched programmes to promote Financial Inclusion. With the persistent efforts of Bankers and the State Government, all the unbanked villages in Kerala have been brought under the purview of banking operation. Inclusion becomes meaningful only when the usage of the system reaches a higher level. Usage could increase with appropriate products and services which are relevant to the people. With the continued efforts Financial Literacy Centres (FLC) were established in all the 152 blocks of the State.

Pradhan Mantri Jan DhanYojana (PMJDY)

Pradhan Mantri Jan Dhan Yojana is a scheme for comprehensive financial inclusion launched by the Hon'ble Prime Minister of India. PMJDY focuses on coverage of households as against the earlier plan which focused on coverage of villages.Kerala had become the first State in the country

to have 100 per cent coverage of all households with bank accounts under the Pradhan Mantri Jan DhanYojana (PMJDY) in a record two-and-a-half months on 11 November 2014.

The three social security schemes, viz., Pradhan Mantri Jeevan Jyoti BhimaYojana (PMJJBY), Pradhan Mantri Suraksha BhimaYojana (PMSBY) and Atal Pension Yojana (APY) launched on 9th May 2015 has received good response. As on 30 Nov 2015, 45 lakh accounts have been opened under insurance schemes of which 3.1 lakh accounts have been opened by Cooperative Banks and around 5 lakh accounts by Kerala Gramin Bank.

Infrastructure

The interrelatedness of infrastructure and inclusive growth is the pervading theme of this paper. Augmenting rural infrastructure is imperative to create effective demand for agricultural and rural credit. The sectors which demand infrastructural development on a priority basis include animal husbandry, fisheries, irrigation (both surface water and ground water based), flood control, connectivity - roads and bridges, power generation and distribution, education, rural sanitation, health, agriculture research, extension services, rural market yards, warehousing, food processing, drinking water, information technology, etc.

Lack of borrowing power of the state government due to weak fiscal situation is a major constraint in taking up big projects. The State Government may also explore the possibilities to leverage the funds available under Warehousing Infrastructure Fund and Food Processing Fund with NABARD to create suitable infrastructure.

Sector- wise analysis

Short term credit for Agriculture Production

The credit potential for 2016-17 under farm credit for production, marketing and food security is ₹.38798 crore, which represents 32% of the overall projections and 70% of the total projection for agriculture. This includes a term loan component of projected towards repair and maintenance of farm assets as per the revised KCC norms. The projection has been estimated on the basis of area under cultivation, additional area that can be brought under cultivation and realistic Scales of Finance. Increasing credit flow to the sector without commensurate increase in production / productivity of food crops are areas of concern.

The area under paddy has shown a slight increase during the year and vegetable cultivation is gaining popularity among the farmers. The paddy fields offer ideal condition for pulses cultivation and can be taken up by farmers as second crop in view of high market price and soil enriching character of the crop. Leased land agriculture is being done on large scale by JLG groups and individual farmers, but in the absence of legal provision for leasing of agriculture land, the lessees are facing issues of credit linkage and risk coverage as the Kerala Land Reforms Act, prohibits leasing of agriculture land. The Government should initiate steps to provide a legal backing for transfer of usage right of land to lessees and protecting the ownership of the land. The digitization of land records could be one solution for separation of usage rights from the ownership rights. The Karanataka model of digitization of land records could be considered for replication by the Government of Kerala.

Minor Irrigation

The total projection for Minor Irrigation for 2016-17 is ₹.871.46 crore. The need of the hour is conservation of water and rain water harvesting. As per the latest ground water estimation carried out by the State Ground Water Department and Central Ground Water Board, GoI, the overall stage of Ground Water Development of the State is 47 per cent. The irrigated area at nearly 18 per cent is far below the all India share of 45.3 per cent. Among the various crops, Coconut, whose productivity is highly linked with irrigation, has only 19.5 per cent of its area under irrigation. Also, predominant annual crops like spices and tubers also fall under the category of 'under-irrigated' crops. Over the years, area under irrigation has not improved in the state. The penetration of Micro irrigation (MIS) at 7% is below the national average requires the attention of GOK. The viability of inter sub basin water transfer during monsoon season to rain shadow regions to augment the ground water resource of the area should be worked out as a long term solution to the water problem of Palakkad and Kasargod districts.

Farm Mechanization

The credit plan has estimated ₹.742.74 crore as potential for various farm mechanization programmes. With the typical labour scenario prevalent in Kerala, selective mechanisation can help the farmer in getting better returns. Potential exists for tractors, power tillers, combine harvesters, seed drills, transplanters, small farm friendly equipments and various other plantation oriented equipments in the State. The mechanization is skewed towards land preparation. There is need to introduce complete crop specific machination solution to overcome the acute labour shortage problem.

There is an urgent need for developing and popularising equipment's like coconut climbers and mechanisation compatible with the terrain, cropping pattern and land holding pattern of Kerala.

Forestry and Wasteland Development

The credit plan has estimated ₹.171.44 crore as potential for forestry and wasteland development programmes. Kerala has been blessed with a very good forest cover. As per the State of Forest report 2013, the forest cover is 17922 sq. km constituting 46.12 % of geographical area of the State. The forest area as recorded in Government record is 10820 sq. km. There has been an increase of 622 sq km in the forest cover compared to 2011 survey. Community based approach to forest management, farm forestry and social forestry are some of the approaches to forest protection and management. 13 integrated Tribal Development projects covering over 5000 tribal families spread across 04 districts viz. Wayanad, Idukki, Palakkad & Kannur, involving grant assistance to the tune of 2430.00 lakh implemented by NABARD under TDF fund has showcased a sustainable model for tribal development and forest management, the approach has potential for up scaling.

Plantation and Horticulture

Plantation and Horticulture crops have a major stake in Kerala's economy as around 90 per cent of the net cropped area is under these crops. The potential assessed under Plantation and Horticulture for the year 2016-17 is ₹.5045.95 crore.

The major crops in Kerala i.e. Rubber and Coconut are passing through a tough time on account of falling prices coupled with high labour cost making cultivation unviable.

The spurt in the formation of coconut farmers producer companies and promotion of Neera as a nonalcoholic drink has given renewed enthusiasm and hope to coconut farmers. The promotion of Neera as a health drink is an arduous task, the job of brand building and promotion in markets outside Kerala cannot be left to Producer companies alone, government along with CDB has to think of setting an exclusive company under PPP arrangement for brand building and market promotion of Neera. The cultivation of tropical/ exotic fruits like Rambutan, Durian, etc. has emerged as a viable activity in Pathanamthitta; there is good scope for the cultivation of fruits in Pathanamthitta, Thrissur, Ernakulum and Kottayam districts.

Animal Husbandry

Majority of rural households depend on livestock farming for supplementary income in the State. Rearing livestock such as cows, buffaloes, goats, pigs, poultry etc., not only provides a subsidiary income to the families but also is a source of protein in the form of milk, eggs and meat. The potential estimated for the year 2016-17 for Animal Husbandry Sector as a whole is ₹ 3074 crore, out of which the estimate for dairy development is ₹2034.87 crore, poultry development is ₹550.68 crore and sheep, goat & piggery sector is ₹ 489 crore. The rearing of milch animals, backyard poultry farming, duck farming and stall fed goat rearing are suited to local conditions and have inherent advantages and needs to be promoted more vigorously.

Fisheries Development

The State of Kerala is endowed with abundant and productive riverine, lacustrine and marine fisheries resources, and the sector plays an important role in the economy of the state. Various initiatives by government have resulted in increased inland fish production. The potential assessed for the year 2016-17 is ₹.489 crore. Despite the inherent strengths, the potential available under this sector is not fully tapped and would require coordinated action among all the stakeholders. Hardly 25 per cent of the total 4 lakh hectares of rich inland water sources

supported fisheries activities now. The shortage of fish seeds and the lack of a uniform policy to use the water bodies for aquaculture hamper the development. The other major factor hampering the growth is acute manpower shortage. There appears to be an economic case for shifting/ redeploying a portion of marine fisher manpower to inland fishery. Technology upgradation for exploiting the enormous potential available in deep sea fishing especially for small fisher folk is an issue which needs attention.

Agriculture Infrastructure

Storage Godown & Market Yard

Lack of adequate storage facilities leads to distress sale of agricultural produce by the farmers since they do not have economic strength to retain the produce till the market prices become favourable. The infrastructure development for agricultural marketing is also necessary for providing facilities for grading, standardization and value addition which are critical to meet the international expectations. The implementation of the Food Security Act in the State would require creation of additional storage capacity at Taluk Levels to ensure smooth supply of food grains across the State through PDS. The uncertainty involved in the transfer of land for storage purposes or non-availability of land has been a major hurdle in creating the required capacity. Keeping all this view, the potential assessed for 2016-17 is ₹.267.88 crore.

Land Development

Out of the total geographical area of 38.86 lakh ha of the State, roughly 14.76 lakh ha is prone to soil erosion hazards. It is estimated that around 3.82 lakh ha area has been so far treated with soil and water conservation measures and about 5.25 lakh ha of land is classified as low-lying areas. The activities identified for land development are land reclamation, soil & water conservation measures, command area development, land levelling, terracing, contour bunding, farm bunding, farm ponds etc. Keeping all this in view, the potential assessed for the sector for 2016-17 is ₹1315.71 crore. The participatory approach, base level planning and ridge to valley treatment technique successfully adopted in NABARD Holistic Watershed Development Programme (NHWDP) watershed projects implemented in Wayanad, Palakkad and Kasargod under Prime Minister's special programme for distressed districts may be critically evaluated and positive features may be incorporated in watershed programmes being undertaken in the state.

Food Processing

Kerala offers vast scope for setting up of a variety of industrial units for undertaking agro processing/food/ fruit processing, developing dairy products besides manufacture of ayurvedic medicines. The sector is well developed as the State is accounting for 20% of the country's food exports. As per industry estimates, approximately ₹5,000 crore worth of processed food is exported from Kerala annually.

Agro-processing and value added product units are generally in the unorganized tiny sector, mainly in rural areas. A large number of food and fruit processing units are also functioning under the SHG/ Neighbourhood Groups of Kudumbasree. The rural based informal processing units are devoid of appropriate technology, processing standards, benefits of volume, standard packaging and market access. An agency with government support under public private partnership model (PPP) may be created for providing forward linkages, mainly marketing, brand building and quality control support to small producers.

The two new mega food parks coming up in the state under GOI scheme in Palakkad and Alappuzha is and expected to bring in additional investment to the tune of ₹ 1200 crore into the sector. Keeping all this view the potential assessed for 2016-17 is ₹ 4003.52 crore.

Micro, small and medium enterprises

In Kerala, MSME sector is fast emerging into a major income generating and employment providing sector for various social groups. As per the MSME survey & Quick Results of the 4th census, Kerala has 5.62% of the total MSME enterprises in India. The traditional strong holds of the state has been – Food Processing, Handlooms & Textiles, Coir, Cashew and Rubber industries. In recent times Footwear and Light Engineering industry have been added to this list. Kerala has comparative advantage in some knowledge intensive electronic and electrical components industries. Considering the infrastructure available, likely to be made available and

based on the discussions with the line departments, etc., the district wise credit potential estimated for the year 2016-17 at ₹ 36703.88 crore.

Export credit

As per the new Priority Sector norms of RBI, incremental export credit over the corresponding date of the preceding year, up to 2 percent of ANBC or credit equivalent amount of off-balance sheet exposure, whichever is higher, effective from April 1, 2015, subject to a sanctioned limit up to ₹25 crore per borrower to units having turnover of upto₹100 crore is eligible to be covered under Priority sector. The term 'export finance' refers to credit facilities and methods of payments at the pre-shipment and post-shipment stages. The Reserve Bank of India (RBI) provides refinance facilities to the commercial banks. The factors favoring export in Kerala are an all weather sea port at Kochi, 3 international airports, a proposed port at Vizhinjim, good connectivity by rail, road, water etc., proximity to trans national trade corridor, high literacy rate and sense of hygiene and good processing skills of labour. The major organizations available for furthering the cause of export in Kerala are Marine Products Export Dev. Authority [Kochi], Cashew Export Promotion Council [Kollam], Coir Board, Tea Auction facility, SEZ for export promotion, Industrial Parks set up by Govt., Food Park at Ernakulam & Pathanamthitta, Sea Food Park at Alappuzha, Spices Park at Idukki etc. Considering the above developments, the potential for export credit assessed for the year 2016-17 in Kerala State is ₹1278.98 Crore.

Education

The general education levels of the population are high in Kerala, compared to all-India levels. Per 1000 persons, 545 men and 509 women are educated up-to middle-school. Secondary and higher secondary school educated persons are 277 men and 271 women (per 1000). 92 men and 97 women were estimated to be graduates and above (per 1000). Kerala has a total of 17 universities and 1062 colleges. There are 34 colleges catering to per lakh students higher than the national average of 25 per lakh students. The Gross Enrolment Ratio (GER) in higher education (18-23 years age group) is 22.9, slightly higher than the national average of 21.1. The GER for females (26.9) is significantly higher than GER for males (18.9). The total population of students in the state in age group of 18 to 23 years as on 2012 was 31.39 lakh. Considering the above developments, the district wise credit potential for the year 2016-17 has been aggregated at ₹.3786.63 crore.

Housing

As per census 2011, the total number of houses in the state is 112.18 crore of which 58.57 lakh are in rural areas and 53.60 lakh are in urban areas. The overall housing availability is better in Kerala compared to all India average. The quality of housing as per the materials used for roof, walls and flooring, Kerala fares better than the national average since 48 per cent of the houses use concrete as the material for roofs versus 29.1 per cent in India. 46.5 per cent of households in India use mud and 76 % of households lived in permanent houses. The housing shortage in Kerala is estimated at 2.64 lakh houses. In the revised priority sector guidelines the loan limit and total unit cost under housing have been enhanced to ₹ 28.00 & 35.00 lakh and ₹ 20.00 & 25.00 lakh respectively for metropolitan and other centers. The State Housing Policy 2011 aims to eradicate landlessness and houseless people during the 12th Year Plan by creating housing stock of 12 lakhs units. The State has planned to undertake the construction of 12 lakh housing units, of which around sixty percent is meant for the economically weaker sections of the society. Considering the above developments, the credit potential for the year 2016-17 has been assessed at ₹.16220.32 crore.

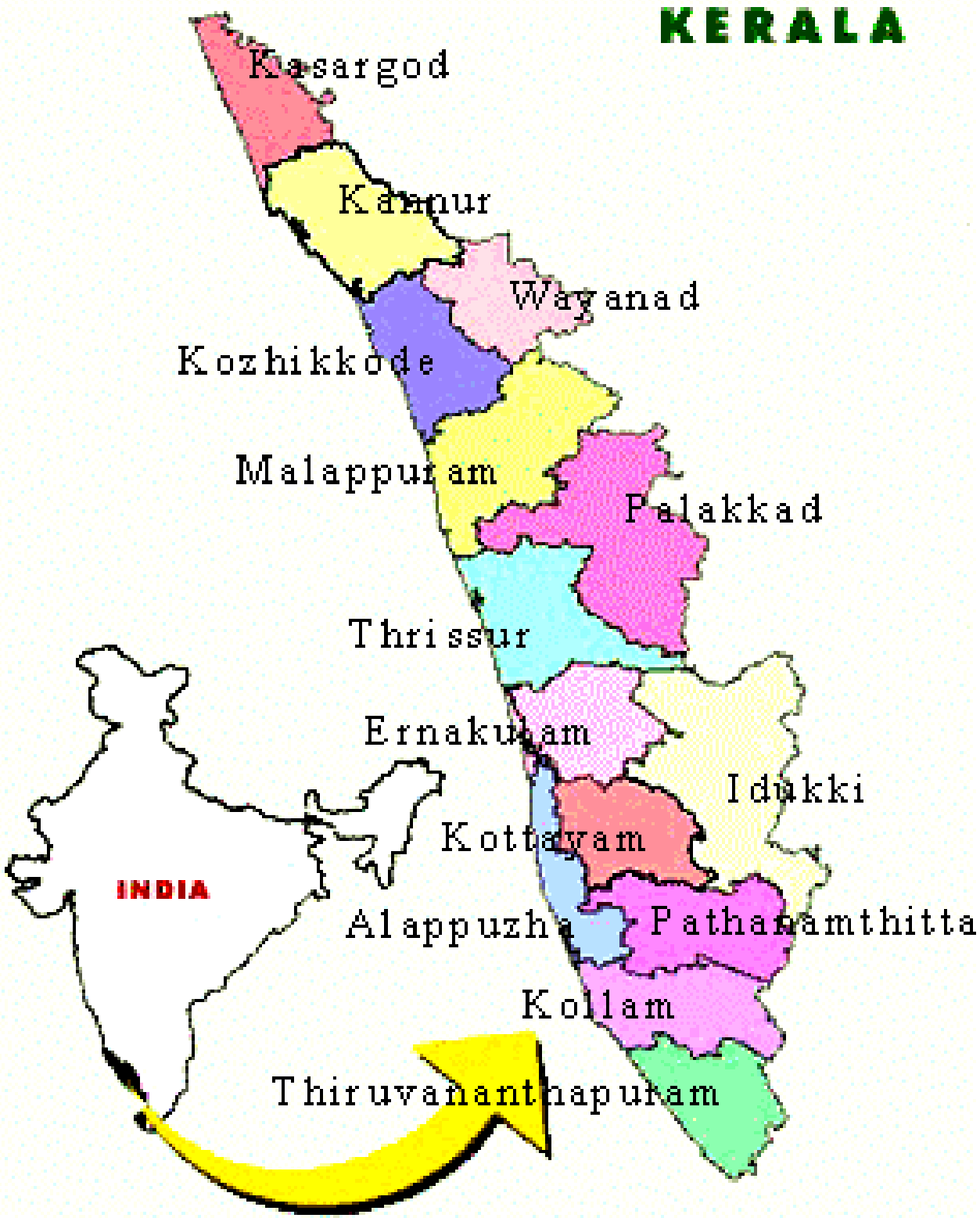
Renewable Energy Sources

Persistent efforts to encourage the use of non-renewable energy resources by Government of India steered by the Ministry of New & Renewable Energy and increased awareness about the financial incentives is expected to boost the growth of this sector. Taking into account infrastructure available/ to be made available the credit potential assessed for year 2016-17 is ₹.183.70 crore.

Area Development Plan / Schemes (ADP)

With a view to arresting declining capital formation in agriculture and the downward trend in the disbursement under investment credit portfolio, NABARD has started formulation and implementation of Area Based Scheme with close coordination and hand holding support of government line departments and banks. For the year 2016-17, Area based schemes amounting to TFO of ₹.140 crores have been formulated in all the districts of the State. The ADPs have been formulated under diary, goatery, duck rearing and nursery, backyard poultry, and high tech farming. Lead Bank may facilitate formulation of bank-wise programme for the schemes. Line Depts. (Dept. of DD and Dept. of AH) may identify potential farmers/entrepreneurs and sponsor to banks. They may also provide other linkage support services. MILMA may be associated for marketing support for milk. Subsidy available from various sources, if any, may be leveraged. Banks may simplify the procedure/documentation for lending. Kudumbashree Mission may promote JLGs for the identified activities and sponsor to banks. Panchayats may help in identifying beneficiaries, popularizing the schemes and also enable implementation and monitoring.

MAP OF KERALA- DISTRICT-WISE



CHAPTER 1
STATE PROFILE

Kerala State, situated in the Southern tip of India has a total geographical area of 38.86 lakh ha, constituting 1.2 per cent of the geographical area of the country and is endowed with abundant natural and human resources. The State is bordered by the Arabian Sea to the west and the Western Ghats to the east. Kerala lies within east longitudes 74 degree 52' and 77 degree 22' and north latitudes 8 degree 18' and 12 degree 48'. The State has 14 districts, 75 taluks, 152 development blocks, 1070 Grama panchayats, 1453 revenue villages, 87 Municipalities and 6 Corporations.

Kerala has a lot to offer to the rest of the country in terms of exceptional human capital formation, high environmental standards, remarkable tourist sites, substantial inflow of remittance from abroad, good decentralized governance and so on. However, it is still highly dependent on the rest of India (and abroad) for food, fuel, basic industrial goods, a variety of consumer goods and even on migrant labour from other states.

Table 1.1-Selected indicators of the demographic profile of the State

Sl No	Particulars	1961	1971	1981	1991	2001	2011*
1	Population size (in crore)	1.69	2.13	2.54	2.91	3.18	3.33
2	Average annual growth rate (%)	2.48	2.67	1.92	1.43	0.94	0.47
3	Kerala population as a % of All-India	3.85	3.89	3.72	3.45	3.10	2.80
4	Female population per 1000 male population	1022	1016	1034	1036	1058	1084
5	Density of population per Sq km.	435	549	654	749	819	859
6	Literacy percentage	56.85	60.42	70.42	89.81	90.92	93.91
7	Rural population as a % of total population	84.89	83.76	81.22	73.61	74.05	52.28
8	District with Highest population (2011 Census)	Malappuram - 41.1 lakh Thiruvananthapuram - 33.07 lakh Ernakulam - 32.80 lakh					
9	District with Lowest population (2011 Census)	Wayanad – 8.17 lakh, Idukki - 11.07 lakh Pathanamthitta – 11.95 lakh					

**Source: Census data 2011*

1.1 Physical features

Geographically, Kerala roughly divides itself into three climatically distinct regions. These include the eastern highlands, the central midlands, and the western lowlands (coastal plains).The analysis of agro ecology of Kerala based primarily on climate, geomorphology, land use and soil variability results into its delineation of five agro ecological zones and twenty three widely varying agro ecological units with significant yield gaps.

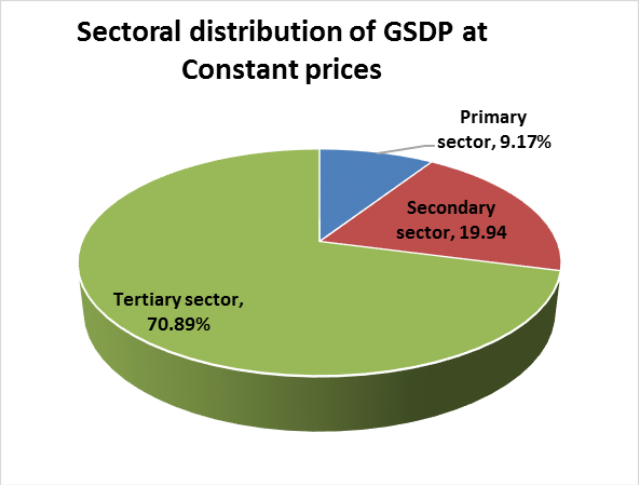
1.2 Economy

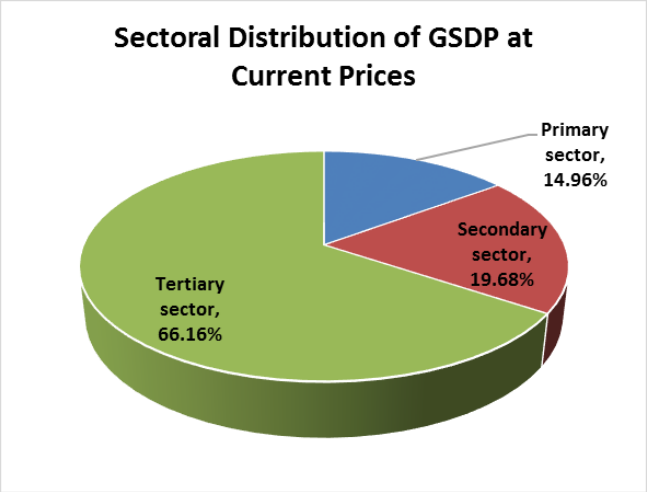
Service industry dominates the Kerala economy. Kerala leads many other Indian states and territories in terms of per capita GSDP (₹.103820, at current prices and ₹.58961 at constant prices (2004-05) (Source: economic review 2014) and economic productivity, and Kerala's Human Development Index is the best in India.

Table 1.2 Gross Domestic Product (at factor cost) - at constant prices (Base year 2004-05)

Parameter	Year					
	2008-09	2009-10	2010-11	2011-12	2012-13(P)	2013-14(Q)
GSDP of Kerala (₹. Crore)	162659	177571	189851	204957	212859	226208
GDP of All India (₹. Crore)	4158676	4516071	4918533	5247530	5482111	5741791
% contribution of Kerala to All India GDP	3.91	3.93	3.86	3.91	3.88	3.93
Per Capita (GSDP) of Kerala in (₹.)	47900	51897	55082	59985	63227	66862
India - GDP Growth rate over previous year	36037	98599	41472	43657	45046	45046
Growth rate of Kerala over previous years (%)	5.56	9.17	6.92	7.96	5.92	6.27
Growth rate of All India over previous years (%)	6.72	8.59	8.91	6.69	4.47	4.47

Graph 1.1 - Sectoral distribution of GSDP





Both GSDP growth and per capita income growth in Kerala are at a level higher than that of All India as a whole. As may be observed from the above graph, the growth is driven primarily by tertiary sector. The contribution of agriculture to the GSDP has been declining over the decades.

1.3 Poverty and Inequality

1.3.1 As per the estimates of the Planning Commission, in 2011-12 Kerala has emerged as the second best State in terms of low poverty rates next only to Goa. One of the main contributors to this is the Kerala Model of development with emphasis on education, health and creation of social infrastructure and increased migration and consequent inflow of remittances and the absorption of the labour by the tertiary sector.

1.3.2 As per the report of "Expert Group to review the methodology for measurement of poverty", headed by Dr. C. Rangarajan, 3.8 million people were below poverty line (2.6 million urban and 1.2 rural). However, inequality between regions and communities within Kerala exist due to various socio economic factors.

1.3.3 Kerala is ranked 2nd next to Punjab, indicating relatively low prevalence of hunger in the State (Global Hunger Index 2008). However, as per the NSSO estimates, the per capita calorie intake is below the National average (1964 kilo calories for State as against 2020 kilo calories for the Country as a whole)

1.4 Land use pattern in Kerala

The net sown area in the State, in 2013-14 was 20.50 lakh ha, while the gross cropped area was 26.16 lakh ha. and the cropping intensity was 127%. The land use pattern in the state is given in the adjoining graph

Graph 1.2 - Land use pattern in Kerala

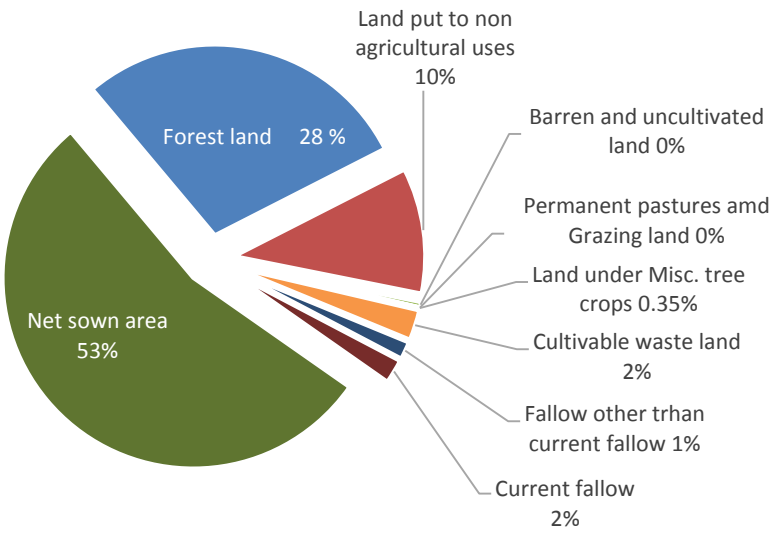


Table 1.3 – Land Utilization Pattern in Kerala('000 ha

Category	1975-76	2003-04	2009-10	2010-11	2011-12	2012-13	2013-14
Total Geographical Area	**3885**	**3885**	**3885**	**3885**	**3886**	**3886**	**3886**
Forest	**1082**	**1082**	**1082**	**1082**	**1082**	**1082**	**1082**
Land put to non-agricultural use	**259**	**388**	**372**	**384**	**400**	**403**	**405**
Barren & uncultivated land	**78**	**30**	**22**	**19**	**18**	**16**	**14**
Permanent Pastures & Grazing Land	**20**	**0.5**	**0.22**	**0.15**	**1**	**0.12**	**0.8**
Land under Misc. Tree Crops	**84**	**12**	**4.4**	**3.7**	**3.4**	**2.8**	**2.6**
Cultivable Waste	**113**	**71**	**98**	**92**	**95**	**97**	**97**
Fallow other than current fallow	**23**	**39**	**45**	**52**	**58**	**56**	**57**
Current Fallow	**37**	**71**	**77**	**76**	**77**	**77**	**71**
Net Area Sown	**2189**	**2194**	**2078**	**2072**	**2041**	**2048**	**2050**
Total Cropped Area	**2981**	**2976**	**2669**	**2647**	**2662**	**2592**	**2616**
Area sown more than once	**792**	**783**	**590**	**576**	**621**	**544**	**565**
Cropping Intensity	**136.2**	**135.6**	**128**	**128**	**130**	**127**	**127**

(Source: State Development Report 2008 and Economic Review – 2014)

Table 1.4 - Operational Holdings

Sr. No	Size of holding	1966-67		1976-77		1990-91		2000-01		2010-11	
		No. (%)	Avg. Size (ha)	No. (%)	Avg. Size (ha)	No. (%)	Avg. Size (ha)	No. (%)	Avg. Size (ha)	No. (%)	Avg. Size (ha)
1	Marginal (< 1 ha)	81.80	0.28	87.10	0.24	92.60	0.18	95.17	0.14	96.32	0.13
2	Small (1 ha to 2 ha)	0.10	1.43	8.40	1.37	5.20	1.36	3.41	1.32	2.34	1.57
3	Semi medium (2 ha to 4 ha)	5.60	2.79	3.40	2.70	1.80	2.60	1.14	0.12	0.83	2.79
4	Medium (4 ha to 10 ha)	2.10	5.60	1.00	5.49	0.40	5.27	0.24	0.05	0.18	5.33
5	Large (> 10 ha)	0.50	19.86	0.10	19.06	0.06	55.74	0.04	40.93	0.03	64.58
	All		**0.74**		**0.49**		**0.33**		**0.27**		**0.22**

(Source: State Development Report and Economic Review – 2014)

It may be observed that there has been continuous decline in the average size of land holding which indicates fragmentation of holdings. The predominance of small and marginal holdings increases the vulnerability of farmers. This issue needs specific focus and attention of the policy makers.

Table 1.5 - Profile of workers population in Kerala

Particulars	1981	1991	2001	2011
No. of main workers ('000)	6790.10	8299.40	8237.00	8236.77
Share of Total population (%)	26.68	28.53	25.87	24.67
No. of cultivators('000)	887.50	1015.80	586.50	740.40
As share of main workers (%)	13.07	12.24	7.12	7.20
No. of Agricultural labour ('000)	1916.80	2119.70	1021.40	1653.60
As share of main workers (%)	28.23	25.54	12.40	16.10

1.5 Agriculture

The agricultural system in Kerala is unique and distinct from other states in terms of land utilization and cropping pattern. Kerala produces 97% of national output of pepper and accounts for 85% of the area under natural rubber in the country. Coconut, tea, coffee, cashew, and spices including cardamom, vanilla, cinnamon, and nutmeg comprise a critical agricultural sector. Kerala is one of those states in India where land resources are put to more intensive use than anywhere else, mainly because of low percapita availability of land (0.22 ha) in the State.Data on land use pattern, production and productivity of major crops etc. are given in the State profile appended in the next page. The contribution of agriculture in the GSDP of the state has been steadily declining from 36.99% in 1980-81 to 9.17% in 2013-14 (At constant prices).

1.6 Legal Framework for Land rights, computerization of land records & online Access, Collaterals, Revenue Recovery Act

Status of Tenants/Share croppers - Rights of tenants and share croppers

- The Kerala Land Reforms Act, 1963 legally prohibits sub-letting of farm land for all categories of persons. Since tenancy laws do not recognize share cropping, there is no rental regulation nor any compensation given to share croppers for crop loss.
- Due to lack of formal arrangements regarding tenure and other terms of tenancy, the land owners prefer to keep their land fallow and in case of informal tenancy the tenant farmer/share croppers have little incentive for investing for improving productivity.
- GOK has permitted leasing to agriculture land to NHG group of Kudumbashree mission for collective farming, this has shown encouraging results in land utilization.
- There is a need to distinguish between ownership rights and usage rights and an appropriate legal mechanism to part with usage rights without losing ownership right might go a long way in making efficient mutilation of unused arable land.
- The socio political climate to encourage recovery of loans should be emphasized
- There is an urgent need to adopt digitization of land records.

State Profile

State - KERALA

1. PHYSICAL & ADMINISTRATIVE FEATURES

Total Geographical Area (ha)	3886287
No. of Sub Divisions	14
No. of Blocks	152
No. of Villages (Inhabited)	1452
No. of Panchayats	978

2. SOIL & CLIMATE

Agro-climatic Zone	Western Plains and Ghat Region, Coastal Midland Region Zone 12
Climate	Dry, sub-humid and per humid
Soil Type	Laterite,red loamy, coastal alluvium

3. LAND UTILISATION ['000 ha]

Total Area Reported	3886287
Forest Land	1081509
Land put to non Agricultural uses	405836
Barren and uncultivable land	13655
Permanent Pastures and Grazing land	8
Land under Misc tree crops	2521
Cultivable waste	97069
Fallow other than current fallow	57346
Current fallow	70976
Net area sown	2050994
Total or Gross cropped area	2616670
Cropping Inensity [GCA/NSA]	127

4. RAINFALL & GROUND WATER

Rainfall [in mm]	**Normal**	**Actual**	**2011-12**	**2012-13**	**2013-14**
	3613		2939.0	2706.0	2923.4
	Variation from Normal				
Availability of Ground Water [MCM] (March 2011)	Net annual recharge		Net annual draft		Balance
	6074		2840		3070

5. DISTRIBUTION OF LAND HOLDING (2010-11)

Classification of Holding	Holding (in '000)		Area (in '000 ha)	
	Nos.	% to Total	ha.	% to Total
<= 1 ha	6580	96.3	886	58.6
>1 to <=2 ha	180	2.6	282	18.7
>2 ha to <=4 ha	57	0.8	159	10.5
>4 to < = 10	12	0.2	64	4.2
10 and above	2	0.0	120	7.9
Total	6831	100	1511	100

6. WORKERS PROFILE [in lakhs]

Cultivators	7.4
Of the above, Small /Marginal Farmers	
Agricultural Labourers	16.5
Workers engaged in Household Industries	3.6
Workers engaged in Allied Agro-activities	
Other workers	75.3

7. DEMOGRAPHIC PROFILE [in lakhs]

Category	**Total**	**Male**	**Female**	**Rural**	**Urban**
Population	333.9	160.2	173.7	174.6	159.3
Scheduled Caste	31.2	NA	NA	NA	NA
Scheduled Tribe	3.6	NA	NA	NA	NA
Literate	313.5	NA	NA	NA	NA
BPL	41.0	NA	NA	21.0	20.1

8. HOUSEHOLDS [in No.]

Total Households	1,12,17,853
Rural Households	58,57,785
BPL Households	32,29,823

9. HOUSEHOLD AMENITIES [Nos. in '000 Households]

Having brick/stone/concrete houses	NA	Having electricity supply	NA
Having source of drinking water	NA	Having independent toilets	NA
Having access to banking services	NA	Having radio/TV sets	NA

10. VILLAGE-LEVEL INFRASTRUCTURE [Nos]

Villages Electrified	1452
Villages having Agriculture Power Supply	
Villages having Post Offices	1452
Villages having Banking Facilities	1452
Villages having Primary Schools	1452
Villages having Primary Health Centres	1452
Villages having Potable Water Supply	
Villages connected with Paved Approach Roads	1452

11. INFRASTRUCTURE RELATING TO HEALTH & SANITATION [Nos]

Anganwadis	32268	Dispensaries	25
Primary Health Centres	943	Hospitals	2724
Primary Health Sub-Centres	5094	Hospital Beds	52893

12. INFRASTRUCTURE & SUPPORT SERVICES FOR AGRICULTURE

Fertiliser/Seed/Pesticide Outlets [Nos]		Agriculture Pumpsets[Nos]	NA
Total N/P/K Consumption [Kg] (2013-14)	125	Pumpsets Energised [Nos]	446460
Certified Seeds Supplied [MT]	NA	Agro Service Centres [Nos]	NA
Pesticides Consumed [MT]	NA	Soil Testing Centres [Nos]	NA
Agriculture Tractors [Nos]	NA	Plantation nurseries [Nos]	NA
Power Tillers [Nos]	NA	Farmers' Clubs [Nos] (as on March 2015)	2283
Threshers/Cutters [Nos]	NA	Krishi Vigyan Kendras[Nos]	14

13. IRRIGATION COVERAGE [Ha] 2013-14

Total Area Available for Irrigation (NIA + Fallow)	468152
Irrigation Potential Created	
Net Irrigated Area(Total area irrigated at least once)	397176
Area irrigated by Canals / Channels	80007
Area irrigated by Wells	124850
Area irrigated by Tanks	45283
Area irrigated by Other Sources	145588
Irrigation Potential Utilized (Gross Irrigated Area)	468324

14. INFRASTRUCTURE FOR STORAGE, TRANSPORT & MARKETING

Rural/Urban Mandi/Haat [Nos]	475	Wholesale Market [Nos]	214
Length of Pucca Road [Km]	40592	Godown [Nos]	NA
Length of Railway Line [Km]	1113	Godown Capacity[MT]	NA
Public Transport Vehicle [Nos]	424650	Cold Storage [Nos]	NA
Goods Transport Vehicle [Nos]	311763	Cold Store Capacity[MT]	NA

15. AGRO-PROCESSING UNITS

Type of Processing Activity	No of units	Cap.[MT]
Food (Rice/Flour/Dal/Oil/Tea/Coffee)	40	
Sugarcane (Gur/Khandsari/Sugar)		
Fruit (Pulp/Juice/Fruit drink)	6	
Spices (Masala Powders/Pastes)	12	
Dry-fruit (Cashew/Almond/Raisins)	325	1200
Cotton (Ginnining/Spinning/Weaving)	82	
Milk (Chilling/Cooling/Processing)	40	1350
Meat (Chicken/Mutton/Pork/Dry fish)	237	
Animal feed (Cattle/Poultry/Fishmeal)	5	242

16. AREA, PRODUCTION & YIELD OF MAJOR CROPS

Crop	2012-13		2013-14		Avg. Yield [kg/ha]
	Area (ha)	**Prod. (MT)**	**Area (ha)**	**Prod. (MT)**	
Coconut	798162	5799	808647	5921	7322
Arecanut	101775	118233	100008	100018	1000
Banana	61011	515607	62261	531299	8533
Paddy	197277	508299	199611	564325	2827
Pepper	84707	46298	84065	29408	350
Cashew	52086	37919	49105	33375	680
Rubber	545000	800050	548225	648220	1182

Productionof coconut in million nut, productivity in numbers

17. ANIMAL POPULATION AS PER CENSUS 2012 [in '000]

Category of animal	Total	Male	Female
Cattle - Cross bred	1251.59	136.21	1115.38
Cattle - Indigenous	77.05	12.48	64.57
Buffaloes	102.27	71.18	31.09
Sheep - Cross bred	0.45	0.22	0.23
Sheep - Indigenous	1.00	0.67	0.33
Goat	1246.08	295.32	950.76
Pig - Cross bred	50.82	21.66	29.16
Pig - Indigenous	4.96	2.40	2.56
Horse/Donkey/Camel	0.73	0.44	0.29
Poultry - Cross bred	24281.93		24281.93
Poultry - Indigenous			

18. INFRASTRUCTURE FOR DEVELOPMENT OF ALLIED ACTIVITIES

Veterinary Hospitals/Dispensaries [Nos]	1089	Animal Markets [Nos]	33
Disease Diagnostic Centres [Nos]	26	Milk Collection Centres [Nos]	
Artificial Insemination Centers [Nos]	2977	Fishermen Societies [Nos]	555
Animal Breeding Farms [Nos]	5	Fish seed farms [Nos]	86
Animal Husbandry Tng Centres [Nos]	14	Fish Markets [Nos]	1932
Dairy Cooperative Societies [Nos]	3528	Poultry hatcheries [Nos]	32
Improved Fodder Farms [Nos]	2	Slaughter houses [Nos]	31

19. MILK, FISH, EGG PRODUCTION & THEIR PER CAPITA AVAILABILITY

Fish	Production [Tonnes]	7.26 Lakh	Per cap avail. [gm/day]	558
Egg	Production [Lakh Nos]	16856	Per cap avail. [nos/p.a.]	77
Milk	Production ['000 MT]	2716	Per cap avail. [gm/day]	333
Meat	Production (poultry+other meat)	416128	Per cap avail. [gm/day](12-13)	34.13

Sources (if not mentioned against the respective item):	Item Nos. 1, 6, 7, 9 & 10 - Census 2011; Item Nos. 2, 3, 5, 12, 13 & 14 - Economic survey 2012-13, Agriculture Statistics 2012-13.; Item No. 4 - Dept. of Agr./Water Resources; Item No. 8 - NREGA Report; Item No. 15 - District Ind Centre/Dir. of Eco. & Stat.; Item No. 16 - DACNET; Item No. 17 - AH Census 2012; Item Nos. 18 & 19 - Dir. of Animal Hus./Dir. of Eco. & Stat.

