Annual Report 2015-16

IRTC

Integrated Rural Technology Centre

Mundur, Palakkad

ANNUAL REPORT
2015-16

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IRTC'S MISSION
(As per Memorandum of Association)

1. *To adapt technologies known elsewhere into forms which will be readily acceptable to the Society.*
2. *To diffuse innovative practices and technologies and to develop a scientific culture among the masses.*
3. *To work out local level development plans*
4. *To take new technologies out of our R&D institutions for field trials*
5. *To identify and promote local inventiveness.*
6. *To develop integrated S & T packages and management models for strengthening local economies.*
7. *To promote human resources and skill development*
8. *To develop innovative methods and technologies in education and mass communication.*

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ADMINISTRATIVE WING

Director	: Dr.N.K.sasidharan Pillai
Registrar	: V.G.Gopinathan
Research Co-ordinator	: Prof. B.M.Musthafa
Administrative Officer	: M.Ramachandran
Accountant	: M.Ramani
Cashier	: M.Deepika
Training Co-ordinator	: V.C.Selvaraj

DIRECTOR'S REPORT

Hearty welcome to all the members of the General Council of Integrated Rural Technology Centre. I am happy to present the Annual Report of IRTC for the Year 2015-16 for your consideration, scrutiny and for valuable suggestion. IRTC had completed the 29th year and during the course of the time we had contributed a lot, with our specific mission of providing science and technology options to support rural economy development. Even though IRTC is not undertaking any basic research, the problem solving, area specific, and target oriented intervention of IRTC had created the niche for it activities, and that has been acclaimed as appropriate technological intervention models and accepted for further expansion. IRTC upholds the approach of ensuring peoples participation in all possible interventions, especially addressing issues such as natural resources management, drudgery reduction, efficiency improvement and capacity building.

During this year we have received Grant-in aid Support from KSCSTE and the Core Grant Project Support from DST-GoI, The Grant in aid is sanctioned to us to take up R&D in the area of technology development for rural and the marginalized groups, strengthening the resource support for solid waste management and necessary infrastructure development for supporting the above activities.

The DST core grant support is a funding for a five year programme and this is the 4th year. The assigned objective of the DST core grant were Revamping traditional pottery, Technology based watershed Development, Post harvesting technology and Medicinal garden. This grant helps us to maintain a set of core staff, developing necessary infrastructures and equipping the lab facilities in the respective areas. The major deliverable output of the project component is the 'microwavable terracotta pot' which can be promoted and marketed as an ecofriendly product. This product got 'special prize for innovation' in the RIM -16 held at Kozhikkode.Special mention is needed regarding the efforts of Dr.Lalithambika in bringing out this product and over all coordination. Web –GIS based decision support system for watershed development

programme , value added products of jackfruits, mobile application for identifying the location and character details of the jack trees surveyed, herbal soaps are the deliverable out puts of the other components of the project respectively.

The results of the EMO-Project carried out with support of KSCSTE,is encouraging and had equipped IRTC to reduce the amount of cow dung required as initial inoculum for portable biogas plant, and composting process. The project work is carried out by Prof.VRReghunandanan and team members. The scaling up process is progressing to market it.

Dr.Seethalakshmi Rtd. Scientist from KFRI is now with IRTC for continuing her research on bamboos under the Emeritus Scientist Scheme of KSCSTE. Dr. Uma J.Vinod is also in our team and she is pursuing her studies on sustainable use of water resources, a project which is supported under the DST –Societal research fellowship (SoRF) scheme.

The expertise gained by us in the field level co-ordination and monitoring of the NHWDP, lead to the initiation of two major programmes with the support of NABARD. One is the POPI- (Producer Organisation Promoting Institution) and the other is the implementing agency for WADI, a horticulture based livelihood support for the Attappady tribal communities. We had initiated steps to form rice based, farmer's producer company. The company got registered with a brand name 'Susthira'. The targeted number of shareholders is 1000. Its office started functioning in the new campus. The WADI project aims to improve the income of the tribal families through the promotion to agro forestry and inter crops. It also supports other livelihood activities though JLG's.

There is steep rise in the number of the students willing to do their graduate and post graduate projects works, internship at IRTC. B.Tech, M.Tech, MSW, Biotechnology and Microbiology students from the nearby colleges opt IRTC for their work. Altogether 76 students availed the facilities of IRTC this year, which definitely helps to spread the message regarding role and works of IRTC among younger generations. The activities of IRTC got attracted by regular visitors , which includes farmers academicians, SHG and JLG groups ,School students etc.

The major outreaches of IRTC are the trainings, consultancy and project implementations. During the year the major trainings includes that of KILA, for LSGD functioneries.Livelihood support trainings such as value addition in pottery, mushroom cultivation, ornamental fisheries and solid waste management etc were carried out on demand basis. Specialized technical trainings such as training in GIS- web GIS for the engineering students, agricultural officers had added additional value to our training programme .
Among the consultancy supports our association in the Theeramythri project, the Meenvallom & Palakkuzhy small hydro projects had exceeded more than 10 years.

Getting involved in the marginalized people's livelihood support is a crucial intervention. We had gained our expertise in this area viz.for fisherman in Theeramythri, for tribal communities in WADI, for landless and women handed families in watershed programme and for pottery communities in core grant projects. In all these interventions we are focusing in the natural resources management, enrichment and resultant benefit to link with the process of livelihood development. Improvement in agriculture and livestock production, creation of more labor and its sustenance through capacity building and micro mechanization were effectively carried out. Through financial literacy and bank linkages the share of ownership in petty production and services improved by shifting to alternate livelihood options or through value addition to traditional production process.

New and appropriate management option and institution build up initiated with the full participation and capacity building of the stake holders. This is well evident in the cluster development of potters, women labor bank in watershed, alternate livelihood in fisheries, developing sustainability instruments and institutional mechanisms such as apex federation, category federation and JLG formations in Theeramythri project.

Even though IRTC's role is implementation and monitoring in the watershed programs such as NHWDP and IWMP projects, we had made specific efforts to asses the impact of the interventions in improving in the ground water levels. One such study conducted shows that in nearly 800 hectares of area, the quantity of ground

water replenished is around 1.25 lakh cubic meters. This is in fact equipped us promote methods of scientific watershed based development as an ideal means for natural resources management.

Environmental & Microbiology lab is supporting several people in getting an analysis certificate of water and soil samples which are a pre requite for obtaining license for shops and small production units. This year also several LSG's had entrusted their works of solid waste management projects to IRTC for implementation. Besides the R&D works scientific awareness creation opportunity were taped by IRTC by associating with the programme such as National Science Day, National Technology Day, World Wet land Day, celebrations. Awareness creations in Energy conservation and renewable energy were undertaken with this help of the Energy Management Centre, Kerala.

The Energy and Electrical Division undertakes the general maintenance of electrical system maintenance, and equipments. Also undertakes solar PV installations on a pilot mode. The computer centre manages the data and communication systems and the system maintenance. IRTC office campus is equipped with Wi-Fi connectivity.

The Social Science Division is mainly engaged in the production of the books on Kerala Development Perspective. They are mainly focusing on local area planning project preparations, and also support in project implementation. The task of library digitization activities is also undertaken by this division.

Even though we are planning to separate the project implementation activities from the R&D of IRTC, since last two years the process of delinking had been completed with the registration of IRTC Project implementation Unit (IRTC-PIU) as a separate entity. It started functioning with separate office in the New Jubilee campus.

The office team of IRTC is ably handling the accounts, correspondence, file management and follow up various projects. The campus management and housekeeping section join hands with office in maintaining the campus and managing the various trainings undertaking by IRTC. The IRTC canteen is working year round to cater the demands of the guests and the inmates.

The 'Gramakala' in the new campus is the selling out let of various products of IRTC and PPC. Besides gramakala provide shelf space to Kudumbasree unit, products of self help groups, JLG's etc, Produce of the tribal people were also sold thought the out let. Even though PPC with REC is functioning as separate unit, they give necessary assistance in the implementation of projects. Library and the reference facilities is the back bone of R&D centre. Lack of trained librarians, and also due to other reasons its role is not properly fulfilled. The process for digitizing the library activities are progressing which will improve its functions a lot.

The executive committee meetings were held in regular intervals and its decisions supported the chief functionaries in the meaningful management of the IRTC activities. Consultations and subgroup meeting of the RAC were held and that helped in identifying research areas and project opportunities suitable to IRTC.

The detailed account of the various activities are included in separate heading IRTC have several limitations in fulfilling its role. Basic limitation is the non-availability of full time senior R&D personals who can shoulder independently the R&D and remain as the pillars of the institution. The resource crunch especially financial resources are the second limitation. Currently the R&D projects are limited in number .Efforts are needed to overcome these limitations. Even with these limitations IRTC performed at its maximum level it can during the reported year. With the word of gratitude to everybody for the cooperation and assistance rendered, I am presenting the Annual Report of IRTC for the year 2015-16 for your consideration.

Dr.N.K.Sasidharan Pillai

FINANCIAL REPORT

The total revenue during 2015-2016 was **Rs. 665.09** lakhs. Local bodies are the major funding source of IRTC through the implementation projects in the areas of watershed management, waste management, livelihood and other technical supports. The other funding sources were DST ,KSCSTE ,SAF,KILA and other institutions (training) The following are the details

TOTAL RECEIPTS FOR 2014-15			
Sl. No.	**Projects/Funding Agencies**	**Amount (Rs.)**	**Purpose**
1	DST, Govt. of India		
		3050302	Core Support
		184107	Project Fund
2	KSCSTE, Govt. Of Kerala		
	1	3000000	Grant-in-aid support
	2	783762	Project Funds
	Implementation Projects - Tribal		
3	NABARD, Thiruvananthapuram	13043184	Developement Projects, Cluster Development (Pottery), Peravoor
4	Energy Management Centre	84500	EMC Workshop
	Meenavallom/Palakkuzhy Small		
5	Palakkad Small Hydro Co. (PSHC)	1354148	Hydel Projects
6	Fisheries Dept. - SAF, Aluva	1620000	Theeramythri Project
7	IWMP/WGDP/Watershed Projects	829722	DPR Preparation
8	Forest Dept. Agency	80000	Installation of Smokeless Choola
9	Local Self Govt. of Kerala		
	LSGD	26696936	Installation of Domestic Biogas Plants
	LSGD	397849	Rainwater Harvesting Tank Construction
	LSGD	5311242	Biogas Plant Construction
10	General - Training/Workshops and Inhouse Units	10072998	
Grand Total		**66508750**	

LSGD project fund was routed for the major activities as detailed below:

Sl. No.	Project	Amount (Lakhs)
1	Watershed	8.30
2	Waste Management	320.08
3	Palakkad Small Hydro Co.	13.54

In the case of waste management projects,. portable bio-gas plants, pipe compost etc. were installed /purchased through Parishad Production Centre (PPC).

Community level Bio-gas plant installation was done by IRTC itself which will come to Rs.53.11 Lakh

For providing technical assistance to the livelihood programme sponsored by SAF (Fisheries Department) we have received Rs. 16.20 lakh.

Receipts for Meenvallom Small Hydro Project consultancy and implementation was Rs.13.54 lakh. We have undertaken a smokeless chulah project at Silent Valley from Forest Department through which we got Rs. 0.8 lakh. Total receipt from Energy sector was Rs. 14.34 lakh.

The major share of receipts by way of providing facilities for trainings is from KILA (Rs. 13.84 lakhs)

KSCSTE has sanctioned a scheme for Emiritus Scientists – KSCSTE Emeritus Scientist Scheme (KESS – 2014) - and as a part of this Dr.Seethalakshmi, Senior Scientist (KFRI Rtd) has been associated with IRTC.

This year also the grant in aid portion from KSCSTE was Rs.30.00 lakh.

Grant in aid from KSCSTE from 2004-05

Year	Amountt sanctioned (lakh)
2004-05	10.00
2005-06	11.19
2006-07	14.50
2007-08	5.00
2008-09	13.00
2009-10	13.00
2010-11	21.32
2011-12	20.85
2012-13	30.00
2013-14	30.00
2014-15	30.00
2015-16	30.00

Total Expenditure for the period 2015-16

1. Man power = 60,73,268
2. Other Administrative Expenses= 1,06,56,837
3. Project Expense = 88,93,914
4. Construction/Installation = 3,36,01,998
5. House Construction of Appukuttan = 4,03,996

Total = 5,96,30,013

We have already decided to implement the portable Biogas plant projects through Parishad Production Centre. The manufacturing and procurement of plants, installing, user education, maintenance etc. are undertaken by PPC. These projects would come to Rs. 266.96 lakh. The entire amount has been transferred to PPC and the overhead charges of these projects were utilized for R&D work in Biogas plants through IRTC

IRTC has not taken VAT registration so far, but PPC has taken it and promptly paying the sales tax for the Biogas plant projects of IRTC. On the other side IRTC has registered under Central Exise department for service tax.

Commissioner, Central Excise and Customs has asked us to pay service tax and penalty for a tune of around Rs.80 lakhs.

Internal Audit was done by the auditors Sri.TP.Suresh Babu & Sri.V.V.Shaji for the year 2015-16.

I. SPONSORED PROJECTS

1. Watershed Development Programmes

a) Integrated Watershed Management Project (IWMP) for Chittur, Pampakkuda and Kanjikkuzhi Blocks

Team leader : R.Satheesh, Engineer, IRTC

IRTC has prepared the DPR for implementing Integrated Watershed Management Project (IWMP) in the Block Panchayaths Chittur, Pampakkuda and Kanjikkuzhi during the period 2015-16. The details of each project is as given in the table below

Sl No	Name of the Project	Area covered (In Hectares)	Name of the watersheds	Name of Gram Panchayaths
1	Pampakkuda	4428	Oanakkur,Piravam,Mulakkulam, Vadakkekkara,Elanji,Permbadavam &Valiyathode	Elanji,Piravam &Pampakkuda
2	Chittur	6165	Elappulli,Vandithode,Pampupara, Varattayar,Kottilpara &Vavolithode	Elappulli, Pudusseri, Nalleppalli &Vadakarapathy
3	Kanjikkuzhi	7823	Pathiramanal,Varanam,Chamunkal,Thanneer -mukkam,Elanjiyil &Mararikulam valiyathode	Cherthala south, Mararikulam north,Thanneermukkam, Kanjikkuzhi, Muhamma & Mararikulam

Methodology adopted for DPR preparation

Participatory Rural Appraisals were conducted in every ward of the Gram Panchayath to elicit people's opinion about the status of natural resources. Based on this prioritized the needs of the people, projects prepared for fulfilling these needs and solving the various problems they face. Self Help Groups were formed; entry point activities were selected. Detailed survey was conducted cover-

ing all the families in the project area and identified household interventions after consultation with the beneficiaries. These are included in the DPR. In the watershed gramasabha draft DPR was presented and got approval. Convergence with projects like MGNREGS, state and central Govt. schemes were also done.

DPR at a glance

The DPR has got a detailed sketch of every watershed in the project area, an analysis of the problems faced by different development sectors vis a vis natural resources, suggestions come out as an outcome of the interaction at different levels, action plans with detailed estimates, resource maps on cadastral scale and action plan maps prepared in the GIS platform.

Salient features of the activities

The different activities suggested are: ECBs, Stone Pitched Bunts, Percolation pits, well recharge system using roof water, centripetal terracing, coconut crown cleaning, compost pits, sluice renovation, gully plugging, storm water drains, renovation of ponds and wells, coir geo-textiles for strengthening the bunts, construction of check dams etc.

The important activities under farm system development are: Grow bags, tuber crop cultivation, vegetable cultivation, biogas plants, fodder grass cultivation, banana cultivation, nursery for high yielding coconut seedlings, waste land cultivation, horticulture development, popularizing local cow breeds, fish finger lings distribution etc. The livelihood activities suggested are: poultry, duck farming, fisheries, cow rearing, and value addition of coconut, banana and vegetable cultivation.

DPR and maps were submitted to the concerned blocks. The entry point activities are progressing well. All the projects were submitted for approval from the State Level Nodal Agency (SLNA). Implementation will start once the approval got from SLNA.

b) Tribal Development Fund project implementation at Pudur Gram Panchayath of Attappady

Team : Gopinathan.VG, Satheesh.R, Chack.IA, Sabu Mon.PS, Sophy.K.Antony, Vysakh.PN, Ganesh.C & Selvan.M

NABARD has sanctioned a TDF project with IRTC as the PIA for the hamlets Cheerakadavu, Dhanyam, Paloor,Bommiyampadi,Manchikandi,Aanakallu and Veetiyoor in the Pudur Gram Panchayath of Attappady. A total of 401 tribal families are covered under this project. The objective of this project implemented for a period of five years is to develop horticulture garden in one acre land of every tribal family with focus on three or four horticulture tree crops and also to grow agro forestry trees like silver oak, mahogany, teak etc on the four boundaries of the plots. Since the project area falls in the rain shadow region of Attappady life saving irrigation to the plants will be provided through the lift irrigation schemes.

To facilitate better implementation, IRTC has established a camp office at Kookampalayam and with a six member team consisting of Project Coordinator, Engineer, agronomist and social mobilisers. Three of them are from the tribal hamlets of the project area.

As a pre project activity DPR covering each beneficiary family was prepared and got sanction from NABARD. Project implementation started in the month of August, 2015. A total fund of Rs88.09 lakhs received from NABARD out of this Rs 34.8 lakhs expended.

Attappady Block Panchayath President Mr.K.Rajan inaugurates TDF project by planting coconut sapling

Present status

1. Horticulture saplings like mango, saporta, guava, coconut, areca nut, pomegranate, pepper, amla, nutmug and lime were planted in the plots of the tribal farmers. Along with this agro forestry plants like silver oak, teak and mahogany were also planted on the boundaries of each plot. A total of 29000plants distributed among the beneficiary families.

2. The tank, well and pump house construction for the irrigation projects completed in the hamlets Paloor, Kalpetty, Bommiyampadi, Manchikandi and Cheerakadavu

3. Utilizing Rs 10 lakhs received for livelihood activities, low interest loans are disbursed to 15 Joint Liabality Groups for starting various income generating activities. Twelve of these groups are engaged in banana cultivation.

The farmer Easwaran standing near his planted mango saplings in Kalpetty hamlet

4. Two JLGs started agriculture nurseries and raising planting materials such as pepper, cashew and teak. The quality seedlings they produced were purchased under project and supplied to farmers.

A number of training programmes were conducted for the Village Planning Committee members, JLG members and farmers. An exposure visit was conducted to TDF project area at Kollihills near Dindigul in Tamilnadu. Social Audit boards were fixed at the e ntry and exit points of the project area.

Challenges ahead

1. Since most of the land owned by the tribal families is on the higher elevations in hills, water availability is less. Quite a good number of plants dried up due to water scarcity during the last summer.

NABARD DDM Mr.Ramesh Venugopal near the social audit board at Cheerakadavu

2. The crop destruction by wild elephants and pigs is a major issue which needs to be tackled in future

3. Handholding the JLGs to ensure sustainability of the livelihood activities is a major challenge in the event of fall in the price of their products.

2. Promotion of Farmer Producer Organisation

Coordinator : IA.Chakko

IRTC has signed an agreement with NABARD to promote a Farmer Producer Organisation (FPO). The initial work for this started during August 2015 with the support of existing Village Watershed Committees. An adhoc Director Board was formed for the same and FPO was registered under Companies Act 1956. The name of the company is "Susthira Farmers Producer Company Ltd.". The authorised share capital of the FPO is Rs.10 lakhs.