CHAPTER 2
BANKING PROFILE

2.1 Banking network

The banking network in the State, as on 31March 2015, comprised 44 Commercial Banks (27 Public Sector Commercial Banks and 17 Private Sector Commercial Banks), one RRB (Kerala Gramin Bank (KGB)), Kerala State Cooperative Bank (KSCB) with 14 affiliated District Cooperative Banks (DCBs), 1638 Primary Agriculture Co-operative Societies (PACS) and Kerala State Agriculture and Rural Development Bank (KSCARDB) with 44 Primary Co-operative Agriculture and Rural Development Banks (PCARDBs). Canara Bank is the Convenor of the State Level Bankers' Committee in the State.

Banking services in the State are provided through a network of 8556 branches (5420 branches of Commercial Banks and 565 branches of RRB and 2540 Branches in Co-operative sector including 1638 PACS)with per branch population of 4828 persons as against all India average of 11000.Kerala accounts for 5.0% of the total no. of bank offices, 3.53 % of the total deposits and 3.15% of the total advances of the country.

2.2Performance against Priority Sector Lending Goals

Table 2.1. Performance under priority sector lending

Item	Tgt. (%)	State Performance (%)					
		March, 2010	March, 2011	March, 2012	March, 2013	March, 2014	March 2015
Priority Sector Advances to Total Credit	40	60.01	58.32	57.34	56.72	59.14	59.68
Agriculture Advances to Total Credit	18	22.46	22.49	24.25	25.73	25.42	25.31
Weaker Section Advances to Total Credit	10	16.16	18.39	19.33	19.94	21.72	19.30
DRI Advances to Total Credit	01	0.02	0.02	0.02	0.03	0.03	0.02
Credit Deposit Ratio	60	67.63	75.50	75.57	76.41	68.66	68.37

(Source:SLRM2015)

As may be seen from the above table, banks have surpassed benchmarks set by RBI under priority sector advances during 2014-15, except in case of DRI advances. The performance under annual credit plans, details of deposits, loans and advances outstanding etc. are given in the table appended in the next page.

2.3Issues

2.3.1 Low market share of Agriculture Term loan

Table 2.2 – Credit flow to Priority Sector in Kerala during2014-15 (₹ crore)

Sr. No	Agency	Primary Sector		Secondary Sector		Tertiary Sector		Total	
		Target	Ach.	Target	Ach.	Target	Ach.	Target	Ach.
1	Commercial Banks	23498	30530	11308	11493	18907	13139	53712	55162
2	Reg. Rural Banks	4099.2	5485.5	1518.9	1005.1	1284.6	693.9	6902.7	7184.5
3	Cooperatives	13269	13064	3595.2	5075.8	15645	17204	32509	35345
4	Others (KFC)	0	6.23	348.6	373.13	130.98	105.66	479.58	485.02
	Total	40866	49080	16422	17574	35837	31037	93124	97691

(Source: SLRM 2015)

While the target for primary sector was exceeded by 20%, if the achievement is disaggregated between crop loan and term loan, the achievement under term loan was only 69.54%. In other words, the disbursement under term loans was only ₹.7395.13 crore as against the target of

₹.12397.94 crore. Thus lending under the primary sector is skewed towards ST Agriculture loans. Agriculture term loans which enable capital formation account for only 15.07% of the lending towards agriculture.

2.3.2 The disbursement towards crop loan during 2014-15(as per SLBC) was ₹.41684.76 crore. As against this, agriculture gold Loan during the same period was reported to be ₹.34465.66 crore.

82.68 % of the crop loan disbursed was agriculture gold loan. This is an area of concern for the policy makers as there is scope for improper use of funds disbursed under Agri gold loan.

2.4. Financial Inclusion in Kerala - Status

2.4.1 Government of India, RBI and NABARD launched programmes to promote financial inclusion. Financial Inclusion Plans (FIPs) were drawn by all the Banks to ensure coverage to all unbanked and under banked villages through branches, Business Correspondents (BCs), Ultra Small Branches and also to ensure availability of all banking services such as Saving Banks accounts, Overdraft facilities, entrepreneurial credit facilities through KCC, GCC, micro insurance, fund transfer, remittance, pension, etc. through ATMs, micro ATMs, kiosk banking and BCs.

Chart 2.1 State-wise index of Financial Inclusion in India

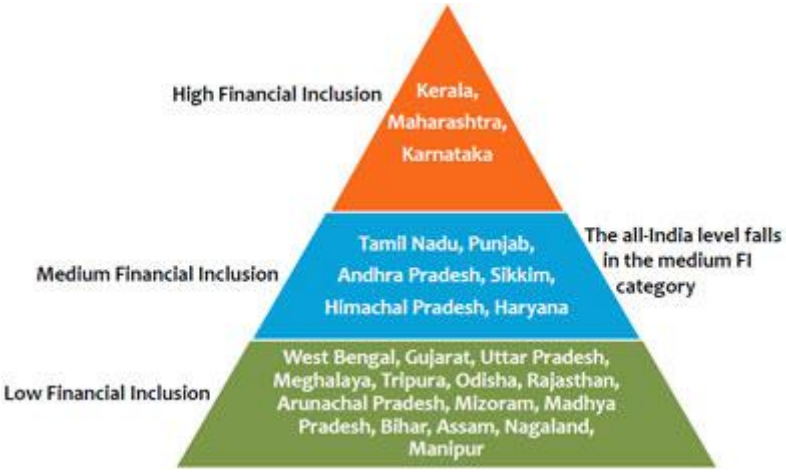


Table 2.3 - Indices of Financial Inclusion

Particulars	As on 31 March 2015	
	Kerala	All India
No. of offices	5985	125863
Amount of Deposits (₹ crore)	366031	8890982
Amount of credit (₹ in crore)	252220	6880849
Population (2011 census) (crore)	3.34	121.02
Branches per 1000 population	0.179	0.104
Population served per branch	5581	9615
Per capita deposits (₹)	109590	73467
Per capita credit (₹)	75515	56857
CD Ratio	68.66	77.4

(Source: SLRM 2015 & RBI webiste)

2.4.2 With persistent efforts by the Bankers and the State Government, all the unbanked villages in Kerala have been brought under the purview of banking operations. Hence, the focus is now to ensure smooth and easy credit coverage for the farmers and rural population.

2.5 Financial Deepening

2.5.1 Financial inclusion, financial literacy and consumer protection are the three major pillars of financial stability. Financial inclusion acts from the supply side covering issues like financial markets, network of banks and other financial institutions, appropriate design of products and

services, etc.

2.5.2 Inclusion becomes meaningful only when the usage of the system reaches a higher level. Usage could increase with the availability of appropriate products and services to the users and the awareness about the products. Financial Literacy Centres (FLCs) are expected to create awareness and enable the consumers to take informed decisions. With the persistent efforts of RBI, NABARD & SLBC, Financial Literacy Centres (FLCs) were established in all the 152 blocks of the State. All 14 DCBs and Kerala Gramin Bank have been supported with 16 FLCs and 07 FLCs respectively. As on 30 November 2015, a cumulative amount of ₹ 1.36 crore has been sanctioned and ₹ 73.22 lakh has been disbursed towards FLCs.

2.5.3 The FLCs / FLCCs / Livelihood and Credit Counselling Centres established and maintained by the banks serve as a beacon towards creating financial literacy awareness among the people by way of conducting camps / campaigns in the villages / blocks, door-to-door canvassing, debt restructuring, family budgeting, livelihood income generation counseling, etc.

2.6 Financial Inclusion Plans

2.7.1 The banks in the state have drawn up Financial Inclusion Plans (FIPs), covering the three year period 2013-14 to 2015-16 and have submitted the same to RBI/ NABARD. The FIP so submitted is intended to be the principal document, based on which the bank targets to widen its branch network, expand its outreach by increasing the number of Basic Saving Bank Deposit Accounts, innovate ICT based products like RuPay KCC cards, RuPay Debit cards, ATMs, micro ATMs/PoS machines, mobile banking demonstration vans, FLCs, etc. to deepen the process of financial inclusion. The progress in implementation of the Financial Inclusion Plans is also monitored through the Quarterly Progress Reports (QPRs) submitted by the banks.

2.7 PradhanMantri Jan DhanYojana (PMJDY)

2.7.1 Pradhan Mantri Jan DhanYojana is a scheme for comprehensive financial inclusion launched by Hon'ble the Prime Minister of India, Shri. Narendra Modi on 28 August 2014. PMJDY to be executed in the Mission Mode envisages provision of affordable financial services to all citizens within a reasonable distance.

It comprises of the following six pillars:-

a) Universal access to banking facilities
b) Providing Basic Banking Accounts with overdraft facility and RuPay Debit card to all households
c) Financial Literacy Programme
d) Creation of Credit Guarantee Fund
e) Micro Insurance
f) Unorganized sector Pension schemes like Swavalamban

2.7.2 PMJDY focuses on coverage of households as against the earlier plan which focused on coverage of villages. With a bank account, every household would gain access to banking and credit facilities. This will enable them to come out of the grip of money lenders, manage to keep away from financial crisis caused by emergent needs, and most importantly, benefit from a range of financial products. As a first step, every account holder gets a RuPay debit card with ₹ 1,00,000/- accident cover. Further, they will be covered by life insurance and pension products. The target was to enrol over 7.5 crore households. As on 30 November 2015, more than 19.5 crore accounts have already been opened all over India under PMJDY. Guinness World Records Recognises the Achievements made under PMJDY, Guinness World Records Certificate says "The most bank accounts opened in 1 week as a part of financial inclusion campaign is 18,096,130 and was achieved by Banks in India from 23 to 29 August 2014".

2.8 Progress under PMJDY in Kerala

2.8.3.1 Kerala has become the first State in the country to have 100 per cent coverage of all households with bank accounts under the Pradhan Mantri Jan DhanYojana (PMJDY) in a record two-and-a-half months. The formal declaration of

the 100 per cent coverage of households with bank accounts in the State was made by Hon'ble Minister for Finance, Shri. K. M. Mani on 11th November 2014.

As on 30 November 2015, the Cooperative Banks and KGB together have opened 5.5 lakh PMJDY accounts and have issued 4.2 lakh RuPay cards to their customers. The cooperative banks with KGB together boast of having approximately ₹ 227 crore in these PMJDY accounts which have significantly increased their CASA.

2.9 Second phase of PMJDY

As per PMJDY mission document, second phase of PMJDY will include the overdraft facility, creation of Credit Guarantee Fund for overdraft accounts, micro-insurance, pension, coverage of households in hilly, difficult and tribal areas. The focus here would be covering the remaining adults and students.

The 03 social security schemes, viz., Pradhan MantriJeevanJyotiBhimaYojana (PMJJBY), Pradhan MantriSurakshaBhimaYojana (PMSBY) and Atal Pension Yojana (APY) were launched on 9th May 2015. In Kerala, as on 30 Nov 2015, 45 lakh accounts have been opened under insurance schemes of which 3.1 lakh accounts have been opened by Cooperative Banks and around 5 lakh accounts by Kerala Gramin Bank.

Box. 2.2 Capacity building of Cooperatives
Core Banking Solutions (CBS)– A NABARD Initiative

As an initiative towards institution building of Cooperatives, NABARD is facilitating the process of bringing the co-operative banks into the Core banking Solution (CBS) platform. This would enable the Cooperatives to provide technology enabling services at par with the Commercial Banks.

NABARD's role as an aggregator of demand for services has made it attractive for big IT players like TCS & Wipro to offer their services to Cooperatives who otherwise could not have afford the services due to disaggregated, dispersed and varied demands.

In Kerala, of the 14 DCBs and Kerala St. CB, 9 banks opted for NABARD facilitated project for CBS and all these banks have migrated to the CBS platform. Cooperative banks in the State have started offering RuPay debit cards, SMS alerts, ATM facilities, RTGS / NEFT, CTS and DBT facilities to their customers.

Way forward: The three tier cooperative system comprising of KSCB, District Cooperative Banks (DCBs) and Primary banks (PACS) have a wide and unparallel reach and customer base in Kerala. The integration of these outlets under one common 'Kerala Cooperative Network" is the long term dream of all stake holders. Preliminary works of Installation and Integration of ATMs, micro ATMs are in the process. In addition to providing the above mentioned banking services including KCC facilities to the members of PACS through different models, Kannur DCB and Idukki DCB are piloting two different models for the purpose which are expected to go live by January and March 2016 respectively.

Banking Profile

State - KERALA

1. NETWORK & OUTREACH (As on 31/03/2014)

Agency	No. of Banks/Soc.	No. of Branches				No. of non-formal agencies assoiated			Per Branch Outreach	
		Total	Rural	Semi-urban	Urban	mFIs/mFOs	SHGs/JLGs	BCs/BFs	Villages	Households
Commercial Banks	44	5420	386	3691	1343	Nil	502482	107	0.27	2069.71
Regional Rural Bank	1	565	76	455	34	Nil	44555	3	2.57	19854.61
State Co-operative Bank	1	20			20	Nil	82358	Nil	0.58	4442.71
District Central Coop. Bank	14	747			747					
Coop. Agr. & Rural Dev. Bank	1	166	115	45	6					
Primary Agr. Coop. Society	1638	1638	1638							
Scheduled Urban Coop. Bank	Nil					Nil				
All Agencies	**1699**	**8556**	**2215**	**4191**	**2150**		**629395**	**110**	**0.17**	**1311.11**

2. DEPOSITS OUTSTANDING

Agency	No. of accounts					Amount of Deposit [Rs.Crore]				
	31 Mar 13	31 Mar 14	31 Mar 15	Growth(%)	Share(%)	31 Mar 13	31 Mar 14	31 Mar 15	Growth(%)	Share(%)
Commercial Banks	NA	NA	NA	NA	NA	2,22,318	2,71,992	3,11,308	14.45	85.05
Regional Rural Bank	NA	NA	NA	NA	NA	6,830	7,663	8,582	11.99	2.34
Cooperative Banks	NA	NA	NA	NA	NA	30,637	40,229	46,141	14.70	12.61
All Agencies	**NA**	**NA**	**NA**	**NA**	**NA**	**2,59,786**	**3,19,884**	**3,66,031**	**14.43**	**100**

3. LOANS & ADVANCES OUTSTANDING

Agency	No. of accounts					Amount of Loan [Rs.Crore]				
	31 Mar 13	31 Mar 14	31 Mar 15	Growth(%)	Share(%)	31 Mar 13	31 Mar 14	31 Mar 15	Growth(%)	Share(%)
Commercial Banks	NA	NA	NA	NA	NA	167526.09	182968.79	208239.42	24.30	82.56
Regional Rural Bank	NA	NA	NA	NA	NA	7561.23	9041.40	10466.65	38.43	4.15
Cooperative Banks	NA	NA	NA	NA	NA	26999.48	28954.23	33514.13	24.13	13.29
All Agencies	**NA**	**NA**	**NA**	**NA**	**NA**	**202086.80**	**220964.42**	**252220.20**	**24.81**	**100.00**

4. CD-RATIO

Agency	CD Ratio		
	31 Mar 13	31 Mar 14	31 Mar 15
Commercial Banks	75.57	75.35	66.89
Regional Rural Bank	129.89	110.7	121.96
Cooperative Banks	73.76	88.13	72.63
All Agencies	**89.6**	**77.79**	**68.37**

5. PERFORMANCE UNDER FINANCIAL INCLUSION (No. of A/cs)

Agency	During 2014-15		Outstanding Balance	
	Deposit	Credit	Deposit	Credit
Commercial Banks	NA	NA	NA	NA
Regional Rural Bank	NA	NA	NA	NA
Cooperative Banks	NA	NA	NA	NA
All Agencies	**NA**	**NA**	**NA**	**NA**

6. PERFORMANCE TO FULFILL NATIONAL GOALS (As on 31/03/2015)

Agency	Priority Sector Loans		Loans to Agr. Sector		Loans to Weaker Sections		Loans under DRI Scheme		Loans to Women	
	Amount [Rs.Crore]	% of Total Loans	Amount [Rs.Crore]	% of Total Loans	Amount [Rs.Crore]	% of Total Loans	Amount [Rs.Crore]	% of Total Loans	Amount [Rs.Crore]	% of Total Loans
Commercial Banks	119208.62	57.25	51553.49	24.76	39114.7	18.78	48.18	0.02	NA	NA
Regional Rural Bank	9446.69	90.26	6102.41	58.30	7977.22	76.22	1.25	0.00	NA	NA
Cooperative Banks	21871.94	65.26	6192.94	18.48	1596.77	4.76			NA	NA
Others										
All Agencies	**150527.25**	**59.68**	**63848.84**	**25.31**	**48688.65**	**19.30**	**49.4315**	**0.02**		

7. AGENCY-WISE PERFORMANCE UNDER ANNUAL CREDIT PLANS

Agency	2012-13			2013-14			2014-15			Average Ach[%] in last 3 years
	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	
Commercial Banks	3886179.85	4313406.13	110.99	4760613.90	5378363.78	112.98	53232.57	54676.7676	102.71	108.89
Regional Rural Bank	493282.52	535262.21	108.51	588895.29	651924.95	110.70	6902.66	7184.4812	104.08	107.77
Cooperative Banks	2294680.18	2816297.62	122.73	2660138.79	2910845.86	109.42	32509.24	35344.50714	108.72	113.63
Others	38336.8	23218.26	60.56	36659.00	33990.98	92.72	479.58	485.0256	101.14	84.81
All Agencies	**6712479.35**	**7688184.22**	**114.54**	**8046306.98**	**8975125.57**	**111.54**	**93124.06**	**97690.78**	**104.90**	**110.33**

8. SECTOR-WISE PERFORMANCE UNDER ANNUAL CREDIT PLANS

Broad Sector	2012-13			2013-14			2014-15			Average Ach[%] in last 3 years
	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	Target [Rs.lakh]	Ach'ment [Rs.lakh]	Ach'ment [%]	
Crop Loan	2406402	3265162.53	135.69	2541898.35	3687165.66	145.06	28467.92	41684.76	146.43	142.39
Term Loan (Agr)	600036	505871.95	84.31	931672.13	602534.86	64.67	12397.94	7395.13	59.65	69.54
Total Agri. Credit	3006438	3771034	125.43	3473570.48	4289700.52	123.50	40865.86	49079.89	120.10	123.01
Non-Farm Sector	470792	367524.57	78.07	712681.50	789241.74	110.74	16421.63	17573.52	107.01	98.61
Other Priority Sector	3235249	3549625.17	109.72	3860055.06	3896183.31	100.94	35836.57	31037.37	86.61	99.09
Total Priority Sector	**6712479**	**7688184**	**114.54**	**8046307.04**	**8975125.57**	**111.54**	**93124.06**	**97690.78**	**104.90**	**110.33**

Source: SLBC

CHAPTER 3.1

NABARD'S PERCEPTION ON THE DEVELOPMENT PERSPECTIVE OF THE STATE

3.1.1.Introduction

Kerala provides an empirical example to achieve both growth and improved income distribution through human development, a United Nations working paper has said. It has the highest literacy rate, highest life expectancy and lowest sex ratio among Indian states. A survey in 2005 by Transparency International ranked it as the least corrupt state in the country. It is also India's cleanest and healthiest state. Kerala, with a population of 33.3 million, leads many other Indian States and territories in terms of per capita income (₹ 117132 at current price for 2013-14), economic productivity and Human Development Index. A set of high material quality-of-life indicators distributed across nearly the entire population formed the basis for Kerala Model Development, which still puzzles economists. Kerala's comparative advantages in high technology, human resource, education and healthcare - are the country's comparative advantages itself. And Kerala's economic goals to improve infrastructure, increase agricultural productivity through technology adoption, and strengthen its knowledge economy - are India's economic goals.

3.1.2. Kerala Agriculture – Current status

3.1.2.1. Agriculture in Kerala is distinct from the rest of India in terms of cropping pattern. It has a strong association with the ecological and physiological peculiarities of the State. There has been a discernible shift in the cropping pattern towards cash crops especially rubber. Nearly 80% of the gross cropped area is under horticulture crops. Agriculture has suffered considerable setback in the recent years, particularly in terms of loss in area under food crops, declining productivity in some niche crops like pepper, tea, coffee, and to some extent cashew nut and decline in price realisation to farmers from coconut and rubber. Only three major crops namely, rubber, banana, and arecanut showed increase in area under cultivation over the years.

Table 3.1.1 – Cropping Pattern in Kerala (Area in '000 ha)

Crop	1975-76	1995-96	2003-04	2010-11	2011-12	2012-13	2013-14
Paddy	876	471	287	213	208	197.28	199.61
Plantation Crops							
Coconut	693	914	906	770	821	798	808
Rubber	212	449	476	534	540	539.6	548.2
Cashew nut	109	103	88	44	54	52	49.1
Arecanut	77	71	93	99	104	102	100
Tea	38	38	37	37	37	30	30
Coffee	42	82	85	85	85	85	85
Spice Crops							
Pepper	108	192	207	172	85	85	84
Cardamom	54	44	32	41	41	42	40
Ginger	12	13	9	6	7	5	5
Tapioca	327	114	111	72	74	70	68
Banana	52	73	107	58	59	61	62
Total Cropped area	**2981**	**3067**	**2976**	**2647**	**2662**	**2592**	**2616.16**

(Source: Economic review)

3.1.2.2. The average size of operational holding is only 0.22 ha, which is one of the lowest in the country and makes investments in farm sector inherently unviable. The low level of farm mechanisation and area under irrigation combined with high agricultural wage rates have an adverse impact on the production and productivity of agriculture in the State. Also the land tenure systems prevalent in the State do not encourage cropping or crop diversification.

3.1.2.3 The agriculture sector (including livestock) exhibited a modest growth of 2.53 per cent during the nineties but displayed poor performance (0.27 per cent) during the decade after 2000. The overall growth rate of agriculture and allied sectors slid from 2.34 per cent in the nineties to an almost stagnant rate of 0.46 per cent in the succeeding decade. As a result, the total share of agriculture and allied sectors in Gross State Domestic Product (GSDP) declined steeply from 36.99% in 1980-81 to 9.17% in 2013-14 (At constant prices). Correspondingly, the share of work force in agriculture has also been declining. Although there are some fluctuations, the share of work force engaged in agricultural operations has demonstrated a steep decline over the years in terms of both number and share of cultivators and agricultural labourers. In 1981, nearly 13 percent of the workforce was engaged as cultivators, but this share went down to 7.2 per cent by 2011. Similarly, agricultural labour as a percentage of main workers declined from 28.2 per cent to 16.1 per cent during the same period. In total, the share of population that depended on agriculture as a source of livelihood went down from 41.1 per cent in 1981 to 23.3 percent 2012 (source Kerala Perspective Plan 2030).

3.1.2.4 Notwithstanding this, agriculture still forms the backbone of Kerala's economy as approximately one- fifth of the workforce is in the primary sector, directly dependent on agriculture and allied services. It also forms the resource base for a number agro based industries and agro services.

3.1.3. CAPITAL FORMATION IN AGRICULTURE IN KERALA

3.3.1 Capital formation refers to addition to the capital stock of an economy which enhances the productive capacity of various factors of production viz. Land, labour, capital and entrepreneurship in all the sectors i.e. primary (including agriculture), secondary and tertiary. The purpose of investments in any sector is to generate capital in the form of infrastructure, improvement in quality of natural resources and assets and creation of productive assets. Investment in any sector comes from two sources viz. public and private. While public investment is mainly to create infrastructure, private investment is used for asset formation and improvement in quality of existing assets.

3.3.2 The Government expenditure as a share of GDP from agriculture in Kerala has been between 3-5 per cent over the last two decades (3.24% in 1990-91 to 4.39 in 2009-10). The share of Gross Fixed Capital (GFCF) as a percentage of agriculture GDP remained much lower than the corresponding all India figures (Kerala 5.3% as against all India figure of 17% in 2009-10).

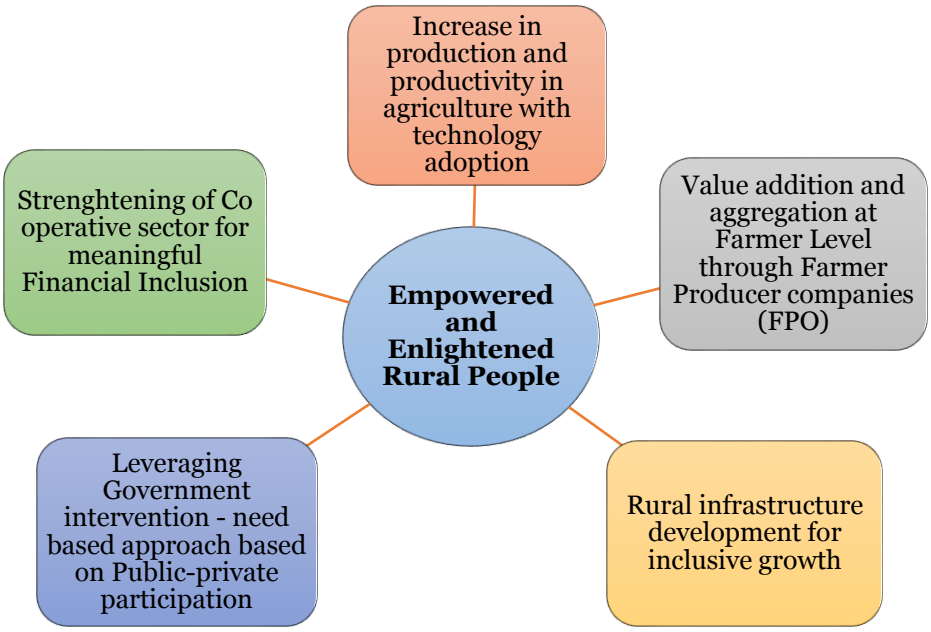
3.3.3 The prospect of increased level of capital formation in agriculture and allied sector of the State is hampered by limited public investment. Further, private investment supported long term capital assets have not been up to the desired level. This phenomenon of reduced capital formation in agriculture in the State is a matter of concern. Concerted efforts to step up investments in agriculture, both private and public sector, needs to be undertaken to address the issue.

3.1.4. NABARD's vision for Kerala

The agricultural sector in Kerala has undergone wide-ranging changes in terms of farm size, cropping pattern, cultivation practices and productivity. There has been a phenomenal growth in the number of agricultural holdings leading to the emergence of a large number of very small holdings. Kerala State which had a low base in food production in the country continued to face serious challenges in retaining farming area and improving production and productivity of important crops.

With small and marginal holdings constituting 98 per cent of the total holdings, one of the major challenges faced by the Kerala economy is enhancing the viability of agriculture to improve the growth prospects of the economy. Input levels have to be continuously increased to maintain the yield at the existing level. This poses a threat to the economic viability and sustainability of crop production. Therefore, the goal of long-term food security can be attained only if agriculture is made sustainable through reforms in agricultural policies and agronomic practices.

Strategies for "Mitigating Agrarian Distress and enhancing Farm Income" has to be debated for evolving long term sustainable action plan. The Potential Linked Plans prepared by NABARD reveal five broad, but interrelated themes for the development of the State:



3.1.4.1. Mitigating Agrarian Distress and enhancing Farm Income - Issues

3.1.4.1.1. Two aspects of the distress—agriculture and agrarian

The nature, extent and causes of the distress may be viewed from the perspective of the two interrelated strands, agriculture and agrarian. The former is a function of crop production and relates to the inadequacies and inappropriateness of the agricultural development programmes and their impact on the farm. The latter is an impact of distribution and therefore more closely linked to the farmer and livelihood of the people involved in agrarian activities. Therefore, the development discourse needs to link the distress in agriculture to livelihood issues of people dependent upon the agrarian economy. There is enough evidence to suggest that traditional approaches of input-intensive mechanisms, such as green revolution or financial interventions may not be appropriate and therefore require other sustainable routes to mitigate risk. Such a sustainable route would ideally ensure that the farmer has diversified sources of income.

3.1.4.1.2. Focus on small and marginal farmers

In terms of production, small and marginal farmers in India have a larger share in the production of high-value crops—70 per cent of the total production of vegetables and 55 per cent of that of fruits against a 44 per cent share of the land area (Birthal, et al., 2011). Their share in cereal and milk production stands at 52 per cent and 69 per cent, respectively. Thus, small and marginal farmers contribute both to diversification and food security. The NSS, 70th Round reveals that an average farmer in India earns ₹6426 per month, which leaves him with a meagre surplus of ₹203 after his consumption expenses have been met.

In sharp contrast, People's Republic of China is able to produce more in spite of smaller farm holdings and lower area under cultivation as compared to India, thanks to better price realization by the farmers. The challenge for Kerala and Indian agriculture is to migrate from tonnage-centricity (food grain production level measured in tonnes) to farmer-centricity even as the size of holdings shrink in a highly volatile ecosystem.

3.1.4.1.3. Farmer driven agriculture extension services: India has one of the world's largest agricultural research networks, churning out a good deal of new technology. However the majority of farmers still practice traditional farming, for want of adequate transfer of the new technology to the fields. For instance, though Precision farming methods have been found to be sustainable in Kerala, it is being practiced by only a few progressive farmers. *70th National Sample Survey report on farmers revealed that over 60 per cent of them lack access to new technology*. The problem is that the extension workers at ground level, who are directly responsible for the technology flow and dissemination, are themselves not aware of the recent technologies for boosting productivity. The second major problem in technology

adoption is the mind-set of the farmers. For instance, though the state of Kerala is bestowed with the ideal soil, climate and geographical situations suitable for commercializing vegetable production, the State has not been able to develop this area as a major enterprise for achieving self-sufficiency and generating income for the State, although, off late, the situation is changing slowly and some positive trends are visible.

3.1.4.1.4. Investment credit

The price differential between crop loan and investment credit for agriculture and allied activities has adversely affected the flow of institutional credit for investments in the agriculture sector. In Kerala during 2013-14 the long term investment credit for agriculture and allied activities accounted for only 15% share in total credit flow to agriculture. This skewed ratio in favour of short term crop loan has resulted in low investment in capital / productivity enhancing assets. A segmentation approach could be adopted in credit delivery whereby the segment-/sector-specific credit requirements are assessed and differential rates of interest are enabled through subvention (keeping in view the net income per unit from a particular segment/ sector/ activity), to support activities that are critical but not picking up. NABARD's initiative of sanctioning Long term refinance for agriculture under Long Term Rural Credit Fund (LTRCF) to Cooperative Banks and RRBs @ 6.2% is a positive step under this segmentation approach. This needs to be taken forward, Hence, if interest subvention of is provided by Kerala government to ATL disbursed by Cooperatives the long term investment credit with a tenure of 5 years can be disbursed to farmers at below @ 8%. This can provide a big boost to private sector investment in productivity enhancing assets in Kerala.

3.1.4.1.5. Improving access to farm credit via cooperatives

Cooperative banks play a leading role in assisting farmers' access to credit—particularly small and marginal cultivators. With the increasing share of small and marginal farmers in the total number of farm households, the role of cooperative banks who are their natural partners is likely to assume greater significance in future. In fulfilling this role, cooperative banks depend upon the support provided by the Government. The changing role of Primary Agriculture Cooperative Societies (PACS) as multipurpose societies has led to success in reaching out to small and marginal farmers. The Kerala government needs to provide adequate support to these PACS and use them innovatively to effectively convey policy benefits to the farming community at the grassroots.

3.1.4.1.6. Insuring against agrarian distress

Undoubtedly, no loan waiver or extension of credit is as effective as insurance products in battling agrarian distress emanating from natural calamities or personal exigencies. For one, insurance can put money in the hands of the farmer when it is required most. The need is to make these products efficient and to ensure their swift delivery.

The current scenario in Kerala agriculture with the low penetration (less than 20% coverage) of crop insurance, presents many challenges and opportunities. Extant crop insurance schemes are constrained by issues such as low penetration, high premium, inaccurate estimation of crop damage, delay in settlement of claims, low density of weather stations and other infrastructure support, etc. There is a need to provide micro-meteorology and micro insurance to the farmers to help them cope with the distress arising out of climatic fluctuations. The Weather-based insurance product with block level weather stations can help in increasing the coverage, minimizing the premium paid and minimizing the delay in the settlement of claims.

3.1.4.1.7. Regulating land leasing to compensate tenant farmers

There is a land lease market in Kerala, but in the absence of legal provision for leasing of land, the leases are oral and unregulated. As a consequence, tenants are unprotected. Hence, when there is a calamity resulting in loss of crops, tenant farmers get neither credit nor relief. Despite being the rightful beneficiaries of a government sponsored relief package in case of floods, droughts or hailstorms, tenant farmers cannot get any succour. This can change if land tenancy and land leasing laws are reviewed to benefit the poorest of the poor and the leasing market regulated to ensure proper record keeping. The digitization of land records is necessary and needs to be urgently completed.

3.1.4.1.8. Climate change—Mitigation and Adaptation

A significant share of the current agrarian distress in India is attributable to climate change. While this kind of widespread distress from climatic factors cannot be handled at an individual level, an aggregated solution is more complex to envisage and pre-empt. Management of agrarian distress due to calamities may be addressed through adaptation and mitigation measures.

Adaptation refers to the identification of the occurrence of calamity, location, duration, scale and extent, along with a responsive plan to protect life, property and income that may be necessary. An adequate number of well-equipped and well-manned weather stations, satellites and communication network, along with the capability to process data and information in real-time are prerequisites for an adaptation strategy to be successful. There is a need to plan infrastructure with attention to detail, for instance, making the communication network capable of effectively delivering warning measures in local languages.

Mitigation refers to efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour to lessen the effects of climate change

3.1.4.1.9. Re-thinking on procurement policy & MSP

While MSPs have been going up, the procurement of food grains is only from a few States. For instance, only five (the top five wheat producers) states account for 100% procurement of wheat. Similarly, in the case of paddy, six states account for about 82% of procurement. This is similar in the case of all crops. Generally, procurement is from large-scale farmers. The agriculture policy needs to address how the procurement can be evenly distributed not only among states but also across all classes of farmers.

3.1.4.1.10. Influencing farm practices towards efficient resource-use

Climate change is leading to poor predictability of the monsoons and hence the need to focus on water resource management is keener than ever before. Farmers need to be incentivized to save water by adopting suitable cropping patterns on their farms. There is a need for conserving soil moisture security so that 'more crop per drop' can be achieved.

State need to evolve an effective resource-use policy based on the level of stress on various natural resources. Precision farming needs to be stressed upon, to ensure balanced use of fertilizers and rationalization of subsidy, especially on urea, in order to encourage its optimal use.

There is a need to encourage Participatory Irrigation Management (PIM) with an effective role of Water Users Associations (WUAs) in order to take full advantage of the irrigation potential created in the state so far.

3.1.4.2. NABARD's new initiatives

3.1.4.2.1. Facilitating Farmer Producer Companies (FPOs) for playing a major role in transforming agriculture in Kerala

Traditionally, Indian farmers have gained knowledge and skills by sharing within the community through government programmes and through the private sector involved in inputs, processing and trade. The collective strength of farmers could enable them to increase their competitiveness through easier access to credit and technology, reducing costs of distribution and providing greater marketing power and negotiation capacity. FPOs could emerge as one of the most effective pathways to address agricultural challenges. Through adequate policy and infrastructure support these aggregators can become not only the 'connective tissue', linking supply and demand, bridging a major missing link but also become instrumental in faster deployment and acceptance of modern agricultural technologies (including mechanisation). Adoption of modern technologies would result in demand for skilled technicians in agriculture. There is another school of thought that suggests that so far the focus of agriculture in India was on producing more, but with FPOs the focus will shift to commercialisation of agriculture. Looking at the overall benefits of FPOs, it is imperative to promote and scale up FPOs rapidly in the country to scale up Indian agriculture. The Indian Companies Act, 1956, was amended in 2002, when provision for incorporation of Farmer Producer Companies, combining the benefits of both co-operatives and private limited companies, was put in place.

NABARD, as part of its initiatives to support FPOs, has created a dedicated fund called Producer Organisation Development Fund (PODF) to support such entities. NABARD, out of PODF, extends loan-cum grant assistance to FPOs in the form of term loan, working capital term loan and/or composite loan. As part of credit plus initiatives, grant assistance upto a maximum of 20% of the loan amount is also extended to such FPOs, for capacity building, market linkages, preparation of DPR, etc. NABARD had sanctioned a total financial assistance to the tune of ₹157.72 Crore to 65 new FPOs during 2014-15. In Kerala financial assistance of ₹338.00 lakh was extended to 6 farmers' collectives functioning in the diary, tea, vegetables and paddy sectors.

In the Union Budget for 2014-15, GoI, had provided for a corpus of ₹200 Crore for promotion of 2000 new FPOs in the country over a two year period. The fund titled "PRODUCE FUND" has been entrusted with NABARD; and the fund is utilised to build, promote and nurture FPOs by way of extending financial and non-financial support during the nascent/formative stage of an FPO. PRODUCE fund will be utilised to extend support to new FPOs for awareness creation, capacity building, technical support, professional management, market access, regulatory requirements, etc. and provide handholding support to the FPO for a minimum period of 3 years. Assistance is usually extended through Producer Organisation Promoting Institutions (POPIs). The FPO is to have minimum 50 members (to be gradually increased to 400-500 over three years) and has to be within the domain of agriculture/activities allied to agriculture. In Kerala, NABARD has, as on 30 November 2015 extended assistance to 51 Producer Organization Promoting Institutions (POPIs) for promotion of 80 FPOs, with a financial commitment of ₹.699.40 lakh.

Opportunities for FPOs in Kerala

Kerala is endowed with rich natural resources and fertile land has natural advantages in the production of cash crops like rubber, cardamom, clove, nutmeg, cocoa, pepper, coconut/copra, etc. Besides, districts like Alappuzha, Palaghat, Trichur and Ernakulam have advantages in paddy, pineapple, mango, etc. Districts like Wayanad and Idukki have distinct advantage in milk production. Even though farmers' collectives in the form of JLGs, JLG federations, Farmers' Club Federations, etc. are vibrant in our rural areas, there is a need to upscale them to the status of Farmer Producer Organisations to ensure sustainability in their operations as also to ensure that their activities are adequately integrated with the value chain. Commodity Boards, Research Institutions, KVKs, Universities, can play a vital role in this regard.

Challenges in Kerala for FPO activities

- The banks have a challenge as also a great opportunity lying before them. Banks would need to accept lending to Farmer Producer Organisations (FPOs) as part of their normal lending portfolio, as they had embraced SHG lending, JLG lending, etc. A few banks have already come out with tailor made products to suit the requirements of Farmer Producer Organisations.
- The Small Farmers' Agri-Business Consortium (SFAC) has programmes to assist FPOs. SFAC also extends credit guarantee support to banks which lend to FPOs, without collateral, upto an amount of ₹100.00 lakh per FPO. NABARD has entered into an MoU with SFAC to ensure convergence of SFAC and NABARD initiatives in promotion of FPOs in the country. There is, however, a need to fine tune the programmes to suit Kerala conditions.
- The need for professionalism in the functioning of the NGOs, VAs, etc. who act as Producer Organisation Promoting Institutions is another challenge that needs to addressed on a priority basis. The need to inculcate a sense of professionalism, entrepreneurship, and business approach to agri-business in the modern competitive environment is to be understood by the POPIs/FPOs. NABARD is associating with research and educational institutions like CUSAT in this regard.

3.1.4.2.2.: Empowering tenants, lease farmers, artisans, etc. through Joint Liability Groups (JLGs)

A Joint Liability Group (JLG) is an informal group comprising of 4-10 individuals coming together to engage in a similar type of economic activity in the Agriculture, Allied or non-farm Sector. JLG members are mostly members of SHGs who continue to retain their membership and activities as the members of their SHG and the JLG. Like SHG lending, JLG lending is also based

on interse agreement and the members undertake to be liable jointly and severally for the loan availed by the members of the group, individually or as a group.

Box: 3.1 - A success story under JLG mode

Trivandrum Coastal Development Society (TCDS), an NGO in Trivandrum district, promoted 500 Joint Liability Groups in Karumkulam Grama Panchayath with NABARD assistance. In addition, NABARD gives assistance for training to these groups.

345 JLGs in Puthiyathura, Karumkulam, Kochuthurapallom areas of Karumkulam village have been credit linked with a loan amount of ₹2,00,000 (Rupees two lakhs only) per JLG by Bank of India, Uchakkada branch. The groups undertake a variety of activities such as drying and marketing of fish, marketing of vegetables, setting of shops selling stationary, textiles and consumer goods, flour mill, Photostat shops, computer centre, beauty parlour, sweets stall, candlestick making, coconut and jackfruit processing, pickle making, providing tables, chairs on rental basis etc. All the groups are regular in repayment with no default.

Table 3.1.2 – Status of JLG Bank Linkage Programme a on 31 March 2015

All India		Kerala	
No. of groups	**Credit linkage (₹in crore)**	**No. of groups**	**Credit linkage (₹in crore)**
1128860	11190.15	39473	617.95

The progress during the current year has been satisfactory, only some banks like Union Bank of India, Canara Bank and Bank of India are actively participating in JLG programmes. The average credit sanctioned per JLG group is around ₹. 0.98 lakhs lakh.

3.4.2.3. Promotion of value addition and product diversification

The key for sustainability and better price realisation to primary producers is promotion of value addition. In order to provide a comprehensive value addition in postharvest sector, a separate fund Food Processing Fund (FPF) with a corpus of ₹2000.00 crore has been established in NABARD. The objective of the fund is to provide Affordable credit to food processing units in Mega Food Parks (MFPs) and other Designated Food Parks (DFPs) by way of term loans both for infrastructure creation and for setting up of food processing units located in areas notified by MoFPI.

The Fund is available to State Governments, entities promoted by State, Central Governments, SPVs, Joint Ventures, Co-operatives, Federations of Cooperatives, Farmers' Producer Organisations, Corporates, Companies, Entrepreneurs, etc. The Fund will be priced at competitive interest rate with a repayment period of seven years.

In Kerala two mega food parks with a total investment potential of ₹1200 core is being established. The parks are being promoted by KINFRA & KSIDC. NABARD has extended financial assistance for mega food park being established by KINFRA at Palakkad.

***Box: 3.2 Kerala* Perspective Plan – 2030**

Mission for Agriculture

- ✓ Foster global competitiveness, growth and profitability in the sector to attract new investment.
- ✓ Build lasting partnerships among public, private, and other community stakeholders.
- ✓ Increase creation of wealth in agriculture in rural areas.
- ✓ Improve investor confidence leading increased domestic and foreign investment in agricultural activities and rural areas.
- ✓ Promote sustainable use of agricultural resources.

Targets

- ✓ The average agricultural growth rate will be 2% per annum.
- ✓ Improved farming efficiency will be achieved despite the expected drop in agricultural area
- ✓ Expenditure allocation towards agricultural research and education will be raised to 1-2% of GSDP of Agriculture by 2030.

3.1.5. STATUS OF MICRO CREDIT IN KERALA

3.1.5.1 Self-Help Group (SHG)-Bank Linkage Programme

Till March 2015, 5.85 lakh SHGs have been credit linked in Kerala with bank loan of ₹. 645 crore. The comparative position of Kerala vis-a-vis the all India Position is given below

Table 3.1.3– Status of SHG Bank Linkage Programme as on 31 March 2015

	Performance under SHG (As on 31 March 2015)	**All India**		**Kerala**	
		Physical	Financial (₹in crore)	Physical	Financial (₹in crore)
I	SHGs saving linked with banks				
	Commercial Banks	4135821	6630.67	471144	510.57
	RRBs	2161315	2346.57	51332	72.97
	Cooperative Banks	1400333	2082.59	62995	61.66
	Total	7697469	11059.84	585471	645.25
II	SHGs credit linked during 2014-15				
	Commercial Banks	855724	17334.13	49408	1022.67
	RRBs	522139	7725.22	10525	220.03
	Cooperative Banks	248375	2522.96	17173	202.07
	Total	**1626238**	**27582.31**	**77106**	**1444.77**
III	No. of SHGs having loans outstanding as on 31.03.2015				
	Commercial Banks	2602484	34407.01	103631	1756.72
	RRBs	1272274	13824.53	23818	224.11
	Cooperative Banks	593422	3313.92	15909	255.89
	Total	**4468180**	**51545.46**	**143358**	**2236.72**
IV	Average loan amount outstanding/ SHG as on 31 March 2015 (₹)		115361.2		156023.60
V	Avg. loan amount disbursed/ SHG during 2014-15 (₹)		169608.10		187374.9

Issues

The number of SHGs formed in the state is much more than the number of SHGs that can be formed based on the estimates of population/ households of the State leading to the conclusion that SHGs include regrouping of members, multiple membership, variations in the number of members in each group, etc. Multiple membership is a cause for concern as the multiple loans availed will increase indebtedness of the individual thus affecting the repayment to the group/ institutions. This makes the operation of a credit bureau imperative. Till that time, the close monitoring of credit linkage is crucial

With the SHG movement reaching critical stage, the graduation of SHGs to income generating micro enterprises is the next logical step. Quantum of credit requirement per SHG will be much higher for undertaking such activities. Assuming that the number of new loans / repeat loans to be sanctioned to the SHGs/ NHGs for an estimated 50000 groups @ ₹. 2,00,000/- per group the minimum credit disbursement expected is ₹.1000 crore during 2016-17.

3.1.5.2 Farmers' Club

The Farmers Clubs are envisaged as peer learning groups facilitating transfer of technology, knowledge and act as an agency to provide forward and backward linkages. Farmers' Clubs promoted by Banks, NGOs, KVKs, etc. are supported by NABARD with financial assistance for maintenance of clubs and for other activities viz., exposure visits, training programmes, etc.

These clubs are expected to federate themselves into umbrella organizations and graduate to play the role of Producer Organizations. Towards this end, NABARD & Government are supporting formation of Federation of Farmers 'Clubs and Producer Organizations.

In Kerala, there are about 2700 farmers clubs and 10 federations of farmer clubs. These clubs are provided assistance for capacity building of members like, exposure visits, skill based training etc.

3.1.5.3 Initiatives of NABARD, GOI, GOK, etc.

i NABARD Incentive Scheme for Tracking & Revival of Dormant SHGs

The incentive Scheme is for banks / PACS to identify the dormant SHGs in their books and engage the services of BF/ BC/ SHPI/ NGO/ SHGs, etc. for revival of dormant SHGs. NABARD would provide grant assistance for revival and credit linkage of dormant SHGs @ ₹. 3000/- per SHG revived.

ii. NABARD Incentive Scheme for JLG credit linkage

3.15.2.1 Incentive is available from NABARD for formation, nurturing and financing of JLGs to NGOs/ PACS/ Banks/ Government Dept., Farmers' Clubs, etc. Grant assistance will be extended @₹.2,000 per JLG over a period of 3 years .

3.15.2.2 The details regarding incentives sanctioned and released by NABARD to various agencies under the JLG Linkage programme is detailed below :

Table 3.1.4 – Status of JLG credit linkage

Year	No. of JLGs to be credit linked	
	Sanction	Achievement
2010-11	26219	9470
2011-12	5930	1286
2012-13	3300	411
2013-14	7300	2165
2014-15	20000	14433

During FY 2014-15 NABARD has released an amount of ₹.40.38 lakhs as grant incentives JG promoting Institutions under the incentive programme

iii. NABARD Assistance for Micro Entrepreneurship Development

Assistance is extended by NABARD to NGOs for training members of matured SHGs in Micro Entrepreneurship. SHGs which have availed 2 to 3 cycle of credits are considered as matured SHGs. The trainings are activity based with suitable inputs on entrepreneurship, marketing support, etc123 such programmes were supported by NABARD in 2014-15 with a grant support of ₹33.0 lakhs

iv. Women SHG programme of Government of India

3.15.4.1 This scheme of the Government of India is being implemented by NABARD in Wayanad and Palakkad districts. The Anchor NGOs identified for the districts are – Wayanad Social Service Society (WSSS), for Wayanad and Peoples' Service Society & Palakkad (PSSP) for Palakkad district. As against the target of promotion and saving linkage of 1100 women SHGs in Wayanad and 800 in Palakkad, 1118 groups have been savings linked in Wayanad and 849 in Palakkad districts . Of these 387 groups in Wayanad and 667 in Palakkad were credit linked. An amount of ₹.69 lakh was released from the specially constituted Women SHG Development Fund for promotion and capacity building activities in the above districts .

v. *Interest Subvention to NRLM compliant SHGs*

The Honourable Finance Minister in his budget speech for 2013-14 proposed to provide interest subvention to Women SHGs who avail loans from banks upto₹3 lakhs at 7% per annum. The NRLM compliant Women SHGs promoted by any agency which are linked with the banks, will be eligible to avail the benefits of the scheme. The WSHGs in Wayanad and Palakkad will get an additional interest rebate of 3% for prompt repayment.

vi National Rural Livelihood Mission (NRLM) - Aajeevika

The Ministry of Rural Development, Government of India has launched National Rural Livelihood Mission (NRLM) – 'Aajeevika' by restructuring and replacing the existing Swarnajayanti Gram Swarozgar Yojana (SGSY) with effect from 01 April 2013. The beneficiaries

of NRLM will be SHGs, Federation of SHG at village/ cluster level. The support from NRLM will include all round capacity building of the SHGs, SHG Federations, livelihood organisations, skill development, etc. Support under the scheme is available to all SHGs formed by all NGOs, Banks, PACS, etc.

The various financial assistance available under NRLM are Interest Subvention for loans up to ₹.3.00 lakh @ 7%, Revolving Fund assistance of ₹. 10000/- to ₹.15000/- & Community Investment Support Fund to be used, by the Federations, to advance loans to the SHGs and/or to undertake the common/collective socioeconomic activities. No collateral and no margin will be charged upto₹.10.00 lakhs limit to the SHGs. No lien shall be marked against savings bank account of SHGs and no deposits shall be insisted while sanctioning loans.

vii.Farm Sector Promotion Fund

3.15.8.1 NABARD has constituted a fund named Farm Sector Promotion Fund (FSPF) by merging erstwhile Farmers Technology Transfer Fund (FTTF) and Farm Innovation Promotion Fund (FIPF) to promote innovations in the field of agriculture, support transfer of technology, sustainable scientific method of farming, to ensure increase in production, productivity and income of the farmers. Support from the Fund is available for activities which fall in the domain of agriculture and allied sectors. Eligible agencies are financial Institutions, Universities, KVKs, SFAC, NGO, Registered CBOs, POs, individuals, group of individuals and companies.

3.1.5.5 Issues and Constraints

1. SHG credit & NPAs

Table 3.1.5 – SHGs & NPA

NPAs against Bank loans to SHGs as on 31.03.2015	Commercial Banks	RRBs	Cooperatives	Total
Kerala (‘ in crore)	96.03	7.86	24.53	5.74%
All India (₹in crore)	2466.86	1065.54	282.25	7.4%

NPAs in SHG credit has been increased from 5.34% as on 31.03.2014 to 5.74% as on 31.03.2015.

2. Multiple membership

The number of SHGs reported by various banks is much higher than the maximum potential number of SHGs that can be formed in the State suggesting multiple membership and thus leading to unsustainability.

3 Participation of all branches of banks

A review of the implementation of the SHG - BLP by banks revealed that some of the branches of leading banks are not participating in the programme.

3.1.5.6 Suggested Action Points

A. State Government

- Encourage SHGs with long history of operations and good track record to graduate to entrepreneurial / livelihood activities like group farming, vegetable cultivation with the assistance of bank credit.
- Govt. / SRLM may ensure that the Interest subsidy under NRLM is made available to all NRLM complaint women SHGs.
- Extend Stamp duty waiver for loans availed by SHGs
- Encourage JLGs with fiscal incentives and support to their ventures
- Extend interest subvention to JLGs also in the lines of NHGs

B. Banks

- Financing JLGs / SHGs
- Design new products and services appropriate to clientele
- Mapping of SHGs to their promoting institutions in the CBS software as this would facilitate identifying SHGs and SHPIs with history of bad recovery

CHAPTER 3.2

NABARD'S PERCEPTION ON CLIMATE CHANGE AND IT'S IMPACTS IN KERALA

3.2.1. Introduction

Kerala lies on the South Western coastal region of India between and spread over an area of 38,863 km² constituting 1.2% of geographical area of India. The state's population (in 2011) of 33.3 million accounts for 2.8 per cent of India's population. The population density of the state is 859 persons per km², one of the highest in the country. The data on land use pattern of Kerala for the year 2013-14 reveals that out of a total geographical area of 38.86 thousand km², net sown area is about 56 per cent and Forests occupy around 28 per cent. Agriculture and forest sectors together account for over 84 per cent of the land area. While the States Forests occupy only a land area of about 1.12 % of the country the State houses about 25 % of the biodiversity of the country.

3.2.2 Kerala State Action Plane for Climate Change (SAPCC)

The Kerala State Action Plan on Climate Change was developed by the Department of Environment and Climate Change, Government of Kerala with the technical support of UNDP India. It aims to address the negative consequences of climate change and thus reduce the risk associated with it. It is reported that the Action plan was approved by the National Steering Committee for Climate Change set up under the Ministry of Environment, Forests and Climate Change in New Delhi recently.

3.2.3 Climate Change Projections

In the first report on "Impact of climate change in four regions of the country" submitted to the Government of India by the Indian Network for Climate Change Assessment (INCCA), it has been pointed out that reduced rainfall, increased atmospheric temperature and flooding due to sea level are the climate change scenarios for the Western Ghats and Kerala in the next 20 years.

Under the projected climate change scenario, it is estimated that the temperature is likely to increase by 2°C by 2050. The minimum surface air temperature in the Western Ghats region may rise by 2°C to 4.5°C. The average temperature in the region bordering Kerala is likely to rise by 1°C to 3°C. Maximum temperature increase can be seen in the Southern and Central Districts of Kerala while most of the districts in the southern Kerala will typically observe the increase in the temperature 1.66° C to 1.77°C.

The number of rainy days is likely to decrease along the entire Western Coast, including the Western Ghats. It is now established that the sea level is on the rise due to global warming and the projected Sea Level Rise (SLR) along Kerala coast on a conservative estimation is about 100 to 200 mm over the next 100 years. It is also projected that if the sea level rises by one metre, 169 Km² of the coastal region surrounding Kochi will be inundated.

3.2.4 Climate Change Vulnerability Profile of Kerala

Vulnerability to climate change can be considered to be high in the State due to unique social, economic, environmental and physical conditions that amplify susceptibility to negative impacts and contribute to low capacity to cope with and adapt to climate related hazards. The State is Vulnerable because of the following:

- A land of only 1.2 % of the total areas of India but accounts for about 2.80 % of India's population. The density of population of the state is 859 persons/ sq. km which is three times as densely settled as rest of India.
- High dependency of socio-economic nature of the State to climate sensitive sectors like Agriculture, fisheries and forests.
- Multi Hazards profile of the state which is more exposed to climate related hazards like flood and droughts.
- A very long coastline of 570 km, out of which 322 km is prone to severe sea erosion.
- Occurrence of fragile ecosystem like Mangroves, Shola forest and Tropical evergreen forest, river Pozhi and Azhi etc. and multiple biodiversity regions.

- Reduction in the availability of fresh water and impacts on agriculture production and food security due to predicted decline of rainfall.
- Boundary shifts for different forest types, with consequent implication for species diversity and forest dependent communities.
- Threats of sea level rise in the low lying areas along the coastal areas of the state.
- Changes of virulence and disease pattern especially vector borne and water borne diseases.
- Increased energy demands and subsequent impacts on climate sensitive infrastructure.
- Land degradation pose additional threats to human well-being and development if human pressures on lands intensify.

3.2.4.1 Agriculture

An increase of temperature by 2°C by 2050 as reported would affect paddy production in Kerala. With each degree rise in temperature, rice yield would be reduced by 6 %. Increase in maximum temperature of 1-3° C during summer will adversely affect thermo-sensitive crops like black pepper and cocoa in Kerala

3.2.4.2 Fisheries

In the state 10 species of fresh water fish have been identified as most threatened due to climate change. Warming of water may impact fish diversity, distribution, abundance and phenology. Besides exploring northern waters, the Indian mackerel has been descending deeper as well during the last two decades.

3.2.4.3 Biodiversity

Of the 300 rare endangered species or threatened species in the Western Ghats, 159 are in Kerala. Of these 70 are herbs, 23 climbers, eight epiphytes, 15 shrubs and 43 trees. Besides, hot temperature and dry condition also increase the likelihood of forest fires in the state that eventually results in deterioration of sizable amount of forest cover.

3.2.4.4 Health

The State has been witnessing an unprecedented upsurge of the vector-borne diseases since 1996. Japanese encephalitis first appeared in the state in Kuttanad area in Alappuzha district in the year 1990. Dengue fever surfaced as a new problem in the state in 1997 and has now become almost endemic in the state. Chikungunea fever, yet another disease which appeared in epidemic form during 2006-07 added a new dimension to the entire scenario of the vector borne diseases in Kerala. In 2008, the World health Organization (WHO) reported that an outbreak of Chikungunya in Kerala in the last two years (2006 and 2007) was mainly due to climate change. Due to change in climate, Malaria symptoms have been reported from various places in the state and also in near future state may become a malaria prone state.

3.2.4.5 Extreme events

As per the vulnerability map, the state is also susceptible to cyclonic winds. 96.9% of the total area in the state lies in the 140.4 km/h wind zone (moderate damage risk zone) and rest lies in 118.8 km/h wind zone. Climatic change may accelerate most intense cyclones in the Arabian Sea. The probable maximum storm surge height in the state is 3.5 m and minimum is 2.3. If the storm surge happens during high tide, the maximum surge height in the state may reach 4.2 m and minimum storm height may reach up to 3 meters. This has added significance especially because altitude of lowlands which constitutes about 54.17 % area in the state, is only 10-300 m, and the altitude of coastal plain and lagoons which constitutes about 16.40 % of the total areas is 10 m of the MSL.

3.2.4.6 Vulnerable hotspot districts

The major climate change hotspot districts in Kerala are Alappuzha, Palakkad and hilly districts of Wayanad and Idukki. As per the reports**,** Alappuzha and Palakkad districts are most vulnerable to climate change exposure as these districts are having higher values of Composite Vulnerability Index. Four districts that are under high vulnerable groups include districts located in hilly region i.e. Idukki and Wayanad, Thiruvananthapuram and Kannur.

3.2.4.7 Emissions

Kerala emits only small quantity of carbon dioxide and is 0.94 % of the total carbon emission in the country.

3.2.5 NABARD's Initiatives on Climate Change

NABARD is already supporting projects many of which can be classified under climate change initiatives. NABARD's six programmes namely - Rural Infrastructure Development Fund (RIDF), Tribal Development Fund (TDF), Integrated Watershed Management, Umbrella Programme on Natural Resource Management (UPNRM), NABARD Infrastructure Development Assistance (NIDA) and PACS as MSC, have supported projects with emission reduction potential including forestry, biogas digesters, rural energy management (pump replacement, HVDS, etc.) and renewable energy (solar, hydel). NABARD has also sanctioned pilot projects on climate change adaptation in Ahmednagar (Maharashtra) and climate proofing of watersheds in Tamil Nadu and Rajasthan. NABARD is also the National Implementing Entity (NIE) for the Adaptation Fund Board (AFB), The Green Climate Fund (GCF) and the National Adaptation Fund for Climate Change (NAFCC).

3.2.4 Projects in Pipeline in the State

A project on the Promotion of Integrated Farming system of Kaipad and Pokkali in Coastal Wet Lands of Kerala by the Agency for Development of Aquaculture, Kerala (ADAK), Thiruvananthapuram has been submitted for consideration under the National Adaptation Fund for Climate Change (NAFCC). The projects assesses the possibility of bringing back the paddy cum shrimp farming practice in the presently unutilised or underutilised areas. A second project on Climate change mitigation and adaptation project with focus on the Gap region of Western Ghats in Palakkad District in Kerala State of India has been submitted by the Integrated Rural Technology Centre (IRTC), Palakkad for consideration under the Green Climate Fund (GCF). The proposal seeks the Conservation and sustainable development of natural resources soil and water, Development of sustainable agriculture system for vulnerable farmers and Reduce vulnerability and increase resilience of livestock farmers.

CHAPTER 4

POTENTIAL CREDIT OUTLAYS UNDER VARIOUS SECTORS

NABARD in the year 2012-13 had prepared Base State Focus Paper (SFP) for five years coterminous with the XII Five year plan-(2012-17). The Base SFP projected a five year credit potential under priority sector covering Primary, Secondary and Tertiary sectors, with emphasis on the Primary sector. These projections were based on parameters such as availability of exploitable resources, cropping pattern, technical feasibility, agriculture practices, availability of infrastructure, and other developmental indices such as access to markets, etc. Some of these parameters may have undergone a change in the district since the finalization of Base PLP on account of factors such as changes in government's priorities and policies, strengthening of rural infrastructure, market forces, cost escalation, etc., necessitating a relook at the credit potential for the year 2016-17.

Further, the State Focus Paper 2016-17 has been prepared to align with the revised Priority Sector Lending (PSL) guidelines issued by RBI. Priority Sector has been broadly classified into eight categories viz, (i) Agriculture (ii) Micro, Small and Medium Enterprises (iii) Export Credit (iv) Education (v) Housing (vi) Social Infrastructure (vii) Renewable Energy and (viii) Others. Agriculture Sector is broadly divided into three sub sectors viz,

(i) Farm credit
(ii) Agriculture infrastructure and
(iii) Ancillary activities.

The basket of activities covered under each of the above three sub sectors under 'Agriculture Sector' has also under gone revision and the classification of these activities in SFP document needs to be aligned according to the revised classification. Factoring in the changes in the Government policies and priorities and based on the revised PSL guidelines, the credit potential for 2016-17 has been reassessed and presented in the following chapters.

Potential under Total Priority Sectors

The aggregate credit potential for 2016-17 for overall priority sector has been assessed at ₹.119391.95 crore. The sub sector-wise credit potentials assessed for 2016-17 is given in the Annexure I.

4.1 CREDIT POTENTIAL FOR AGRICULTURE

4.1.1 FARM CREDIT

4.1.1.1 Short term credit for production, marketing and food security

4.1.1.1.1 Introduction

About half of our population is either wholly or significantly dependent for their livelihoods on some form of farm activity – be it agriculture, horticulture, animal husbandry or fisheries. Thus increase in farm income is still the most potent weapon for reducing poverty. Non-farm income opportunities such as post-harvest operations, maintenance of farm equipment, etc. enables expansion of farm activity to that of rural non-farm income opportunities.

While rural income has increased and rural poverty has reduced over the years, the gap between urban and rural income has widened quite sharply because agriculture has grown slower than other sectors and employment growth in non-agriculture has not been enough to sufficiently reduce the population dependent on agriculture. Increasing the proportion of income to farmers out of the price paid by the consumer should be the focus while improving farm production.

The Agricultural scenario of Kerala is unique because of its land utilization and cropping pattern. The rain fall coupled with the undulating land topography leads to soil and water run off making soil and water management central to promote sustainable farming. The predominance of cash

crops, especially rubber and pepper and other spices whose prices are determined based on international markets, high cost of labour and uneconomic size of operational holding render the farmer's income vulnerable.

4.1.1.1.2.1 Topography and Rainfall

Kerala has three natural divisions: lowland, mid land and high land, forming parallel belts across the length of the State. The low land (890 mm to 3560 mm annual rainfall) with stretches of sand and backwaters on the western fringe of the State along the sea shore is suited for the cultivation of coconut and paddy. The midland region (890 mm to 3560 mm annual rainfall) with hills, valleys and numerous rivers are suitable for crops like rice, coconut, pepper, cashew, ginger, tapioca and rubber. The highland (1400 mm to 3940 mm annual rainfall) which consists of mainly mountains covered by dense forests bordering the Western Ghats is home for plantation crops like tea, cardamom, coffee and pepper.

4.1.1.1.2.2 Soil and Soil health

Soil test based nutrient management has emerged as a key issue in efforts to increase agricultural productivity and production.

Kerala has in all 33 soil testing laboratories which include 14 district soil testing labs, 10 mobile labs, one central soil and plant healthcare lab, one central soil analytical lab and 7 regional soil analytical laboratories with an annual analysing capacity 2.22 lakh samples. Considering a net sown area of 20.50 lakh ha and 68.31 lakh operational holdings, there is scope for setting up more labs. The capacity of the laboratories may be upgraded for analyzing micro nutrient status of soil.

Soil health cards are being issued which are a part of the larger objective of Soil Based Plant Nutrient Management which is an ICT enabled farmer centric soil nutrient management and advisory system for Kerala. It is a multi-institutional project initiated by the Department of Agriculture, Govt. of Kerala.

4.1.1.1.2.3 Inputs

4.1.1.1.2.3.1 *Seeds*

The State Seed Authority is involved in the production of good quality paddy seed which is carried out in association with Kerala Agriculture University, State Seed farms, Krishi Bhavans and farmers of registered PadasekharaSamithies at the panchayat level. There are 64 farms in the state out of which 50 are under the control of District Panchayat and 14 under the department of Agriculture. These include 33 State Seed Farms, 13 district farms, 14 special farms. This is in addition to the network of the seed farms being maintained by the Commodity Boards like Coconut Development Board, Rubber Board, Spices Board etc,. State Horticulture Mission and VFPCK. Kerala produces around 8000 MT of of paddy seed and the requirement of the state is around 16000 MT, which is being met through sources outside the state. The total vegetable seed requirement estimated for the State during 2015-16 is 690 MT against which the estimated availability is 193 MT.

The emphasis on high value agriculture by the State Government and promotion of fruit and vegetable cultivation in homesteads and terrace in urban areas needs to be supported by increased supply of seed/planting materials.

A viable seed supply chain can be developed for crops like rice, vegetables, roots and tubers, ornamental plants, etc., with tie-up between research institutes, KVKs, and farmers' collectives like co-operative societies and producers' companies, SHGs, NHGs, etc. The 'One Village, One Product (OVOP)' movement practiced in Thailand, Japan and Nepal may be explored.

4.1.1.1.2.3.2 *Fertilizers*

The usage of fertilizers among the farmers of Kerala is relatively low. Another reason why Kerala consumes lower fertilizers could be that its cropping pattern is dominated by plantation crops where the consumption of fertilizers is dependent on the output price realized by the farmer. As

per Agricultural Statistics at a Glance (2014) the average consumption of fertilizer of the state is 121.03/ha against the national average of 125.39/ha.

Soil health being central to crop productivity, the use of bio fertilizers has gained prominence and there is a huge demand for it. There are 43 registered organic fertilizer manufacturers in the state. The State Government is coming up with Quality Control laboratory for bio fertilizers and bio pesticides at Pattambi, Palakkad district.

As Precision / High Tech farming and Micro Irrigation schemes are being taken up by progressive farmers, there is a demand for Water Soluble Fertilizers (WSF) / Liquid bio fertilizers for various crops as this provides optimum quantity of water & nutrients in well balanced proportion directly to the active root zone.

The State Government has embarked on a mission to promote safe to eat brand and make Kerala organic by 2016. In tune to this, there is a need to scale up existing capacities in respect of bio pesticides & fertilizers, regulate their quality, develop certification standards for safe to eat products and promote exclusive marketing channels for organic products

4.1.1.1.2.3.3 *Irrigation*

As per the Economic Review 2014, the net irrigated area in the state as on March 2014, is 3.97 lakh ha and constitutes 19.37% of the net sown area and the gross area irrigated is 4.68 lakh ha. There has been no perceptible change in the net irrigated area of the state compared to the previous year of 2012-13. Other aspects relating to irrigation are discussed in the Chapter 'Water Resources'.

4.1.1.1.2.3.4 *Credit*

Credit is an important component for agricultural production. The Banking System has been working closely with the State Government to ensure availability of timely and adequate credit to the needy farmer without any hassles. The credit flow under crop loans has tripled between the period from 2008-09 to 2014-15.

Table 4.1.1.1.1 – Credit flow for Crop loans through various agencies (₹ Crore)

Year	CBs	Coop. Banks	RRBs	Other-Agencies	Total
2008-09	8,134.17	4,393.65	2,057.96	19.33	14605.11
2009-10	10,877.95	5,978.67	3,022.43	2.17	19,881.22
2010-11	14,458.60	6,322.30	2,730.38	74.98	23,512.03
2011-12	24,611.99	3,166.96	2,727.33	-	30,506.28
2012-13	22,471.37	7,596.65	2,583.60	-	32,651.63
2013-14	24,628.28	8,366.33	3,873.81	3.24	36,871.66
2014-15	26,020.03	10,874.57	4,783.95	6.20	41,684.75

The interest subvention Scheme of GoI which started in 2006-07 continues for the year 2015-16 under which, short term crop loans upto an individual limit of ₹.3 lakh are disbursed at 7% interest per annum. Interest subvention is also being extended for loans against Negotiable Warehouse receipts by GoI. However, there has not been any off take against this scheme.

4.1.1.1.2.3.4.1 *Kisan Credit Card*

Kisan Credit Card is an effective credit delivery tool for providing hassle-free timely and adequate credit. As per the reports available with the Convenor SLBC, 503163 Kisan Credit Cards with an amount of ₹.7564.53 crore have been issued during the year 2014-15 by the banking sector in the State.

The revised KCC norms also provides for inclusion of incidental requirements of the farmers and his consumption expenses. Banks are also expected to leverage their CBS platforms to provide value added services to farmers like ATMs, anywhere banking, debit cards etc.

The banks can use the Rupay network for issue of smart cards or debit cards with KCC so that the farmer is able to obtain all the services at convenience.

Table 4.1.1.1.2 – Progress in issue of KCC through various agencies

Name of implementing agency	Cumulative during the year 2014-15		Total balance outstanding as on 31.03.15	
	No	Amt(₹ Crore)	No	Amt.(₹ Crore)
Comm. Banks *	214274	5546.14	490689	13095.71
RRBs	113025	842.14	152384	1059.96
KSCB (DCBs)	173352	1129.65	1213388	2508.33
KSCARDB	2512	46.60	4416	49.54
Total	**503163**	**7564.53**	**1860877**	**16713.54**

* Including Private sector Banks Source : SLBC

4.1.1.1.2.3.5 *Insurance*

The small holdings of farmers, vagaries of nature make farming an inherently risky proposition and make the farmers vulnerable. Insurance is a risk mitigation mechanism. The extent of coverage of farmers under various insurance schemes and compensation disbursed during 2013-14 is given below:

Table 4.1.1.1.3 – Coverage of farmers under various insurance schemes

Name of the scheme	No. of farmers insured	Area covered (ha)	Compensation disbursed ₹ Lakh)	No. of farmers benefited
State crop insurance scheme	142000	NA	919.00	13697
National Agricultural Insurance Scheme	18237	16539		
Weather Based Insurance Scheme	44177	26724	403.48	
Coconut Palm Insurance Scheme	7221	2513 (2.85 lakh palms)	66.59	1459.00

Source : Economic review 2014

Considering the number of crop loan accounts and the fact that crop insurance is mandatory in respect of crop loan accounts, the coverage of insurance has been far from satisfactory.

The Personal Accident Insurance Scheme (PAIS) is an insurance scheme coverage given to farmers who avail crop loan from the banking system with premium being shared by the farmers and the bankers in an agreed proportion. As on 31 March 2015, 338053 farmers were covered under PAIS. When compared to the number of live KCC which is 18.60 lakh, the coverage under PAIS needs improvement.

4.1.1.1.2.3.6 *Extension*

The Krishi Bhavans, Agricultural University, Commodity Boards and agencies like VFPCK and private players are the major players in the extension system for agriculture in Kerala.

Improving the effectiveness of the ongoing extension services and delivery mechanism by making them more responsive and accountable to the farmers should be prime focus of the Government. Government has taken the following initiatives to strengthen the extension services:

- Providing vehicles to increase the Mobility of Extension staff at Block level
- Providing extension services through select farmers as peer to peer interaction would help better information flow through LEAD scheme
- Extensive usage of the IT based applications and Audio video communications like TV Channels.

KISSAN Kerala (Karshaka Information Systems Services and Networking) is an integrated, unique, multi model, ICT enabled agricultural extension system, which provides several dynamic

and useful information and advisory services to the farming community across Kerala. It is one of the leading citizen centre e-governance projects of the Department of Agriculture ,Govt of Kerala

The multi model of KISSAN are

- KISSAN Krishi Deepam (Agriculture based weekly T V Programme)
- KISSAN online Agri Advisory Service (www.kissankerala.net)
- KISSAN online video channel (Youtube.com/kissankerala)
- KISSAN Tele services
- KISSAN SMS based agri advices
- KISSAN online audio portal

4.1.1.1.3 Constraints& Issues

4.1.1.1.3.1 Land Reforms – Facilitating land use & Bringing more land under cultivation

The structural issues like small land holding, absentee landlordism, high cost of labour, low productivity etc. make the already vulnerable farmer face enhanced risks. In this context, pursuing farming has become a risky proposition.

Despite the intensive efforts of the Government to promote collective farming through groups like Haritashree, their weak linkage to the banking system is a clear pointer to the fact there is a requirement of intervention from the Government and banks.

The banks are not able to provide credit to these groups as the usage rights of the land being taken up for cultivation by such groups are not available. The Kerala Land Reforms Act, prohibits leasing of agriculture land. The legacy of land reforms prevents the owners from leasing the land for agricultural use. It is in this context, Government should initiate steps to provide a legal backing for transfer of usage right of land to lessees and protect the ownership of the land.

Digitization of land records could be one solution for separation of usage rights from the ownership rights. Many of the States, have already commenced the work on digitization of land records. The Karnataka model of digitization of land records could be considered for replication by the Government of Kerala.

4.1.1.1.3.2 Credit flow and Production

Despite the increase in the credit flow, one of the major issues is the outreach of adequate credit to the needy in time. The credit flow to the sector has been distorted by indiscriminate issue of agri gold loans without reckoning the end use of such credit.

Keeping this in view, there is a need to look into the end use of the credit from the banks towards crop loan.

The Cooperative credit institutions which are more close to the farmers, are not able to meet the requirements of the farmers due to structural issues relating to regulation. Thus the beneficial schemes of the Government like Interest subvention scheme are not able to reach the farmers under the cooperative fold to the extent desired. It is imperative that the financial health of these institutions are to be improved..

4.1.1.1.3.3 Capacity Building

There is an urgent need to bridge the skill gap of the farmers, especially when the State Government intends to make the farmers agripreneurs and also its emphasis on high tech farming / precision farming. The literate farming class in the State needs to be empowered by providing appropriate knowledge and new technologies and processes which can reduce drudgery and at the same time add value to their produce.

The present status of low share of the farmer / producer in price being paid by the ultimate consumer needs to be changed by appropriate institutional interventions like Farmer Producer Companies. The Government's initiatives in promoting FPOs are a step in the right direction.

Many a time, activities like grading, sorting can add value to the produce by a significant proportion. Farmers may be empowered to perform value addition activities at the farmer level either at his own level or in a group based approach.

The farmers clubs, promoted by banks, NGOs, KVKs and supported by NABARD, are association of farmers which could be utilized for the purpose of capacity building. They can be supported to act as pressure groups which can combine work for their common interests.

4.1.1.1.3.4 Weak Extension

The present extension network of the Government is not adequate to meet the demand of the farmers. The Krishi Bhavans which are the centres of extension activity are also saddled with many other responsibilities and are under staffed. Hence the quality of the services being provided by them is far from adequate.

4.1.1.1.3.5 Agriculture Marketing

The absence of marketing and storage facilities for the farmers at convenient locations have been a limiting factor for the farmers. The provision of such facilitates also enable farmers to obtain credit on produce.

The attempts of the Government to facilitate marketing through Horticorp, VFPCK could achieve limited success. The efficient backward and forward linkages in the farm value chain facilitates better value realization at the farmer level.

4.1.1.1.4 Suggested Action for stake holders

A. *Government*

- Appropriate legislative mechanism may be evolved for promoting lease of agriculture land / fallow land to facilitate credit flow for farming
- Digitisaiton of land records facilitating easy transfer of usage rights and ownership rights
- Increase the capital expenditure towards agriculture which would enhance the productivity.
- Improve efficiency of State Farms and land use
- Develop a policy for lease of state farms to FPOs and JLGs for seed production / production of quality plant saplings
- Initiate steps for increasing the efforts for extension and agriculture research to bridge yield gaps
- Initiate steps for supply of inputs at appropriate time in required quantum
- Improving the financial health of Cooperatives
- Setting up Automatic Weather Stations in all the Krishi Bhavans to expand the coverage of Weather based Crop Insurance
- Providing training for farmers in various aspects of farming especially in the new technologies and new farming practices
- Provide handholding support, guidance cell for farmers to venture into new areas of farming technology like precision farming, high tech farming
- Providing opportunities for marketing of produce and creating a network of marketing infrastructure for storage, transport and sale
- Create infrastructure for post-harvest processing and storage and accredit warehouses so that the receipts issued by these warehouses can be negotiable warehouse receipt and used by farmers for accessing cheap credit from the banking system
- Encourage peer learning, group approaches among farmers. The existing network of farmer clubs promoted by NABARD and groups promoted by ATMA, VFPCK can be leveraged for the purpose
- Promotion of Farmer Producer Organisations
- Adopt a holistic and coordinated approach involving all the field level institutions in the process of development.
- leverage funds available with the banking system and encourage the culture of good repayment ethics
- Adopt a need-based approach to support agriculture related subsidies.

B. *Banks*

- Actively promote investment in agriculture
- Ensure end use of credit in respect of agri gold loans and follow instructions of RBI in this regard
- Educate farmers about various products like KCC and make facilities available to them
- Issue KCC enabled Rupay cards for seamless transactions by farmers.
- All the bank branches to ensure coverage of all eligible farmers, including oral lessees, tenant farmers, etc. under KCC. All KCC holders have to be covered under PAIS.
- Continue to support farmers clubs and facilitate their graduation to a pressure group and / or micro enterprises
- Actively support Producers organizations
- Promotion of joint liability groups (JLGs) covering tenant farmers, share croppers, oral lessees, small/marginal farmers, etc., should be given utmost importance/attention by the banks.

4.1.1.1.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the potential for ST Credit for production, marketing and food security the year has been assessed at ₹38798.00 crore.

Box: 4.1.1.1.1 - International Year of Pulses 2016

The 68th UN General Assembly declared 2016 the International Year of Pulses (IYP). The IYP 2016 aims to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition. The Year will create a unique opportunity to encourage connections throughout the food chain that would better utilize pulse-based proteins, further global production of pulses, better utilize crop rotations and address the challenges in the trade of pulses.

Importance and need for encouraging Pulses production in Kerala

- Pulses are legumes that fix atmospheric nitrogen thereby enriching soil by adding organic matter.
- Pulses are rich in proteins thus constituting the main source of protein in Indian diet
- They play an important role in crop rotation, mixed and intercropping, and helps maintain soil fertility.
- It requires less or no manuring and can be grown in rainfed conditions. Pulses are helpful in checking soil erosion as they have more leafy growth and close spacing.
- They supply additional fodder for cattle and can be ploughed into soil as green manure crops.