The cooperate office at IRTC Jubilee Campus was inaugurated by NABARD General Manager. The Memorandum Of Association(MOA) and Articles Of Association(AOA) of the company mainly focuses on the well being of paddy growers. At present 337 shares (Rs. 1000/- per share) have been issued to individual farmers and institutions associated with farming activities.

As the pilot activity of the company, a few farmers near by IRTC was grouped in to SHG and paddy cultivation in 22 acres were done using biological measures of pest and deseases control. Paddy 30.5 mt was procured from the farmers and processed. Toxin free rice and rice flaks named "Susthira" was released to market. During March 2016. The activities for the coming years is under planning.

3. Solid Waste Management Programmes

Team members : Gopinathan.VG, Sajeevan.V Chandran & Hareesh

Solid waste management is one of the major areas in which IRTC has been working for past two decades. IRTC is providing support services like Preparation of DPR based on detailed field studies, consultancy/supervision during construction, technical support for operation and maintenance after commissioning of the plant, capping of the existing waste dumps, R&D work for site specific issues/problems/conditions, etc. During the reporting year, following projects are under various stages of progress.

Biogas from biodegradable wastes

IRTC has been working in this area for many years and has developed different models of biogas plants having capacity for processing 2.5 kg to 2000 kg biodegradable solid waste per day. IRTC's domestic/portable biogas plants are of floating dome type made of FRP or HDPE which can process 5 - 6.5 kg of biodegradable kitchen waste per day. The community / institutional level plants have higher capacity, and we are promoting both fixed dome as well as floating dome type, as per the suitability/demand. Night soil can also be linked with the community/institutional level plants

Community/Institutional level biogas plants

Being an accredited agency, a number of LSGDs and other institutions are approaching IRTC for the construction of Community level and Institutional level biogas plants. IRTC constructs Biogas plants for treating organic wastes, toiletlinked biogas plants, toilet-linked cum-organic waste Biogas plants etc. These plants come under the category of fixed dome type and floating dome type. Janatha and Deenabandhu are the two fixed dome type models we usually constructed and for the floating dome model we usually follow KVIC design.

Community level Biogas Plants implemented			
Sl No	**Place**	**Capacity**	**Amount (in Lakh)**
1	Central excice ,Kochi	50Kg	1.59
2	Govt college nattakam	25kg	0.98
3	Govt Engineering college, Sreekrishnpuram	75kg	1.63
4	ITDP Agali, MRS Mukkali	150kg	5.48
5	ITDP Agali, Pre metric hostel , Sholayur	150kg	4.89
6	Thavanoor old age home	100kg, 150kg, 200 kg	14.39
7	Cherumukku school	75kg	1.45
8	Old Age Home, Kozhikkode	100kg	2.62
9	Kannur milma	175kg	12.26
10	Malbar Cancer Centre	100 kg	7.42
11	Mavoor Fish market	200kg	4.98
12	Kozhikkode medical college	2tn	23.25
13	Kozhikkode medical college	2tn	24.9
14	Kozhikkode medical college	1.5tn	19.71
15	Kozhikkode medical college	1.5tn	15.3
16	Kozhikkode medical college	0.50tn	7.00
Ongoing Biogas Plants			
Sl. No.	Place	Capacity	Amount (in Lakh)
1	Manjeri Municipality	1000Kg	19.67
2	Koyilandi municipality	400kg	5.6
3	Payyannur municipality	500kg	7.85
4	Kadakkal taluk hospital	1000kg	13.45
5	Social justice department		

Biogas plants in Households level installed Panchayath/Municipality

Kottayam
Puthuppally, Vellur, Vakathanam & CSI Kottayam.

Malappuram
Keezhuparamba, Koottilangadi, Mankada, Areekode, Edappal, Mangalam, Chelembra, Kaladi, Thalakkad, Kavanur, Puzhakkattiri & Perinthalmanna Municipality.

Alappuzha
Kayamkulam, Alappuzha Suchithwa Mission, Alappuzha Municipality, Nedumudi, Pulinkunnu & Punnapra North.

Palakkad
Tharur, Nalleppilly, Kadambazhippuram, Pookottukavu, Cherpulassery, Pirayiri, Eeswaramangalam, Kannadi, Lakkidi, Perur, Akathethara, kuzhalmandam, Kuthanur, Puthuppariyaram, Ayilur, Karakurussi, Mannur, Thrithala, kottopaadam, Alanallur & Kizhakkanchery.

Kasargod
Kasargod Municipality

Wayanad
Meenangadi, Poothadi

Ernakulam
Mulanthuruthi, Chengamanad & Koovappadi.

Idukki
Manakkad

Thiruvananthapuram
Ottur, kukdappanakkunnu, Cherunniyur, Kollayil, Kunnathukal, Manambur & Kattakada.

Kollam
Perinadu, Kura, Kollam Corpporation, Karavalur, Kadakkal, Chadayamangalam, Thodiyur, Kalluvathikkal, Nilamel, Veliyam & Pattazhi Vadakkekara.

Thrissur
Eriyad, Kaiparambu, Koratti, Chovvannur, Chavakkad Municipality & Padiyur.

Kannur
Cherupuzha, Koodali, Kallyasseri, Elayavur, Mangattidam, Kuttiyattur & Kunnothuparambu.

4. EMO Project- KSCSTE

Studies on the Effectiveness of EM Preparation in Accelerated Aerobic Composting to Promote Bio-waste Recycling in Rural Areas.

Principal investigator : *VR.Raghunandanan, Associate Professor (Rtd.), KUASU*

Co-investigator : *Preetha Mol.K*

Adaptive Technology package prescribing Bacillus sp and Pleurotus sp as composting accelerators with specification regarding isolation, purification and application were finalized with the support of enough experimental data regarding microbial analysis and physicochemical analysis of ligno-cellulosic substrates and their composted products.

The study revealed that the composting, accelerated by the IRTC EM preparations in the recommended dose (5ml/Kg wet waste of 1x 108 cfu/ml Bacillus sp and 1x 106 cfu/ml Pleurotus sp) can be successfully completed in 5-6 weeks. Normally it takes 8-9 weeks with lesser yield.

Cost effectiveness of the product was worked out and it could be sold at about Rs. 200/L. IRTC has the facility to prepare 9 Litres EM solution per day which is sufficient to apply on 1.8 tons wet waste at a dose of 5ml/Kg wet waste/day.

Half of the project was undertaken as inhouse activity. The results obtained from batch addition method was further confirmed in subsequent experiments done on daily addition method. To ensure moisture regulation, dry coir pith was added. Equipments such as carry bags, perforated PVC pipes, and earthenware pots were used inorder to emulate household practices of composting of daily food waste.

Evaluation of efficiency of EM preparation in pipe, carry bag and pot compost

The effectiveness of proposed EM preparation was also evaluated during the initial phase of anaerobic digestion in a biogas plant by taking advantage of the facultative nature of the microbial cultures. The findings were highly significant and relevant in the sense that the incorporation of IRTC EM preparation could, not only bring down the inoculum load of cowdung required for installation to half but also generate biomethane from 3rd onwards.

Biogas generation and burning

The benefit of the adaptive technology on EM preparations can be extended to community practice by promoting relationship marketing and by establishing livelihood units at community level.

5. Assessment of Productivity, Scientific Management and Mapping of Bamboo Plantations in Non-forest areas of Central Kerala

Principal Investigator : Dr. K. K. Seethalakshmi (Emeritus Scientist)
research Associate : Divya
Sponsored by : Kerala State Council for Science, Technology and Environment

This project was sanctioned under Emeritus Scientist Scheme of Kerala State Council for Science, Technology and Environment (KSCSTE). It envisages documentation of the bamboo plantations in non forest areas and assessment of growth of different Bamboo species along with transfer of technology for resource enhancement, processing and value addition. A handbook on bamboo cultivation and post harvest technology in Malayalam will be prepared during this period.

Collection and compilation of base data on bamboo plantation in non-forest areas in central Kerala was collected and compiled. It was observed that 27 species of bamboos were planted in various homesteads. Most of the planting material was supplied by Kerala Forest Research Institute. These included large, medium and small bamboos and all of them were clump forming (sympodial) species. Bambusa balcooa, B. bambos, Dendrocalamus strictus

and Thyrsostachys oliveri are popular among them. The planters are being contacted and assessment of the status of plantations is in progress.

During the reporting period published two papers in refereed journals. Presented one paper in Kerala Science Congress and contributed a chapter for a book on bamboos. Ph.D. was awarded from FRI University to one student. Provided training on Bamboo and its application at KFRI and served as a subject expert for recruitment of scientists at Jawaharlal Nehru Tropical Botanical Garden and Research Institute (JNTBGRI), Palode. Participated in the World Environment Day celebrations of Jyothi Engineering College, Cheruthuruthy and delivered a talk on Bamboo - the giant grass for ecological, food and livelihood security as Chief Guest. Details of publications are listed below.

Doctoral thesis: Lakshmi C. J. October 2015. Development of Seed Handling Techniques for Selected Commercial Bamboo Species. FRI University, Dehra Dun.

Chapter in book: Seethalakshmi K. K. Macro-propagation methods for vegetative andpropagation of sympodial bamboos. Pp 187-194. in Bamboos in India S. Kushik, Y. Singh, D. Kumar, M. Taplial, S. Barthwal (Eds). ENVIS Centre on Forestry, National Forest Information Centre, Forest Research Institute, New Forest, Dehra Dun.

Publication in refereed Journals:

1. Thomas K, Jijeesh C. M and Seethalakshmi K. K. 2014. *Litter production, decomposition and nutrient mineralization dynamics of Ochlandra setigera: a rare bamboo species of Nilgiri Biosphere, India.* Journal of Forestry Research 25 (3), 579-594

2. Thomas K, Jijeesh C. M and Seethalakshmi K. K. 2016. *Litter production, decomposition and nutrient dynamics of a rare and endemic bamboo species Munrochloa ritcheyi of Western Ghats, India.* Tropical Ecology 57 (3), 601-606

Paper presented in 28th Kerala Science Congress: Lakshmi C. J., Seethalakshmi K. K. Malligarjunaswamy G. E. 2016. Effect of plant extracts and fungicides on seed mycoflora and seedling growth of Dendrocalamus brandisii (Munro) Kurz. Seeds. In Extended Abstracts Suresh Das et al (Eds). Kerala State Council for Science Technology and Environment. Abstract No. EF-17.

II. LONG TERM CORE SUPPORT PROGRAMME DST; GOVT. OF INDIA

LONG TERM CORE SUPPORT PROGRAMME DST; GOVT. OF INDIA

Project Support	: DST., Govt. of India
Date of Start	: Jan. 2012
Expected date of completion	: Dec.2016
Programme Coordinator	: N.K.Sasidharan Pillai

A long term Core Support Program was sanctioned to IRTC by the Department of Science and Technology, Govt. of India during september 2011 vide letter no. SP/RD/043/2007. The first instalment of financial support Rs.24.95 lakhs was credited to IRTC during Dec. 2011 and the program was initiated in Jan. 2012. On-the-spot-assessment of the work carried out during 2012 and 2013 took place during 5-6 March 2014.

Based on the satisfactory performance, the financial assistance was recommended for the next 3 years also.

A token grant of Rs. 5 lakhs was received by IRTC in Oct.2014 and an amount Rs.30.50 lakhs (Thirty lakhs and fifty thousand) was received in Dec. 2015

Objectives

There are 4 objectives to this project.

1. Revamping of traditional pottery
2. Post harvest technology of jack fruit and desi mango
3. Technology based watershed management including micro mechanization
4. Establishing a medicinal garden at IRTC and making Thirthala Panchayath of Palakkad district in to a medicinal village

The work carried out during the reporting 2015-16 is described below:

1. Revamping of Traditional Pottery

Under the program "Revamping of Traditional Pottery" several activities were undertaken during the reporting year.

1. Fabrication and supply of potter's wheel and pug mill, Cluster development activities
2. Arranging trainings in niche areas
3. Innovative research in microwavable terracotta
4. Other Activities
5. Decoupage
6. Paper presented/Awards received
7. Exhibitions participated

a) Supply of drudgery removing equipments like Potter's wheel and Pug mill

As in previous years supply of potter's wheel and pug mill was continued at subsidised rates. Sales report of pug mill & potter's wheel from 01-04-2015 to 31-03-2016:

Sl. No.	Date	Particulars	Qty.	Beneficiary
1	09/04/15	Pug mill	1	Kannan, Thirunellaya, Palakkad
2	09/04/15	Potter's wheel	1	Kannan, Thirunellaya, Palakkad
3	26/05/15	Potter's wheel	1	Thankamma, Arupuzha, Palakkad
4	16/06/15	Pug mill	1	Thankamma, Arupuzha, Palakkad
5	20/06/15	Potter's Wheel	1	Sajitha, Neyyatinkara, Trivandrum
6	30/06/15	Pug mill	1	Ponnamma, Arupuzha, Palakkad
7	31/07/15	Pug mill	1	Karuman, Kavassery, Palakkad
8	31/07/15	Pug mill	1	Dasarathan, Neyyatinkara, Trivandrum
9	21/08/15	Pug mill	1	Radhakrishnan, Arupuzha, Palakkad
10	23/09/15	Pug mill	1	Manikumaran, Ernakulam
11	04/09/15	Pug mill	1	K.R. Mani, Thirunellaya, Palakkad
12	04/09/15	Potter's wheel	1	K.R. Mani, Thirunellaya, Palakkad
13	06/01/16	Potter's wheel	1	Suresh Kumar, Kazhanichungam,Alathur, Palakkad

The above table indicates that there is a growing demand for the above items from pottery artisans from different districts of Kerala. There are pending requests from Tamil Nadu also.

b) Construction of an energy efficient wood fired kiln

There was a suggestion from Department of Science and Technology to construct and an energy efficient commercial wood fired kiln. Regarding this discussions were held with M/s. TIDE , Bangalore and Prof. E V Thomas from IIT, Kharagpur. Based on the discussion it was decided to provide a ceramic blanket inner-lining to the commercial kiln. The work was entrusted to Mr. Vijayakumar, M/s. Epsilon Systems, Bangalore. 25% energy efficiency was observed.

Inner-lining of the Ceramic blanket

c) Trainings

i) Arranging training in the niche area of low temperature glazing

A 3-week training was imparted to the selected trainees (30 Nos.) from Palakkad, Kerala during september 2015 in the preparation of low temperature glazes, their application on terracotta surfaces and the firing schedules and techniques. The resource persons were Sri. Yad Ram, Scientist and Smt. Poonam Devi, Technical assistant from CGCRI.

Demonstration of Low Temperature Glazing on Terracotta surface

Products developed using lead-less glaze

Glazed Terracotta Pot

Wind Chime

These were prepared by two step firing :-

1. Biscuit firing at 700 deg C
2. Glaze firing at 950 deg C

- *A paper was presented in the 28th Kerala Science Congress held at Calicut University, Malappuram* (abstract encl.)

ii) Orientation training to children from various Potter colonies, in Palakkad Dist.

IRTC arranged residential training camp for the children of various potter clusters. A 5-day residential training program from 9th to 14th April 2015 was arranged for 30 children in the age group of 10-18 years belonging to various potter colonies in Palakkad District. Classes were given in terracotta ornament making, Decoupage (pot painting), Soap making, Jackfruit squash/Jam making, use of computer, news paper reading, drawing and painting.

Food processing session of workshop

Students expressing their opinion in the concluding session of the workshop

It was a good exposure training to these less privileged children.

c) Training – off campus at Mananthavadi, Wayanad

Sl No	Training Details	Place of training	Date of training	No. of participants
1	Training in operation of motorised potter's wheel and studio pottery (Decoupage and Ornament making)	Mananthavadi, Wayanad	11th to 25th December 2015	25 Nos.

d) Innovative Research in Microwavable Terracotta

Microwavable terracotta for cooking application was developed. Raw material quality like plasticity, particle size and firing schedules were standardised. Packing procedure was also finalised. The paper "Microwavable Terracotta for cooking applications" was presented in Rural Innovator's Meet, February 2016, This was adjudged for special jury award conducted by KSCSTE, Govt. of Kerala(Paper incl.).

Dr. Suresh Das, Executive Vice President, KSCSTE handing over the Certificate of Merit

2. Post-Harvest Technology (PHT)

The major objectives were to modify and standardize the traditional processing technology and adopt the modern technique to suite local conditions and standards and ultimately make in to technology packages for viable income generating enterprises using seasonal fruits which are at present wasted.

Familiarizing the technology related to integrated utilization of aggregate jackfruit at its different horticultural maturity stages. The project staff got trained and also visited KVK Pathanamthitta, horticulture college Vellayinikkara and KVK Kottarakkara. The technology for Jack fruit honey in low temperature developed, quality evaluated.

GPS enabled mobile appilication has developed for locating high quality jackfruit bearing trees. More than 1000 trees from 5 grama panchayath nearby IRTC has been identified and all the features of the plant are available online. This data can be used for collecting jackfruit from the specified location.

To ensure the sustainability of the enterprise, modality for year round operation and for utilizing jack fruit in all seasons, hub and spoke unit formation initial works is completed. The work for starting Hub unit with lab facility is progressing at IRTC campus. GPS based mobile application training for locating jack fruit trees given to 12 member survey teams.

A set of value added products from jack fruits were developed as part of the Core-Support Programme and its shelf life characterisation were also assessed. Trials were undertaken to use the jack fruit at various maturity stages. Major attempt in this regards is to reduce the browning of the raw jack.

3. Technology based watershed development

a) GIS Based Decision Support System for Local Bodies.

Activities under taken towards fulfilling the above objectives are:

Digitalization of data pertaining to the different thematic layers was done for 2 more grama panchayath in addition to the earlier ones.

A draft user manual was prepared for training stake holders for the proper usage of GIS based DSS. The software developed was utilized in the DPR preparation of IWMP projects in Chittur and Kanjikkuzhi Blocks of Palakkad and Alappuzha districts respectively.

b) Tecnology based Watershed Programme

Efforts were made to keep the beneficiary organizational network vibrant by providing additional avenues such as ecological agriculture, value addition of agriculture produces and labour support system. Trainings were given to stake holders and new farmers under Core Support. Core Support team shared the technological and other intervention strategies such as labour bank, GIS DSS for lacal planning and implementation in a workshop conducted by the Commission on Decentralisation instituted by Govt. of Kerala. The participants appreciated the initiatives of IRTC int this area especially the programmes and technologies such as labour bank, GI-DSS for local planning and implementation. The Kerala Agricultural University has also shown interest in the methods adopted by us in watershed interventions and they recognised the watershed area covered by IRTC as their field laboratory for Rural Agriculture Work Experience (RAWE) programme as part of their under graduate curriculum with training topics as,

1. Training in Grass-GIS and Q-GIS
2. Eco agriculture(micro irrigation)
3. Farmer's producer organization
4. Federation of VWCs
5.Preparation of Maintenance plan

c) Ultra High Density mango orchard acclimatization trials

The trial started during 2014 which is still maintaining the garden Mango Orchard properly. The technology adopted was to

address the issue of acclimatization, incorporating suitable modification to the universal package of practice for promoting ultra high density mango orchard at IRTC campus and Sreekrishnapuram VTB College campus. The R&D component is centered in observing incidences of pest attack, disease, measurement of growth rate, recording flowering characteristics, adopting plant protection measures and vertical growth control through scientific pruning at various stages of growth vis a vis weather and climatic variation.

d) Integrated pest management (PPM)

For this activity in paddy cultivation the pest prevalent Karikanni Padasekharam were identified by field survey conducted by farmers and IRTC expert. The control for this was identified and supplying the control pests was given to the bio-control lab of Kerala Agricultural University, Mannuthy. At present the farmers implemented the programme and the whole activity was monitored by IRTC.