The paddy fields offer ideal condition for pulses cultivation and can be taken up by farmers as a remunerative summer crop in view of its high market price

4.1.1.2 Water Resources

4.1.1.2.1 Introduction

4.1.1.2.1.1 Optimal utilization of water resources through appropriate conservation and management measures assumes critical importance in sustaining life support systems. The demand for water in Kerala is mainly for domestic use, agriculture, prevention of salt water intrusion and for generation of electricity. Industrial demand is low but is concentrated in certain areas. The annual yield of water in a normal monsoon year is around 70,300 MCM and the groundwater resources available are estimated at 6074 MCM. Nearly 40 per cent of the available resources are lost as runoff causing heavy floods. Kerala would require around 30000 MCM of water for agriculture, 7500 MCM for domestic use and 12200 MCM for prevention of salt water intrusion. The pattern of demand for water is undergoing gradual but continuous change towards increasing pressure for drinking, other house hold and commercial needs relative to the demand for irrigation for Agricultural use as the emerging trend is towards less water demanding, perennial crops in lieu of seasonal food crops.

4.1.1.2.1.2. The ground level credit flow to the sector during last 3 years (2012-13, 2013-14 & 2014-15) were ₹.124.14 crore , ₹.317.53 crore and ₹.354.96 crore respectively. Agency wise credit flow to the sector for 3 years is given in Annexure II.

4.1.1.2.3 Issues, constraints and new emerging developments

4.1.1.2.3.1 Irrigation status

Table 4.1.1.2.1- Net Area Irrigated (Source wise) (in Ha.)

Source	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Government canals	88318	95956	94813	85825	81737	80718	80007
Private canals	4324	6318	2656	5584	1971	2457	1448
Tanks	41580	39752	40851	51064	47112	43558	45283
Wells	131002	133312	125892	137716	137193	122338	124850
Other sources	122321	123915	122050	134824	140901	146797	145588
Total	**387545**	**399253**	**386262**	**415013**	**408914**	**395868**	**397176**
Gross irrigated area	475231	455310	454783	466038	490585	457896	468324
Gross irrigated area to gross cropped area (%)	16	17	17	18	18.34	17.67	17.94
Irrigated area under paddy to total irrigated Area	40	37	37	32	31.24	32.09	32.89

Source: Directorate of Economics Review 2014-State Planning Board.

Irrigation development in the State is mainly through development of surface and ground water resources, private wells account for about one–third of the total area under irrigation. Out ofthe total gross cropped area of 26.17 lakh ha in Kerala in 2013-14, 4.68 lakh ha is reported to be irrigated. The gross irrigated area at nearly 18 per cent is far below the all India share of 45.3 per cent. Among the various crops, Coconut, whose productivity is highly linked with irrigation, has only 35.5 per cent of its area under irrigation. Surprisingly, predominant annual crops like spices and tubers also fall under the category of 'under- irrigated' crops. Over the years, area under irrigation has hardly improved in the state.

4.1.1.2.3.2 Micro-irrigation (MIS) - way forward

MIS implemented through the drip & sprinkler irrigation techniques is highly suited for coconut, species and other horticultural crops. The benefits of MIS vis-a-vis traditional method of irrigation include: increase in crop yield (20-30%), savings of labour (30-50%), water (30-40%) & power (20-40%). Therefore, with increase in yields & associated savings, MIS is one of the most environment friendly way of increasing farm productivity. As of 2011, according to the International commission on irrigation & drainage, the penetration under MIS in Europe and America stood at 61.7% and 50.9% .The penetration in India stands at 9% (6 MH under MIS out

of total of 70 MH of irrigated area). In Kerala penetration is 7% only which is below the national average. The central government, in the past, has been promoting MIS through its flagship programme National Mission on Micro Irrigation (NMMI). From April 1, 2014, NMMI has been subsumed under the National Mission on Sustainable Agriculture (NMSA) and is now being implemented as "On Farm Water Management" (OFWM). Any reduction in the quantum of subsidies by the central and/or the state governments may derail the growth of the MIS propagation. The payback period for farmers domestically is in the range of one or two years. (There does not exist any cap on the state government's subsidy share)

4.1.1.2.3.3 Ground Water – issues

Kerala is dependent on ground water. The groundwater potential of Kerala is limited because 88% of the total geographical area of the State is underlain by crystalline rocks devoid of any primary porosity.

An analysis of last 20 years data shows that the number of safe, semi - critical , critical and over-exploited blocks in the state remained almost same. As per the latest ground water assessment report (as on March 2013, there are 131 safe,18 semi critical,02 critical and 01 over exploited blocks in the State. Decline in water table also observed in some of the blocks.

4.1.1.2.3.4 Stage of Ground Water Development

In Kerala, irrigation needs of about 50% of the irrigated area are met by ground water. The annual replenishable ground water resources of Kerala have been reassessed at 6.7 billion cubic meters (bcm) as on March 2011. The main source of ground water is recharge from rain fall, which contributes about 82% of the total annual replenishable resources. The annual ground water draft in the State as on March 2011 is about 2.8 bcm. The state of ground water development for Kerala has been computed as 47%. The utilisation pattern is, however, uneven across the State. The allocation made for domestic supply/consumption is about 1700.26 MCM.

The balance ground water available for further development is 3020 MCM. Among the districts, the water table in Kasargode, Kannur, Malalpuram and Palakkad is declining. This is a matter of serious concern.The micro level survey is not taken up in the critical / over exploited blocks in the district of Kasaragod and Palakkad.

4.1.1.2.3.5 Construction of Check Dams & inter sub basin water transfer

Even though, the State receives on an average, about 3000 mm rainfall per year, due to undulating topography of the State, more than 40% is wasted as runoff without adequate recharge to ground water. This has resulted in water scarcity even for drinking during summer. In order to overcome this problem and also to sustain the existing ground water based irrigation /drinking water structures, Irrigation department needs to evolve suitable strategy and formulate schemes for construction of series of check dams at appropriate locations.

The viability of inter sub basin water transfer during monsoon season to rain shadow regions and thereby to augment the ground water resource of the area should be worked out as a long term solution to the water problem of Palakkad and Kasargod districts.

Considering the cropping pattern in high ranges, it is important that water harvesting structures like check dams are created to prevent wasted runoff. This will enable adequate recharge of ground water.

4.1.1.2.3.6 Minor Irrigation Not Achieving its Potential

As per Perspective Plan of Kerala, a survey to assess the performance of minor irrigation in Kerala indicated that the minor irrigation initiatives were able to achieve only a little over 53 per cent of the targeted area coverage, the actual area irrigated is only half the potential created (as on 2004–05) and they support 5 lakh beneficiaries as against the proposed 7.9 lakh.

One major problem with minor irrigation schemes is reportedly the high number of non–functioning schemes. About 16 per cent of the minor irrigation schemes are not functioning, due to physical damage, changes in the agricultural methods in the locality and scarcity of water, among others *(Source: Government of Kerala, Minor Irrigation Survey, 2005)*. Scarcity of funds has been identified as the reason for non-initiating several minor irrigation schemes.

4.1.1.2.3.7 Economic Pricing of Water

Over the years, the State Govt. has been investing substantial amount in creation of various irrigation assets. Though the per hectare development cost of irrigation potential has increased manifold, the pricing of water has not been effected to take care of, at least, the Operation & Maintenance expenses.

While States like Maharashtra, M.P, Gujarat, Karnataka, etc., have revised their water tariff, the water tariff in Kerala has remained static. It does not reflect the value of water. It is imperative that tariff for water should have correlation to its economic value.

4.1.1.2.3.8 Participatory Irrigation Management

The management of natural resources would be successful only with the active involvement of the stakeholders, The Water Users' Association (WUA), which is based on the principles of Participatory Irrigation Management, is one such institutional mechanism which will ensure equitable distribution of water resources within the community and also will bring down the operation and maintenance cost of the government. This association is also expected to manage the irrigation structures. Such associations have performed well in States like Maharashtra and Andhra Pradesh. Realising the efficacy of these institutions, State Governments have come forward to provide financial assistance for establishment of Water Users' Associations and its operations.

4.1.1.2.4 Suggested Action points stake holders

A. Government Departments

- Special emphasis on creation of suitable Artificial Recharge Structures in the districts where the water table is declining ie, Kasaragod, Malappuram, Palakkad and Kannur.
- Creation of series of check dams in suitable locations in high range areas.
- Expeditious completion of micro level survey in critical / over exploited blocks to facilitate credit flow to these blocks.
- Micro Irrigation should be encouraged by providing appropriate incentives, creating awareness about the need for water conservation and efficacy for micro irrigation.
- Formation of "Water Users Associations (WUAs)" particularly in command areas of all major/ medium irrigation projects, Lift Irrigation and under Tank Commands to ensure efficient use of water and maintenance of these structures.
- Water tariff should be revised to reflect its economic price.

B. Banks

- Banks may ensure providing more funds towards creation of MI structures and Micro irrigation systems.

4.1.1.2.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential for the year has been aggregated at ₹.871.46 crore.

4.1.1.3 Farm Mechanization

4.1.1.3.1 Introduction

4.1.1.3.1.1 The growing shortage of agricultural labour and rising wage rates are not the only reasons for the accelerated mechanization of farm operations. Factors such as time-saving, efficient input application, transportation of farm inputs and produce, and reducing drudgery also stimulate demand for farm machines. The development and mass production of multi-utility mechanized devices to suit the requirements of different categories of farmers are the need of the hour. Agricultural productivity is directly correlated with farm power availability," says Pitam Chandra, former director of the Bhopal-based Central Institute of Agricultural Engineering. However, the energy input in Indian agriculture is still meagre compared to developed countries. Besides, over half of the power derived from mechanical and electric sources is utilized mainly for stationary operations, notably water-lifting. Only 35 per cent of the available mechanical power is used for draught or traction in farm operations. This content needs to be stepped up substantially to raise crop output.

4.1.1.3.1.2 Farm mechanization has also been abysmally low in Kerala. Even though labour availability for agricultural operations has decreased in Kerala over the years, a commensurate improvement in mechanization did not take place. On a per hectare basis, the density of implements was found to be very low in Kerala. For instance, the density of use in the case of power tillers and tractors were 0.60 and 0.72 respectively. These were much lower than those for Haryana (30.3 for tractor; 4.1 for tiller), Punjab (37.8 for tractor; 4.5 for tiller), and southern states like Tamil Nadu (9.4 for tractor; 1.9 for tiller) and Karnataka (5.3 for tractor; 2.4 for tiller). The relatively smaller size of farm holdings in Kerala, decreasing area under paddy and other field crops, predominance of plantation crops, etc., could be the key reasons behind this observed pattern.

Table 4.1.1.3.1. Cropping intensity and power availability on Indian farms

Year	Cropping intensity (%)	Food grain productivity (t/ha)	Power available (kW/ha)	Power per unit production (kW/t)	Net sown area per tractor (ha)
1965-66	114.00	0.636	0.32	0.50	2162
1975-76	120.30	0.944	0.48	0.51	487
1985-86	126.80	1.184	0.73	0.62	174
1995-96	130.80	1.499	1.05	0.70	82
2005-06	135.90	1.715	1.49	0.87	45
2010-11	140.50	1.930	1.78	0.92	34
2011-12	141.50	2.079	1.87	0.90	31
2012-13	140.90	2.129	1.94	0.91	29
2013-14	142.00	2.111	2.02	0.96	27

Source: Surendra Singh et al., Agricultural Engineering Today, Vol. 38(4), 2014

4.1.1.3.1.3 The ground level credit (GLC) flow in the State under FM sector during year 2014-15 marked to highest (₹. 604.35 crore) since 2003-04. During year 2013-14 and 2012-13 GLC under Farm Mechanization was ₹. 469.78 crore and ₹. 479.60 crore respectively.

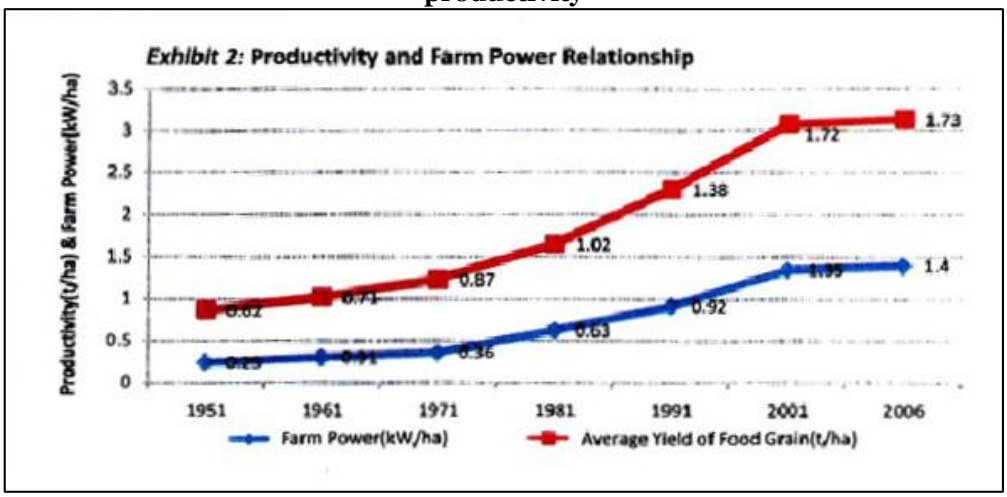
4.1.1.3.2 Need for farm mechanization in Kerala

i. Increased efficiency and precision in Agricultural operations: The timeliness of operations has assumed greater significant in obtaining optimal yields from different crops. For instance studies have shown that, the sowing of wheat is done up to the first fortnight of November. A delay beyond this period by every one week leads to about 1.50 quintals per acre decrease in the yield. This is also correct in the case of other crops and for other farm operations like hoeing, irrigation, harvesting, threshing and marketing .Secondly, the quality and precision of the operations are equally significant for realizing higher yields. The various operations such as land leveling, irrigation, sowing and planting, use of fertilizers, plant protection, harvesting and threshing need

a high degree of precision to increase the efficiency of the inputs and reduce the losses.

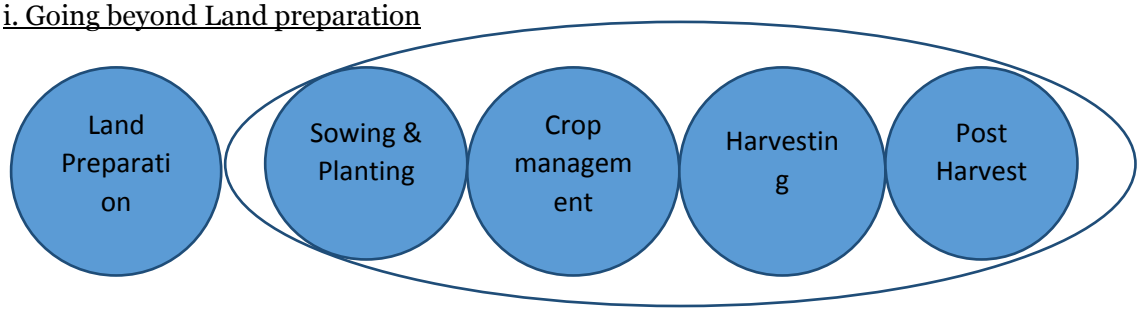
ii. Addressing scarcity of agricultural labour& helps in Climate Change Mitigation (less sowing window, quick harvesting, delay in planting)

Graph 4.1.1.3.1. Positive correlation between farm power availability and agricultural productivity



4.1.1.3.3 Constraints, opportunities & emerging trends

i. Going beyond Land preparation



The mechanization is skewed towards land preparation. There is need to introduce complete crop specific machination solution.

ii. Rice cultivation in Kerala requires very high labour input, as much as 1000-1200 man-hours per ha in the State compared to only 800 man-hours per ha in other States in India . At present, tillage operations in rice cultivation are mechanized to a great extent with the help of tractor and power tillers. However, other labor-intensive operations such as transplanting, weeding and harvesting are performed manually. Commercial rice-farming machines like mechanical rice transplanter, vertical conveyor reaper and rice combines are yet to be adopted widely in the farms of the State mainly due to their high investment cost and sophisticated technology for operation and maintenance.

iii. Popularization of Kerala specific farm machinery: Considering the average small land holding (0.22 ha) it is important that small farm friendly equipment needs to be custom made to fit to the requirements of Kerala.

Increasing adoption of coconut climbers can make a big difference in the harvesting operation of nuts. It can minimize time for coconut harvesting and at the same time reduce labour requirements and also reduces cost of harvesting. Similarly, there are several other small-farm friendly farm implements, like power operated levellers, ridgers, puddlers, harrows, furrow-bund formers, seed and fertilizer drills, planters, weeders, shellers, harvesters, etc., that are suitable for agriculture in Kerala, but are yet to find significant levels of adoption.

Such machinery could be popularized by extending credit linked back ended subsidy for purchase of these equipments and for replacement of inefficient pumpsets by energy efficient pumpsets.

iv. Customization of farm machinery for Plantation sector**:** Kerala has a substantial share in the four plantation crops of rubber, tea, coffee, and cardamom. These four crops together occupy 7.02

lakh ha, accounting for 34.4 percent of the net cropped area in the state. There is a acute shortage of labour which needs to be addressed.

v. Gender-friendly tools and equipment: High level of participation of women in agriculture in the state both in production and processing calls for - Ergonomically designed tools & equipment for reduced drudgery, enhanced safety & comfort.

vi. Promoting 'Custom Hiring Centers': Mechanization is all about scales of operation. If scalability is lacking farm mechanization will not be economically viable, this calls for promoting ' Custom hiring centers' rather than distributing 'Tractors' / Combined Harvesters at high top up subsidy

vii. Quality certification : Lot of innovation, customization of farm machinery is happening in SME sector in the state there is a need for ensuring quality control of newly developed agricultural machinery through performance evaluation of newly developed agricultural machinery and equipment and certifying them at designated testing centers located all over the country.

4.1.1.3.4 Suggestions / Action Points

Banks should finance second-hand agricultural vehicles including tractors. Considering the large population of tractors and tillers in the state, a good market for financing second-hand tractors for agricultural use still remains untapped

Monetary incentives like credit linked back ended subsidy for promotion of small farm friendly farm implements and replacement of pumpsets. While fragmented holdings pose a problem for investments in mechanisation, the new models like Food Security Army promoted by Kerala Agricultural University are new hopes in the horizon.

Centrally sponsored subsidy scheme for Solar Photovoltaic Pumping System for Irrigation purpose is available for all the banks in which 40% subsidy is available on actual cost subject to benchmark cost of ₹190/WP. Banks may take benefit of the scheme by promoting finance for installation of Solar Photovoltaic Pumping Systems for Irrigation purpose.

4.1.1.3.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and discussions with the line departments, etc., the credit potential assessed for the year 2016-17 is ₹742.74 crore.

Box 4.1.1.3.1 Green Army a.k.a '**the Food Security Army (FSA)**'

Green Army a.k.a '**the Food Security Army (FSA)**' promoted by Kerala Agriculture University (KAU) is creating new benchmarks in timeliness and labour productivity in Paddy cultivation. The army has demonstrated the immense potential of mechanization by completing the transplanting rice on 300 acres of land in five days in Ponnamutha at Thrissur in Kerala

This model is worth replicating and spreading to all districts of the state. The model holds twin advantage for Kerala, one it addresses the acute labour shortage, but more importantly it has potential to turn the farm labourer into an entrepreneur, by organizing these FSA's into societies/ companies. The activities of the FSA may be diversified into all crops to attain economy of scale. The machinery asset base of these societies / companies can be a channel for investment in agriculture and also overcomes the constraints posed by fragmented holdings and consequent viability on investments made in agriculture.

Box 4.1.1.3.2 Custom hiring of tractors in Punjab

A new innovation in Custom Hiring model – The 'Radio Taxi' model of 'operate & own your farm machinery' is being successfully adopted in Punjab.

In the traditional custom hiring model, the public ownership of the equipments lead to rough and heavy usage of machinery resulting in heavy maintenance and supervisory cost.

Under the 'Radio Taxi' model the company/ society purchases the machinery and leases it to any willing person or group of person under an agreement that the ownership will be transferred to them after the predetermined hours/ years of usage of machinery. Thus the supervisory cost is reduced and since the ownership is being transferred to the user at the end of specified period, the equipment is taken care of effectively.

This model with local adaptations can be also be tested in Kerala.

4.1.1.4 Plantation and Horticulture

4.1.1.4.1 Introduction

4.1.1.4.1.1 Out of the Gross Cropped area of 26.1 lakh ha in 2013-14, plantation and horticulture crops constituted nearly 90% of the area. Plantation and Horticulture (P&H) sector is the back bone of Kerala Agriculture, which provide livelihood to majority of the population as also provides employment to several thousand common people. The sector also contributes to the State and Central exchequer by way of taxes.

4.1.1.4.1.2 Coconut occupies the highest area (808647 ha) among all other crops in Kerala with a share of 31 per cent area under it.

4.1.1.4.1.3 Kerala is the home of Indian rubber and 90% of the farmers are small holders. The area under rubber as on 2013 is 548225 ha which constitutes 21% of the cropped area and the area has been increasing in the recent years.

4.1.1.4.1.4 Spices condiments that include pepper, cardamom, turmeric, ginger, cinnamon, clove, vanilla, nutmeg, etc., claim a share of 14 per cent. Banana and other fruits together constitute an area share of 11 per cent.

4.1.1.4.1.5 The marginal and fragmented land holding pattern, homestead farming practices have resulted in high cropping intensity (127%). The dependence on world market conditions makes the sector highly vulnerable to volatile price movements of the commodities.

4.1.1.4.1.6 The expectation of substantial benefits to the Kerala economy from expanded trade resulting from globalization of agriculture has not materialized. At the same time disturbing impact of import of items such pepper, plam oil, soyabean and rubber which compete with local produce is being felt.

4.1.1.4.1.7 The latest developments in the negotiations of WTO with the objective to lower trade barriers around the world facilitating increased global trade will pose a major challenge for this sector.

Table 4.1.1.4.1 Area, Production and Productivity of Principal Crops

Sl. No.	Crops	Area (Ha.)		Production (MT)		Productivity(Kg./Ha.)	
		2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
1	Rice	197277	199611	508299	564325	2577	2827
2	Pulses including Tur	2948	2989	3246	3019	1101	1010
3	Pepper	84707	84065	46298	29408	547	350
4	Ginger	4505	4538	22064	21521	4898	4742
5	Turmeric	2628	2430	6904	6253	2627	2573
6	Cardamom	41600	39730	10222	14000	246	352
7	Arecanut	101775	100008	118233	100018	1162	1000
8	Banana	61011	62261	515607	531299	8451	8533
9	Other Plantains	48859	54512	351315	362395	7190	6648
10	Cashew nut	52086	49105	37919	33375	728	680
11	Tapioca	69586	67589	2458515	2479070	35331	36679
12	Coconut *	798162	808647	5799	5921	7265	7322
13	Coffee	85359	85359	68175	66645	799	781
14	Tea	30205	30205	62963	62937	2085	2084
15	Rubber	539565	548225	798940	648220	1481	1182

** Production of Coconut in Million Nuts, Productivity in numbers. Source; Economic survey 2014*

4.1.1.4.1.7 The ground level credit flow to the sector during last 3 years (2012-13, 2013-14 & 2014-15) were ₹1706.50 crore , ₹1653.83 crore and ₹1925.30 crore respectively. Agency wise credit flow to the sector for 3 years is given in Annexure II.

4.1.1.4.2 Strengths of the sector

- Resource support from dedicated Commodity Boards (Spices, Rubber, Coconut Development Boards – All have their Head Quarters in Kerala; Tea Board, Coffee Board have their networks)
- Support from agricultural research establishments of the State and Central Govt. (CPCRI, IISR, CTCRI, KAU and KVKs).
- Scope for organic farming and cultivation of medicinal plants as many farms are relatively free from harmful inorganic residues.
- Conducive for maximum biomass production per unit area, because of favourable climate.
- The inheritance of sustainable land use, cropping systems and integrated farming – known as homestead farming.
- A proactive State Horticulture Mission.
- Extensive network of Commodity traders in all villages, making marketing easy for even small farmers.

4.1.1.4.3 Issues, constraints, opportunities, new emerging trends

i. Price volatility : The price of all major plantation and spices were fluctuating during the past three years. Further, impact of climate changes, labour shortage, high input cost etc., were some of the adverse features affecting the sector.

ii.Fruits : Growing incomes, changing lifestyles has created positive vibes for traditional Kerala fruits, the processing and marketing challenges remains to be addressed . There is a need for public-private partnership model to plug the glaring loopholes in the entire value chain. The potential in respect of jack fruit, local variety of banana and exotic fruits like Rambutan have not been fully tapped.

iii. Coconut: Though it is one of the principal crops, the States share in area and production is declining over time, the share being 40.2% of area and 42.12% of the production.

Productivity continued to decline, mainly on account of root wilt disease, poor management and existence of senile and unproductive palms. The attempt made by the Department of Agriculture and Cooperation to restructure two coconut development programmes through convergence approach at the Panchayat level during 2014-15 coupled with price advantage is expected to revive coconut production in the state. Further, attempts of production of dwarf coconut seedlings and hybrids need to be scaled up with the support of R & D institutions.

A value chain approach to the sector as whole concentrating on product diversification is the need of the hour – Neera, coconut sugar, jaggery, desiccated coconut, activated charcoal are some of the potential products.

The Producer Companies established by the Coconut Board are expected to take up various activities related to product diversification in the sector. The support of other stakeholders like Financial Institutions, Government is very crucial to scale up this initiative.

Further CDB's initiative to promote Neera as a nonalcoholic health drink with the support of the Govt. of Kerala is expected to pay huge dividends to the sector by way of increased income and thus improve the confidence in the sector.

iv. Plantation Crops Nearly 14 lakh families are dependent on Plantation sector for their livelihood. The plant population in most of the estates has even crossed its biological life span. Replantations must be encouraged with soft loans, tax concessions and technology upgradation for the purposes like replanting, water conservation and value added products.

v. Rubber: The crash in price to almost one third of the previous peak price has put the planters across the rubber belt in dire straits and they are clamouring for relief to sustain their plantations. The industry is facing multiple challenges not only on the price front but also due to increase in the cost of production, shortage of skilled labourers especially tappers. In addition, there is a sharp fall in productivity. The yield (Kg/ h) which was 1481 in 2012-13 declined to 1182 kg in 2013-14. The Government's attempt to support the prices could not yield result. Presently the farmers are going in for inter cropping in rubber gardens, like planting of pepper vines and also planting exotic fruit crops such as Rambuttan, Pulosan, Mangosteen etc. in their gardens.

vi. Spices, cardamom, pepper: Kerala is considered as "Spice Bowl" of India and the export of raw spices from Kerala is known from age old days. In case of Pepper, though the prices almost doubled, the crop reported fall in productivity (from 547 kg/ ha in 2012-13 to 350 kg/ha in 2013-14), However, the value addition of the products is not to the desired level.

vii. Cashew The area under cashew in Kerala is showing declining trend (70,463 ha during 2006 has declined to 49,105 ha. in 2014). There is an urgent need to the improve production and productivity of cashew by resorting to replanting of old senile plantations with improved varieties such as Dhana, Priyanka, etc.

viii. Organic Agriculture 40% of the farming is organic and the state has set the target of becoming the second fully organic state by 2016 next only to Sikkim. From 7,000 ha in 2007, the area under organic cultivation in the State has increased to 16,000 ha.

ix. Cool Season Vegetables: The climatic conditions prevailing in Wayanad, Idukki, and other hilly tracts are very conducive for cultivation of cool season vegetables such as Capsicum, Broccoli, Baby Corn, Litchi, Summer Squash, Lettuce, Celery etc. There is a demand for this vegetable for domestic use as also for export. However, the lack of appropriate infrastructure both in terms of physical and financial has hampered the growth of the sector.

x. Scheme for poly-house cultivation- State Government has introduced a credit linked subsidy scheme for poly house cultivation. Under the scheme, a subsidy of 75% will be given to a polyhouse unit covering a 400 sq m area. Centre will give 50% subsidy, 25% by the state. 1095 polyhouses were established during 12th FYP in the state. One of the drawbacks of the poly house method of cultivation is that only self -pollinated varieties can be grown because the plants are insulated from insects. This effectively confines the utility of the greenhouse to the production of certain high value crops like tomato, salad cucumber, capsicum, and cowpea which have limited market demand. The issues like marketing and technical support need to be addressed for the development of high tech farming in the state.

xi. Collective farming through Kudumbashree: The major crops cultivated are paddy, vegetables, banana, pineapple and tubers. In 2013-14, the area brought under vegetables was 12555 ha and 22476 ha area was cultivated under crops like banana, pineapple and tubers. More handholding support, including marketing arrangements is required for improving the livelihood and also for enhancing the production of these crops in the state.

4.1.1.4.4 Suggested Action Points

a) One of the problems with the Coconut sector is its "height". A programme on mission mode for planting dwarf varieties may be taken up. 99% of Kerala's coconut trees are of tall variety (40 ft.), making harvesting unviable due to acute shortage of climbers. The promotion of dwarf varieties would bring down the reliance on climbers.

b) The use of innovative technology assisted climbers developed by various universities and research institutions could be promoted more aggressively.

c) The potential of coconut water as a beverage, in addition to Neera needs to be tapped.

d) The Coconut producer companies established by the CDBs should be nurtured, hand held and should be made a tool through which value chain interventions and product diversification should be attempted.

e) Natural Rubber industry is passing through a tough time. There is an urgent need for the policy makers to work closely to find solutions to the problems being faced by the sector. The price of natural rubber, which is vulnerable to international prices needs to be stabilized by appropriate policy measures at the Central Government level. As regards the increase in production cost and labour cost, the Rubber Board, Govt.of Kerala and the farmers should work together to find a solution.

f) Value addition at the primary producer level enables value retention leading to increased income at the hands of the producers. This aspect needs to be worked on. Value chain interventions through various models of aggregation, processing and marketing needs to be encouraged in the sector by provision of appropriate monetary and non-monetary incentives.

g) Setting up of sector specific labour bank like labour bank of trained coconut climbers created by CDB may be attempted by other Boards also. The guidelines on MNREGA could be leveraged for the purpose by the LSGIs.

h) Nadukkara Agro Processing Factory Unit of Vegetable and Food Promotion Council of Kerala which was set up in the year 2000 was probably India's first Farmers Producers Company with GOK holding 30% share. The company managed to develop a strong brand 'Jive', but the sales turnover and profitability growth has been dismal. The sustainability and profitability of the company is very crucial for the growth of pineapple sector. Government may take steps to increase the operational efficiency of the company.

i) **MNREGA :** The new guidelines of GOI of MNREGA is a boon for P&H sector plagued by high labour cost. An agriculture labour bank at panchanyat level by aggregating the block level MNEGRA worker may be formed and allocated to different activates.

4.1.1.4.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹5045.95 crore.

Box. 4.1.1.4.1 COMMODITY FOCUS

Nutmeg Production and its feasibility

Status

India produces 12210 MT of Nutmeg from 18450 ha of land, of which 18160 ha is in Kerala. Nutmeg is mostly cultivated as an inter crop in Coconut and in homestead farming. During 2012-13,India exported 3645 MT of Nutmeg value added products worth ₹291 crores. India is also a leading importer of Nutmeg and nearly 1000-1800 MT of nutmeg is imported being every year. The imported raw nutmeg is converted to value added products and exported to European countries.

Future Prospects

The present favourable condition in international market and traditional dependency on import of raw nutmeg to meet the demand of the value added products of the export market offers great scope for increasing the area and production of the crop.

The congenial climatic conditions in Kerala especially near the river basins for the crop makes nutmeg a promising crop of the future. There is tremendous scope for improving the area and production of nutmeg in Kerala by promoting the cultivation of the crop in the homesteads/ coconut gardens. The crop requires diffused sunlight which makes it extremely ideal in Coconut plantations.

Major bottlenecks / Issues to be address

1. Unavailability of planting materials of high yielding varieties- Since the crop is a cross pollinated long term crop production of quality planting materials on a large scale continues to be a problem. The high yielding varieties in cultivation are Konkansugandha, Konkanswad, Konkansreemandhi, Viswashrietc
2. Poor primary processing methods :The major cause of the presence of aflatoxin in nutmeg is the poor primary processing methods followed. As the crop is harvested during monsoon season, sun drying is not possible and most farmers adopt traditional methods to dry the harvested nutmeg. This results in inadequate drying and becomes susceptible to fungal attack during storage. Thus, it is important to ensure drying of the produce at the farmer's level to a safe moisture level at which growth of fungi and mould will be inhibited.

Road map

- The thrust area for this export oriented cash crop should be to develop scientific harvesting and post harvest management techniques with a definite plan to address the higher levels of aflatoxin in the product.
- KVK, Thrissur has facilitated the formation of a State Level Nutmeg Producer Company which will focus on the all the issues raised above with special focus on the harvesting and post harvesting management techniques which will increase the returns to the farmers manifold.

4.1.1.5. Forestry & Wasteland Development

4.1.1.5.1 Introduction

4.1.1.5.1.1 Kerala has been blessed with a very good forest cover. As per the State of Forest report 2013, the forest cover is 17922 sq. km constituting 46.12 % of geographical area of the State. All lands, more than one hectare in area with a tree canopy density of more than 10 per cent is included as forest cover in Forest survey. The forest area as recorded in Government record is 10820 sq. km. There has been an increase of 622 sq km in the forest cover compared to 2011 survey.

4.1.1.5.1.2 The forest area in Kerala has rich bio-diversity and is native for many species. The forests in Kerala cover two bio-geographic zones of Western Ghats and the West Coast and vital for environmental protection, besides acting as repository of numerous, diversified, rare and endangered flora & fauna. 51% of the total state forest cover is in the southern districts and the remaining 49% is in the central and northern regions. Wayanad, Idukki and Pathanamthitta district have the largest area under forest cover.

4.1.1.5.1.2 There are about 550 species utilized as Non wood Forest products and valuable species like teak (75767 ha; 43.8%), eucalyptus (14274 ha; 8.3%), Bamboo & reeds (5912 ha; 3.4%), Sandal wood (3439 ha), minor forest produce & fire wood. The share of plantations is 37% of the total area under forests.

4.1.1.5.1.2 Under Forest Management policy, space was created for involvement of local communities in the conservation, protection and management of forests through Joint Forest Management (JFM) institutions. In Kerala, Vana Samrakshana Samithis (VSS) at the village level undertake the role of JFM.

4.1.1.5.2 Farm forestry

4.1.1.5.2.1 About 65 per cent of the requirement of timber and nearly half that of fuel wood in the country is met through farm forestry. Going by projections made by the Jhansi-based National Research Centre for Agroforestry (NRCAF), science-based farm forestry can make the country nearly self-sufficient in timber. That would, obviously, obviate the need for timber imports, which currently averages about six million cubic metres every year. Besides, it can sharply reduce the dependence on forests for fuel wood.

4.1.1.5.2.2 A carefully chosen combination of trees, shrubs and crops in agroforestry can help address the paucity of green fodder. Notably, a sizeable part of the biofuel requirement, too, can be satisfied by including suitable biofuel-producing trees in farm forestry. And, fruits, oilseeds and a host of other useful commodities can be produced through such ventures to improve nutrition and farm incomes. The employment generation capacity of agroforestry is estimated at 450 man-days per hectare, per year.

4.1.1.5.2.3 Kerala has favorable agro climatic conditions for farm forestry. Farmers have been traditionally growing tree for timber in their homesteads. The prevailing stringent policies and regulations relating to felling and transporting farm-grown timber and other products were hindering the growth of the sector. This is set to change into the new guidelines, issued on July 11, 2014 by GOI allow farmers and other tree growers to dispose and transport short-rotation timber species grown on their own property and not available in neighboring forests, with permission from village-level bodies. The Kerala government has allowed felling of 30 species of trees in the private farm land without any permission. It is expected to give a big boost to the sector.

4.1.1.5.2.4 The ground level disbursement to the activities like Social forestry, Farm forestry, Wasteland Development, Forestry-misc.) during 2012-13, 2013-14 and 2014-15 was ₹.8.53 crore, ₹. 14.68crore and ₹.265.80 crore respectively.

4.1.1.5.3 .Potential activities, emerging areas / activity

i. Forest based industries: Major wood based industries are saw milling, packing case, plywood, splints and veneers, pulp and paper etc. Of the 2214 registered units in Kerala, more than 93% are small sized employing less than 10 workers. Even though there is stagnation in

their activities, the recent relaxation in felling of trees from homesteads has opened for more agroforestry options in the State. The plantations, home gardens and estates form the major source of wood supply in the State.

ii. Bamboo Sector: As per the 2013 figures Bamboo is spread over 5912 ha under forest area. There is immense scope for bamboo cultivation exists under farm forestry in private and government lands. Through indigenous population/ resource poor tribal, there is scope for undertaking bamboo plantations in the forest area too. With technical inputs and skill upgradation, the local communities may be encouraged to set-up units of various bamboo products.

4.1.1.5.4 Action points for Stakeholders

i. Increase productivity through improved management of resources

Bio technology has the potential to improve the quality and quantity of wooden raw material supplies in a long term perspective and could also have a radical effect on pulping processes, waste to energy systems and other aspect of manufacture and use of forest products. This would also help to reduce cost and at the same increase the yield.

ii. Diversify sources of wood

The demand for wood substitutes like Medium density fibre board (MDF), particle board, and engineered lumber, fabricated structural building components is a huge opportunity.

While, substitutes to wood have their limits as far as the practical application are concerned newer sources of wood may be promoted. Rubber wood is to be seen as a reasonable alternative material for wood. With the expansion of area under rubber , there is need to promote market of rubber wood and promote its usage through R& D, marketing and branding. Similarly bamboo as another source of wood needs a major push to R &D and marketing.

iii. Create new products

Forests offer enormous potential to produce a bio-energy, bio-chemical products like agro chemicals, cosmetics, pharmaceuticals, food additives, fragrances, industrial chemicals and petrochemicals fuel.

iv. Sustainable forest Management

While promoting of forest based industries, the focus on the sustainability of such initiative should not be lost sight off. The community based model of VSS makes the task of sustainable forest management more sustainable. However, VSS as an institutional infrastructure needs revamping, as its status as a legal entity is still not very certain. This needs to be addressed. Further the activities of VSS should be strengthened by involving the members of VSS in all the activities relating to forest management.

4.1.1.5.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹.171.44 crore.

4.1.1.6. Animal Husbandry – Dairy Development

4.1.1.6.1 Introduction

4.1.1.6.1.1 Livestock is an important element of the livelihoods of rural households and considerable efforts of the Government of Kerala at economic development have focussed on this sector. As per the State Poverty Eradication Mission, Kudumbashree, in Kerala, 5 lakh out of total 70 lakh families in the state are dependent solely on livestock for their livelihood, while another 5 lakh depend on livestock as a subsidiary means for supporting their livelihood. More than 55 per cent of bovine keepers maintain 2–3 cow units, while about 32 per cent maintain one-cow units. More than 70% of the 37 lakh women under Kudumbashree opted for enterprises in the Animal Husbandry Sector. The sector has high potential for alleviating poverty and upliftment of the rural economy.

4.1.1.6.1.2 The ground level credit flow to the sector during last 3 years (2012-13, 2013-14 & 14-15) were ₹.741.19 crore , ₹.660.85 crore and ₹ 1925.30 crore respectively. Agency wise credit flow to the sector for 3 years is given in Annexure II.