4. Medicinal Plant Cultivation

Under the core support we developed Herbal soap using extracts of medicinal plants and formulation of ingredients of herbal soap were standardised.The R & D components involved in herbal soap making are the following:

1. Choice of good quality ingredients for soap making (raw materials)
2. Determination of the Saponification value of coconut oil.
3. Treatment of medicinal plants having desirable specification with coconut oil for extracting active ingredients.
4. Designing a low cost mould with PVC and FRP.
5. Making the herbal soap, following the processing technology as finalized through various trials.

Trial production of Herbal soaps using Dantapaala oil was carried out. Repeated trials were required to standardise the process before transfering to production units.

III. GRANT-IN-AID PROGRAMME OF KSCSTE

Funding Agency : Kerala State Council for Science ,Technology & Environment(KSCSTE)
Amount Sanctioned : 30 Lakhs

IRTC engaged in the Research and Development work under the grant in aid support of KSCSTE during the period on the following areas.

1. Pottery; Study of Microwavable Terracotta and Low Temperature Glazing

The technology for the production of microwavable earthenware pots has been developed by IRTC during the period.

As far as microwavable pot production is concerned the most important step is the choice of the raw material and its processing. The processing of raw material is the critical step as the raw material should not contain any metal impurities or metallic impurities after processing. For this, clay is blunged nicely and allowed to settle. The slury is taken out, sieved through a 350 mesh sieve so that the sieved fraction is less than 45 microns. Metallic impurities above 100 microns if present in the clay used for pot making can cause localised heating which can damage the pot.

Outreach mechanism

Training given in raw material processing to 5 pottery artisans and the pot making is done using potters' wheel. Even if the pot production is done in the potter colony they do not have the facility to check the microwave safety of the pots. Due to this reason the pots produced are brought to IRTC where it is tested for microwave safety before it is marketed. The main sales outlets are IRTC showroom and exhibitions in and outside Kerala. This was the main outreach mechanism during the last 3 years. Now IRTC is receiving orders from various centres. Essentially potters are the beneficiaries.

2. Soil Conservation: Study of Agriculture Pattern in Various Watersheds in Palakkad District

An agro ecology farming package was worked out based on the locally specific information extracted from the respective data base.The package includes

a) In situ organic manure cultivation in paddy fields in 100 Hectares of direct intervention area

b) Fortification of soil nitrogen content by planting green grass on bunts constructed for soil conservation in slopes in as approximate area of 3000 Hectares in direct intervention area and 5000 Hectares in project aided areas.

c) Surface water conservation measures were accomplished by reviving temple tanks, head ponds, irrigation ponds, recharging open wells, strengthening paddy field bunts, and abandoned quarry reservoirs and also protecting side bank by planting vettiver, pandanus, pinapple, bamboo and fodder grass.

d) Orchards plots were established in two centres including IRTC

e) In addition to this on approximate area of 5000 hectors were brought under mulching by using agri residues particularly coconut husk. For the purposes of overall soil quality improvement traditional practices like stone pitched bunts were introduced by mobilising skilled worker under the guidance of key informants from the tribal community.

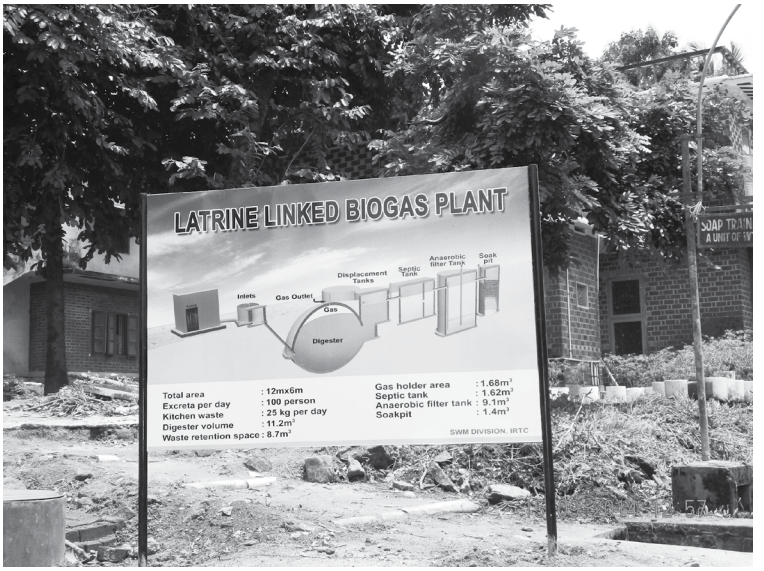
3. Impart Training in Livelihood Support Programme

IRTC conducted following livelyhood training programme for women and farmers during 2015-16.

Sl.No	Programme	No.of participants
1	Training on Mushroom cultivation (5 batches)	123
2	Pottery/Decopage	182
3	Soap and detergent Training	89
4	Ornamental Fish Training	28
5	Training on micro machanistion & pest control in Paddy	30
6	Training on vermicompost making	50

4. Charectorisation of Biogas from Toilet Linked Plant, Domestic Waste Plant and Biomass Gasifier

On a pilot basis IRTC had constructed a latrine linked bio-gas plant and Biomass gsifier in the campus. These were linked to the kitchen of IRTC to reduce the firewood use and improve the choolah efficiency. A monitoring machanism has been established to measure the volume of gas produced and also analysis had been conducted to asses the percentage composition of the producer gas and of the biogas component.



IV. CONSULTANCY & OTHER PROJECTS

1. Meenvallom 2 X 1500KW and Palakkuzhi 2 X 500 KW Power Projects

Consultant Engineer : Radhagopi.E
Technical Assistant : Muralidas.A

Meenvallom SHP

Maintenance coordination of Meenvallom comes to an end by September 2015.During the period from October 2014 to September 2015, monitoring of maintenance work at Meenvallom power house carried out successfully. An amount of Rs.3 Lakhs plus service charge was collected exclusively for this work from PSHC.

Palakkuzhy MHP

1. Topographical survey conducted in the Weir site, Pen stock route and Power house site.

2. Identified the required private land and forest land.

3. Coordination with Village offices of Kizhakkenchey 1 and 2 villages, Forest office Palakkuzhi, Anakkapara and Nenmmara Divisional Forest office and Taluk office , Alathur for getting ROR of these lands. The lands belongs to Mrs.Ponnu , Mr.A.V.Joseph and Mr. Mathews in Kizhakkenchery village II and Mrs. Lilly Kutty Baiju, Mrs.Rajani Ramachandran, Mrs.Rani Sathyan ,Mrs.Anitha ,Mr. Jacob and Mr. Thomas Vayalil in Kizhakkenchery village I.. It took almost 15 Months and numerous visits to these places to complete the process.

4. The land belongs to Mr.Thomas Niranamkuzhi has surveyed and identified. He has agreed PSHC to use this land of 4.35 Acre for water pondage free of cost.

5. Only after allotment of Forest land and acquisition of required private land, the formalities for Power Purchase Agreement with Kerala State Electricity Board and loan from NABARD or any other agency shall commence. After finalizing the PPA and Loan only, Design of Civil structures can start and tendering process can be initiated.

2. Theeramythri Project

Introduction

The Theeramythri Project is a livelihood promotion programme of the Department of Fisheries, Government of Kerala. Originated from the post tsunami livelihood programme implemented by the State Government along the Kerala coast line during 2006-2011, Theeramythri covers ten districts of the state including nine coastal districts and Kottayam. Society for Assistance to Fisher women (SAF) is the implementing agency for the project.

The objectives of Theeramythri project have been stipulated as given below.

To provide support to the activity groups formed under TEAP, TRP, and PMNRF for ensuring their growth and sustainability

To develop Theeramythri Management Councils (TMCs) into effective entities and through them, ensure growth and sustainability of activity groups

To provide support to the activity groups through TMCs including training, financial support, sales promotion, formation and strengthening of federations and marketing support.

IRTC has been a partner to the department of fisheries providing support on various fronts including the formation and capacity building of Theeramythri Management Councils (TMCs) and promotion of micro enterprises specialising in handmade toiletries. When the post tsunami rehabilitation projects implemented by various agencies under the Theeramythri umbrella in 2011, SAF brought in IRTC as consultants to the programme for providing technical support and for supporting in field level programme coordination.

IRTC, as consultants to the programme, was expected to provide continuous support to SAF in programme implementation during 2015-16. IRTC's intervention points, as per the terms of reference (ToR) in the Memorandum of Understanding for the support, have been the following.

To provide field level coordination, implementation, and monitoring support.

To conduct and assist in conducting training programmes.
Liaison with other departments and LSGs
To assist performance improvement of the project
To provide institutional and business development support to federations

The Project Team

IRTC's project team for the year 2015-16 included the following members.

Mathew. A.K	*: Project Coordinator*
Sajith. S	*: Project Consultant*
Saneeshkumar S	*: Manager Apex Federation (July - September)*
Jai Somanath	*: Regional Coordinator (North) (July - April 2016)*
John V Joseph	*: Manager, Category Federation*

Programme Planning and Implementation

The micro enterprises under the Theeramythri project has recorded a total sales turnover of above Rs 40 crore during 2015-16. IRTC has been instrumental in supporting SAF achieving this turnover.

SAF has a system of conducting monthly review meetings and preparation of action plans for the succeeding month. IRTC has been supporting SAF in drawing up the annual plan each year. Monthly plans are prepared within the framework of annual plans. IRTC supported SAF in conducting major programmes including SAFALAM 2016, the annual meeting of Theeramythri group members, and a large food festival in Kozhikode. Support was also provided to SAF in participating in the India International Trade Fair (IITF) 2016 where the Theeramythri stall run by the catering group in Kozhikode won the gold medal for the best stall.

Monitoring

IRTC supported SAF in preparing reporting formats for monthly review meetings. The practice till March was IRTC sending the forms to District Mission Coordinators (DMC) and consolidating the data in the filled up sheets. These data would be presented at the monthly review meetings for discussion. Subsequently the SAF team has taken over the process of conducting the review.

Another way in which IRTC supported SAF in the monitoring of the project was through regular and extensive field visits. Field

visits, as in previous years, were conducted for trouble-shooting, for providing hand holding support, and for assessing the overall performance from the sample units across categories.

Hand holding Support

IRTC provided continuous hand holding support to the apex federation, super markets, seafood centres, and community provision stores during the reporting year. Apex federation was supported through conducting regular meetings, facilitating governance by holding annual general body meetings and electing new leadership, providing support in managing accounts and audit, and in procurement and supply of garments.

IRTC provided support to supermarkets in a regular basis for running the stores; special support was provided in trouble-shooting. Seafood centres were supported through regular visits and monitoring. Two special training programme was organised for groups taking up community provision stores as a business option.

Support to Category Federations

IRTC provided support to Garments category federation in organising procurement of cloth materials and distribution to the groups. The turnover of the garments business during the year was Rs 45.26 lakh; there has been a fall in the business by around Rs 20 lakh. There has also been a reduction in the number of groups buying materials from the federation. During the year 2014-15, the turnover of garments federation had touched crossed Rs 65 lakh, the operations were managed by the team deputed by IRTC. This year, the manager of the federation was appointed by SAF.

IRTC supported SAF in procurement of dry fish and direct distribution to retail outlets. During the reporting year, fish was procured regularly from nine groups and distributed to 78 outlets including super markets and shops in Ernakulam.

With the rise in the price of coir fibre, the business operations of coir category federation reached a standstill; only one round of procurement of fibre and sale of coir were done during the year.

Category federations of supermarkets and catering groups were provided need based support during the year. IRTC team supported the catering federation in organising the food festival in Kozhikode and in their participation in IITF, Delhi. Food festival in Kozhikode recorded a total sales of Rs 5.4 lakh. IRTC has also been supporting the new seafood centre run by a Paniya tribal group in

Wayanad.

IRTC supported the category federations and apex federation in conducting their annual general body meetings and electing the committees for governance.

Training

IRTC has played the key role in developing the training module and training method for Opportunity Guidance (OG), Achievement Motivation Training (AMT) and Management Training (MT) for new groups. IRTC also provided support in conducting Opportunity Guidance training programmes in ten districts. Presentations were made at AMTs and MTs in eight districts.

Training of District Mission Coordinators (DMC) was conducted at IRTC with faculty members from the IRTC team as well as external faculty members. IRTC also took key role in conducting training programme for Nodal Officers and Assistant Nodal Officers. Special training programmes were conducted for the leaders of Theeramythri Management Councils (TMC) in all districts except Malappuram. It was designed and administered as a two-day intensive residential training programme in all districts. Two-day training programme was designed for the members of the newly formed groups taking up community provision stores as their business option. Training programmes were held in Kollam and Kozhikode districts.

Business Promotion and Marketing Support

IRTC has been providing support to SAF in business promotion and marketing support. Bulk procurement of garments from major centres of trade and supervision of their distribution to groups across districts. Direct distribution of dry fish has been another area of intervention. IRTC has been able to establish linkages for supply of materials to ICDS programme, with an annual turnover of Rs 4.5 crore through nine supermarkets. Linkage was established between Priyadarshini group at Payyoli for supplying 500 kg of rice flour to a home shop network at Kozhikode per month.

Revival of Defunct Groups

IRTC took the initiative to conduct Micro Enterprise Clinics in ten districts with the objective of reviving defunct units. A total of 134 units that had gone out of business or had been facing serious crisis were identified and group members were encouraged to attend the clinics over ten days. Attempts were made to discuss the problems and find a way to reopen or revamp the businesses. As a result of the initiative, 36 defunct groups have resumed functioning; more are likely to follow suit.

Conclusion

In order to sustain the Theeramythri programme, there is a need to strengthen the institutional systems of federations and apex federation and that of Theeramythri Management Councils. IRTC team needs to focus on this during the year 2016-17.

3. Major Activities of Pottery Division

Cluster Development

Coordinated and supervised by Dr.Lalithambika

a) Development of micro cluster Peravur Block Panchayath, Kannur Dist., Kerala

Funding Agency : NABARD, Regional Office, Trivandrum.
Date of Start : Jun-2013
Expected date of completion : December-2016
Sanctioned amount : Rs. 12 lakhs

This cluster development work was undertaken by Peravur Block Panchayath and IRTC, Mundur, Palakkad. The panchayath provided the infrastructure facilities and all the machineries (potter's wheel (8 nos.), pug mill (1 tonne/day- 1 no.) were installed and commissioned under the responsibility of IRTC. The cluster became a registered unit in January 2015. Its official inauguration was on 17th April, 2015. Because of the involvement and interest of the panchayath and hardwork of the artisans it has become a model unit.

Health awareness camp

IRTC, with the help of Peravur Block Panchayath arranged a health awareness camp for all members of potter community. M/s. Medicare Laboratory, Peravur gave the necessary help by way of service of their staff. Checking blood group, Blood sugar and Blood pressure assessment were also part of the camp activity along with general health care lectures. Infact, this opportunity was extended to all people of the panchayath. It was very interesting to note that 77 people from the panchayath took advantage of this camp. Mr. Vinu Alanchery, Former Block Panchayath standing committee chairman, Peravur gave the necessary supervision and guidance for the camp.

Managerial training camp

Managing the intricate requirements of an industrial unit is a challenging activity. This is true with traditional industry as well. In this regard potters are to be made aware of running a unit efficiently taking care of production and marketing. A managerial training program was arranged in November 2015. Sri. A. K.

Mathew, Management Specialist held discussions with the pottery artisans.

b) Potters' cluster development at Pudukode, Palakkad

Funding Agency : District Panchayath, Palakkad
Sanctioned amount : 4.2 lakhs

As indicated in annual report 2014-15, District Panchayath, Palakkad has initiated the work of setting up a potter cluster at Pudukode. The infrastructure was provided by the Panchayath. Machinery like pug mill (1 tonne/day) and potter's wheel (3 nos) where installed and commissioned under the supervision of IRTC. Apart from this two kilns were also commissioned by IRTC.

a) Updraught kiln (rectangle shaped)
b) Oval shaped kiln

During this year both kilns were test fired and breakage was found to be less than 5%.

c) Other Activities

i) Inauguration of "Buddha under the bodhi tree"

The mural work "Buddha under the bodhi tree" in terracotta was completed in February 2015. However its official inauguration was in May 2015. Sri. Anand Prakash, Railway Divisional Manager inaugurated the ceremony. The location where the mural art work in clay is displayed has been aptly named "Serenity Square" by the Southern Divisional office, Palakkad. Sri. Mohan A. Menon, Additional Divisional Railway Manager had taken keen interest in the program.

ii) IRTC - a Nodal agency of Handicrafts Marketing and Service Extension Centre, Trichur (Ministry of Textiles, Govt. of India)

Since 2006 IRTC works as a nodal agency of HMSEC helping the potter community. Nearly 450 potters got their artisan identity card through IRTC in 2006 during the current year new application were to be submitted for artisan identity card. Potter's had to join Aam Admi Bima Yojana for getting educational scholarship for children and other benefits like accident and death claim. IRTC extended this voluntary service without fail to the potter community.

g) Decoupage

Since last 13 years "Decoupage" unit is a self supporting unit. The current year's high light was that we got orders from prestigious institutions like ISRO, Trivandrum and BHEL, Bangalore for preparing leaf-shaped relief (for BHEL) was a challenging job during the current year this unit had a profit of Rs. 50,000/-.

Decorated pot
(order for 300 pieces received from ISRO, TVM)

Leaf
(order for 500 pieces received for Indian Cearmic Society meeting held at Banglore

h) Papers Presented/Awards received

1. "Low temperature glazing on terracotta bodies"
   Lalithambika. M, Mahesh. E, Sujith S.Nair and Yad Ram
   28th Kerala Science Congress, January-2016 at Calicut University, Malappuram (abstract encl.)

2. "Microwavable terracotta for cooking application"
   Lalithambika. M, Mahesh. E and Gopakumar. P
   Rural Innovator's Meet, February-2016 (abstract encl.)

i) Exhibitions Participated

Sl. No	Sponsor and Venue	Date	Items exhibited	Persons deputed
1	NABARD, Regional Office, Trivandrum Mahalakshmi Saras, Mumbai, Maharastra	18th to 26th Jan-2016	Decorative Pots, Terracotta Ornaments, Microwavable Terracotta Pots, Murals	1. Sujith S.Nair 2. Subesh Babu
2	NABARD, Regional Office, Trivandrum Surajkund, Faridabad, Haryana.	2nd to 8th Feb-2016	Decorative Pots, Terracotta Ornaments, Microwavable Terracotta Pots, Murals	1. Subesh Babu 2. Pradosh.E
3	NABARD, Regional Office, Trivandrum Gandhi Smaraka Nidhi Campus, Thycaud, Trivandrum (In connection with women's day)	4th to 8th March-2016	Decorative Pots, Terracotta Ornaments, Microwavable Terracotta Pots, Murals	1. Subesh Babu 2. Rema R

Mahalaxmi SARAS Exhibition at Mumbai

Surajkund Exhibition, Haryana

ഗ്രാമീണഗവേഷകസംഗമം

ആശയസമ്പുഷ്ടം

കളിമൺപാത്ര നിർമാണത്തിലെ പുത്തൻ സാധ്യത തേടി പരിശീലനം

കരവിരുതിന്റെയും ഉപജീവനത്തിന്റെയും പാഠവുമായി കളിമൺപാത്ര നിർമാണപരിശീലനം

V. INHOUSE ACTIVITY

1. Social Science Division

Division head : Dr.Rajesh.K
Research Associates : Prasanth.S

Social Science Division (SSD) of IRTC successfully completed its second year of functioning. It started functioning in February 2014. Major objective of the division is to provide a social science support system to all the activities of IRTC. It also intended to give more focus in the areas of local planning, democracy, education and sustainable developments. It is attempting to evolve a centre for providing orientation programmes on research methodology and social theory.