4.1.1.6.2 Strengths of the sector

a) As per the livestock census, 2012, total livestock population in Kerala is 2.73 million, of which cattle population contributes around 50%.
b) The percentage share of exotic/crossbred cattle is depicting an increasing trend, whereas the percentage share of indigenous cattle is decreasing. State has 12.51 lakh crossbred cattle and 0.77 lakh indigenous cattle (*Source: Livestock census, 2012*).
c) The exotic/crossbred cattle contribute highest with 55.08% animals in milk in the state and indigenous contributes to 2.45%.
d) Total milk production in the State during 2012-13 stood at 27.92 lakh MT, registering an annual growth rate of 2.76% (source: ER,2014)
e) Existence of good network of Artificial Insemination Centres, cattle breeding centres, disease control and diagnostic Centres, feed testing labs, veterinary clinics and dispensaries.
f) Separate Dairy Development Department with a network of affiliated institutions – 152 dairy extension service units, 5 dairy extension centres, 14 quality control units and 2 fodder units
g) One Artificial Insemination Center per 291 breedable cattle as against the NCA norm of one Artificial Insemination Center per 1000 breed able females.
h) Increased Purchasing power of consumers
i) Increased demand for good quality milk
j) Availability of highly trained and qualified technical manpower.
k) Establishment of large number of commercial and hi-tech dairy farms by new generation entrepreneurs as a source livelihood

4.1.1.6.3 Weakness / Constraints and Issues

i. Skewed distribution of livestock ownership: Like land ownership, the pattern of livestock possession in Kerala is also highly skewed, but skewed towards marginal farmers who own less than one hectare (ha) of land. Marginal farmers in the State owned 87.7% of total cattle, followed by small farmers at 8.4%.

ii. Non availability of quality milch animals: Inadequate availability of good quality milch animals, locally, leading to import of animals from neighboring States whose quality cannot be checked / verified by existing institutional mechanisms. Inadequate attention / thrust to heifer calf development is another reason for shortage in availability of milch animals.

iii. High cost of maintenance: The cross-bred cattle have higher overall maintenance cost. Their fodder and feed requirement, adaptability to local ways of keeping farm animals and susceptibility to common diseases and parasites is higher.

iv. Efficacy of insemination process: Number of inseminations per calving has increased from 3 inseminations in 2008-09 to 3.59 in 2011-12 as per the data available from (Kerala Livestock Development Board Limited KLDB. Discussions with farmers revealed that despite having adequate number of artificial insemination centers, the inter-calving period has in fact increased. Increased inter-calving period means increased dry period per animal translating into added costs to the farmer, ideally the inter-calving period has to be about 15 months.

v. Shortage of Green & Dry Fodder: The State produces only around 60% of its total fodder requirement. Shortage of green and dry fodder is a major issue in the State hindering the productivity of milk.

vi. Risk and Insurance: The pattern of livestock possession in Kerala being skewed towards marginal farmers & small farmers who own nearly 87.7 per cent and 8.4% of total cattle need subsidised insurance as a risk mitigant. Cattle population in the State is mostly crossbred and these animals are highly prone to diseases resulting in heavy losses to the farmers.

vii. Yield gap :The average yield of non-descript cows at 2.03 kg. and average yield of buffaloes per day in Kerala is 2.54 kg is much less than national average. (Source : Integrated Sample Survey, 2012-13, GoK).

4.1.1.6.4 Suggestions / Strategies for consideration

a) Create an online directory of all breeders in the State in private/Govt/ Cooperative sectors, from where farmers can obtain information regarding availability of quality milch animals
b) Promotion of good local breeds would help to reduce the overall cost as they are ecologically and fiscally sustainable in the long run
c) Promote R & D and skill building among the farmers and the staff undertaking AI to improve the efficacy of AI.
d) Strengthen veterinary services and upkeep of animals through on location service and improve the services available with the veterinary hospitals
e) Encourage Dairy co-operatives to take up value chain activities including fodder cultivations, extension services and input supply centres.
f) Cultivation of high yielding fodder as intercrop in coconut and rubber plantations through JLGs/ NHGs shall be encouraged with marketing & price support.
g) Explore the use of locally available plant residues like jack fruits as feed.
h) Promotion of Azolla cultivation by providing appropriate monetary / non-monetary incentives
i) Subsidised insurance premium on livestock in the lines of crop insurance
j) Simplified pollution clearance norms with transparent grading mechanism to be evolved based on size of the unit and location.
k) Supply Milking machines to the eligible dairy farmers at subsidized rates to tackle the problem of shortage of skilled labour.
l) Encouraging development of mini dairy farms by developing an appropriate regulatory eco system promoting entrepreneurship
m) Government to promote dairy parks on the model of industrial / food parks with all the required backward/ forward linkage.

4.1.1.6.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹2034.87 crore

4.1.1.7 Animal Husbandry – Poultry Development

4.1.1.7.1 Introduction

4.1.1.7.1.1 India's poultry sector has transformed from a backyard activity into a technology-intensive vibrant industry. This metamorphosis is unique in some respects. A notable feature is its total self-reliance in technology generation as well as the production of needed equipment and inputs. Significantly, both the public and private sectors have contributed to this progress. Unlike dairying, where the bulk of growth has been in the unorganised sector, comprising small milk producers owning four or five cattle or buffaloes each, the poultry revolution is driven chiefly by the organised sector poultry farming. Over 70 per cent of the country's poultry output comes from the organised sector.

4.1.1.7.1.2 In Kerala, when compared with the national situation, shows relatively lower rate of growth. The organised sector poultry farming has not grown due to the absence of local production of poultry feed raw materials. More than 50% of the demand is met by the unorganised sector. The future of poultry sector unlike the national scenario still lies in the backyard poultry farming and duck farming.

4.1.1.7.1.3 Duck farming is the traditional ancillary occupation for rice farmers in the Kuttanad region. Once the harvest is over, ducks are flocked to the fields to feed on the leftovers. The cost of rearing them is low as the ducks mostly fend for themselves.

4.1.1.7.1.4 As per the 19th Quinquennial census 2012, the total poultry population in Kerala is showing an increasing trend over 2003-12. The birds have increased from 12.21 million numbers in 2003 to 24.28 million numbers in 2012. There is an increase of 54.8% in the poultry population over the previous census. The ground level credit flow to the sector is also showing an upward trend. The credit flow during 2012-13, 2013-14 and 2014-15 were ₹. 52.65 crore, ₹.93.17 crore and ₹.928.06 crore respectively.

4.1.1.7.2. Strengths of the sector

a) 90% of the population follows a non-vegetarian diet, perennial demand exists.
b) Demand outstrips supply
   i. Eggs - Demand 2188 million – supply 1571.2 million
   ii. Meat - Demand 456.6 million tonnes – Supply 333.2 million tonnes
c) Climate is moderate and suitable for the avocation.
d) The traditional duck farming model has inherent cost advantages
e) JLG's with active backward integration taking up the activity

4.1.1.7.3 Issues – Constraints, weakness, emerging trends

i. Availability of good breeds: There is a heavy demand for improved backyard chicken varieties among the farmers. As these birds are improved varieties, the character broodiness has been virtually lost, replacement stocks are to be made available continuously from the public sector units.

ii. Availability of feed: The improved backyard chicken varieties could not sustain only on scavenging. There is a need for the provision of small quantity (30g) of compounded layer feed for good performance. Making the feed available in the rural areas in small packs of 5 or 10 kgs is essential.

iii. Veterinary and health services: Non-availability of veterinary aid and skilled workforce for vaccination at the village level result in the devastation of the flock by diseases mainly by New Castle disease. It is therefore essential that improved veterinary services with disease prevention programmes are to be put in place for better results.

iv. Predators: Predation is found to be the highly devastating factor to the village poultry. As the chick stage is most vulnerable, initial growing in the nurseries before distribution can to some extent solve this problem.

v. Limited Scavenging area: Small and marginal farmers are the main growers of backyard chicken, therefore, scavenging area is found to be the limiting factor.

vi. Resistance from the neighbours: This is another factor which determines the flock size in village conditions. Modified rearing systems instead of total free-range system of rearing need to be developed.

vii. Biosecurity issues: At present highly pathogenic avian influenza is a serious constraint to family poultry production, which requires mass destruction of the poultry of the outbreak locality. It is therefore essential to chalk out programmes to prevent such outbreaks and methods to be adopted in such exigencies.

4.1.1.7.4 Suggested Action points

a. Setting up of Micro-hatchery at farm level**:** The day old chick supply is low from the State owned institutions. Also, the import of day old chicks is expensive. Therefore, hatching and brooder needs to be pushed to the farm level by leveraging technology. Backyard poultry units, broiler and layer units, integrated with micro hatchery units on a subsidy model may be popularised.
b. Reinvigorate the backyard poultry with improved breeds : ICAR has developed over 20 of coloured chicken breeds, many of which are dual-purpose types, suitable for both meat and egg production. Its broilers gain 1.5 to two kg in six weeks. Prominent among the new breeds on offer are Vanaraja, Gramapriya, Krishbro and Madhavaram chicken-1. These are meant largely for backyard free-range poultry farming and small-scale commercial units in and around rural areas. Birds of all these breeds have good marketability because of their multi-hued plumage and brownish eggs. Some of them, notably Krishbro, can easily be sold as desi chicken to claim higher prices. Its meat, too, resembles that of native birds
c. Enterprise driven approach by transforming the small livelihood farms to professionally managed farms.
d. Promote Producer Companies with backward linkage of farm enterprises and forward linkage with the marketing / processing firms both in the Public / Private Sector.
e. The involvement of Govt. agencies to implement area specific projects to tailor fit the needs of different localities in terms of germplasm, feed, veterinary services etc., to be further explored.
f. Convergence of the Govt. Sponsored programmes with the programmes of local bodies and NGOs.
g. Continuous and constant monitoring of the health parameters through education and awareness creation among farmers.
h. Risk mitigation through appropriate insurance cover.

4.1.1.7.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹.460.77 crore

4.1.1.8 Animal Husbandry – Sheet / Goat / Piggery etc.

4.1.1.8.1 Introduction

4.1.1.8.1.1 India's livestock sector is one of the largest in the world. It has 56.7 percent of world's buffaloes 12.5 percent cattle and 20.4 percent small ruminants. As a supplementary income generating activity, goat, rabbit and piggery rearing for meat is popular in the rural areas of Kerala.

4.1.1.8.1.2 Kerala is home to a range of livestock species. The livestock are raised both in backyards and commercial farms. The total number of goat in the state as per census 2012 is 1.24 million numbers. There is a 27.94% decline in number of goat population during the inter censuses period (2007-2012). Similarly, there is a 5.48% decrease in number of pigs during the inter censuses period (2007-2012). The total number of pigs in the state as per census 2012 is 0.05 million numbers.

4.1.1.8.1.3 The ownership pattern of the livestock is skewed like the land ownership pattern. 92.6% of the goats and 57.5% of the pigs and 93.5% of the poultry in Kerala are owned by marginal farmers.

4.1.1.8.1.4 Goat farming can be a profitable occupation for a farmer and can fit well into mixed farming. Piggery is undertaken mainly by isolated households in rural areas of hilly regions due to ecological problems associated with it.

4.1.1.8.1.5 Meat production in Kerala comprises of beef, mutton, pork and broiler chicken. Out of this, beef is almost entirely from the culled animals brought from the neighbouring states. The meat production other than poultry meat decreased from 272152 tonnes in 2012-13 to 264730 tonnes in 2013-14 registering a decrease of 2.73 % over the previous year (Economic survey 2014). The per capita availability of meat per day in Kerala during 2013-14 was 34.14 gms (Poultry meat 12.41 grm and meat other than poultry meat 21.72 grms). Kerala has not exploited the potential of meat production. Though meat production from the state is increasing over the years, it is not able to meet the growing demand fully.

4.1.1.8.1.6 The ground level credit flow to the sector during last 3 years (2012-13, 2013-14 & 2014-15) were ₹. 133.01 crore, ₹.108.65 crore and ₹ 180.04 crore respectively. Agency wise credit flow to the sector for 3 years is given in Annexure II.

4.1.1.8.2. Strengths of the sector

a) Goat is most suited to Kerala conditions and they are more hardy, multi-utility, easy-to-maintain and prolific animals that can efficiently convert low-value vegetation, tree leaves and crop residues into high value meat, milk, hide, manure and fibre, including the much sought-after Pashmina fibre. The Malabari Goat is considered as the most reliable breed.

b) The demand for meat is increasing in the domestic and export market and consumers' outlook is changing towards quality meat and meat products.

c) To meet the rising demand of goat products, the population of goats may need to be almost doubled by 2030.

d) Pigs convert inedible feeds, forages, certain grain byproducts obtained from mills, meat by products, damaged feeds and garbage into valuable nutritious meat. The carcass return is quite high ie. 60-80 percent of live body weight.

e) Pig grows fast and is a prolific breeder, farrowing 10 to 12 piglets at a time. It is capable of producing two litters per year under optimal management conditions

f) The backyard poultry sector is a great potential of uplift people, especially women out of poverty.

g) The presence of institutional infrastructure to support value chain interventions like Kerala State Poultry Development Corporation (KEPCO), Meat Products of India Ltd (MPI) and other private sector players

h) Brahmagiri Development Society (an NGO) has constructed a modern abattoir and scientific meat processing plant in Sulthan Bathery, Wayanad (₹.2000 lakh) with NABARD support.

This is a boost to the sector and will act as a forward linkage for the sector in North Kerala.

i) Promotion of the activities by Government, Kudumbashree as a livelihood activity.

4.1.1.8.3 Weakness / Constraints, Issues, opportunities and emerging trends

a. There is a 27.94% decline in number of goat population during 2007 to 2012.

b. Non availability of quality animals**:** Quality goats and piglets are not easily available in the State. The three government goat farms in the State have goat breeding programme which alone is not sufficient to cater to the demand for kidding.

c. Non availability of feed / high cost of feed

d. Non- availability of scientific slaughter houses for production of clean and hygienic meat production is lacking in many parts of the state. Number of authorized slaughter houses in state is 101 whereas unauthorized is 1997 (Source: Report on Integrated sample survey 2012-13).

e. The estimated total number of goats and pigs slaughtered in 2012-13 was 13.92 lakh of which 66% (9.21 lakh) of the animals slaughtered in unauthorized sector (Source: Report on Integrated sample survey 2012-13).

f. Scientific disposal of the wastes and by-products from the slaughter houses is more or less lacking in the sector which lead to various environmental problems.

g. The shortage of pasture lands and the necessity of obtaining clearance from forest department for financing goat under free-range system limits the potential available for encouraging goat rearing.

h. The recent ban on slaughtering of rabbits by Food and Safety Authority of India has created uncertainty in the sector.

i. Non availability of insurance for livestock.

4.1.1.8.4 Suggestions / Strategies for consideration

- Capacity of the existing goat/ pig farms / breeders of the Government, KSPDC and Meat Products of India may be increased to meet the increased demand for goat kids, piglets and chickens.
- Create infrastructure facilities at Goat and Pig breeding farms to produce and supply good quality does and piglets.
- The goat rearing shall be taken up through Farmers, JLGs, SHGs/ Kudumbashree and tribal groups particularly in hilly tracts with support from local bodies.
- The 'AaduGramam' project of Kudumbashree Mission may be replicated in more gramapanchayats.
- Kudumbashree Mission may promote formation of Producer companies of Goat Farmers to increase the benefits through collective investment.
- AH Deptt. and Banks may make coordinated efforts to promote semi-intensive stall-fed goat rearing. Dept. may also provide training and other assistance to SHG members willing to take up goat/rabbit rearing units.
- Disease monitoring and preventive measures in case of goats and rabbits may be strengthened.
- Studies of KVK, Malappuram has proved that artificial insemination (AI) in goats will lead to an increase in weight gain to the tune of about 2 kg by 6 months in kids born through AI. Therefore, AI may be promoted in all the goat rearing areas.
- Establishment of a modern abattoir for cleaning and processing of meat with hygiene & modernization of slaughter houses. Block Panchayats have to take initiative for setting up Modern Slaughter Houses in the blocks for which financial assistance can be obtained from NABARD under RIDF.
- The waste from the slaughter houses may be converted into pet food, meat cum bone powder, rendered fat, fresh dog pack and organic fertilizer.
- Provision of Animal Health Services through local man power by providing adequate

capacity building. Creating a network of Animal Health Workers specifically trained to provide vaccinations, de-worming, first aid, small ruminant and vaccination for a fee.

- Enabling inter agency coordination among the stakeholders like Kudumbashree, KSPDC, MPI and different Government Departments.

4.1.1.8.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹.550.68 crore.

4.1.1.9 Fisheries Development

4.1.1.9.1 Introduction

4.1.1.9.1.1 Kerala has comparative advantage in fishing due to its long coastline and presence of rich inland water bodies. Fish production plays an important role in the socio-economic life of Kerala. The state is endowed with a long coast line of 590 kms and 4 lakh hectare rich inland water bodies consisting of 44 rivers, 49 reservoirs, fresh water ponds, tanks, 53 backwater bodies and extensive brackish water area This makes Kerala a leading fish producing state in the country. Kerala accounts for about 7.6% of India's total fish production which is currently estimated at about 91 lakh tonnes. Fishery is an important source of income and employment to rural farmers, particularly women. It contributes one per cent to the GSDP of the state and provides employment to 11.52 lakh fishermen. There are 335 fishing villages in the state. It also earns the state a great deal of foreign exchange amounting to ₹ 5200 cr. during the year 214-15. The state's share in all India exports has been around 16 per cent.

4.1.1.9.1.2 The total fish production in the state during 2014-15 was 7.26 lakh tonnes, of which 6.42 lakh tons came from marine sources and 0.84 lakh tons from inland sources. Fisheries sector of Kerala is characterized by the predominance of marine sub-sector as nearly 80 per cent of the total production comes from marine sources. Kerala accounts for about one-fifth of the total fish production in the country.

4.1.1.9.1.3 The ground level credit flow to fisheries sector in the state during 2012-13 , 2013-14 and 2014-15 were ₹ 156.94 crore, ₹ 236.29 and ₹ 222.98 respectively. NABARD released a refinance assistance of ₹ 3.39 crore during the year 2014-15 to various client institutions.

4.1.1.9.2 Strengths

a. The Southwest coastal (SWC) is endowed with certain unique features that influence the fishery fluctuations of the important commercial species to a great extent. The area is subjected to two monsoons viz. the south-west monsoon (Edvapathi) and the north-east monsoon (Thulavarsham)
b. The per capita consumption of fish in the State is 27 kg per annum against the national average of 3.5 kg. With over 90 per cent of the population being fish eaters, fish also plays an important role in the state's food security
c. The fish processing sector enjoys export competitiveness because of lower labour costs and post-harvest expenses compared to developed countries.
d. 16 Fishing Harbours and 187 marine Fish Landing Centres in the state.
e. Proactive government intervention and Fishermen friendly policies.
f. Untapped potential: Hardly 25 per cent of the total 4 lakh hectares of rich inland water sources supported fisheries activities now.
g. Kuttanad paddy fields and kole lands offer unique mutually beneficial vast inland fishery potential.

4.1.1.9.3 Issues, constraints, opportunities and new emerging trends

i. Declining catch: Over 80 per cent of current fishing activity is confined to the shallow waters near the seashores. There are several adverse impacts to overexploiting the coastal areas. The number of fish catches per trip in this zone is declining rapidly. This has, in turn, spurred fishermen to reduce the mesh size of trawl nets, thereby netting large quantities of non-targeted and unwanted fish. More importantly, marine fish output is stagnating.

ii. Equipment and technological constraints: Most fishermen own small- or medium-sized trawlers that are ill-equipped to operate beyond a depth of 250 metres. Lack of precise information on where to find the targeted fish, also hinders better exploitation of the deep sea. Such knowledge can help cut the cost and effort involved in deep-sea fishing substantially.

iii. Continuous Decline in production: Kerala has recorded the lowest fish production growth rate amid coastal states in India between 2004-05 and 2010-11. The state recorded a compounded annual growth rate (CAGR) of about 0.09 % during the period while Karnataka,

which has emerged as the leading coastal state in fish production growth, has posted a CAGR of 11.48%.

iv. Low produce per fisher: The Active fisher population in India is estimated at 9 lakhs. Comparatively active fisher population at Iceland and New Zealand is 12,000. These two countries together produce 2.6 million tonnes annually ie. (216 t/fisher) whereas with more fishers India produce less (2.9 t/fisher).

v. Chronic shortage of fish seeds: Inadequate supply of quality seed of fish, fresh water prawn and brackish water shrimp and fish and seed material for culture of mussel, oyster and crab.

vi. Lack of marketing linkages for non-conventional varieties like clams, mussels and oysters.

vii. Economic deprivation and malnourishment: About 28 per cent of the fisher households in the state still live below the poverty line. The National Sample Survey data also indicate that most fishermen were undernourished, being highly deficit in both calories and protein intake.

viii. High Post-harvest losses (discard, spoilage, reduced quality). The market support system is very poor and there is a need to develop an efficient cold chain for safe and hygienic handling and marketing of fish and fishery products.

ix. Environmental issues : The adverse environmental fallout, especially of coastal shrimp culture; global depression in the prices of fish and fish products; stringent new sanitary and phyto-sanitary (SPS) norms; need for compliance with provisions of multilateral agreements; etc. continues to pose serious challenge to the sector.

x. Vast untapped potential exists in deep sea: A comprehensive study entitled "assessment of demersal fishery resources along the continental slope area of the Indian EEZ and the central Indian ocean" by Kochi-based Central Institute of Fisheries Technology (CIFT) has helped trace as many as 155 new fish species in water depths ranging from 50 to 1,100 metres. The most promising is the kind of a massive resource of unexploited oceanic squids in the Arabian Sea. It is a gold mine since the oceanic squid (Cephalopoda), also known as purple-back flying squid and deep-sea flying squid, is a prized seafood delicacy with tremendous export potential.

xi. Huge untapped potential: India is the second largest fish producer in the world. A comparison with China, world's largest producer reveals the quantum of untapped potential that exists -China's production of food fish was 411.08 lakh tonnes, while India's was 42.09 lakh tonnes, just around ten per cent. Indian aquaculture was limited to less than ten species of fish, while China cultures over a 100 species on a commercial scale.

xii. Inland fishery holds more promise : The marine fish capture in the country has increased by only about 36 per cent during the last decade while there was a 234 per cent rise in the inland fish production during the same period. This shows the potential for development in this sector. The lack of a uniform policy to use its water bodies for aquaculture including the coastal areas is a major policy bottleneck.

xiii. The Kerala Fish Seed Bill,2014 seeks to bring in "an integrated planning, monitoring and management mechanism" for ensuring supply of quality fish seed to inland fish farmers is a welcome step. This will remove the chronic storage of fish seeds and will lead to the supply spurring growth in demand, spread of inland fish farming to more areas in the State, and thus growth in production.

4.1.1.9.4 Some suggestions/ action points for stake holders

a. **Sustainable development of brackish water resources** : Kerala has an estimated 1.26 lakh ha area of brackish water resources, consisting of brackish waters, backwaters and canals and prawn filtration fields. A majority of these brackish water areas are either left unused or used unscientifically. There is a need to evolve a strategy for optimum utilization of these potential resources. Diversification of farming using alternate species than shrimp is necessary for sustainable development of brackish water sector. Farming of fin fish species like sea bass (*Lates*), milk fish (*Chanos*), Pearlspotkarimeen (*Etroplus*) etc., need to be

promoted. Technology for commercial production of seed for some of these species is now available. Mussel farming (green and brown mussel) has been demonstrated to be a commercially viable activity in brackish water and is being practised in many districts. This could be propagated as a livelihood support programme for women SHGs. Edible oyster farming is another potential activity suitable for brackish water. Support from CMFRI, ADAK etc., is available for these activities. Crab farming is yet another suitable activity for brackish water.

b. **Ornamental fish culture is** fast emerging as a major activity in fisheries. Kerala with its highly conducive climatic conditions provides scope for the development of ornamental fisheries. This sector assumes special significance due to its huge potential in providing livelihood support to people in rural areas and also as a foreign exchange earner. It is estimated that over 150 ornamental fish trade units are functioning in the state. The state has rich resources of indigenous ornamental fish in various river systems that have the potential to earn income for the state. MPEDA is providing assistance for ornamental fish breeding and export.

c. **Manpower constraint in inland fishery:** The inland fishery in the state holds immense untapped potential, only 25% of 4 lakh hectares of inland water sources are being utilised at present. With just 22% of the total active fishermen in the state engaged in inland fishery, manpower constraint / shortage is one of the major constraint affecting the sector. The marine fishery sector which employs nearly 80% of active fisher's has been showing steady decline in catch over last 20 years and consequent in decline in per fisher yield. There appears to be a economic case for shifting a portion marine fisher population to inland fishery. This shift will result in increase in per fisher yield in marine fishery and spur the growth of inland fishery.

d. **Skill upgradation and financing of deep sea liners**: Deep sea fishery (beyond 250 m) is a high investment high risk sector. The traditional fisher folk being resource poor will not be able to make the investment on individual basis, an organised endeavour by organising fishermen in to Producer companies can be a way forward. New financing model by including the existing GOI's subsidy scheme and interest subvention support from State government for Fishermen Producer company can be formulated for financing deep sea liners/ tuna liners.

e. **Insurance premium** is generally high in case of fisheries activities, in view of high risk perception. The insurance schemes need to be liberalised and norms to be made farmer friendly.

4.1.1.9.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential for the year 2016-17 has been assessed at ₹ 489.05 crore.

4.1.2. Agriculture Infrastructure

Agriculture Infrastructure is the most essential input required for the development of agriculture. Adequate supply of quality inputs like seed, planting materials, organic inputs like vermicompost, bio-fertilizers etc. are important for a healthy crop as well as a bumper yield. Soil and water management practices are closely knitted to crop management. Lack of a seamless, efficient distribution chain as also outdated methods of crop handling, storage and transport all contribute to wastage and losses. These in turn create in artificial scarcities and consequently enormous price swings which negatively impact the consumer. Establishment of scientific post-harvest management handling systems, creation of adequate storage space, cold chain for the perishables, market infrastructure, scientific transportation are highly required to minimize wastage of food and ensure better returns to the producer.

4.1.2.1 Construction of Storage Facilities

4.1.2.1.1 Introduction

Planning for growth in agricultural output should be complemented by organized / institutionalized efforts for promoting effective post-harvest handling and processing, augmenting storage / buffer stocking capacity and enhancing marketing infrastructure for marketing/ storage of agricultural produce. Whereas good post-harvest mechanisms prevent losses due to spoilage, **w**ell-functioning agricultural markets provide the basis for capitalizing on market opportunities and benefiting from increased farm productivity. Achieving the above objective requires a concerted effort from the Government, financing institutions, private entrepreneurs and other stakeholders as creation of capacity and infrastructure requires large scale investments in the sector.

4.1.2.1.2 Status

The production of food grains and pulses in Kerala during 2014-15 was 5.66 lakh MT. The production of spices like pepper, ginger, turmeric and cardamom was 0.865 lakh MT whereas areca nut accounted for a production of about 1.26 lakh MT, production of coffee and tea was 1.33 lakh MT (Kerala Agricultural Statistics, 2014-15). Whereas the production of paddy is considered to be only about 15% of demand, other food items like vegetables, fruits and milk are also imported from neighboring States.

Kerala State Warehousing Corporation is running 59 Warehouses throughout Kerala State with a total capacity of 207802 MT (constructed capacity of 179747 MT and hired capacity of 28055 MT). There other agencies in Kerala involved in warehousing are Central Warehousing Corporation (1.3 lakh MT) and Food Corporation of India (5.36 lakh (MT).

4.1.2.1.3 Credit Linked Subsidy Schemes

a. Integrated Scheme for Agricultural Marketing (ISAM)

The Government of India on 13th November, 2013 approved the proposal of Department of Agriculture & Cooperation for continuation and integration of on-going Central Sector Schemes as Integrated Scheme for Agricultural Marketing (ISAM) during the XII Plan (2012-2017).

The overall budgetary allocation for ISAM is ₹4548.00 crores during the XII Plan. Sub scheme-wise break up of budget provision is ₹4000.00 crores for Agricultural Marketing Infrastructure (AMI), ₹12.00 crores for Marketing Research and Information Network (MRIN), ₹6.00 crores for Strengthening of Agmark Grading Facilities (SAGF), ₹500.00 crores for ABD and ₹ 30.00 crores for Choudhary Charan Singh National Institute of Agriculture Marketing (NIAM).

For creation of agricultural marketing infrastructure, Grameen Bhandaran Yojana (GBY) is being implemented since 01.04.2001 and Scheme for Development/Strengthening of Agricultural Marketing Infrastructure, Grading & Standardisation (AMIGS) is being implemented from 20.10.2004. In the Integrated Scheme for Agriculture Marketing (ISAM), these two viz. GBY and AMIGS are being subsumed into one sub scheme, which would henceforth be known as Agricultural Marketing Infrastructure (AMI).

The main objectives of the sub scheme are

a) To develop agricultural marketing infrastructure for effectively managing marketable surplus of agriculture including horticulture and of allied sectors including dairy, poultry, fishery, livestock and minor forest produce.
b) To promote innovative and latest technologies in agricultural marketing infrastructure.
c) To promote competitive alternative agricultural marketing infrastructure by encouraging private and cooperative sector investments.
d) To promote direct marketing so as to increase market efficiency through reduction in intermediaries and handling channels thus enhancing farmers' income.
e) To promote creation of scientific storage capacity for storing farm produce, processed farm produce and agricultural inputs etc. to reduce post-harvest and handling losses.
f) To provide infrastructure facilities for grading, standardization and quality certification of agricultural produce with the objective of (a) ensuring a price to the farmers commensurate with the quality of the produce and (b) promoting pledge financing and marketing credit, negotiable warehousing receipt system and promotion of forward and future markets to increase farmers' income.
g) To promote Integrated Value Chains (confined up to primary processing stage only) to provide vertical integration of farmers with primary processors. Primary processing means adding value to the produce without change in its form and may include washing, sorting, cleaning, grading, waxing, ripening, packaging, labelling etc.
h) To create general awareness and provide training to farmers, entrepreneurs, market functionaries and other stakeholders on various aspects of agricultural marketing including grading, standardization and quality certification.

As latest data for the new scheme is not available data of the erstwhile schemes are given below:

Table 4.1.2.1.1 Progress under Gramin Bhandaran Yojana in Kerala

Sl. No.	Particulars	(Position as on 31.03.2015)
1	No. of Schemes sanctioned	211
2	Capacity (MT) created	90842
3	Subsidy involved	₹ 514.41 lakh
4	Subsidy released so far	₹ 279.08 lakh

Table 4.1.2.1.2 Progress under AMIG Scheme in Kerala

Sl. No.	Particulars	Position as on 31.12.2014
1	No. of Schemes	239
2	Total Financial Outlay	₹ 15255.49 lakh
3	Bank Loan	₹ 10959.08 lakh
4	Subsidy released so far	₹ 2524.46 lakh

b. Capital investment subsidy scheme for Construction / expansion / modernization of Cold Storages and storages for Horticulture Produce

The programme under National Horticulture Board is to effectively support production and productivity improvement, post-harvest management, etc. Area specific and crop specific Projects could be prepared for implementation with bank credit. The capital Investment subsidy scheme for construction / expansion / modernization of cold storages for horticulture produce provides back-ended capital subsidy for the purpose. The subsidy under the scheme for credit linked projects was earlier routed through NABARD but now provided directly by National Horticulture Board.

4.1.2.1.4 Credit flow towards the sector

The flow of credit for warehousing / agricultural marketing activity has not been commensurate with the potential available. The Ground Level Credit (GLC) flow and refinance during the last 3 years for agricultural warehousing and marketing activities is given below:

Table 4.1.2.1.3 Credit Flow and NABARD Refinance to the SGMY sector (₹ lakh)

Year	Ground Level Credit	NABARD Refinance released
2010-11	1519.35	-
2011-12	1935.43	827.08
2012-13	1598.81	741.95
2013-14	1468.04	106.10
2014-15	5631.97	9.95

4.1.2.1.5 Initiatives taken by the Stakeholders

a) DMI is regularly conducting District / State level workshops to propagate the schemes.
b) Commercial Banks are actively involved in the subsidy schemes. They are also conducting promotional programmes regularly at their Staff Training Institutes.
c) GoI has introduced Negotiable Warehouse Receipts and is also extending subsidized pledge loans against the same.
d) The Forward Markets Commission (FMC) is conducting a series of programmes across the country in order to bring about awareness amongst farmers on aspects related commodity trading, price realization, etc.
e) The intervention of Horticorp have enabled better price realization in case of banana farmers and also lower prices for consumers

4.1.2.1.6 Constraints & Issues

a) As per Food Security Act, 2013 an additional 7 lakh MT storage capacity is estimated for the State. For this purpose, godowns are to be constructed at each taluk. However, very little progress has been made in this direction.
b) Non availability of land is a major factor hindering growth of warehousing sector in Kerala.
c) Insufficient storage infrastructure facilities farming community in the State for scientific storage of farm produce like rubber, coconut, arecanut, spices etc.
d) Lack of Awareness Negotiable Warehouse Receipts and pledge loans.
e) The inadequacy of agricultural marketing infrastructure
f) Absence of Information dissemination system
g) Lack of awareness among farmers

4.1.2.1.4 Suggested Action points stake holders

A. State Government

a) Creation of appropriate legal framework and land acquisition policy for infrastructure projects
b) Government may explore the possibility of allocation of land from the common pool land available with panchayats, taluks for creation of warehouses.
c) The land / godowns available with the PACS could also be used for storage
d) Time bound schedule for documentations like licences / registration certificates
e) Promotion of accreditation of warehouses in the State.
f) Providing for / promotion of e-auction facilities, modern spot markets, etc.
g) Promotion of Renovation / Modernisation of existing warehouses and their adoption of modern warehousing techniques to improve efficiency.
h) Creation of awareness about the support available from the Government / Banks for promoting warehousing and marketing infrastructure

B. Banks

a) Sensitise prospective borrowers about the schemes
b) Popularise NWRs finance and extend pledge loans to farmers

4.1.2.1.5 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc. the district wise credit potential assessed for the year has been assessed at ₹. 267.88 crore.

4.1.2.2 Land Development, soil conservation, watershed development

4.1.2.2.1 Introduction

4.1.2.2.1.1 Soil and water are the two basic natural resources, proper management of which governs the agricultural productivity on a sustained basis. Therefore, it is imperative that all developmental agencies including banks, must have concern for judicious exploitation and conservation of these resources. This also entails maintaining proper soil health and water quality to achieve the ultimately desired agricultural productivity.

4.1.2.2.1.2 The investment in various land development activities includes all those that aims at restoring/improving soil health, i.e., modern soil testing laboratory with facility for scientific prescription for crop specific soil test based fertiliser application, land levelling, bunding (contour bund, farm bund), terracing, reclamation of salt affected/ waterlogged soils, farm ponds, production of organic inputs, bio control lab, watershed development, underground pipe line, command area development works (that involves bunding, levelling, field channels and field drains) in irrigation command, lining of field channels, etc. Besides, closely related activities, like seed production and processing, purchase of agricultural land by small and marginal farmers and farm fencing are also included under this sector.

4.1.2.2.1.3 The rate of growth of flow of ground level credit (GLC) under LD sector has been generally stagnant in the State during 2009-10 and 2011-12. However from 2012-13 on wards credit absorption in the sector is in upward trend. There has been a significant increase of GLC flow from ₹. 582.17 crore during 2012-13 to ₹. 918.96 crore during 2013-14 and ₹. 983.83 crore during 2014-15.

4.1.2.2.2 Physiographic peculiarities – Issues, constraints and opportunities

4.1.2.2.2.1 The State has an undulating topography with altitude upto 2694 metres above MSL. The foothills and coastal plains are vulnerable to floods, saline water intrusion and problems of poor drainage/water logging. Due to highly undulating/rolling terrain, high rainfall intensity and its uneven distribution, large areas especially in high-slope lands like western ghat regions are vulnerable to erosion, landslips and crop moisture stress.

4.1.2.2.2.2 Out of the total geographical area of 38.86 lakh Ha of the State, it is roughly estimated that 14.76 lakh Ha are prone to soil erosion hazards. It is estimated that around 3.82 lakh Ha area has been so far treated with soil and water conservation measures. About 5.25 lakh Ha low-lying areas in Onattukara, Kuttanad, Pokkali and Kole coastal tracts come under the 'Problem Area Zone' as per the NARP classification of agro-climatic zones; the soils in these areas, being inundated by backwaters almost for 8 months in a year, are generally acidic and develop salinity problems.

4.1.2.2.2.3 The deforestation and change in cropping pattern to cash crops have resulted in Ecological Features/ problems like - Drying up of rivers - Siltation of reservoirs - Drinking water scarcity during summer - Sudden floods etc.

4.1.2.2.2.4 Rampant sand mining in upper reaches has resulted in reduced flow rate due to destruction of natural watershed. River-sand mining is another serious factor contributing to the leaning of rivers. Sand base holds water and that is what makes the rivers 'perennial'.

4.1.2.2.2.5 Rampant conversion of paddy fields into residential plots and coconut plantations accentuating the water shortage in Kuttanad : Paddy fields apart from its primary use for paddy cultivation also serve as natural rainwater storages. If the average water level in a paddy field is one foot, an acre of the field will be holding 1200 cu ms or 1,200,000 litres of water. This percolates down and replenishes the ground water.

4.1.2.2.2.6 The share of nearly 17 per cent area under irrigation is far below the all India share of 45.3 per cent. Over the years, area under irrigation has hardly improved in the state. The utilization of irrigation structures is also very poor. The improved techniques like introduction of laser leveller may be adopted for precision levelling for efficient utilization of irrigation water.

4.1.2.2.2.7 As per the IWMP Perspective and Strategic Plan, an estimated 14.26 lakh Ha is planned to be treated over a period of 18 years with a budget of ₹.1,76,584 core. During the current Plan period (2012-13 to 2016-17) 4.05 lakh ha are expected to be treated under IWMP with a budget of ₹.50147 crore. The Ridge to valley approach may be adopted to increase the efficacy of the treatment.

4.1.2.2.3 Suggested Action points for stake holders

- Integrated Watershed Management has been slow to strike root as a development paradigm in the state. The adoption of the programme by the people has not taken place. The Subsidy/ grant linked to bank credit model may be evolved to involve more people participation and success.
- The participatory base level planning and Ridge to valley treatment technique successfully adopted in NHWDP watershed projects implemented in Wayanad, Palakkad and Kasargod under Prime Minister's special programme for distressed districts may be critically evaluated and positive features may be incorporated in watershed programmes being undertaken in the state.
- Increased Mono cropping is leading to deterioration of soil health. Integrated farming that integrate livestock, crop production and fisheries that was traditionally practiced in Kerala may be revived. In this system, an inter-related set of enterprises are used so that the "waste" from one component becomes an input for another part of the system, which reduces cost and improves production and/or income.
- The Departments of Agriculture and Land Development & Water Resources are implementing a large number of programmes on watershed development, reclamation of ravine lands and reclamation of saline soils, etc. This information needs to be shared with bankers through different fora like the SLBC, BLBCs, DLCC, DLRC, etc. There is an urgent need for bankers and planners to sit together and evolve a credit plus approach for areas where watershed works have taken place. The banking plan prepared by NABARD for NHWDP watershed projects undertaken in Palakkad, Kasargod and Wayanad districts may be taken as a model.
- Financing and adoption of modern farm machinery like laser leveller, zero tillage machine, bed planter, rotavator, etc., for conservation tillage that will help conserving water as well as improving soil health by retaining biomass may be encouraged.

4.1.2.2.4 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹.1315.71 crore.

4.1.3 Others–Tissue culture, agri-biotech, seed production, bio-pesticides/fertilizers, vermicomposting, etc.

4.1.3.1 Introduction

Availability of planting material of good quality is one of the most important factors that determines the quality of agricultural production. The production of registered and certified seeds under the supervision of Research Institutions through progressive farmers, farmers clubs etc., may be funded by the banks. The Kerala government has initiated efforts to promote organic farming in the State. The initiative is designed to encourage farmers to switch over to organic methods of cultivation, under a project to convert Kerala into a fully organic State by 2016. Organic farming in Kerala is gaining momentum and there is good demand for quality organic manures like farm yard manure and compost, bio-fertilisers and bio-pesticides. The technology of vermicompost production using unutilised crop residues and household wastes are available in plenty.

4.1.3.2 Constraints & Issues

Non-availability of empirical data at block/panchayat level about the existing infrastructure available for activities like tissue culture, bio-fertilizer / bio-pesticide production, vermicomposting, seed production etc., potential available for setting up these units and the lack of an organized market for these products are the major infrastructural gaps identified. Many of the activities include under this sector have been covered under Land Development in earlier years and hence GLC is not analyzed separately.

4.1.3.3 Suggested Action points for stake holders

- A comprehensive policy on organic farming incorporating aspects like quality control of organic manure, certification procedure of organic farms, approved agencies for certification etc. may be brought out by Agriculture Department. Ensuring availability of organic inputs is important in promoting organic farming.
- A standard package of practices recommendation may be evolved for organic cultivation of various crops for use by farmers, which would help in assessing the requirement of organic inputs and planting materials.
- Extension efforts to popularize organic farming may be initiated by involving farmers' clubs, NGOs, PRIs, etc.
- Establishment of tissue culture labs and seed production centres to ensure quality planting materials.
- Ensure organic farming approach in all the watershed development areas and extend support, including capacity building and bank loan for soil and water conservation measures.
- Establish testing facilities for soil, water, micro-nutrients and micro-organisms at least at the block level.
- Promoting bio-fencing as a means to ensure soil conservation and for green manure availability.
- Bio- pharmacy outlets may be set-up in the State to ensure supply of organic inputs to the farmers and to realize the dream ofmaking Kerala a fully organic agriculture state by 2016.

4.1.3.4 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential assessed for the year has been assessed at ₹.131.45 crore.

4.1.4 Ancillary Activities

4.1.4.1 Food and Agro Processing

4.1.4.1.1 Introduction

Agro and food processing could be defined as the process of transforming agro and food based raw materials of plant or animal origin into different types of value added products, which are generally used for human consumption. The transformation may generally involve either processing or preservation techniques. Both these processes are intended to create edible or usable forms of products besides providing them improved storage and shelf life. .

4.1.4.1.2 Status

The status of agro and food processing level is low and wastage of food products is considered very high. Value addition to raw produce in our country is only seven per cent as compared to 23 per cent in China, 45 per cent in Philippines and 188 per cent in United Kingdom. Post harvest technology and management plays a crucial role in value addition to agriculture. The post harvest loss in the country is estimated to be in the range of 30 to 40 percent. Agro-processing and value added product units are generally in the unorganized tiny sector, mainly in rural areas. Village level agro-processing units have created large number of self-employment opportunities. A large number of food and fruit processing units are also functioning under the SHG/Neighbourhood Groups of Kudumbasree. The rural based informal processing units are devoid of appropriate technology, processing standards, benefits of volume, standard packaging and market access. A rural based processing unit is generally endowed with raw material availability, but severely constrained in forward linkages, mainly marketing.

Kerala offers vast scope for setting up of a variety of industrial units for undertaking agro processing/food/ fruit processing, developing dairy products besides manufacture of ayurvedic medicines.

The net sown area of 20.89 lakh ha of the state constitutes 54.16% of the total geographical area of 38.86 lakh ha of the state. The gross cropped area is 27.61 lakh ha. While food crops occupy only 13.6% of the gross cropped area, plantation/ horticulture and other crops occupy the remaining. Kerala produces major commercial crops like pepper, cardamom, rubber, coconut, tea, coffee, cocoa, nutmeg, vanilla, cashew, tapioca etc. Various horticultural crops like mango, banana, pineapple, papaya, jackfruits etc. and vegetables like carrot, cabbage, potato, onion, cauliflower etc. are also produced, besides nearly 400 varieties of aromatic and medicinal crops. Kerala accounts for 97% of the country's pepper production, 70% of cocoa production and 25% of coffee. This unique aspect also opens up vast scope for post harvest management, processing and value addition.

The State also accounts for 20% of the country's food exports. As per industry estimates, approximately ₹5,000 crore worth of processed food is exported from Kerala annually.

The Agri-Export Zones of APEDA and the products thereof are enlisted below:-

Sl.No.	Focus Products	Geographical Areas
1	Horticultural products	Thrissur, Ernakulam, Kottayam,Alappuzha, Pathanamthitta, Kollam, Trivandrum, Idukki and Palakkad
2	Medicinal Plants	Wayanad, Malappuram, Palakkad, Thrissur, Ernakulam, Idukki, Kollam, Pathanamthitta and Trivandrum

Mega Food Parks:-MoFPI has accorded In-Principle approval to KINFRA and KSIDC for establishment of Mega Food Parks in Palakkad and Alappuzha respectively with investment of ₹250 crore. Other designated food parks have been established at Kakkanchery, Adoor, Mazhvanoor and Aroor

4.1.4.1.3 State Govt. Initiatives

The Governments Industrial Policy seeks to convert Kerala into a favoured destination for Agro

Processing Industries. State govt. has exempted tax duties on major commodities. The Make in Kerala initiative of the State Government has reduced burden of imports. Promotion of value of added products from Coconut-specifically Neera, flower production in high ranges, jack fruit processing etc., are being given special impetus.

4.1.4.1.4 Review of Ground Level Credit and NABARD Refinance

GLC for the sector is included under NFS and MSME and no separate data on GLC exists.

4.1.4.1.5 Suggested Action Points

- More clusters are to be promoted under this sector for products based on Paddy, Animal Husbandry, Apiary, Poultry, etc.
- There is a need to establish a specialised Government Agency to promote agro processing sector in the State.
- Creation of a minimum critical scale of infrastructure (backward and forward linkages) to prevent erosion in value.
- Agro-processing and value added product units are generally in the unorganized tiny sector, mainly in rural areas.. A large number of food and fruit processing units are also functioning under the SHG/ Neighbourhood Groups of Kudumbasree. The rural based informal processing units are devoid of appropriate technology, processing standards, benefits of volume, standard packaging and market access. An agency with government support under public private partnership model (PPP) may be created for providing forward linkages, mainly marketing, brand building and quality control support to small producers.
- Most of the units are in unorganised sectors and hence it is necessary to form Clusters to bring these units under a formal set up.
- There are various institutions and Research Stations working with the same objectives. The services of these institutions are not fully utilized by the units in the un-organised tiny sector, especially by SHGs, resulting in adoption of low technology.

4.1.4.1.6 Role of NABARD in Food Processing Sector

NABARD has accorded priority for development of food processing industry and as per the directions of GoI and RBI, NABARD has set up a dedicated Food Processing Fund (FPF) of ₹2000 crore in 2014, to meet the credit requirements of the sector. Financial assistance will be provided to State Governments, Government entities, JVs, Cooperatives, FPOs etc.

Under FPF assistance has been extended for establishment of the Mega Food Park at Palakkad with a total project cost of ₹120.15 crore. The project being implemented by KINFRA involves developing an area of 78.68 acres at Elapully and Pudussery villages as a Mega Food Park with a Central Processing Centre (CPC) and four Primary Processing Centres (PPC). The CPC will act as a hub of the project and shall have facilities for value addition through processing; dry and wet storage facilities. The PPCs will act procurement and pre-processing centres. The PPCs will in turn be supported by collection centres- which will supply the raw material. Out of the project cost, Rs.50 crore will be given as grant-in-aid by MoFPI and the balance will be funded by FPF and State Government. The project is scheduled to be completed by March 2018

4.1.4.1.7 PLP estimates for the year 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the credit potential assessed for the year 2016-17 for the agro and food processing sector is ₹ 4003.52 crore.

4.1.4.2 Ancillary Activities

4.1.4.2.1 Introduction

The activities envisaged in this section include loans to cooperative societies of farmers for disposing of their produce, Agri-clinic/Agri-business centres (ACBC), Loans to PACS/FSS/LAMPS, Loans to MFIs for on-lending to agriculture.

Agriculture ancillary activities provide necessary vigour and deepening of the agriculture sector activities. It provides the necessary spread and the requisite linkages for the sector to establish, strengthen and grow.

Agri-Clinic and Agri-Business Centres (ACABC) scheme has been envisaged to support agriculture development and to complement the governments' effort with private participation. It aims to supplement efforts of public extension local needs and affordability of target group of farmers. It also aims to create gainful self-employment opportunities to unemployed agriculture professionals. Agri-Clinics are envisaged to provide expert advice and services to farmers on various technologies which would enhance productivity of crops/animals and ensure increased income to farmers. Agri-Business Centres are commercial units of agriventures established by trained agriculture professionals for income generation and entrepreneurship development. Back ended composite subsidy upto 44% for projects upto₹ 1 crore (in group mode) can be taken up under the scheme.

Realizing the importance of collectivization and role of FPOs in enhancing the producer's income through collective action, Govt. of India in the Union Budget 2014-15, has established "Producers Organization Development and Upliftment Corpus (PRODUCE) Fund of ₹200 crore in NABARD to be utilized for the building and promotion of 2000 Farmer Producer Organizations (FPOs) in the next two years. This initiative would go a long way in addressing the initial requirements of the emerging Farmer Producer Organizations which, in turn, would provide new business opportunities for financing institutions, to support them with credit. In order to facilitate adequate the flow of bank credit to FPOs, the RBI has included lending to FPO by commercial banks and Regional Rural Banks as lending under Priority Sector. NABARD has been extending financial assistance to all registered POs including FPOs since 2011-12 and our cumulative disbursement of loan and grant assistance since inception of scheme stood at ₹ 174 crore and ₹ 2.23 crore, respectively benefiting over 150 Producer Organizations in the country.

Small producers can be aggregated to form Promotion of Producer Organisations and Producer Companies in order to get into processing and value addition. GoI through SFAC has introduced a scheme for promotion of such producer companies. NABARD has introduced a scheme to support Producer Organisations and Producer Companies. In the Union Budget 2014, GoI has announced support to NABARD for its efforts in promotion of producer companies. Coconut Development Board also supports promotion of Producer Companies.

4.1.4.2.2 Critical intervention and Suggested Action Points

a. Infrastructure facilities required for planned development of this sector are availability of good quality input like seed fertilizers etc.
b. There is need to promote group farming in form of Farmers producer organization or producer companies.
c. Banks should make available adequate credit such societies and help them in improving scale of business which is key to profit.
d. Low progress of ACABC scheme can be addressed by countering issues like inadequate follow up and handholding by the MANAGE sponsored Nodal Training Institutes, bankers and lack of awareness/interest among the agriculture and allied graduates

4.1.4.2.3PLP estimates for the year 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc, the credit potential assessed for the year 2016-17 is ₹ 137.43 crore.

4.2 MICRO, SMALL AND MEDIUM ENTERPRISES

4.2.1 Introduction

The importance and contribution of the micro, small and medium enterprises to the economic growth and prosperity is well established. Development of MSME and Rural Non-Farm sector, in addition to its significant contribution to the National economy, gives enormous scope for generation of employment in rural areas, minimizes migration of rural people to cities/urban areas and also reduces the pressure of population on agriculture. MSME covers all economic activities like manufacturing, processing, repairs, construction, trade, transport and other services. NABARD has identified financing, development and promotion of Off Farm related activities as one of its thrust areas.

The limits for investment in plant and machinery/ equipment for manufacturing/ service enterprise, as notified by Ministry of Micro, Small and Medium Enterprises, vide S.O.1642(E) dated 9 September 2006 are as under.

Sector	Manufacturing Sector	Service Sector
	Investment in Plant & Machinery	Investment in Equipment
Micro Enterprises	Does not exceed twenty five lakh rupees	Does not exceed ten lakh rupees
Small Enterprises	More than twenty five lakh rupees but does not exceed five crore rupees	More than ten lakh rupees but does not exceed two crore rupees
Medium Enterprises	More than five crore rupees but does not exceed ten crore rupees	More than two crore rupees but does not exceed five core rupees

4.2.2 Status of Micro small and Medium Enterprises in Kerala

In Kerala, MSME sector is fast emerging into a major income generating and employment providing sector for various social groups like SC, ST, Women, youth helping in equitable distribution of income and wealth. As per the MSME survey & Quick Results of the 4th census, Kerala has 5.62% of the total MSME enterprises in India.

The total number of working SSIs/MSMEs registered in Kerala as on 31.03.2014 is 234251 ie. 7% more than 219444 that of previous year. Out of the total SSIs/MSMEs, 3.8% are promoted by SCs, 0.7% by STs and 25% by women entrepreneurs. The total investment was ₹1435301 lakh in 2013-14 against ₹1212674 lakh of previous year indicating an increase of 18% while the total value of goods and services produced was ₹5084827 lakh which indicates an increase of 17% over ₹4336994.790 lakh of previous year. The employment generated was 1190944 no. while in the previous year it was 1103126 indicating an increase of about 8%.

The traditional strong holds of the state has been – Food Processing, Handlooms & Textiles, Coir, Cashew and Rubber industries, in recent times Footwear and Light Engineering industry has been added to this list.

Table 4.2.1 Status of Micro small and Medium Enterprises in Kerala

Traditional Sectors		
Sl. No	**Industry**	**Status**
1	**Coir**	Coir Sector is one of the major traditional industries in the State providing employment to nearly 3.75 lakh persons and is second to agriculture as a source of employment in Kerala. The coir industry is classified into Defibering sector, Yarn sector, Product sector. Coir yarn producers, product manufacturers, exporters, and workers are the major stake holders of the Coir industry. The coir units are mainly under the cooperative fold with Kerala State Coir Cooperative Marketing Federation (COIRFED) at its Apex with 833 Primary Coir Cooperative Societies. Out of 954 registered coir cooperative societies, only 382 are working. The Kerala State Coir Corporation, Foam Matting India Ltd are some of the

		other agencies working in the sector. To promote sustainable development of coir sector, Government of Kerala has constituted a separate administrative department and a Coir Directorate with 10 project offices in the State. In addition to this, SIDBI, GTZ, DIFD-UK, NABARD have all been supporting projects to promote the coir in its strongholds. The thrust areas for the development of Coir Industry are modernisation of production infrastructure, expansion of domestic market by publicity and propaganda, promotion of export of coir and new products, promotion of research and development activities in process improvement, product development and diversification, elimination of pollution, development of skilled man power through training. Weak procurement of coconut husk, increased production cost, shortage of coir fibre, Low raw material availability, technological obsolescence, inadequate marketing system, labour shortage are some of the main problems faced by the industry.
2	**Handloom**	Handloom Sector stands second to coir sector among the traditional industries of Kerala. As per the latest Handloom Census, Kerala has 11690 units employing 14679 weavers and allied workers. The industry is mainly concentrated in Thiruvananthapuram and Kannur districts and in some pockets/ clusters of Kozhikode, Palakkad, Thrissur, Ernakulam, Kollam and Kasargod. As on November 2014, there were 705 Primary Handloom Weavers' Societies consisting of 171 factory type societies and 534 cottage type societies. Out of 705, 426 (131 factory type and 319 cottage type) are in working condition and the remaining are either dormant or under liquidation. An evaluation study on 'Handloom Industry in Kerala' found that the main problems of handloom industry are lack of adequate working capital, inadequate availability, increasing price of raw materials, high wage rates on alternative occupation, stiff competition from power loom cloth and low sales turnover. There is a need to support the institutions in the sector like Hantex, Hanveev to provide services to the weavers. A value chain approach should be adopted to include all the stakeholders in the sector for a comprehensive development of the sector. Producer Organisations could be an effective tool to enable the weavers to realise value of the produce.
3	**Handicrafts**	The handicraft sector has a very important role in sustaining large number of employment and also in conserving traditional skills in selected pockets of the State. The major handicrafts of Kerala are: horn carving, bell metal casting, screw pine weaving, coconut shell carving, cane works, straw picture making, bamboo and reed weaving, kora grass weaving etc. The Kerala State Handicrafts Apex Co-operative Society Ltd. (SURABHI),Artisans Development Corporation, Handicrafts Development Corporation and Bamboo Development Corporation are the major agencies engaged in the promotional efforts. The Handicrafts Development Corporation is procuring and marketing handicraft products by giving fair returns to the artisans through its 18 Kairali emporium, spread all over India. The artisans in the trades of pottery, copper, bronze, gold smithy, carpentry etc. are assisted by the Kerala Artisans Development Corporation (KADCO).
4	**Bamboo Industry**	Kerala is one of the major bio diversity centres for bamboo species accounting for about 19 per cent of the total bamboo distributed in India. In Kerala, bamboo is used as a raw material in pulp and paper, bamboo ply and traditional industries. The Bamboo industry in Kerala provides livelihood to about three lakh workers mostly belonging to the tribes and other weaker sections of the society, majority of whom are women.
5	**Construction sector**	The immense potential this sector holds is due to the boom in construction of houses in rural/ urban areas. Units for construction related activities like brick kilns, stone crushing, mining for laterite stones etc. hold good scope. Industrial units for wood products, wall coatings, electrical accessories, plumbing, etc. can be supported. This sector needs to be developed in an organised way, as immense scope exists.

6	**Information and Communi-cation Technology**	The availability of qualified and skilled graduates, lower salaries and lower employee attrition rates has helped the State's progress. Initiatives taken by successive governments to promote Kerala as an IT destination have been very fruitful. Immense scope exists for setting up of IT/ITES enterprises in the MSME sector in the state. The Kerala Perspective Plan 2030 is proposing that the state is to become a knowledge economy where ICT is the lynchpin. Techno Park at Thiruvananthapuram, Info Park at Kochi and Cyber Park at Kozhikode together lead the growth of IT sector in state. The state follows the hub and spoke model of development for IT sector and has info parks at Cherthala and Thrissur and Cyber Parks at Kannur and Kasargod. The state exported IT services worth ₹.5093 crores as on 31 March 2013.
7	**Tourism**	Tourism is one of the few sectors where Kerala has clear competitive advantages, given its diverse geography in a short space ranging from the Western Ghats covered with dense forests to the backwaters to the Arabian sea. Tourism has been declared as an industry in Kerala. The "**God's Own Country"** slogan launched in 2000 has now attracted worldwide attention. The tourism policy 2012 advocates greater private investments in the sector and offers tremendous scope for new MSME enterprises to cater to the demands generated by the sector.
8	**Rubber, PVA, PU footwear manufacturin g**	This has been one of the success stories of Kerala's MSME sector. Kozhikode district has emerged as a major centre in the manufacture of rubber- and PVC-based footwear with the state-of-the-art technology, value-added products and strong brands (Paragon, VKC). With huge national and international market, especially through West Asian countries ,this sector offers tremendous growth potential.

4.2.3 *Potential activities for MSME sector development in Kerala*

The state enjoys comparative advantage among Indian states in select sectors. Most of them are resource based. Kerala has also comparative advantage in some knowledge intensive electronic and electrical components industries, such as Electronic Valves, and Television & Radio. This provides the state with opportunities to expand its base in technology-driven segments of the industry by building on this.

Table. 4.2.2 MSME activities with potential in the state

Sr No	Industry	Activity
1	Medicinal oil extraction /formulations manufacture	Globally, the demand for medicinal plant- based raw material is growing at the rate of 15-20 % annually, and by 2050 this demand is likely to grow to US$ 5 trillion. In 2010-11, India's share of exports in herbal medicine was 1.00 % globally, as compared to that of China which had a share of 55%. Under this scenario and given the flora and fauna potential in Kerala and traditional knowledge base available, the state can make efforts to contribute towards global exports of medicinal plants.
2	Light Engineering	The innovation and experiments with new technology is the buzz word for success in the sector. This is a major feature of the Light engineering sector in the state. The availability of highly skilled workforce, suitable infrastructure and accessibility to a lucrative domestic market has assisted the sector to thrive in the state. Die casting, Automobile spares and coil springs, precision equipment, pollution control and energy saving devices, machine tool accessories, high vacuum pump, etc. are the main products.
3	Export oriented units/ Agro processing	Granite cutting, slabs, cashew shell liquid, coir products, handicrafts, canned sea foods, mushroom preparations, coconut products, flower based industries food and agro products and Ready to eat products

4.2.4 Initiatives of the Government of Kerala

The Kerala State Entrepreneur Development Mission (KSEDM) was set up by the State Government with the objective of training probable entrepreneurs in each Panchayat /Muncipality/Corporation of the State. The state budget has given a lot of emphasis on *Entrepreneurship Development* with special incentives for Women Entrepreneurs and has provided for venture capital funding and incubation facilities.

Further, Government agencies like Kerala Bureau of Industrial Promotion (K- BIP), Kerala Small Industries development Corporation (SIDCO), MSME Development Institute, Thrissur, Kerala Institute for Entrepreneurship Development (KIED), Kerala Academy for Skill Excellence (KASE) and Kerala institute for Labour and Employment (KILE) provide infrastructure and training and skill development support for MSME sector in the state.

4.2.5 Initiatives of NABARD

NABARD has been conducting promotional programmes with an objective to create replicable models, to generate and enhance opportunities for employment and income generation in rural areas in a sustainable, demonstrative and cost effective manner.

(i) Loan cum Grant Model for development of Off Farm: Based on the experience gained over the period of time and feedback from stakeholders, NABARD has reorganized the existing programmes into a "PROJECT APPROACH". The focus is now to support on a project based approach with a combination of grant, loan and stakeholder /client contribution (margin money/equity).The basis for support depends on the nature of the project and activities within the project and which benefit rural, agricultural, weaker section and poor community directly or indirectly.

(ii) Exhibitions/fairs/melas - NABARD has been facilitating artisans, rural producers like SHG members, Farmers clubs etc for participating in exhibitions/fairs/melas organised by Government and non Government organisations held at district, State and national levels. Apart from establishing a direct linkage between the rural producers/artisans and the consumers, the initiative facilitates marketing the artistry to the consumers, add value to the rural produce, benefit directly from the market feedback obtained during the programme for better value realisation in future and sell 'what market demands'.

(iii) Assistance to RSETIs : NABARD supports the capacity building and other initiatives of Rural Self Employment Training Institutes (RSETIs) aimed at creation of sustainable employment opportunities for the youth in our rural areas.

4.2.6 Issues for Action.

1) The "make in India" brand to be promoted as an umbrella brand for all sectors
2) A sizeable number of SMEs in the manufacturing sector are located in developmental areas/parks and small industrial parks. Upgradation of infrastructure in these clusters needs to be undertaken
3) Setting up of an "MSME Equity participation Fund" for encouraging start-ups to be created by the State Industrial Development Corporation and State Financial Corporation
4) Exemption for payment of EMD and security deposit and price preference to MSMEs to be extended for a period of 5 years.
5) Organisation of Industrial Adalats regularly at State/District levels with a view to understanding the problems of MSMEs and settle pending issues.
6) Facilitation of skilled workers to industrial units through employability centres under the labour and skills department.
7) Investment subsidy to women entrepreneurs to take up entrepreneurship as a profession by treating these as thrust industries.
8) Encouraging bio-technology, nanotechnology and life sciences which have tremendous potential
9) Organizing garment based activities into clusters, providing design support, cluster brands, access to finance and establishing market linkages.

3.10 Projections for 2016-17

Considering the infrastructure available, likely to be made available and based on the discussions with the line departments, etc., the district wise credit potential estimated for the year 2016-17 is given in the table below:

	Micro, Small and Medium Enterprises	**Projection (₹ Crore)**
i	MSME - Working capital	**8034.00**
ii	MSME - Investment credit	**28669.89**
	Total MSME	**36703.88**

4.3 EXPORT CREDIT

4.3.1. Introduction

4.3.1.1 Trade operations in Kerala is mainly conducted through Kochi Port. Items of trade include pepper, cashew, coir and coir products, tea, cardamom, ginger, spices and spices oil and marine products. Exports through Kochi port which declined during 2012-13, showed an increase of 10.85 per cent during 2013-14 i.e. to 42.50 Lakh MT in 2013-14 from 38.34 Lakh MT in 2012-13. However, export of cashew kernels, coir products and coffee declined during 2013-14. Export of spices which had declined during 2012-13, showed a 3.21 per cent increase in 2013-14. Coir products, the export of which had increased by 15 per cent during 2012-13 declined by 12 per cent during 2013-14. Kerala exported 165698 MT of marine products worth ₹470636 Lakh in 2013-14 against 166399 MT valued at ₹343585 Lakh in 2012-13. The export of cashew nut shell liquid from India during 2013-14 was 9480 MT valued at ₹38.6 Crore.

4.3.1.2 As per the new Priority Sector norms of RBI, incremental export credit over the corresponding date of the preceding year, up to 2 percent of ANBC or credit equivalent amount of off-balance sheet exposure, whichever is higher, effective from April 1, 2015, subject to a sanctioned limit up to ₹25 crore per borrower to units having turnover of upto₹100 crore is eligible to be covered under Priority sector.

4.3.1.3 The GoI has approved an interest equalisation scheme that would allow exporters, mostly in the labour-intensive and small and medium sectors, to avail of loans from banks at a 3 per cent lower rate. The interest subvention scheme will be applicable from April 1, 2015, Power Minister. The financial implication of the scheme is estimated to be in the range of ₹ 2,500 crore to ₹ 2,700 crore per year.

4.3.1.4 The scheme would be available to all exports of micro small and medium enterprises (MSME) and 416 other items spread across 25 sectors. The sectors covered are mostly labour intensive and include agriculture/food items, auto-components, bicycle parts, handicrafts, electrical engineering items and machinery, telecom equipment, handmade carpet (including silk), handloom products, coir items, jute, readymade garments and made ups, toys, sports goods, paper and stationary, leather goods and ceramics. The scheme, however, will not be available for merchant exporters.

4.3.1.5 The total outstanding credit by banks in Kerala State under export credit as on 31 March 2014 is ₹4632.04 Crore

4.3.2. Assessment of Credit Potential for 2016-17

Export Finance: Pre-shipment and Post-Shipment Finance

4.3.2.1. The term 'export finance' refers to credit facilities and techniques of payments at the pre-shipment and post-shipment stages. Export finance whether short-term or medium term, is provided exclusively by the Indian and foreign commercial banks which are the members of the Foreign Exchange Dealers Association. The Reserve Bank of India (RBI) provides refinance facilities to the commercial banks. Export-Import Bank of India (EXIM Bank) also extends finance to exporters and to overseas projects abroad joint ventures and construction projects abroad.

A. Pre-shipment Finance: Pre-shipment finance refers to the financial assistance in Indian Rupees and Foreign Currency provided to the exporters before actual shipment of goods. Pre-shipment finance is provided to the exporters for the purposes like purchase of raw materials, their processing and converting into finished goods and packaging them. The facility also enables provision of Rupee/FC mobilization expenses for construction/turnkey projects. Exporters can also avail Foreign Currency Pre-shipment Credit facility to import raw materials and other inputs required for export production.

For these purposes, the following pre-shipment finance is available:

1. Packaging credit
2. Advance against Incentives
3. Advance against Duty Drawback.

Pre-shipment credits are granted by the banks under concessional rates of interest.

B. Post-Shipment Finance: Post-shipment finance may be as "any loan or advance granted or any other credit provided by a bank to an exporter of goods from India from the date of extending the credit after shipment of goods to the date of realization of export proceeds." Exporters can also avail Foreign Currency Pre-shipment Credit facility to import raw materials and other inputs required for export production.

Thus, post-shipment finance serves as bridge loan for the period between shipment of goods and the realization of proceeds.

4.3.3 Availability of Infrastructure, critical gaps & interventions required, action points /Issues to be addressed

4.3.3.1 The factors favoring export in Kerala are an all weather sea port at Kochi, 3 international airports, a proposed port at Vizhinjim, good connectivity by rail, road, water etc., proximity to trans national trade corridor, high literacy rate and sense of hygiene and good processing skills of labour.

4.3.3.2 The major organizations available for furthering the cause of export in Kerala are Marine Products Export Dev. Authority [Kochi], Cashew Export Promotion Council [Kollam], Coir Board, Tea Auction facility, SEZ for Export promotion, Industrial Parks set up by Govt., Food Park at Ernakulam & Pathanamthitta, Sea Food Park at Alappuzha, Spices Park at Idukki etc.

4.3.3.3 Some of the important items produced in the districts and exported through Kochi sea port are: Kottayam-Rubber; Idukki-Spices, Tea, Coffee; Pathanamthitta-Spices; Alappuzha-Coir, Marine; Kollam-Cashew; Thrissur-Gold; Palakkad-Rice; Kozhikode-Footwear; Wayanad-Spices, Tea, Coffee.

4.3.3.4 The countries to which the major exports from Kerala through the ports and airports in Kerala are: *Kochi sea port*: USA(30%), Nigeria, Indonesia, Hungary, UAE**;** *Kochi Airport*: UAE(22%), Maldives, Qatar, Oman, China; *TVM Airport* : UAE, Maldives, Qatar, China, Kozhikode Airport: Qatar (30%) UAE.

4.3.3.5 Prospects: The new port coming up at Vizhinjam will provide more openings to international trade, cashew exports may shift from Kochi and marine exports will get a boost. The Development of Beypore port will help trade to Gulf and Sri Lanka and export of food items, masalas, footwear, marine etc. will get a boost.

4.3.3.6 Issues: Trade is mostly to gulf countries and cost of cargo remains high. Also, the dependency is high on the NRI community, nonbanking channels and relatives/agents.

4.3.3.7 Opportunities: The opportunities lie in contract farming for bio-agri products, floriculture, cut flowers, spices and spices oils and revival of sea food, cashew and coir.

3.3.4 Projections for 2016-17

Considering the above developments, the potential for export credit assessed for the year 2016-17 in Kerala State is ₹1278.98 Crore.

4.4 EDUCATION

4.4.1 Introduction

Education and development are closely related, as education provides inputs for economic growth among which knowledge is an important one. Modern economic growth, as seen in recent years, is driven by knowledge. Importance of higher education can be understood from its functions like (i) creation and dissemination of knowledge, (ii) supply of manpower, particularly knowledge workers, (iii) attitudinal changes for modernization and social transformation, (iv) formation of strong nation-state, and (v) promotion of higher quality individual and social life (GoI 2005). Development of higher education depends on various factors, among which finance plays a major role.

The general education levels of the population are high in Kerala, compared to the all-India levels. Per 1000 persons, 545 men and 509 women are educated up-to middle-school, comprising the largest proportion in terms of education levels. The next highest proportion is of secondary and higher secondary school persons with 277 men and 271 women (per 1000). 92 men and 97 women were estimated to be graduates and above, only slightly higher than the all-India estimation for men at 90 (per 1000). Kerala has a total of 17 universities and 1062 colleges. There are 34 colleges catering to per lakh students higher than the national average of 25 per lakh students. The Gross Enrolment Ratio (GER) in higher education (18-23 years age group) is 22.9, slightly higher than the national average of 21.1. The GER for females (26.9) is significantly higher than GER for males (18.9). The total population of students in the state in age group of 18 to 23 years as on 2012 was 31.39 lakh.

The education loan portfolio of banks in the state have shown impressive growth during recent years. As on 31 March 2015 the education loan accounts for 7.35% of total PSA advances, total outstanding under education loan during last three years is as follows:

Table 4.4.1 Education loan outstanding (₹ lakh.)

	March 2013	March 2014	March 2015
All agencies	813900	905300	946600

The State Education Policy 2012 layout the vision for next 10 years as "Expansion with Excellence and Equity" the major milestones set are:

- → The State should establish separate State Universities for Medical Education including Nursing and Para Medical, Engineering Education, Dental Science, Law, Teacher Education and Pharmacy and for Traditional Medicine systems.
- → New colleges to be established in five backward districts of the State
- → One Women's University to be established in the State.
- → State University for Distance Education to be established for promoting Distance Education.

4.4.2 Availability of Infrastructure, critical gaps & interventions required, action points / Issues to be addressed

- → **Central Scheme To Provide Interest Subsidy (CSIS) On Education Loan** : The scheme provides full interest subsidy during the period of moratorium i.e., Course Period plus one year or six months after getting job, whichever is earlier, on loans taken by students belonging to Economically Weaker Sections (annual gross parental family income upper limit of ₹. 4.5 lacs per year) from scheduled banks under the Educational Loan scheme of the lndian Banks' Association, for pursuing any of the approved courses of studies in technical and professional streams, from recognised institutions in lndia. The scheme is applicable to all education loans taken after 01.04.2009.
- → **Govt of Kerala scheme:** The interest burden of Education loan availed by students during the period 2004-2009, belonging to BPL category and who are unemployed shall be provided by the Government of Kerala.

→ **National Skill Development and Entrepreneurship policy 2015** : In order to achieve the target of skilling a huge workforce in the country, the Government of India has formulated the National Skill Development Policy. The policy aims to increase the productivity of India's workforce and enhance India's competitiveness in the global market by empowering people through improved skills, qualifications and access to employment and to attract investment in the skill development sector in India. A target of skilling/ up-skilling 150 million people in India by 2022 has been set in the policy.

→ SLBC, Kerala in consultation with Government of Kerala have issued common guidelines norms applicable to all banks for granting education loans to management quota seats and outside state admissions.

→ As per the prevailing norms District Cooperative Banks are not covered under IBA interest subsidy scheme, the DCBs have large network in the state and their customer base predominately constitute of small and marginal farmers. It is felt that since these are institutions with local feel their inclusion under IBA scheme will lead to more inclusive distribution of subsidised education loan.

→ **High NPA :** The Non-performing loans under the sector continues to be high, as on March 2015 there were 32345 NPA accounts amounting to ₹ 710.00 crore(7.5%).

4.4.3 Assessment of Credit Potential for 2016-17

Considering the above developments, the district wise credit potential for the year 2016-17 has been assessed at ₹.3786.63 crore.

4.5 HOUSING

4.5.1 Introduction

Housing is an important sector as it has a direct impact on employment generation, GDP growth and consumption pattern in the economy. Housing related activities in the country like construction, renovation, maintenance and those related to trading, financing, mortgage banks, real estate agents, appraisers, movers and notaries, are estimated to account between 5-10 per cent of GDP. In India, housing finance market is still in its nascent stage compared to other countries. The outstanding amount of housing finance from all sources accounts for less than 8 per cent of GDP when compared with 12 per cent in China, 29 per cent in Malaysia, 46 per cent in Spain and 80 per cent in the US.

As per census 2011, the total number of houses in the state is 11.22 crore of which 58.57 lakh are in rural areas and 53.60 lakh are in urban areas. The overall housing availability is better in Kerala compared to all India average. The quality of housing as per the materials used for roof, walls and flooring, Kerala fares better than the national average since 48 per cent of the houses use concrete as the material for roofs versus 29.1 per cent in India. 46.5 per cent of households in India use mud and 76 % of households lived in permanent houses. The housing shortage in Kerala is estimated at 2.64 lakh houses.

The housing loans portfolio of the State has shown impressive growth during the last decade, they constitute 19.52% of total PSA advances and 11.48% of the total advances as on 31 March 2015. The total housing loans outstanding during the last three years is indicated below:

Table 4.5.1 Housing loan outstanding (₹ lakh.)

	March 2013	M arch 2014	March 2015
All agencies	2183200	2269700	2512100

In the revised priority sector guidelines the loan limit and total unit cost under housing have been enhanced to ₹ 28.00 & 35.00 lakh and ₹ 20.00 & 25.00 lakh respectively in metropolitan and other centers. However, the above trends in credit flow are based on earlier priority sector norms.

The State Housing Policy 2011 aims to eradicate landlessness and houseless people during the 12th Year Plan by creating housing stock of 12 lakhs units. The State has planned to undertake the construction of 12 lakh Housing units, of which around sixty percent is meant for the economically weaker sections of the society. Considering an amount of ₹ 2.00 lakhs for the construction of a residential unit, it is estimated that a total amount of ₹ 15000 crores is needed as investment in the Housing Sector for EWS and disadvantaged groups. Using the norms of the MoHUPA (Ministry of Housing and Urban Poverty Alleviation) the investment required in urban Kerala is ₹ 21,600 crore at current prices. *(district level data / figures may be added)*

4.5.2 Availability of Infrastructure, critical gaps & interventions required

→ Central Government has launched a comprehensive mission "Housing for All by 2022" Pradhan Mantri Awas YojanThe mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals:

- ❖ Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource
- ❖ Promotion of Affordable Housing for weaker section through credit linked subsidy
- ❖ Affordable Housing in Partnership with Public & Private sectors
- ❖ Subsidy for beneficiary-led individual house construction

As part of the three missions, the government will look to create 2 crore houses by 2022 by providing a central grant of ₹ 1 lakh to ₹2.3 lakh per house by way of a 6.5 percent interest subvention scheme.

→ State government is implementing "**EMS Housing Scheme"** that encompasses various other schemes. Some of these are: 'Bhavanashree' which is a loan linked scheme under the

scheme, families having a two years membership of Neighborhood Groups and having at least 1.5 cents of land are eligible. A subsidy of ₹10000 is provided with a loan from commercial banks upto₹ 50,000 with a repayment period of ten years. Under the housing scheme of SC Department ₹1 lakh assistance is provided to each BPL SC family. Similarly, under the housing Scheme of ST Department, an assistance of ₹ 1.25 lakh is provided to eligible ST families. The Department of Fisheries also provides housing assistance to their target group.

4.5.3 Action Point for Government department, banks and other agencies

→ Emphasis on Environmental Conservation and Disaster Resistance: The use of locally available materials, installation of rainwater harvesting units and eco-friendly measures should be encouraged. Incorporation of disaster resistant designs in house construction should be made compulsory.

→ **Affordable Housing:** Creating adequate housing stock both on rental and ownership basis.

→ **Housing Needs of Weaker Sections:** Special efforts for catering to the needs of SC/ST/OBC,
Disabled persons, slum dwellers, street vendors other informal sector workers and vulnerable sections of the society.

→ ***Title Guarantee*:** In a majority of the rural areas a clear title of the land pertaining to the existing houses, is not available. In the absence of such clear titles, the banks find it difficult to provide housing loans on such property. Therefore, to cover the risk of default / defects in the title, a simple affidavit by the borrower being the legal heir of the house property duly signed by the village Panchayats or Land Revenue Officer, can be treated as a valid document for the purpose of creation of the mortgage.

→ ***Rural Risk Fund*:** Presently, the banks have high risk perception for lending to the poor. The risk fund will provide credit guarantee cover for loans upto. ₹ 1 lakh taken by the BPLs.

→ ***Mortgage Credit Guarantee*:** This would cover all loans given by PLIs i.e., in urban and rural areas with loans above ₹ 1 lakh. NHB with the other institutions will bring in the required corpus of initial funds and PLIs will be paying premium for the credit cover which may be shared between PLI and the ultimate borrowers Mortgage credit guarantee for rural micro-habitat finance for loans upto. ₹1 lakh could be borne by the lending institution itself as a one-time premium.

4.5.4 Assessment of Credit Potential for 2016-17

Considering the above developments, the credit potential for the year 2016-17 has been assessed at ₹.16220.32 crore.

4.6 RENEWABLE ENERGY

4.6.1 Introduction

Renewable energy is defined as the energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves, biomass and geothermal heat. Due to depletion of fossil fuels through prolonged use, the use of renewable energy sources have become important for meeting the energy needs of the future. Renewable energy can replace conventional energy in four areas: electricity generation, air and water heating / cooling, motor fuels and rural(off-grid energy services).

MNRE- Vision

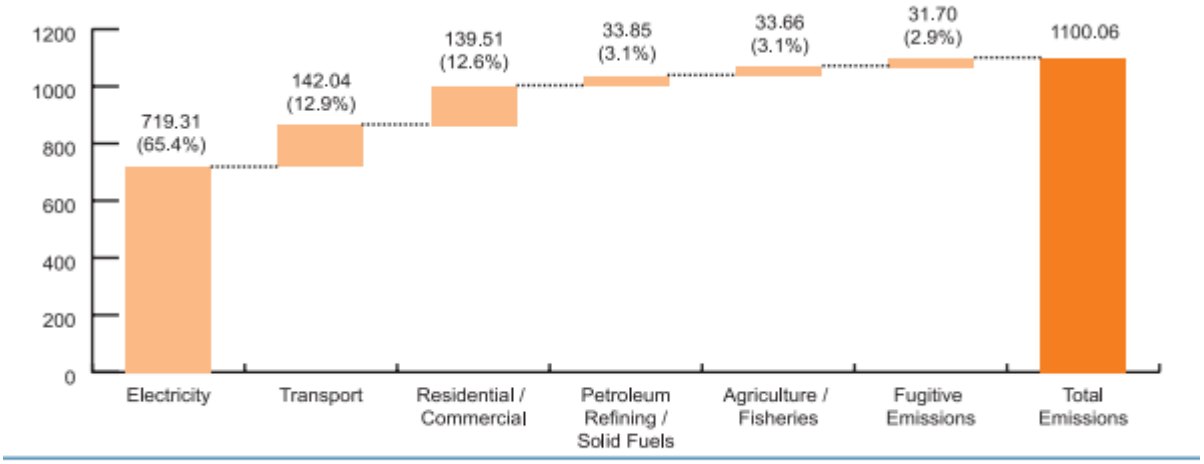
To develop new and renewable energy technologies, processes, materials, components, sub-systems, products & services at par with international specifications, standards and performance parameters in order to make the country a net foreign exchange earner in the sector and deploy such indigenously developed and/or manufactured products and services in furtherance of the national goal of energy

The pattern of electricity production by source (% of total) in India (2009) is given in the table below:

Table 4.6.1 Pattern of electricity production by source (% of total) in India

Source	Coal	Hydroelectric	Gas & oil	Nuclear	Renewable sources excl. hydroelectric
India	68.2%	11.5%	14.1%	2.1%	4.2%

Contribution to GHG Emission: The energy sector emitted 1100.06 million tons of CO2 equivalent (eq) due to fossil fuel combustion in electricity generation, transport, commercial/Institutional establishments, agriculture/fisheries, and energy intensive industries such as petroleum refining and manufacturing of solid fuels, as indicated in the graph below:



ES3: GHG emissions from Energy Sector (million tons of CO_2 eq).