The division has successfully completed the major activity i.e. publishing the book on Kerala development perspective. The final correction of the book is completed and has hand over to the publisher. Sri T Gangadharan, and Dr Rajesh K are the editors. Apart from this, 5 other books has also hand over to the publisher:

1. *Barana nirvahanavum Kerala vikasanavum*: editor Prof.PK.Ravindran
2. *Keralatthinte arogya rangam*: editor Dr.AK.Jayasree
3. *Kerala vikasanavum prakrithi vibhava viniyogavum*: editor T.Gangadharan
4. *Keralatthile krishi, Vyavasaayam*: Dr.Georege Thomas
5. *Keralatthile unnatha vidyaabhyasa rangam*: editor Dr Rajan Varghese

Two more books on Kerala economy and marginalisation is completed and shall be hand overed to the publisher soon.

SSD also has provided support to the research scholars collective, an initiative of KSSP for organizing workshops in social science research methodology. The fourth workshop on research methodology was conducted in collaboration with the Department of Social Science, Indian Institute of Space Science and Technology Thiruvananthapuram. The fifth workshop was conducted in IRTC campus. Dr.Sarika Thiranagama, Assistant Professor, Standford Univerity, Dr.Mathew Varghese, Assistant Professor Maharajas college Ernakulam, Sri. Ashok R Chandran fecilitated these workshops respectively.

Social science division has provided its support in the formulation of different projects of IRTC. Division also provided support in the formation of proposal in climate change adaptation. Division is also providing academic guidance support to a DST funded women scientist programme undertaken by Dr.Uma, a study on water use behaviour of the households in Palakkad.

Social science division contributed in the revamping of the IRTC website and library, Proposal for the digitalization of IRTC's and KSSP's documents has already started.

The division has submitted proposals and Expression of Interest on various projects for IRTC.

We have submitted the proposal for youth development in attappadi to Rajeev Gandhi National Institute for Youth Development, a proposal for developing green technology center was submitted to Amballoor cooperative bank which is in the pipeline. SSD has fecilitated in the internship training for 7 students from Sree Sankaracharya University Kalady and Lady Sriram college New Delhi as well.

2. Web GIS Based Decision Support System
For Watershed Development of Various Grama Panchayaths in Kerala

1. Web GIS based decision support system for watershed development of various grama panchayaths in Kerala.

Project Co-ordinator : Prof . B.M.Musthafa
Team Members : M. Rajan

Watershed based development has gained wide acceptance and has become an important agenda for the local bodies in Kerala.The panchayaths have to prepare comprehensive development plan on watershed basis and to frame their annual plans /projects based on it.For this , data regarding the availavble resources are very much essential and more important and it should be quickly and easily available/retrievable. Panchayath resource maps(PRM) and watershed based development master plans were prepatred with an objective of local level database for ready reference.

But the panchayaths are not able to effectively utlise these maps and reports for their annula plans and implementation, its because of difficulty in retreiving the data from these big sized cloth mounted maps and voluminous report. So the Web GIS Plat form provide data to easily retrieve and aid to utlize for proper planning development activities. Moreover for increasing the usability of the PRM and watershed based master plan, a mechanism for easly display and easy updating data is essential. Here Geographical Information System (GIS) helps a lot in the storage , easy updation and speedy retrieval of spatial data.Thus GIS has became a very handy tool for spatial planning.

It is felt that , bringing the Resource Maps and Watershed based master plan, which has the plot level resource data and action plans for soil and water conservation , improving agriculture productivity, livelihood support programmes and creation of other durable assets , in to a GIS environemnt,will be extemely useful and helpful in a holistic local level planning ,development and also implementing various schemes like NREGS,HARIYALI,Westernghat development project(WGDP) etc.

It is in this context that a project for seting up a Web GIS based decision support system for local level developemnt planning, by bringing the PRM and Watershed based development master plan of Panchayaths in to GIS environment for better planning , implementing ,monitoring and management of various activities has been taken up.

a. IRTC has selected the Panchayaths of Kozhikode district where IRTC has already preapred the detailed ;District Perspective Plan for NREGS; with the paticipation of LSGI's.

b. As part of this project IRTC has set up a Web GIS Based Decision Support System(DSS) for data retrieve and access through any web browser which will be available soon at www.keralaresourcemaps.in.

c. This is a unique work ,first of its kind in the country , done entirely using free and open source GIS sotware like GRASS GIS, QGIS ,GDAL,Mapserver,PostgreSQL-Postgis and Cartoweb on a GNU/LINUX Debian platform.

d. This user friendly Web GIS site contains 14 resource data layers and 12 intervention layers for indivual panchayath. All these data can be updated through the "Edit Map/Data" functionality by the respective local bodies through authentication.

e. Presently IRTC has completed digitisation of 60 Grama panchayaths of Kozhikode district and 2 Grama Panchayaths of Palakkad district

This year we took Kunnumel Gramapanchayath as a pilot project for a better planning and implementation with the help of DST fund and included more layers additional with 26 layers. The list of additionally added layers are soil capability , soil irrigability, soil erosion ,soil depth,soil type,slope, agroforestry,water absorption trenches,earthern contour bund , stone pitched bund,land owners details and rocky ground.

2. Maps Preparation for Integrated Watershed Managment Programme (IWMP)

a. Kanjikuzhy Block Panchayath

There has prepared resouce maps and Intervention maps for Kanjikuzhy Block panchayath as part of IWMP Project. Maps like location map, watershed map, landuse map,soil map,geology map,relief map,slope map,administrative map,land capability map, drainage map,transportation map, drainage treatment map and area treatment map of Chalunkal, Elanjipuzha thodu,Mararikulam, valiyathodu, Thaneermukkam, Varanam watersheds as well as block wise maps were also prepared

b. Chittur Block Panchayath

Map preparation of previous year started project for IWMP in chittur block panchayath has continued this year too and prepared some intervention maps additionally.

Other activities

1. Maps like Relief, Slope, Land capability and irigability prepared for Kerala Grameena padanakendra , Trivandrum as part of IWMP Peerumedu block panchayath project.
2. Soil and water sample location maps of Alangad vengassery and Konakkal kadavu watersheds using GPS co-ordinates and pottery location map of palakkad district prepared for Kerala science congress' paper presentation.

Training Programme

Four days basic training programme on 'GIS' was conducted for students in six batches inorder to promote awareness of GIS through open source and develop the skill on GIS open source softwares like GRASS GIS and QGIS and Google earth and GPS tool (no of participants – 28)

3. Mushroom Spawn Production & Cultivation

To maintain a mushroom and spawn production center at IRTC, impart training in mushroom cultivation and to extend technical support to mushroom growers in and around Palakkad.

IRTC has established the mushroom production center in the year 1995. Since then this activity has been going on smoothly. Only Oyster Mushroom cultivation has been promoted here so far.

Mushroom production

The production of oyster mushroom per day has been 3 - 4 kg. This can be achieved by seedling around 15-20 beds per day.

Spawn Production

IRTC is preparing spawn from zea maize (sorghum vulgar) as the possibility

of contamination in this case is much less. Our production capacity is around 350 kg of Mushroom spawn every month.

Training programme

During the reporting year IRTC has conducted 3 training programs with a total participation of 53 persons.

Mushroom production		
SI. No	**Particulars**	**Quantity**
Proceed		
1	Total beds prepared	3211
2	Damaged due to contamination	567
3	Total production of mushroom	1268.800 kg
Sales		
4	Fresh mush-room(200 g pack)	6203
5	Dry mushroom(50 g pack)	2
6	Mushroom power(10 g pack)	2
7	Mushroom bed	117

4. Decoupage and Ornaments making Unit

Since last 12 years decoupage work is going on at IRTC. The work is being done on piece rate basis. The present outlets are the show room in the old campus, Mundur, 'Gramakala' which is in the Jubilee Campus of IRTC at Puduppariyaram Grama Panchayath, Palakkad and Gandhi Smaraka Nidhi, Thycaud, Trivandrum.

5. Ornamental Fish Unit

Team Members : Ramprasanth. M R (MSc.) & Chinnan

Objectives of the Unit

Ornamental & Edible fish breeding is skilled activity. It is essential that the entrepreneur should acquire knowledge and skill for mass production of quality fish seeds to manage an ornamental fish breeding unit successfully. This requires hands-on training to the entrepreneurs at a model ornamental fish breeding unit.

Role of the Unit

- Provide hands on training
- Provide extension to practicing breeders.
- Act as a resource centre for brood stock, feed etc.
- Act as technical support
- Project support unit

Infrastructure

The IRTC had five units. An administration block, aquaculture lab, fish display aquarium, indoor hatchery, outdoor rearing unit and sales outlet IRTC also provides conference hall, audio visual aids and lodging facilities during the training programmes.

Aquaculture lab

An aquaculture lab was installed to incorporate feed preparation unit, live feed culture, medicine preparation unit, Microscope etc. The feed preparation unit had mixi, feed ingredients, induction cooker, pelletizer, sieves and vessels. The live feed unit consist of phyto plankton culture unit, containers to culture artemia, micro worms, grindal worms and paramecium. The medicine preparation unit is equiped with chemicals and antibiotics, micro balance, glass vessels, measuring jars and pipettes. A microscope is also installed to identify fish diseases and live feed culture analysis.

Fish display aquarium

An existing aquarium session is rearranged with bio filtration system, plants and aquarium lamps. There were more than 25 species of fishes kept in the nine aquarium which were displayed for public. Fishes stocked in the aquariums were arranged accord-

ing the family of each species.

Besides the fishes there is a stock of water plants such as Hydrilla, Vallisneria, Amazon sword, Banana plant, Prime rose, Javamoss and caboomba

Indoor Hatchery

An indoor hatchery is set up with 42 aquariums with adequate water supply, airation and filter systems.