Source : Ministry of Environment and Forests Government of India

4.6.2. Status in Kerala

The major renewable energy sources relevant to Kerala are solar energy, wind energy, hydel energy [mini hydel projects from 101 KW to 2000 KW and small hydel projects from 2001 KW to 25 MW], bio-energy and wave energy. Biogas is one of the efficient non-conventional energy sources, which can be profitably harnessed to meet the domestic fuel requirement and to supplement rich organic manure for farm operations.

The installed capacity of various energy sources in Kerala as on March 2012 is given in the table No. 4.6.1. Majority of Kerala's own installed capacity comes from hydel power (82.6%). However, Kerala continues to lag behind the rest of the southern States in renewable energy generation. The percentage share of renewable energy excluding hydroelectric from the total of central, state and

private installed capacity shows that Tamil Nadu has the highest share(41.7%) followed by Karnataka(23.8%), Andra Pradesh(5.5%) and Kerala at 4.25%

Table 4.6.2 Installed capacity of various energy sources in Kerala

Ownership sector	Thermal (Mode wise break up)				Nuclear	Hydro (renewable)	Other RSE*	Grand total
	coal	gas	Diesel	Total				
State	0.0 (0%)	0.0 (0%)	234.6 (10.3%)	234.6 (10.3%)	0.0 (0%)	1881.5 (82.6%)	162.66 (7.1%)	**2278.8 (100%)**
Private	0.0	174	21.84	195.84	0.0	0.0	0.03	**195.9**
Central	897.92	359.58	0.0	1257.5	95.6	0.0	0.0	**1353.1**
Total	**897.92**	**533.58**	**256.44**	**1687.9**	**95.6**	**1881.5**	**162.69**	**3827.7**

** Renewable Source of Energy*

4.6.3. Government Programmes.

- The Agriculture Department and KVIC promotes biogas development by providing technical and material support for construction of plants and is directly linked to the annual programmes of these agencies. A subsidy scheme for promoting the installation of biogas plants having individual capacity of not less than 15 m^3 is in operation.
- **Bio Energy Programme 2015-16 - Family Type Biogas Plants**- MNRE is providing subsidy for setting up of Family Type Biogas Plants under NBMMP (1 to 6 cubic metre capacity per day)under National Biogas and Manure Management Programme **(NBMMP)**. "Deenabandhu" model of the Department of Agriculture and the "Floating Dome" model of the KVIC are the two models now being encouraged in the state.
- Ministry of New & Renewable Energy has allocated a physical target of 2150 bio gas plants to Dir. of Agriculture and 1850 to ANERT for implementation under National Biogas and Manure Management Programme (NBMMP) during 2015-16.
- **Capital subsidy scheme of GoI for promoting solar photovoltaic water pumping systems:**MNRE, GoI has launched a new scheme to support 30000 solar pumping units per year with revised parameter with effective from 03 November 2014. The scheme is credit linked and the subsidy is back ended. Kerala has been allocated a target of 600 pumpsets for 2015-16.
- Ministry of New and Renewable Energy has been vested with the responsibility of developing Small Hydro Power (SHP) projects up to 25 MW station capacities. The estimated **potential** for power generation in the in Kerala from such plants is about 704 MW from 245 SHPs. 36 SHP units with installed capacity of 211.17 MW are installed/ under implementation.
- Kerala is one of the first States to announce a Renewable Energy Policy in 2002. It is also one of the few States to have its own Wind Energy Policy [2004] and recently announced the Solar Energy Policy in 2013. Agency for Non-conventional Energy and Rural Technology [ANERT], an autonomous organisation set up by the Govt. of Kerala is the State Nodal Agency [SNA] for the MNRE, GoI to implement centrally-assisted programmes in the State. ANERT's current interventions include Solar SPV and Thermal programames, Small Hydro projects, Wind energy, biomass gassification, biogas programmes and energy conservation initiatives.

4.6.4. Assessment of Credit Potential for 2016-17

Table 4.6.3 Source wise Estimated Potential of Renewable Power in Kerala (₹ in crore)

Source	Wind	Small Hydro Power	Bio Mass Power	Waste to energy	Total Estimated potential
In MW	837	704	1044	36	**2621**

(Source : Energy Statistics 2015, GoI)

4.6.4.1 *Solar Energy*

The solar energy potential of Kerala is as high as 14,336 MW and that of roof top solar potential is 6,187 MW.

4.6.4.2 *Wind Energy*

In the recent past, wind energy has emerged as a viable renewable energy option with increased application in water pumping, battery charging, and large power generation. Wind is the fastest growing of the renewable energy technologies.

The main windy areas in the State are the eastern mountainous regions of Idukki district along the border of Tamil Nadu and elevated areas in Palakkad gap. There is much higher potential for the direct mechanical application of wind energy i.e., for windmill pumping systems. The gross potential of wind power is estimated as 875MW and technical potential as 610 MW in Kerala.

Technical and administrative clearances had accorded for establishing Wind farms for generating and supplying 28.8MW power in Agali, Palakkad (16.8 MW) and Ramakkalmedu, Idukki (12 MW) to the grid in coming years

4.6.4.3 *Bio-energy / Biogas*

While waste management is posing a serious problem it also provides a window of opportunity for the power deficit Kerala. The average person generates about 4.5 pounds of waste per day. It can be reused to generate clean, renewable power. Biogas can be generated from organic waste from agriculture, animal husbandry and domestic sectors, and Power generation from Municipal Solid Waste (MSW) and Industrial Waste. The total capacity of the Bio energy sector is estimated as 300 MW in the state.

Major interventions in the Bio energy sector is envisage by ANERT jointly with District Panchayat through the Total Energy Security Mission. Community Biogas plants, Biogas plants in high water table areas and Biomass based energy generation programme using vide ranging types of inputs like coconut waste, oil palm bunches, fuel wood, hard wood power, refuse derived fuel etc.

Considering the above developments, infrastructure available, likely to be made available, the potential assessed for the year 2016-17 has been assessed at ₹183.70 crore.

4.6.5 Suggested Action points stake holders

A. State Government

a) **Bio-energy / Biogas:** While waste management pose a serious problem it also provides a window of opportunity for the power deficit Kerala. An average person generates about 4.5 pounds of waste per day. It can be reused to generate clean, renewable power. Biogas can be generated from organic waste from agriculture, animal husbandry and domestic sectors, and Power generation from Municipal Solid Waste (MSW) and Industrial Waste. Community bio-gas plants may be set up in each district to address the waste management and also to generate clean energy.
b) Mandatory provisions for installing solar water heaters / lighting system with appropriate incentives for new constructions and existing building.
c) Adequate publicity and demonstration by the implementing and nodal agencies for the development of the renewable programme.
d) Focus on improving the post construction repair and maintenance service.
e) To make it mandatory to install bio-gas based waste disposal system in all households.
f) NGOs may be inducted to propagate and implement various programmes in rural areas viz. community biogas plants, street lighting, biogas plants for schools and institutional biogas plants apart from family biogas plants.
g) Government Departments may motivate and train farmer groups/ Farmers' Clubs and SHGs to establish bio-gas units for compact areas and for scientific collection of solid waste through peoples' participation. The Nodal Department may give publicity coordination and follow-up works to avail carbon credits to the investors.
h) As a part of meeting renewal energy requirements of the State, installation of "solar roof tops' for Govt. buildings with the support of RIDF could be explored

B. Bank

a) Work with NGOs and the Government departments to identify progressive farmers to implement bio-gas units.
b) Popularise schemes and facilitate credit flow to the sector

4.6.5 Critical gaps & interventions required, action points / Issues to be addressed

- To make it mandatory to install solar energy based devices to meet at least a part of the energy requirement in all households and offices.
- Rural housing loan policy may be redesigned to include a promotional component for installing solar power lighting & heating systems.
- To make it mandatory to install bio-gas based waste disposal system in all households.
- Setting up of units for treatment of solid waste by the PRIs, NGOs and Developmental Agencies, may be supported by banks.
- Government Departments may motivate and train farmer groups/ Farmers' Clubs and SHGs to establish bio-gas units for compact areas and for scientific collection of solid waste through peoples' participation. The Nodal Department may give publicity coordination and follow-up works to avail carbon credits to the investors.
- Banks may work in unison with the NGOs and the Government Depts. to identify progressive farmers to set up biogas units.
- Sponsoring agencies should provide more attention for improving the post construction, repair and maintenance service
- Adequate and wide publicity may be given to non-conventional /alternate energy sources.
- Policy makers may think of having a stipulation regarding installation of Solar Panels in new buildings similar to the norm regarding compulsory Rainwater Harvesting system with all new buildings.

4.6.6 Assessment of Credit Potential for 2016-17

Considering the above developments, the credit potential for the year 2016-17 has been assessed at ₹.183.70 crore.

Box: 4.6.1 Green initiative under PACS as MSC by Chengalam PACS at Kottayam

- The PACS, Chengalam of Kottayam district has earned the distinction of becoming the first cooperative bank in Kerala to have met 100% power requirements from solar power production. The project was implemented with assistance from NABARD under thePACS as MSC programme.
- Presently, the PACS has a total connected load of 12 KW and the solar lighting system set up in the PACS has 18 KWP composite capacity with multi crystalline SPV module.
- The PACS have created solar roof top panel of about 1500 Sq. feet covering their bank, market outlet and farmers' training centre.
- The normal cost of power for this load as per the present commercial tariff of the KSEB would be ₹60000 per month and with the solar system in place the PACS is required to pay only ₹2500 per month to KSEB as minimum charge.

4.7 OTHERS

4.7.1 Introduction

In terms of revised RBI guidelines on PSL, loans not exceeding ₹. 50,000/- per borrower provided directly by banks to individuals and their SHG/JLG, loans to distressed persons to prepay their debt to non-institutional lenders and overdrafts extended by banks up to ₹. 5,000/- under PMJDY besides loans sanctioned to State Sponsored Organisations for SC/ ST for the specific purpose of purchase and supply of inputs and/or the marketing of the outputs of the beneficiaries of these organisations are covered under the sector ''Others".

The status of SHG Bank linkage programme in Kerala and the Status of PMJDY is indicated in earlier chapters.

4.7.2 *Availability of Infrastructure, critical gaps & interventions required, action points Issues to be addressed*

- Banks may concentrate more on extending the above loans.
- Steps to avoid / eliminate multiple membership /lending may be taken by the stakeholders.

4.7.3 Assessment of Credit Potential for 2016-17

Considering the above developments, the potential for the sector has been assessed at ₹.5643.54 Crore.

4.8 Social Infrastructure involving bank credit

4.8.1 Introduction

Though all types of infrastructure development is aimed at improving the standard of living of the people, there are certain types of investment which have a direct bearing on the social lives of the people, especially in the rural areas. Availability of clean drinking water, adequate educational and health facilities, efficient waste management facility, old age homes, palliative care centres and sanitation facilities etc., are examples of some such sectors, which can be termed as Social Infrastructure and these defines the quality of life in a society. The better the availability the deeper the impact on the population.

Recent introduction of schemes like "Swachh Bharat" etc. has reemphasized the need for better hygiene in the community. Government of India has also introduced various other schemes for improving education facilities, skill development, training etc., which in the long run will improve the GDP of the region.

Though investments for this sector has been the prerogative of the Government, the gap between the demand for and supply of this infrastructure requirement has been widening over the years. As social Infrastructure sector has to be developed on a priority basis, Governments have given specific thrust to these sectors and to attract investments from the banking sector, credit to activities like school and health care Infrastructure, drinking water and sanitation infrastructure etc., in tier II Two tier VI centres is now considered as part of priority sector lending. This chapter attempts to make an estimate of the potential under social infrastructure sector that can be financed through bank credit.

4.8.2 Assessment of Credit potential for 2016-17

While assessing a gap of health institutions at current level of population, with a view to reach up to the state's average, there is potential for more hospitals as the incidence of illness is very common. The facilities in the existing PH centres need to be improved. There is a growing demand for old age homes and palliative care centres with the increased incidences of cancer and other life style diseases.

Solid Waste management requires urgent attention which needs to be addressed at the level of residential associations/ flat owners. Kerala, being an agricultural dominated state, has tremendous potential for developing **Farm Tourism** in a big way without much additional investment. Developing rural markets at Panchayat / block level should be the focus to avoid distress sale and to ensure supply of safe food products to the consumers. 'Going Green" by installing solar panels could be a sustainable option for the corporates, which could be replicable models to other institutions.

Based on the available infrastructure and gaps, the district-wise potential available for the social infrastructure for the year 2016-17 are as under.

Table 4.8.1.Potential for private investment in social infrastructure (₹ lakh)

Sl. No.	Particular		TVM	KLM	ALP	PTA	KTM	IDK	ERN	TSR	PKD	MLP	KKD	WYD	KNR	KSD	Total
1	Health care facilities	Phy.		54	50	50	50	9	4	10	14	15	15	4		6	**281.0**
		Bank Loan		1296	800	1600	450	72	320	80	119	891	885	180		450	**7143.0**
2	Palliative care centres	Phy.								14							**14.0**
		Bank Loan								84							**84.0**
3	Old age homes	Phy.								6							**6.0**
		Bank Loan								48							**48.0**
4	Waste management	Phy.		1						82							**83.0**
		Bank Loan		2000						9.8							**2009.8**

Sl. No.	Particular		TVM	KLM	ALP	PTA	KTM	IDK	ERN	TSR	PKD	MLP	KKD	WYD	KNR	KSD	Total
5	Schools/ college	Phy.	50	64			25	18	4	5	28	15	15	4	**550**	14	**792.0**
		Bank Loan	400	1024			450	144	80	200	238	563	570	150	2475	1575	**7869.0**
6	Market Infrastructure	Phy.								16							**16.0**
		Bank Loan								320							**320.0**
7	Farm Tourism	Phy.								10							**10.0**
		Bank Loan								320							**320.0**
8	Solar Lighting for Corporate Offices	Phy.								30							**30.0**
		Bank Loan								36000							**36000.0**
9	Drinking water projects	Phy.	80		30	40											**150.0**
		Bank Loan	160		192	256											**608.0**
	Total	**Phy.**	**130**	**119**	**80**	**90**	**75**	**27**	**8**	**173**	**42**	**30**	**30**	**8**	**550**	**20**	**1382.0**
		Bank Loan	**560**	**4320**	**992**	**1856**	**900**	**216**	**400**	**37062**	**357**	**1454**	**1455**	**330**	**2475**	**2025**	**54401.8**

Hence credit potential for 2016-17 is ₹. 544.02 crore.

4.8.3 Critical Interventions and Suggested Action Points

a) Bank's may provide credit for setting up schools and health care facilities and achieve the priority sector targets. This will also help the government in achieving the goal for Providing Urban Amenities in Rural Areas (PURA).
b) Promotion of para medical institutes may ensure trained and skilled manpower for the new health institutions
c) The Village Water and Sanitation Committees may be formed and their capacity building may be done.
d) Skill development of rural youths in non-farm employment opportunities in rural area, has to be taken up in mission mode to bridge inequalities in access of education between urban/rural areas and people dependent on agriculture/industry and services.
e) Convergence between drinking water supply and sanitation need to be strengthened.

CHAPTER 5
INFRASTRUCTURE SUPPORT

5.1 Introduction

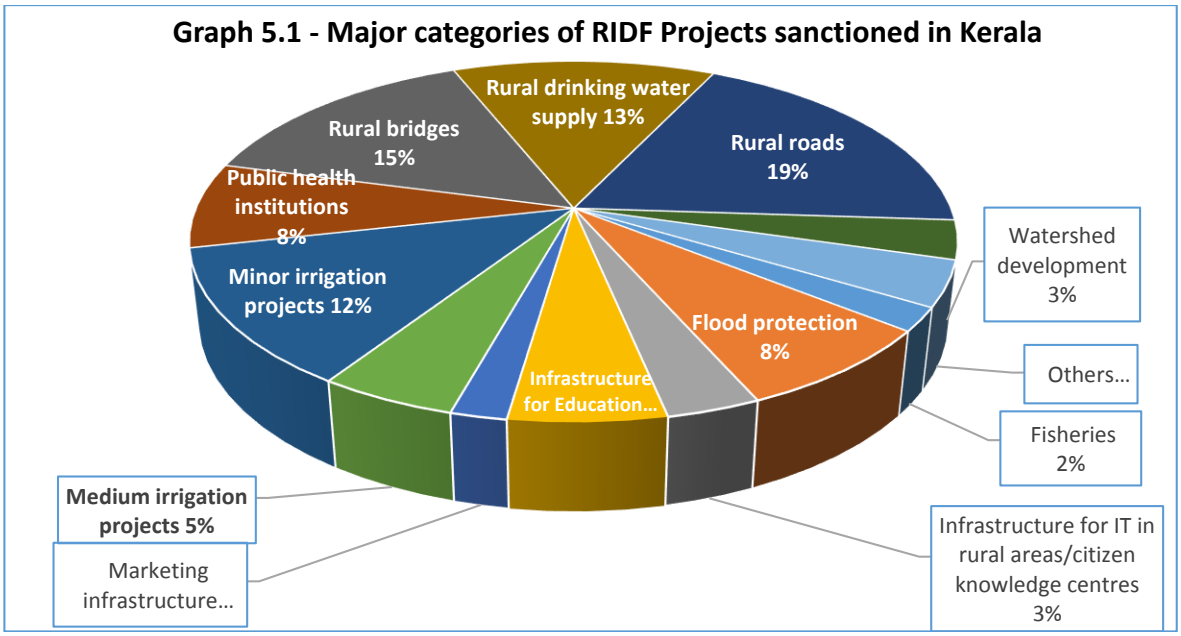
Availability of adequate Infrastructure is a prerequisite for sustained economic growth particularly in the rural areas. Infrastructure forms the foundation on which social, economic and industrial development is built and paves the way for new opportunities, generates additional employment and income, facilitates and improves other rural services. Adequate and locally appropriate infrastructure is essential to maximize the full development potential of a given region. The growth, new investment opportunities, employment potential, other socio economic development etc. are dependent on the creation of critical infrastructure facilities required in the various sectors of the rural economy.

Investments for Creation of Rural Infrastructure is generally met from the public sources. However, of late particularly for few of the sectors related with social infrastructure, credit from financing institution is being sourced. The requirement is gradually increasing and in a short span, many new sectors will be in a position to attract credit, due to the technical soundness and the bankability of the projects.

NABARD, since inception, has prioritized its strategies for facilitating credit flow to rural infrastructure sector to fulfill its mission of rural prosperity through credit and related services. From the year 1995 onwards, NABARD is in the fore front of funding rural infrastructure projects through its flagship programme of Rural Infrastructure Development Fund (RIDF) and as on date projects worth ₹2.236 lakh crore have been assisted throughout the country. In Kerala State projects with a total financial outlay of ₹8906 crore have been assisted. The corpus of RIDF XXI is ₹.25,000 crore. The normative allocation for Kerala State is ₹ 600 crore. At present there are 34 activities including three new activities viz. Solid Waste Management and Infrastructure works related with sanitation in rural areas, Mini Hydel projects/Small Hydel projects (upto 25 MW) and 5/10 MW Solar Photovoltaic Power Plant eligible for funding under RIDF. The details of major projects sanctioned under RIDF is given below:

Table 5.1 Details of Projects sanctioned under RIDF (₹. Crore)

Sl. No.	Sector	No. of projects	TFO	RIDF loan
1	Animal husbandry	10	231.76	103.00
2	Construction of anganwadi centres	732	55.53	47.18
3	Fishing harbour/jetties	93	187.99	157.52
4	Flood protection	184	609.07	571.64
5	Forest development	47	85.40	79.36
6	Infrastructure for information technology in rural areas/citizen knowledge centres	6	275.34	249.59
7	Infrastructure for rural education institutions	239	495.72	417.03
8	Inland waterways	3	25.14	21.88
9	Market yard, godown, mandi, rural haat, marketing infra.	220	159.68	149.86
10	Medium irrigation projects	12	437.68	366.52
11	Mini hydel projects/small hydel projects (upto 10 mw)	7	21.15	18.11
12	Minor irrigation projects	1703	974.66	915.69
13	Modern abattoir/meat processing	5	21.28	14.83
14	Public health institutions	164	665.01	570.50
15	Rural bridges	412	1330.12	1103.88
16	Rural drinking water supply	162	1307.93	983.59
17	Rural roads	1384	1720.21	1414.59
18	Seed/agriculture/horticulture farms	16	20.68	19.64
19	Solid Waste Management and Sanitation in rural areas	1	0.06	0.05
20	Watershed development/reclamation of waterlogged areas	408	282.85	260.05
	Total	**5808**	**8907.26**	**7464.51**



In addition to RIDF, for assisting infrastructure projects in Rural Areas, NABARD has introduced various other products like NABARD Rural Infrastructure Development Assistance (NIDA), Warehouse infrastructure Fund (WIF), Food Processing Fund (FPF), Watershed Development Fund (WDF), Tribal Development Fund (TDF), Umbrella programme for Natural Resources Management (UPNRM) etc. Through all this products, NABARD as per estimates support 20% of the projects carried out in Rural Areas.

5.2 Infrastructure for facilitating Capital formation in Agriculture

The share of investment credit in total agriculture credit is alarmingly low in the State. There are various reasons for this trend. Fragmented land holding with an average size of 0.22 ha per holding is the major reason for the low investment credit flow to the agriculture sector.

A sector-wise analysis of the potential investments required for capital formation in agriculture and allied sector are detailed below.

5.2.1 Animal Husbandry.

An amount of ₹72.62 crore has been sanctioned up to 31 March 2015 for 9 Animal Husbandry projects under RIDF. Of the same, 5 projects have been completed and 4 are under implementation.

Potential infrastructure investments in Animal Husbandry

A national level institute for dairy and food technology which will provide end to end solutions for agri-food business is proposed. This will also include a Food Incubation Centre providing technical support, product development assistance, etc. The total outlay envisaged is ₹.58.50 Cr.

In addition projects for achieving self-sufficiency in cattle feed production at Thodupuzha, poultry management training institute at Palakkad, Milk Product Training institute at Kollam, and veterinary dispensaries across the state, etc. are proposed.

5.2. 2 Fisheries

An amount of ₹.142.21 crore has been sanctioned up to 31 March 2015 for 153 fishery projects under RIDF. Of the same, one project have been completed and 152 are under implementation.

Potential infrastructure investments in Fisheries

The major infrastructure requirements under various sub-sectors of fisheries in the State include mainly fishing harbours / jetties / landing centres and connectivity projects. Infrastructure creation for development of inland fishery.

5.2.3 Irrigation

1703 Minor Irrigation projects have been sanctioned up to 31 March 2015 under RIDF to Govt. Of Kerala with a total loan of ₹.915.69 cr. Against the sanction, 1356 projects have been completed and 347 projects are ongoing.

Potential infrastructure investments in Irrigation

Potential areas for infrastructure development for irrigation sector include construction of check dams, vented cross-bar (VCBs), renovation of ponds, construction of outer bunds, storage weirs, protection works to irrigation and waterways, irrigation tanks, regulator cum bridges, construction of canal, drainage channel, deepening of channels, lift irrigation and flood protection. Field channels constructed for bringing the water to the fields of the farmers are not being maintained properly. As farmers are reluctant to invest in the maintenance of field channels due inadequate return from farming mainly on account of high labour cost in Kerala, Government may consider investing in concrete field channels which will reduce the operation and maintenance costs.

In check dams and VCBs, there is only limited scope for storage of water due to limitation in height. However there are many sites on rivers like Meenachil and Achenkovil where the bank height is enough to support construction of a mini dam as high as 10 m which will store substantial quantity of water and as this does not require land acquisition. Environmental flow through the downstream can be ensured with the use of shutters. An investment of approximately ₹. 40 crore is required for one such mini dam. The site selection should be such that the water can be used for lift irrigation purposes as well as for rural drinking water supply.

There are also some last mile projects which are to be completed in the irrigation sector. Kayamkulam branch canal of Kallada Irrigation Project, Kaviyoor branch canal of Pampa Irrigation Project, and canals in Periyar Valley Irrigation Project require completion.

5.2.3Watershed / land development

An amount of ₹ 408 crore has been sanctioned up to 31 March 2015 for 408 watershed projects under RIDF. Against the sanction, 280 projects have been completed and 128 projects are ongoing. Another 135 projects with outlay of ₹.121.15 Cr have been sanctioned under WDF and all the projects have been implemented.

Potential infrastructure investments in watershed / land development

Out of the total geographical area of 38.86 lakh ha of the State, it is roughly estimated that 12.28 lakh ha are prone to soil erosion hazards. It is estimated that around 3.82 lakh ha area has been so far treated with soil and water conservation measures. There is a potential of treating balance 8.46 lakh ha of land prone to soil erosion hazards. Considering an investment of ₹.20,000 per ha of watershed development, total investment estimated is ₹.1692 crore for conservation of soil and water through watershed projects.

As per the statistics available from the Department of Economics and Statistics, there are 70,976 ha area under current fallow and 57,346 ha land under fallow other than current fallow in the State. It is estimated that fallow land to the extent of 20,000 ha can be brought into cultivation in the State with an investment of ₹.240 crore.

5.3 Infrastructure under Social Sector

5.3. 1 Drinking Water

KWA has been sanctioned a total sum of ₹ 983.59 crore under RIDF for implementing 162 schemes up to 31 March 2015. Currently, 118 schemes are ongoing and 44 schemes have been completed.

Potential infrastructure investments in Drinking water supply

As per census 2011, there are 6,31,136 households in Kerala have their drinking sources away from their dwelling. As per the census manual, a water source is considered away if the distance to it exceeds 100m in urban areas and 500m in rural areas. Considering the recent drinking

water supply projects sanctioned under RIDF, the average investment per person benefited works out to ₹ 7000. Total investment required for providing drinking water to those 6,31,136 household works out to ₹. 2650 Cr. Further, although the Kerala population is covered as far as the requirement of 40 lpcd (litre per capita per day), Kerala Government is aiming at providing 70 lpcd to the rural population and 120-195 lpcd in the urban population. This requires substantial investment in the drinking water supply scheme.

5.3.2 Rural Health

Present Status

The Health Care system in Kerala comprises mainly under three heads namely Allopathy, Ayurveda and Homoeopathy. The Health infrastructure consists of 2724 institutions with 52893 beds. Besides there are 5403 sub centres under Directorate of Health Services. Out of the total institutions 46.44% are under Allopathy, 32.2 % under Ayurveda and 21.36 % under Homoeopathy department. Medical services are also provided through the co-operative sector and the Private sector. There are 74 hospitals with 6767 beds under the Co-operative sector in the State. Directorate of Health Services Manages Primary Health Centres (835 Nos), Community Health Centres (230 Nos), Taluk/District /Women &Children Hospitals (103 Nos), Dispensaries (25), T.B. Clinics/Centres (17 Nos), Grant-in-aid institutions (29 Nos), Leprosy Control Units (3 Nos), Sub Centres (5403 Nos).

Under RIDF a total amount of ₹ 570.50 crore has been sanctioned for 164 projects under rural health sector up to 31 March 2015. Against the same 45 projects have been completed and 119 are currently ongoing,

Potential infrastructure investments in Rural Health

Potential investments required in Rural Health include infrastructure in for women & child Hospital, strengthening CHCs and PHCs, District ayurveda hospital buildings, Improvements in District Hospitals, improvements to Taluk Head Quarter Hospitals, government Ayurveda Hospitals, Government Ayurveda Dispensaries, taluk Homeopathy hospitals, community Homeo hospitals, Government Homeo Dispensaries and other government hospitals and dispensaries.

5.3.3 Rural Education

Present Status

Under RIDF an amount of ₹.417.03 crore has been sanctioned for 239 projects up to 31 March 2015, of which 131 have been completed and 108 are currently ongoing.

Potential infrastructure investments in Rural Education

Infrastructure is also required for construction of classrooms, colleges, new HS/HSS educational institutions, government arts and science colleges, anganwadis, infrastructure for District Educational Training Institute, Medical colleges, engineering colleges, government nursing college, post Metric hostel for SC/ST students, Higher Secondary School buildings-construction of 2nd& 3rd floors-incomplete project , Higher Secondary School buildings, class rooms and labs for schools and drinking water facility for schools.

5.3 Infrastructure under Rural Connectivity

Present Status

In the State of Kerala the Public Works Department have a total road length of 33106 kms of State roads and 1542 km of National Highways. The State roads include 4342 kms. of State Highways and 18900 km of Major District Roads. Road improvements, repair and maintenance of existing roads, development and upgradation are the major activities taken up in the sector during the year. Budgetary support, private finance and institutional supports are used for the purpose. Analyzing the PWD roads reveals that only 6.655 km is concrete, 22174 km is black topped and 447 km water bound macadam. The black topped surface contributes 95.4 percentage. There are 2179 bridges (627 on SH and 1552 on MDR) and 51422 culverts (11512 on SH and 39910 on MDR) in PWD. Of them 148 bridges and 1519 culverts are unsafe and need reconstruction /renovation.

Grama Panchayats and Block Panchayats maintain lion share of State Roads which comes to 104257 km which constitutes 68.75% of the total road length in the State.

Under RIDF 1384 rural road projects involving a total loan of ₹ 1414.59 crore have been sanctioned up to 31 March 2015. Against the same 812 projects have been completed and 572 projects are currently ongoing. Similarly in the case of 412 rural bridge projects with total loan of ₹ 993.02 crore sanctioned under RIDF up to 31 March 2015, 317 projects have been completed and 95 are currently ongoing.

Potential infrastructure investments in rural connectivity

148 bridges and 1519 roads require reconstruction. Also as proposed by NATPAC as well as other agencies improvement proposals for major roads, investments in outer ring roads, upgradation of existing panchayat roads, foot bridges, coastal roads, etc., are required.

Box: 5.1 - Comprehensive Master Plan for Infrastructure Interventions in Aralam Tribal Area of Kannur district of Kerala

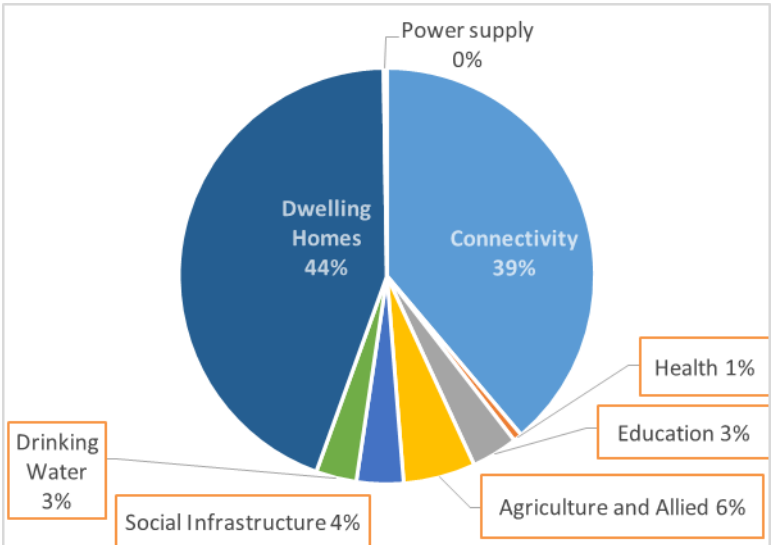
GoK had commissioned the services of NABCONS, a wholly owned subsidiary of NABARD, for preparation of a DPR for "Aralam Tribal Resettlement Project" incorporating implementable action plan covering affordable habitat solutions, social infrastructure facilities, livelihood plans in both farm and non-farm sectors and social measures for inclusive and participatory development.

The Detailed Project Report(DPR) submitted to GoK by NABCONS in December 2010 covered a detailed description on the Aralam tribal resettlement area and proposed various infrastructural projects and livelihood options along with action plans for development through various Govt. Departments and Agencies. GoK had since initiated various developmental activities for providing basic amenities in the resettlement area. However, even at present, the Resettlement Area lacks key infrastructure and amenities. As many as 54% (1759 out of total of 3304 families) of the tribal families allotted land in the Resettlement Area do not stay in the locality due to lack of amenities.

In this back drop, NABCONS has, again, been entrusted with the task of reviewing the status of implementation of the projects proposed in the DPR 2010 and to update the DPR 2010 with need based assessment of the social and physical infrastructure facilities and livelihood activities required in the present scenario. It is also expected to do resource mapping for the infrastructure projects and identify funding possibilities from different agencies and prepare project proposals for these projects.

A Master Plan for Infrastructure Interventions has been prepared for submission to GoK, as the first part of the Assignment. The total investment suggested in the Master Plan is to the tune of ₹167.90 crore of which ₹93.12 crore is for balance work and un-implemented projects identified under DPR 2010 and ₹74.78 crore is for new infrastructure projects identified. The sector–wise investments proposed in the Master Plan is depicted in the following chart.

Sector-wise outlay for New Infrastructure Projects



CHAPTER 6

AREA BASED SCHEMES

6.1 Introduction

6.1.1 Taking in to consideration large number of small & marginal farmers, share croppers, artisans, labourers/ persons living below poverty line in the country and also the extensiveness of agriculture and rural development challenges, there could be need for promoting single purpose small projects/schemes on a cluster basis. These cluster-based single-purpose small projects taken together are called as **Area Development Projects / Schemes(ADS)** [eg:- financing of dairy units, dug wells/ pump sets, financing of horticulture crops, etc.] and sanctioned either by a single bank or to a number of banks

6.1.2 These Schemes, besides addressing pertinent need of economic development, also facilitates planning and execution of infrastructure facilities, viz., backward and forward linkages – for full realization of the benefits of the projects / schemes. These backward and forward linkages could also be planned and executed by convergence of grant/ subsidy support from various government schemes and with credit support. It is expected that if needs of inter-related activities are addressed in a focused manner, the overall results will be self-sustaining. The scheme would focus on existing infrastructure, stage of present development of the activity, scope for increasing the activity, number of units to be set up, Government support available [incl. subsidy], status of ancillary activities, services required to support the main activity, credit support needed to expand and strengthen the activity, etc.

6.1.3 The Scheme will also utilise the existing infrastructure developed under RIDF, TDF, WDF or any other promotional programme e.g. if a dairy cooperative has extra capacity for processing milk with necessary milk routes and the villages have scope for rearing cattle, dairy activity could be undertaken along with calf rearing, fodder cultivation, animal feed units,etc.

6.1.4 The district level schemes are prepared in consultation with the line departments of the State Government and the bankers in the area, targets decided and achievements monitored at periodical intervals. The financing norms and quantum of refinance would be the same as applicable to each of the activity, as specified under existing guidelines.

6.1.5 The scheme has been started in last year and the progress is being evaluated at District Level. In many of the Districts, the scheme is being taking off.

6.1.6 NABARD has disbursed an amount of ₹ 800.00 crore of refinance at reduced interest rate through KSCARDB and KGB during 2015-16 under the Long Term Rural Credit Fund (LTRCF).

6.2 Area Based Schemes in the State

A synopsis of some of the major sectors taken up for Area based schemes in the State of Kerala is given below.

i. Comprehensive Banking plan for Tribal concentrated Panchayat in Palakkad district

With a view to taking forward the Prime Minister's "Start Up India – Stand India" plan under the Area Development Scheme is proposed for the Eight Hamlets in Pudur Grama panchayat in Attappady block. The hamlets are Cheerakadavu, Kalpetty, Bommiyampady, Paloor, Dhanyam, Aanakallu, Veetiyoor and Manchikandi.

i. 1 Unit cost, Hamlet-wise and Bank-wise Credit Plan

Table. 6.1 Comprehensive plan for Palakkad District

Name of the hamlet Cheerakadavu			
(Canara Bank, Agali Br)			
Name of the activity	**No of units**	**Rate per unit (₹)**	**Credit requirement in ₹**
1) Banana cultivation (50 cents unit)	1	40000	40000
2) Plantain cultivation (50 cents unit)	1	27000	27000
3)Vegetable cultivation (Panthal Varieties) (50 cents	2	30000	60000

unit)			
4)Power tiller	0	255000	0
5)Vegetable cultivation (50 cents unit)	1	16000	16000
6)Bush cutter	0	20000	0
7)Cross bred cow 1 cow unit	2	40000	80000
8)Cross bred cow 2 cow unit	0	87830	0
9)Broiler unit 250 birds	0	78700	0
10) Goat rearing unit(3 does and 1 buck)	1	32750	32750
			255750
Bommiyampadi Hamlet (Canara Bank, Agali Br)			
1) Plantain cultivation (50 cents unit)	3	27000	81000
2)Vegetable cultivation (Panthal Varieties) (50 cents unit)	1	30000	30000
3)Vegetable cultivation (50 cents unit)	1	16000	16000
4)Bush cutter	0	20000	0
5)Cross bred cow 1 cow unit	2	40000	80000
6)Cross bred cow 2 cow unit	0	87830	0
7)Broiler unit 250 birds	0	78700	0
8) Goat rearing unit(3 does and 1 buck)	1	32750	32750
9)Power tiller 13HP	0	255000	0
Paloor Hamlet (SBI, Agali Br)			**239750**
1) Banana cultivation (50 cents unit)	4	40000	160000
2) Plantain cultivation (50 cents unit)	2	27000	54000
3)Vegetable cultivation (Panthal Varieties) (50 cents unit)	2	30000	60000
4)Tractor 35HP	0	795000	0
5)Power tiller	0	255000	0
5)Vegetable cultivation (50 cents unit)	1	16000	16000
6)Bush cutter	0	20000	0
7)Cross bred cow 1 cow unit	2	40000	80000
8)Cross bred cow 2 cow unit	1	87830	87830
9)Broiler unit 250 birds	1	78700	78700
10) Cotton cultivation	1	14000	14000
10) Goat rearing unit(3 does and 1 buck)	1	32750	32750
			583280
Aanakallu Hamlet (Canara Bank, Kakkuppadi Br)			
1) Banana cultivation (50 cents unit)	2	40000	80000
2) Earth digger	0	1000000	0
4)Vegetable cultivation (Panthal Varieties) (50 cents unit)	1	30000	30000
5)Power tiller	0	255000	0
6)Vegetable cultivation (50 cents unit)	1	16000	16000
7)Bush cutter	0	20000	0
8)Cross bred cow 1 cow unit	2	40000	80000
9)Cross bred cow 2 cow unit	1	87830	87830
10)Broiler unit 250 birds	0	78700	0
11) Goat rearing unit(3 does and 1 buck)	1	32750	32750
12)Nutmug cultivation	1	24000	24000
13)Transpotation vehicle	0	70000	0
			350580
Kalpetty Hamlet (SBI, Agali Br) 1)Areca nut leaf plate unit	1	150000	150000
2) Drip irrigation for coconut-1 Acre	1	50000	50000
3) Sericulture	0	40000	0
4)Vegetable cultivation (Panthal Varieties) (50 cents unit)	1	30000	30000
5)Vegetable cultivation (50 cents unit)	1	16000	16000

6)Cross bred cow 1 cow unit	1	40000	40000
7)Cross bred cow 2 cow unit	0	87830	0
8)Broiler unit 250 birds	0	78700	0
9) Goat rearing unit(3 does and 1 buck)	1	32750	32750
10) Vehicle for agriculture producer transport	0	800000	0
11) Cotton cultivation	1	14000	14000
11)Tractor 35 HP	0	795000	0
			332750
Dhanyam Hamlet (SBI, Agali Br)			
1) Banana cultivation (50 cents unit)	1	40000	40000
2) Plantain cultivation (50 cents unit)	2	27000	54000
3)Vegetable cultivation (Panthal Varieties) (50 cents unit)	1	30000	30000
4)Power tiller and tipper tyre tailor	0	330000	0
5)Vegetable cultivation (50 cents unit)	1	16000	16000
6)Bush cutter	0	20000	0
7)Cross bred cow 1 cow unit	2	40000	80000
8)Cross bred cow 2 cow unit	1	87830	87830
9)Broiler unit 250 birds	1	78700	78700
10) Goat rearing unit(3 does and 1 buck)	2	32750	65500
11) Rabbit rearing including shed	0	70000	0
12)Power digger	0	1000000	0
13)Transportation vehicle	0	700000	0
			452030
Veetiyoor Hamlet (Canara Bank, Kakkuppadi Br)			
1) Banana cultivation (50 cents unit)	1	40000	40000
2) Plantain cultivation (50 cents unit)	1	27000	27000
3)Vegetable cultivation (Panthal Varieties) (50 cents unit)	1	30000	30000
4.Arecanut leaf plate making unit	0	200000	0
5)Vegetable cultivation (50 cents unit)	1	16000	16000
6)Bush cutter	1	20000	20000
7)Cross bred cow 1 cow unit	1	40000	40000
8)Cross bred cow 2 cow unit	1	87830	87830
9)Broiler unit 250 birds	0	78700	0
10) Goat rearing unit(3 does and 1 buck)	2	32750	65500
11) Cultivation of pulses 1 Acre unit	1	50000	50000
12) Coorka (colias)	1	22000	22000
13)Petty shop women JLG	0	100000	0
			398330
Manchikandi Hamlet (Canara Bank, Agali Br)			
1)Tractor 35 HP	0	795000	0
2) Bush cutter	0	20000	0
3) Dug well, Pump set 1 Hp and sericulture .5 Acre	0	130000	0
4)Cross bred cow 1 cow unit	2	40000	80000
5)Cross bred cow 2 cow unit	1	87830	87830
6)Broiler unit 250 birds	1	78700	78700
7) Goat rearing unit(3 does and 1 buck)	1	32750	32750
8)Cotton cultivation	1	16000	16000
9) :Floriculture (Jasmine, Chendumallietc)	1	40000	40000
			335280
Grand Total			**2947750**
The Total bank Loan estimated is ₹ 2947750 for the financial year 2015-2016.			

ii. Comprehensive Banking plan for Nedumkandam Block in Idukki district

The area proposed for implementing the scheme is Nedumkantam block which has 7 panchayats. The model envisages development of one acre of land per farmer / family in Nedumkantam block where 1000 acres/1000 families will be covered during 2016-17.

ii. 1 Components of the Area Development Scheme in Idukki district

The major components of the scheme include plantation horticulture with pepper and cardamom as the major crops with banana, tapioca, tubers and vegetables as inter crop. Soil bunding activities have been given focus in the project taking into account the steep terrain. Since Nedumkantam block is a semi critical block Rain water harvesting has been included as an important activity. Cultivation of fruit crops is another important component. Allied activities viz., dairy, piggery, poultry, goatery, fish farming etc. are also components of the scheme. Biogas/ vermicomposting will be an integral component of all the households in the scheme.

Table. 6.2 Comprehensive plan for Idukki District (₹ in Lakh)

Sr. No	Activity	Unit (No./ area)	Unit cost	Nedumkandam	Pampadumpara	Karunapuram	Rajakkadu	Rajakumary	Senapathy	Udumbanchola	Total
1	Cardamom	0.25 acre	55900	250	150	150	125	125	100	100	1000
		TFO		139.75	83.85	83.85	69.88	69.88	55.9	55.9	559.01
		Bank loan		125.775	75.465	75.465	62.892	62.892	50.31	50.31	503.109
2	Pepper	0.25 acre	23700	250	150	150	125	125	100	100	1000
		TFO		59.25	35.55	35.55	29.63	29.63	23.7	23.7	237.01
		Bank loan		53.325	31.995	31.995	26.667	26.667	21.33	21.33	213.309
3	LD-SB	acre	29600	250	150	150	125	125	100	100	1000
		TFO		74	44.4	44.4	37	37	29.6	29.6	296
		Bank loan		66.6	39.96	39.96	33.3	33.3	26.64	26.64	266.4
4	FM	No	63000	40	35	25	25	25	25	25	200
		TFO		25.2	22.05	15.75	15.75	15.75	15.75	15.75	126
		Bank loan		22.68	19.845	14.175	14.175	14.175	14.175	14.175	113.4
5	MI-RWH	No	37400	250	150	150	125	125	100	100	1000
		TFO		93.5	56.1	56.1	46.75	46.75	37.4	37.4	374
		Bank loan		84.15	50.49	50.49	42.075	42.075	33.66	33.66	336.6
6	CB Cow	2 cows	102000	250	150	150	125	125	100	100	1000
		TFO		255	153	153	127.5	127.5	102	102	1020
		Bank loan		229.5	137.7	137.7	114.75	114.75	91.8	91.8	918
7	Calf rearing	No	54000	100	85	75	55	55	65	65	500
		TFO		54	45.9	40.5	29.7	29.7	35.1	66.3	301.2
		Bank loan		48.6	41.31	36.45	26.73	26.73	31.59	59.67	271.08
8	Other allied*	No	30000	250	150	150	125	125	100	100	1000
		TFO		75	45	45	37.5	37.5	30	30	300
		Bank loan		67.5	40.5	40.5	33.75	33.75	27	27	270
9	Biogas/ vermicomposting	No.	35000	250	150	150	125	125	100	100	1000
		TFO		87.5	52.5	52.5	43.75	43.75	35	35	350
		Bank loan		78.75	47.25	47.25	39.375	39.375	31.5	31.5	315
10	TOTAL	TFO		863.2	538.35	526.65	437.46	437.46	364.45	395.65	3563.22
		Bank loan		776.88	484.515	473.985	393.714	393.714	328.005	356.085	3206.898

*** 75 BIRDS-POULTRY/ 03 PIGS-Fattener/ 3 does- goatery/ fish farming in 10 cents**

The total bank loan envisaged for the scheme is ₹ 32 crore.

iii. Other Schemes envisaged in the State

iii. 1. Dairy Based Scheme

Area Based Dairy Schemes envisage financing 2 animal dairy units to individuals or JLGs or SHGs in selected potential blocks. The scheme will be formulated, implemented and monitored with the involvement of NABARD DDM, Dept. of Dairy Development, Dept. of AH, MILMA, banks, Kudumbashree Mission etc.

Dairy based area schemes have been proposed in 12 districts of the State. A total of 3255 dairy units have been proposed amounting to an outlay of approximately ₹. 43.21 crore.

Table. 6.3 Dairy based Area Development Scheme

District	Agency-wise physical programme				Total	Remarks
	Comm. Banks	Coops	KGB	Others		
Kollam	120	65	65		250	
Alappuzha	800	500		1500	800	
Pathanamthitta	570	500		250	1320	
Kotayam	450	625	375		1450	
Malapuram	390	350	270		1010	
Kozhikode	530	510	370		1410	
Wayanad	*300*	*250*	*50*		600	**To JLG Groups**
Kannur	450	375	375		1200	
Kasargod	80	80	90		250	
Thrissur					180	
Trivandrum					280	
Total	**3255**	**1595**	**1750**	**9731**	**2274**	

iii. 2. Poultry based scheme

Area Based Poultry Development Scheme envisages financing Broiler, layer or backyard poultry units to individuals or JLGs or SHGs in select potential blocks. The scheme will be formulated, implemented and monitored with the involvement of the Dept. of Animal Husbandry, banks, Kudumbashree Mission, Local Self Government etc.

Poultry based area schemes have been proposed in 7 districts of the state. A total of 9810 poultry units have been proposed amounting to an outlay of approximately ₹ 38.85 crore.

Table. 6.4 Poultry based Area Development Scheme

District	Agency-wise physical programme			Total	Remarks
	Comm.Banks	Coops	RRB		
Broiler Production schemes					
Kollam	60	20	20	100	
Kottayam	245	470	245	960	
Thrissur				200	
Trivandrum				2200	
Total	**305**	**490**	**265**	**3460**	

Back Yard Poultry schemes					
Malapuram	950	1100	750	2800	
Kozhikode	1020	1150	780	2950	
Trivandrum				600	
Total	**1957**	**2250**	**1530**	**6350**	

iii. 3. Duck Nursery based schemes

Considering the abundance of natural ponds, canals and water bodies in Kerala promotion of duck nursery is a viable proposition. Duck rearing is one of the main activities in the Kuttanad area of Alappuzha District. Veterinary services for protection of ducks are available. Duck nurseries envisages the facilities for growing around 5000 ducklings. Interested farmers, after a brief training, may be encouraged to avail bank loan for setting up of duck nursery units. Nurseries are for growing of ducklings up to 60 days. The essential requirements are fibre boat, vessels, sheets, food for 02 months etc. The scheme will be formulated, implemented and monitored with the involvement of Dept. of AH, banks, Kudumbashree Mission etc.

Duck Nursery based area schemes have been proposed in 2 districts of the state. A total of 160 Duck Nursery units have been proposed amounting to an outlay of approximately ₹ 2.82 crore.

Table. 6.5 Duck Nursery based Area Development Schemes

District	Agency-wise physical programme			Total	Remarks
	Comm.Banks	Coops	Others		
Alappuzha	**80**	**40**	**40**	**160**	
Total	**80**	**40**	**40**	**160**	

iii. 4. Hi Tech Farming based schemes

There is an increase in the demand for poly house construction and farming under the controlled environment. GoK has announced, power tariff subsidy as is given to paddy cultivators polyhouses and precision farming areas in the State to encourage the same.

It is expected that there will be more demand for loans for this purpose and therefore, this is included as Area Development Scheme.

Hi Tech farming based area schemes have been proposed in 3 districts of the state. A total of 460 Hi Tech farming units have been proposed amounting to an outlay of approximately ₹ 24.74 crore.

Table. 6.6 - Hi Tech Farming based Area Development Scheme

District	Agency-wise physical programme			Total	Remarks
	Comm.Banks	Coops	Others		
Alappuzha	**90**	**40**	**40**	**160**	
Patahanmthitta	60	40	20	120	
Ernakulam	100	50	30	180	
Total	**250**	**130**	**90**	**460**	

iii. 5. Calf Rearing based scheme

Area Based Calf Rearing scheme envisages financing calf rearing units to individuals or JLGs or SHGs in selected pockets / blocks. The scheme will be formulated, implemented and monitored with the involvement of Dept. of Dairy Development, Dept. of AH, MILMA, banks, Kudumbashree Mission etc.

Calf Rearing based area schemes have been proposed in 3 districts of the state. A total of 1900 calf rearing units have been proposed amounting to an outlay of approximately ₹ 10.26 core.

Table. 6.7 Calf Rearing based Area Development Schemes

District	Agency-wise physical programme			Total	Remarks
	Comm.Banks	Coops	RRB		
Kottayam	325	400	275	1000	
Kannur	325	300	275	900	
Total	**650**	**700**	**550**	**1900**	

iii. 6. Goat Farming based Scheme

Goat farming is an important and popular livelihood activity in the State. Formulation of Area Based scheme could give a further boost to the activity. The Area Based Scheme on Goat rearing envisages financing goat units (size 5+1) to individuals or JLGs or SHGs in select potential blocks of the districts. The scheme will be formulated, implemented and monitored with the involvement of Dept. of AH, banks, Kudumbashree Mission etc.

Goat Farming based area schemes have been proposed in 5 districts of the state. A total of 2050 Goat rearing units have been proposed amounting to an outlay of approximately ₹ 20.52 crore.

Table. 6.8 Goat Farming based Area Development Scheme

District	Agency-wise physical programme			Total	Remarks
	Comm.Banks	Coops	RRB		
Malapuram	125	90	105	320	
Kozhikode	135	115	110	360	
Kannur	325	450	325	1100	
Thrissur				20	
Kasaragod	**78**	77	**95**	**250**	
Total	663	732	635	2050	

iv. Summary

Table. 6.9 Summary of Area Development Schemes in Kerala

S. No.	Scheme	Outlay in ₹ crore
1	Dairy	43.21
2	Poultry (Layer, Broiler and Backyard)	38.85
3	Duck Nursery	2.82
4	Hi tech farming	24.74
5	Calf Rearing	10.26
6	Goat Rearing	20.52
	Total	**140.40**

6.3 Issues & Action Points

6.3.1 Active participation of all stake holders viz., banks, line depts., PRIs, Kudumbashree Mission, NGOs etc., is necessary to implement the Area Based Schemes.

a. Lead Bank may facilitate formulation of bank-wise programme for the schemes

b. Line Depts. (Dept. of DD and Dept. of AH) may identify potential farmers/entrepreneurs and sponsor to banks. They may also provide other linkage support services.

c. MILMA may associate for marketing support for milk

d. Subsidy available from various sources, if any, may be leveraged.

e. Banks may simplify the procedure/documentation for lending

f. Kudumbashree Mission may promote JLGs for the identified activities and sponsor to banks

g. Panchayats may help in identifying beneficiaries, popularizing the schemes and also enable implementation and monitoring.

6.3.2 The Implementation of area based scheme/s will be a coordinated effort of NABARD, Lead Bank, other banks, line departments and other important stake holders. The concept and action points identified for the area based schemes as outlined above requires committed efforts from all concerned.

ANNEXURE I- District-wise and sub- sector wise PLP projections for 2016-17

₹ in Crore

Sr. No.	Particulars	Thiruvananthapuram	Kollam	Alappuzha	Pattanamthitta	Kottayam	Idukki	Ernakulam	Thrissur	Palakkad	Malappuram	Kozhikode	Wayanad	Kannur	Kasargod	**Total**
I	**Credit Potential for Agriculture**															
A	**Farm Credit**															
i	Crop Production, Maintenance and Marketing	2570.05	1195.19	2162.23	2457.41	4127.73	2728.44	3047.63	4028.98	3930.17	3097.10	3423.40	2176.80	2351.88	1500.98	**38798.00**
ii	Water Resources	46.16	14.83	38.03	83.90	48.91	57.50	35.34	55.16	125.83	52.85	64.05	43.36	106.92	98.61	**871.46**
iii	Farm Mechanization	71.87	24.51	44.12	50.66	42.32	16.94	28.42	63.59	49.83	124.60	128.65	9.05	52.37	35.81	**742.74**
iv	Plantation and Horticulture (Including sericulture)	501.06	148.91	140.98	281.02	639.54	354.50	501.65	406.48	249.47	502.00	340.27	531.79	249.67	198.61	**5045.95**
v	Forestry and Waste Land Development	4.67	4.33	21.16	30.51	42.95	20.09	0.28	2.85	11.42	7.86	18.46	0.76	2.36	3.74	**171.44**
vi	Animal Husbandry - Dairy	280.01	81.57	115.92	135.68	142.10	100.70	74.27	81.38	118.54	220.54	105.26	109.30	379.60	90.01	**2034.87**
vii	Animal Husbandry - Poultry	45.53	10.20	25.62	20.68	57.38	5.44	10.54	91.42	21.61	102.22	35.73	7.96	14.90	11.54	**460.77**
viii	Animal Husbandry - Sheep, Goat, Piggery, etc	77.26	30.70	16.15	21.34	60.76	23.19	7.26	28.96	77.56	51.17	49.44	25.60	46.77	34.53	**550.68**
ix	Fisheries (Marine, Inland, Brackish water)	55.43	15.27	63.25	18.99	11.35	2.55	154.58	34.16	18.26	21.02	54.76	1.15	26.07	12.21	**489.05**
x	Others - Bullock, Bullock cart, etc.	0.17	0.00	0.00	0.11	2.18	0.03	0.00	0.75	4.89	0.00	0.00	0.00	0.00	1.69	**9.82**
	Sub Total	3652.20	1525.51	2627.46	3100.32	5175.22	3309.38	3859.97	4793.74	4607.58	4179.37	4220.00	2905.77	3230.55	1987.71	**49174.79**
B	**Agriculture Infrastructure**															
i	Construction of storage facilities (Warehouses, Market yards, Godowns, Silos, Cold storage units/ Cold storage chains)	41.18	12.49	27.20	13.05	27.00	6.05	9.24	12.65	27.14	13.50	26.00	22.88	20.67	8.84	**267.88**
ii	Land development, Soil conservation, Watershed development	102.62	35.66	74.30	106.11	100.53	48.86	49.83	87.78	174.09	117.05	60.61	42.32	129.52	186.43	**1315.71**
iii	Others(Tissue culture, Agri bio-technology, Seed production, Bio-pesticides/ fertilizers, Vermi composting)	3.29	19.40	2.03	16.48	3.60	2.81	7.18	13.82	23.55	5.57	17.47	5.29	0.00	11.04	**131.54**
	Sub Total	147.08	67.55	103.53	135.64	131.13	57.72	66.25	114.24	224.78	136.13	104.07	70.49	150.19	206.32	**1715.13**
C	**Ancillary activities**															
i	Food and Agro processing	41.75	3072.97	9.77	33.25	29.09	24.75	138.90	52.02	29.70	117.93	211.94	33.87	182.80	24.77	**4003.52**
ii	Others (Loans to Cooperative Societies of farmers for disposing of their produce, Agri Clinics/Agri Business Centres, Loans to PACS/FSS/LAMPS, Loans to MFIs for on lending)	6.40	60.00	4.84	2.40	14.35	12.13	25.50	3.02	0.00	0.45	0.92	0.85	5.50	1.08	**137.43**
	Sub Total	48.15	3132.97	14.61	35.65	43.44	36.88	164.40	55.04	29.70	118.38	212.86	34.72	188.30	25.85	**4140.95**
	Total Agriculture	**3847.44**	**4726.03**	**2745.60**	**3271.61**	**5349.79**	**3403.97**	**4090.63**	**4963.02**	**4862.06**	**4433.87**	**4536.93**	**3010.98**	**3569.04**	**2219.88**	**55030.87**
II	**Micro, Small and Medium Enterprises**															
i	MSME - Working capital	589.98	378.97	244.31	114.50	284.07	1236.83	1553.59	198.92	351.48	1438.16	478.16	62.77	705.17	397.10	**8034.00**
ii	MSME - Investment credit	1500.05	2007.12	3479.11	1100.39	2205.43	57.71	6406.92	2849.65	3437.43	520.82	1391.47	270.66	3323.70	119.43	**28669.89**
	Total MSME	**2090.02**	**2386.09**	**3723.42**	**1214.89**	**2489.50**	**1294.53**	**7960.50**	**3048.57**	**3788.91**	**1958.98**	**1869.63**	**333.43**	**4028.87**	**516.53**	**36703.88**
III	Export Credit	5.65	120.00	44.00	35.20	36.00	0.25	899.43	48.00	45.00	1.60	24.00	12.60	7.25	0.00	**1278.98**
IV	Education	307.40	346.24	100.13	205.20	59.40	138.88	436.80	127.36	865.76	149.82	339.21	152.10	410.54	147.80	**3786.63**
V	Housing	2120.11	1418.20	144.00	586.80	1089.00	155.85	2488.30	3552.00	1182.60	373.97	850.00	187.20	1539.61	532.70	**16220.33**
VI	Renewable Energy	5.97	0.35	12.01	10.56	45.90	3.72	1.80	8.55	49.19	10.51	10.47	1.14	3.65	19.88	**183.70**
VII	Others (Loans to SHGs/JLGs, loans to distressed persons to pre- pay non-institutional lenders, PMJDY, loans to state sponsored organisations for SC/ST)	1789.17	431.63	165.00	156.00	552.15	554.06	110.84	570.76	25.27	130.65	97.90	116.66	699.84	243.60	**5643.54**
VIII	Social Infrastructure involving bank credit	5.60	43.20	9.92	18.56	9.00	2.16	4.00	370.62	3.57	14.54	14.55	3.30	24.75	20.25	**544.02**
	Total Priority Sector	**10171.36**	**9471.74**	**6944.08**	**5498.81**	**9630.74**	**5553.41**	**15992.30**	**12688.88**	**10822.36**	**7073.93**	**7742.70**	**3817.41**	**10283.55**	**3700.65**	**119391.95**

Annexure II - Agency-wsie, Sector-wise flow of Ground Level Credit (GLC)

Name of the State : KERALA

(₹ lakh)

Sl. No.	Agencies/Activities	2012-13					2013-14					2014-15				
		CBs	Coops	RRBs	Others	Total	CBs	Coops	RRBs	Others	Total	CBs	Coops	RRBs	Others	Total
I	**ST Production Credit - Crop Loan**	**2247137**	**759666**	**258360**	**0**	**3265163**	**2462829**	**836634**	**387380**	**324**	**3687167**	**2602003**	**1087457**	**478395**	**620**	**4168475**
II	**Term loans (MT+LT)-Agri.&Allied**															
a.	Minor Irrigation	3918	7723	773	0	12414	12302	18592	721	158	31773	10536	24058	902	0	35496
b	Land Development	25661	10800	21757	0	58218	55742	14451	21704	0	91897	49990	23266	25128	0	98383
c	Farm Mechanisation	46838	1086	36	0	47960	44036	2911	23	8	46978	38659	21336	436	3	60435
d	Plantation & Horticulture	139689	30340	622	0	170650	136846	26528	2007	2	165383	148921	40333	3276	0	192530
e	Dairy Development	25718	8931	39470	0	74119	24793	8925	32367	0	66085	74317	28627	1576	0	104520
f	Poultry	1450	1299	2516	0	5265	2425	2322	4631	0	9377	29543	37768	25494	0	92806
g	Sheep / Goat / Piggery	1826	3052	8422	0	13301	1929	2580	6356	0	10866	3783	11433	2789	0	18004
h	Fisheries	13019	1969	705	0	15694	18007	4726	896	0	23629	4932	11998	5368	0	22298
i	Forest / Wasteland Development	207	152	493	0	853	2779	729	521	0	4029	20802	4633	1145	0	26580
j	Storage and Market Yards	1305	280	14	0	1599	644	822	3	0	1468	2325	2448	858	0	5632
l	Others	71246	30393	4162		105801	122034	22651	5676	12	150373	67165	12477	3126	60	82829
II	**Sub-Total (a to k)**	**330877**	**96025**	**78970**	**0**	**505872**	**421536**	**105238**	**74905**	**180**	**601858**	**450973**	**206508**	**70098**	**63**	**739513**
III	**Total Agricultural Credit (I+II)**	**2578014**	**855690**	**337330**	**0**	**3771034**	**2884365**	**941871**	**462285**	**504**	**4289025**	**3052370**	**1306442**	**548553**	**623**	**4907988**
IV	**Non Farm Sector**	**257400**	**82292**	**8797**	**19035**	**367525**	**684039**	**68847**	**13134**	**23223**	**789242**	**1111950**	**507583**	**100505**	**37313**	**1757352**
V	**Other Priority Sectors**	**1477992**	**1878315**	**189135**	**4183**	**3549625**	**1809284**	**1900128**	**176506**	**10265**	**3896183**	**1303356**	**1720425**	**69390**	**10566**	**3103737**
	GRAND TOTAL (III+IV+V)	**4313406**	**2816298**	**535262**	**23218**	**7688184**	**5377688**	**2910846**	**651925**	**33991**	**8974450**	**5467677**	**3534451**	**718448**	**48503**	**9769077**

Annexure III

Summary of Critical Infrastructural support to be provided

Sr. No	Sector	No. of Projects	Estimated Cost (₹ Crore)
1	Agriculture	33	151.69
2	Animal Husbandry	13	78.13
3	Dairy Development	1	2.50
4	Drainage & Flood Protection	94	474.46
5	Drinking Water schemes	17	670.20
6	Fisheries Development	60	175.98
7	Forest Development	1	22.49
8	Market Yard	3	4.35
9	Minor Irrigation	60	202.49
10	Plantation & horticulture	3	0.35
11	Rural Bridges	21	271.48
12	Rural Education	77	456.95
13	Rural Health	8	227.00
14	Rural Roads	207	353.84
15	Soil Conservation	3	254.25
16	Village Knowledge Centres	7	15.00
17	Warehouses	4	1.87
18	Watershed Development	168	292.13
	Grand Total	**780**	**3655.17**

District wise, Grama Panchayat-wise list given in CD as Annexure V.

Annexure IV
Critical interventions required in various sectors/sub sectors

Sl. No.	Sector/ Sub sector	Critical intervention required
1	Short term credit for production, marketing and food security	• Appropriate legislative mechanism may be evolved for promoting lease of agriculture land / fallow land to facilitate collective farming. • The paddy fields offer ideal condition for pulses cultivation which can be taken up by farmers as a remunerative summer crop in view of high market price. They play an important role in crop rotation, mixed and intercropping and helps maintain soil fertility. • Bio- pharmacy outlets may be set-up in the State to ensure supply of organic inputs to the farmers to realize the dream of making Kerala a fully organic agriculture state by 2016. • Digitisation of land records facilitating easy transfer of usage rights and ownership rights • Increase the capital expenditure towards agriculture which would enhance the productivity. • High-Tech polyhouse cultivation to be popularised to increase production of vegetables and reach self-sufficiency and indirectly tackle the menace of pesticide laden vegetables imported from other States. • PACS in Kerala disburse most of the short term crop loans in the cooperative structure, but they are not part of the payment system. Keeping in view instructions to disburse credit to farmers through Rupay KCCs, action to link PACS to DCCBs/other Banks to enable disbursement of crop loans to farmers needs to be undertaken.
2	Water Resources	• Specific recharge plan for districts where the water tables are declining i.e. in Kasargod, Kannur, Malappuram and Palakkad. • MIS implemented through the drip & sprinkler irrigation techniques is highly suited for coconut, species and other horticultural crops. The benefits of MIS vis-a-vis traditional method of irrigation include: increase in crop yield (20-30%), savings of labour (30-50%), water (30-40%) & power (20-40%). In Kerala penetration is 7% only which is below the national average. • Expeditious completion of micro level survey in identified critical / over exploited blocks. • Creation of water harvesting structures, especially check dams in high ranges to prevent surface runoff and replenishment of water table.
3	Farm Mechanisation	• Replication of Green Army model of Farm mechisation developed by KAU • Introduction of credit linked back ended subsidy scheme by the State Government to promote small farm friendly equipment's and for replacement of inefficient pump sets by energy efficient pump sets.
4	Plantation and Horticulture	• 99% of Kerala's coconut trees are of tall variety (40 ft.), making harvesting unviable due to acute shortage of climbers. A programme in mission mode for planting dwarf varieties may be taken up to bring down the reliance on climbers • Crash in the price of Rubber which is the backbone of the plantation sector in the state is matter of grave concern. Apart from price stabilisation fund by GoK, which is very essential, value addition of rubber through aggregation of latex through farmers collectives and manufacture of block rubber by federations with investment support from GoK may be promoted as a long term solution. • The Rubber plantations offer land which is suitable for dairy & poultry rearing. Further the vegetable cultivation could also promoted as profitable inter crop. • The new guidelines of GOI on MNREGA is a boon for P&H sector plagued by high labour cost. An agriculture labour bank at panchanyat level by aggregating the block level MNEGRA workers may be organized and allocated to different activates. • Value chain interventions through various models of aggregation, processing and marketing needs to be encouraged in the sector by provision of appropriate monetary and non-monetary incentives.

5	Animal Husbandry – Dairy Development	• Establishment of dairy parks to provide one stop services for all the requirement of dairy industry. • Subsidised livestock insurance in the lines of crop insurance. • Fodder cultivation using hydroponics technology is rapidly gaining ground. However, the growth is hampered by the high operational cost in terms of electricity charges as Commercial Rates are made applicable for operating these machines. Electricity is charged at "Commercial Rates" for poultry units also needs to be reviewed. • Promotion of Azolla cultivation by providing appropriate monetary and non-monetary incentives. • The need to obtain permission from the pollution control authorities for dairy units of more than 5 animals needs a relook.
6	Animal Husbandry – Poultry sector	• Setting up of Micro-hatchery at farm level • ICAR has developed over 20 coloured chicken breeds, many of which are dual-purpose types, suitable for both meat and egg production. The broilers gain 1.5 to two kg weight in six weeks. Prominent among the new breeds are Vanaraja, Gramapriya, Krishbro and Madhavaram chicken-1. These are meant largely for backyard free-range poultry farming and small-scale commercial units in and around rural areas. Birds of all these breeds have good marketability because of their multi-hued plumage and brownish eggs. • Subsidised insurance for the sector will help farmers. • Capacity augmentation of local feed production.
7	Animal Husbandry – Sheep, Goat, Piggery sector	• The 'AaduGramam' project of Kudumbashree Mission may be replicated in more Grama Panchayats. • Establishment of a modern abattoir for cleaning and processing of meat with hygiene & modernization of slaughter houses. Block Panchayats have to take initiative for setting up Modern Slaughter Houses in the blocks for which financial assistance can be obtained from NABARD under RIDF. • Establishment of a modern abattoir for hygienic processing of meat& modernization of slaughter houses. • The waste from the slaughter houses may be converted into pet food, meat cum bone powder, rendered fat, fresh dog pack and organic fertilizer.
8	Fisheries	• Evolving a strategy for optimum utilization of brackish water resources. • Creating appropriate infrastructure to harness the potential offered by fisheries sector. • Only 25% of 4 lakh hectares of inland water sources are being utilised at present. Inland fishery needs to be encouraged. With just 22% of the total active fishermen in the state engaged in inland fishery, manpower constraint / shortage is one of the major constraint affecting the sector. • The marine fishery sector which employs nearly 80% of active fisher's has been showing steady decline in catch over last 20 years and consequent in decline in per fisher yield. • Kerala with its highly conducive climatic conditions provides scope for the development of ornamental fisheries. This sector assumes special significance due to its huge potential in providing livelihood support to people in rural areas and also as a foreign exchange earner. It is estimated that over 150 ornamental fish trade units are functioning in the state. The state has rich resources of indigenous ornamental fish in various river systems that have the potential to earn income for the state.

Annexure IV
Critical interventions required in various sectors/sub sectors

Sl. No.	Sector/ Sub sector	Critical intervention required
10	Agriculture Infrastructure	• Creation of appropriate legal framework and land acquisition policy for infrastructure projects • Government may explore the possibility of allocation of land from the common pool land available with panchayats, taluks for creation of warehouses.
11	Food & Agro Processing	• An agency with government support under public private partnership model (PPP) may be created for providing forward linkages, mainly marketing, brand building and quality control support to small producers. Market building and brand promotion is specially required for Neera products, jack fruit products and other similar Kerala specific agro products in markets outside the state. • Setting up new food parks, augment infrastructure in existing designated food parks. • Lack of standardised quality control, certification and branding hampers the growth of the food processing enterprises in the State. A food testing lab could be set up by the Government which could certify the products at reasonable cost. • Nadukkara Agro Processing Factory Unit of Vegetable and Food Promotion Council of Kerala a Farmers Producers Company with GOK support has developed a strong brand 'Jive', but the sales turnover and profitability growth has been dismal. As the sustainability and profitability of the company is very crucial for the growth of pineapple sector, Government may take steps to increase the operational efficiency of the company.
12	MSME	• Setting up of an "MSME Equity participation Fund" for encouraging start-ups to be created by the State Industrial Development Corporation and State Financial Corporation. • The traditional strong holds of Kerala under MSME viz. Coir, Handloom and Handicrafts are facing a lot of challenges majority of units are sick/ unviable. New set of strategies is required for the sector. • Encouraging bio-technology, nanotechnology and life sciences which have tremendous potential • Garment sector is highly unorganised. Organising them into garment clusters, providing deign support, cluster brands, access to finance and establishing market linkages needs to be taken up.
13	Renewable energy & solid waste management	• While waste management poses a serious problem, it also provides a window of opportunity for the power deficit Kerala. Community bio-gas plants may be set up in each district to address the waste management and also to generate clean energy. • Mandatory provisions for installing solar water heaters / lighting system with appropriate incentives for new constructions and existing building. • As a part of meeting renewal energy requirements of the State, installation of "solar roof tops' for Govt. buildings with the support of RIDF could be explored. • Solid waste management facilities / plants in rural areas may be encouraged.
14	Infrastructure	• A comprehensive infrastructure development action plan for tribal areas & backward areas like Kuttanad covering agriculture, social and connectivity sectors may be prepared and implemented over a period of 3 to 4 years. NABARD would provide long term funding for these projects on priority basis.

ABBREVIATIONS

ABS	Area Based Schemes	FC	Farmer's Club
ABCs	Agri Business Centres	FIF	Financial Inclusion Fund
ACABC	Agri-Clinics and Agri Business Centre	FIPF	Farm Innovation Promotion Fund
ACP	Annual Credit Plan	FITF	Financial Inclusion Technology Fund
ADP	Area Development project	FLC	Financial Literacy Centre
AI	Artificial Insemination	FLCC	Financial Literacy Counselling Centre
AMIGS	Agricultural Marketing Infrastructure, Grading and Standardisation	FMD	Foot and Mouth Disease
APMC Act	Agricultural Produce Market Committee Act	FTTF	Farm Technology Transfer Fund
APCOS	Anand Pattern Cooperative Societies	GBY	Grameen Bhandaran Yojana
ATMA	Agricultural Technology Management Agency	GCA	Gross Cropped Area
BC	Business Correspondent	GCC	General Credit Card
BIRD	Bankers Institute of Rural Development	GCF	Gross Capital Formation
BLBC	Block Level Banker's Committee	GDP	Gross Domestic Product
BPL	Below Poverty Line	GIA	Gross Irrigated Area
BRGF	Backward Region Grant Fund	GLC	Ground Level Credit
CAT	Capacity Building for Adoption of Technology	GoI	Government of India
CBs	Commercial Banks	IARI	Indian Agricultural Research Institute
CBS	Core Banking Solution	ISAM	Integrated Scheme for Agri Marketing
CCB	Central Co-operative Bank	IWDP	Integrated Wasteland Development Project
CDB	Coconut Development Board	JLG	Joint Liability Group
CDR	Credit Deposit Ratio	JLTC	Junior Level Training Centre
CGTMSE	Credit Guarantee Fund Trust for Micro and Small Enterprises	JNNSM	Jawaharlal Nehru National Solar Mission
CPCRI	Central Plantation Crops Research Institute	KAU	Kerala Agricultural University
CRAR	Capital to Risk weighted Asset Ratio	KAMCO	Kerala Agro Machinery Corporation Ltd.
CTCRI	Central Tuber Crops Research Institute	KCC	Kisan Credit Card
CWC	Central Warehousing Corporation	KCMMF	The Kerala Cooperative Milk Marketing Federation
DCC	District Consultative Committee	KLDC	Kerala Land Development Corporation
DCP	District Credit Plan	KSLUB	Kerala State Land Use Board
DDM	District Development Manager	KSPDC	Kerala State Poultry Development Cooperation
DEDS	Dairy Entrepreneurship Development Programme	KVASU	Kerala Veterinary and Animal Science University
DFRL	Defence Food Research Laboratory	KVIC	Khadhi and Village Industry Commission
DLRC	District Level Review Committee	KYC	Know Your Customer
DLTC	District Level Technical Committee	LBR	Lead Bank Returns
DPC	District Planning Committee	LSGI	Local Self Government Institution
DTPC	District Tourism Promotion Council	LWE	Left Wing Extremism

MATSYAFED	Kerala State Cooperative Federation for Fisheries Development Ltd.
MEDP	Micro-Enterprise Development Programme
MIDH	Mission for Integrated Development of Horticulture
MILMA	Kerala Cooperative Milk Marketing Federation Ltd.
MPEDA	Marine Produce Export Development Authority
MFDEF	Micro finance Development and Equity Fund
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Programme
MIS	Management Information System
MSME	Micro Small and Medium Enterprises
NABARD	National Bank for Agriculture & Rural Development Bank
NABFINS	NABARD Financial Services Ltd
NBMMP	National Biogas & Manure Management Programme
NEFT	National Electronic Fund Transfer
NFDB	National Fisheries Development Board
NFS	Non-Farm Sector
NFSM	National Food Security Mission
NHB	National Horticulture Board
NIDA	NABARD Infrastructure Development Assistance
NIE	National Implementing Entity
NMPS	National Mission for Protein Supplements
NMAET	National Mission on Agricultural Extension and Technology
NRLM	National Rural Livelihood Mission
NRM	Natural Resource Management
NIFM	National Institute of Financial Management
NPA	Non-Performing Assets
NSSO	National Sample Survey Organisation
NWR	Negotiable Warehouse Receipt
OPS	Other Priority Sector
PACS	Primary Agricultural Cooperative Societies
PCARDB	Primary Cooperative Agricultural & Rural Development Bank
WCC	Weavers Credit Card
PoS	Point of Sale
PODF	Producer Organisation Development Fund
PPP	Public Private Partnership
PRODUCE	Producer's Development & Upliftment Corpus
RAIDCO	The Regional Agro Industrial Development Cooperatives of Kerala Ltd.
RATTC	Regional Agricultural Technology Training Centre
RBI	Reserve Bank of India
RIDF	Rural Infrastructure Development Fund
RIF	Rural Innovation Fund
RIPF	Rural Infrastructure Promotion Fund
RKVY	Rashtriya Krishi Vikas Yojana
RLP	Realistic Lending Programme
RRB	Regional Rural Banks
RSETI	Rural Self Employment Training Institute
RTI	Right to Information
RUDSETI	Rural Development & Self Employment Training Institute
SCC	Swarojgar Credit Card
SAMIS	Service Area Management Information System
SFAC	Small Farmers' Agri-Business Consortium
SGSY	Swarnajayanti Gram Swarozgar Yojana
SHG-BLP	Self Help Group Bank Linkage Programme
SLBC	State level Banker's Committee
SRI	System of Rice Intensification
SWC	State Warehousing Corporation
TDF	Tribal Development Fund
UPNRM	Umbrella Programme on Natural Resource Management
WDF	Watershed Development Fund
WDRA	Warehousing Development and Regulatory Authority
WGDP	Western Ghat Development Programme
WSHG	Women Self Help Group

Support to Producer Organization

Eligible Organizations:

- Producer Organizations (POs) registered / incorporated under any statute of law viz. Companies Act, Societies Registration Act, Indian Trusts Act etc,.
- Agencies like NGOs, VAs, Trusts and Financial Institutions participating in supply/value chain process, for onlending to PO, farmers/artisan groups or clusters such as JLGs, SHGs, federation of FC etc.
- Other institutions whose activities are in conformity with the overall objectives of Producers Organizations.

Assistance from NABARD:

1. **Credit** support
   I. Directly to POs as term loan, working capital term loan, composite loan.
   II. Assistance to Implementing Agency for on lending to PO.
   III. Collateral free support to Producer Organizations for strengthening the capital base.
2. **Credit plus** support as grant for Capacity Building, Market Linkages etc,.

Repayment	Margin	Interest Rate	Security
Maximum 10 years including grace period of two years	Minimum 10% of the project outlay	Between 10 to 12%. Actual rate would be based on associated risk and collaterals provided	**Primary security:** Hypothecation of all assets created/purchased out of NB assistance. **Collateral security:** Morgage of commercial land/buildings/Pledge of Fixed deposit Receipts/ third party guarantee/ personal guarantee/ any other security prescribed by NB

Technical Assistance
Assistance for preparation of project report would also be provided by NABARD.

Support under PACS as Multi Service Centre (PACS as MSC)

- Specially for Primary Agricultural credit Societies
- Loan assistance with need based grant support
- For setting up of agro service/processing centres, agri transportation and marketing facilities, consumer stores, onlending etc.

Assistance from NABARD

Scheme	Interest Rate	Security
Directly to PACS	9.5 %	**Primary security:** Hypothecation of all assets created/purchased out of NB assistance. **Collateral security:** Morgage of commercial land/buildings/Pledge of Fixed deposit Receipts/ any other security prescribed by NB
Through SCB/DCB	1% additional to NABARD's rate (Max.)	

Repayment will be maximum 7 years with 2 years grace period.

(For more details, visit www.nabard.org)
(Also visit : https://www.youtube.com/user/nabardonline)

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