Brooders of Angel fish, Gold fish, Gouramis, Siamese fighter, Tiger barb, Rosy barb, Zebra danio, Malawi cichilds were available in this hatchery.

Out door rearing unit

An outdoor rearing unit consist of 22 small tank & 7 large cement tanks with a total 20,0000 litre capacity. The existing tanks were cleaned and reinforced to prevent leakages. Five Ferro cement tanks were coated with fibre. The water supply system consists of a reservoir tank, motor, overhead tanks and pipelines. The reservoir tank is having 15,000 litre capacity and over head tank have 1000 litre capacity.

The outdoor tanks are used to rear the young fishes, breeding the live bearers and bigger fishes like Oscar and Koi carp. The young ones produced from indoor hatchery are reared outdoor tanks. The live bearers such as guppy , molly, platy, sword tail are reared in cages to reproduce and the young ones are collected daily and reared in separate tanks. The bigger fishes such as Oscar and Koi carp are reared and bred in bigger tanks. The fishes are reared in the outdoor unit till attaining marketing size.

Sales outlet

A sales outlet is set up with two aquariums to hold the fishes for sale. The fishes produced from the IRTC are sold out through sales outlet.

Equipments in the unit

Mono-ocular compound and Dissection Microscope, Cell counting chamber, Weighing balance, Phytoplankton culture lab, Artemia hatchery, fish breeding cages and happas Mixi, induction cooker, Blower, Compressor, Bio sponge bio filters, Bucket filters, Aquarium heaters, Aquarium thermometers, Live feed culture con-

tainers, Fish packing covers and styro foam boxes, Oxygen Cylinder Glass sealant gun, Glass cutter, Dissection box, Containers for keeping chemicals and feed, Plastic rack and glass wares as conical flasks, pipettes, standard flask, and measuring cylinders.

Activities

IRTC had involved in a range of activities such as orientation classes, Exhibitions, Workshops, Training programmes for students, farmers and entrepreneurs have been conducted inside campus and outside as well.

Trainings conducted by IRTC

IRTC conducts two kind of training programmes. The basic training is for the beginner farmers . It provides basic knowledge on Ornamental fishes, Water quality parameters, Diseases, breeding, rearing, farm construction and economics. The advanced training is for farmers having more than 1 year experience. The participants wish to attend training on ornamental fish culture will be registered in the IRTC, Palakkad. When number of participants registered attains potential strength for conducting a training programme, training will be arranged. If needed advertisements will be given in local news papers regarding training programme. Generally 2 or 3 days program are arranged for training.

Training programmes

1. A five days advanced training programme on 09/11/2015 to 23/11/2015 with strength of 18participants in St Alberts college MSc students.
2. One day basic training program.
3. M.Tech Project on six month duration (2015 to 2016)

Other activities

Participation in Exhibitions/Seminars/Conference/Workshops.

1. Moving towards sustainable Fisheries an interactive Trainers Training workshop , join initiative CMFRI, NET FISH MPE DA¬(20/05/2015 to 22/05/2015).
2. Brain storming workshop KUFOS (Kerala university of Fisheries and Ocean studies).
   On recent advancements in Breeding & seed production Of native freshwater fishes Of India (02/02/2016, 04/02/2016)

6. Vermi Compost/Coir pith Compost

Vermicompost is an organic manure (biofertilizer) produced as the vermicast by the earthworm feeding on biological waste material; plant residues. This compost is an odourless, clean, organic material containing adequate quantities of N, P, K and several micronutrients essential for plant growth.

IRTC have recognized the importance of managing solid waste by vermicompost and promotes the vermicomposting techniques in the community as cost effective solution to the solid waste management.

The species of earthworm used in IRTC vermicompost unit is Eudrillus euginae. This species of thousand adult worms weigh approximately one kilogram and one kilogram of adult worm can convert around 5 Kg of waste per day. Vermicomposting can be practised in pits, bins or in pots and can harvest when it contains few-to-no scraps of uneaten food. Liquid coming from the unit is rich in micronutrients and can be applied as foliar spray in the ratio 1:10 diluted with water. Cow dung manure is used for the initial degradation of waste materials as these species are less tolerant to temperature.

Pot Compost

7. Environment Laboratory

IRTC has an accredited laboratory of Kerala State Pollution Control Board. It offers reliable testing of drinking and waste water, analysis of organic manure, soil, oil and soap samples. Analytical methods are based on well-established internationally recognised procedures (APHA) and as well as Indian standards (BIS, FCO, etc.) In addition to the routine analysis, the laboratory is also equipped for R & D works in the fields of solid waste management (Composting and Biogas technology). Research and development teams are challenged to deliver on specific methodologies and our team of experts include chemist, microbiologist and environmental scientist. During the reporting year, Environmental Laboratory has also undertaken the following R & D activities:

1. EM solution for Accelerated Aerobic Composting: A project funded by KSCSTE entitled "Studies on the effectiveness of EM preparations in accelerated aerobic composting to promote biowaste recycling in rural areas".
2. Physical and chemical characterisation of Ayaloor and Aanikode clay samples from Palakkad district were analysed and its X-ray analysis was done at CUSAT, Cochin with the purpose of checking its properties as well as its suitability for glazing at low temperature. The work was presented in 28th Kerala Science Congress held at Calicut University on 28th to 30th January 2015.

Lab members had visited NABL accredited Interfield Laboratories, Cochin for strengthening the technical and analytical skills as per the suggestion received from the chief scientist, KSPCB during lab inspection.

Many graduate and post graduate students are making use of our Laboratory facilities, especially in the fields of Chemistry, Microbiology and Environmental Science for their internship and project works.

IRTC has been working in the area of biogas technology for many years and during this year various studies have conducted using a variety of substrates to utilize these waste in a clean and efficient manner. The studies revealed that some of the waste materials such as banana pseudostem disposed after the harvesting of bananas, elephant dung from elephant sanctuaries, effluent from rubber processing industries, causing environmental issues can use the anaerobic digestion technology which is a promising strat-

egy and a best alternative to conventional energy source like firewood etc.

Biodiesel is quickly becoming one of the fastest growing alternative fuels in the world. Environmental Laboratory also provided room for production and purification of biodiesel from animal fat and micro algae cultures. Biodiesel characterisation and engine test results showed that this blended biodiesel can successfully used as an alternative to fuel source such as diesel.

During the year 2015-16, the following analysis were conducted in Environmental Laboratory:

Type of sample	Test parameters	Number of samples
Water	pH, Electrical conductivity, Total Dissolved solids, Alkalinity, Total Hardness, Calcium, Magnesium, Fluoride, Iron, Dissolved Oxygen(DO), Biological Oxygen Demand(BOD), Chemical Oxygen Demand(COD), Total coliforms and E.coli.	590
Soil	Texture, Moisture Content, pH, Electrical conductivity, Total Dissolved solids, Total Organic Carbon, Total Organic Matter, Nitrogen, Potassium, Phosphorus.	23
Soap	pH, Moisture Content, Excess alkali, Total Fatty Matter, Free Fatty Acid.	17
Compost	Moisture Content, Ash content, Total Volatile Matter, pH, Electrical conductivity, Total Dissolved solids, Total Organic Carbon, Total Organic Matter, Nitrogen, Potassium, Phosphorus, Lignin and Cellulose.	145

8. Microbiology Laboratory

Microbiology Laboratory is an integral unit of Environmental Laboratory. The Environmental Microbiology lab performs routine analysis of water samples from a variety of sources for bacterial contaminants and monitors its quality for human consumption. It provides early detection of health risks associated with infective disease spread through contaminated water systems.

IRTC has strengthened the microbiology laboratory with additional facilities for microbial culturing for incubation and thus it creates a contamination free environment for the isolation of pure strains.

During 2015-16, 590 water samples were analysed for the presence of coliforms and 38 samples for the presence of E.coli from various sources. Most of the samples contained a high MPN index than the permissible limit of the drinking water quality parameters. Biomass degrading microorganisms were isolated from cow dung and elephant dung and their efficiency was tested in kitchen waste degradation. Plant growth promoting rhizobacteria such as Pseudomonas fluorescence and Trichoderma sp. were also isolated, screened for their ability to solubilize inorganic phosphorus, production of plant growth hormones like Indole acetic acid and Gibberellic acid and tested their effect on seed germination and growth of pea plant. In addition, the laboratory also offers facility to monitor microbiological quality of milk.

New capabilities of lab include the introduction of test methods to detect the presence of microbial contaminants as well as beneficial microorganisms from various sources (food, soil etc.).

9. Energy and Electrical Division

Testing of different Luminaries

The E&E lab of IRTC is an approved test Lab for different luminaries like LED lamps, CFL, Induction street lights and electronic ballast. KSEB, LSG's and private manufactures are approaching IRTC to get the samples tested for its quality and performance.

During the reporting year we have tested 21 street light samples and 14 solar home lighting systems for 10 organisations.

Solar Power Generation

IRTC entered this sector as a service provider as part of our mandate to promote renewable energy. We developed the capability to design and install SPV system in houses and establishments. We have installed 11 SPV systems, totaling about 13.75KW installed capacity including the IRTC campus with a capacity of 2 KW. As a part of the project we visited the sites installed and observed the working of the system. We found that all of them were working satisfactorily.

IRTC could not get enrolled in the panel authorized by ANERT to install Roof Top Systems under the 10000 units scheme of the Government of Kerala. The prerequisites regarding previous experience, turn over etc. could not be met by an institution like IRTC. So we have decided to concentrate on smaller capacity systems as stand-by or back up power units, including converting existing inverters into SPV back up systems.

10. Library and Documentation Centre

IRTC library has a vast collection of books, reports, journals and other documents related to various topics. It has a collection of 10000 books, 4500 reports and 2000 bound volumes on various areas like Social Work, Rural Development, Energy, Women issues, Environment, Agriculture, Education,
Economics, Health, Decentralization, Science and Engineering, Waste management, Land and water management and Environmental pollution.

We subscribe around sixty journals related to above topics. Reports of student projects are also kept in the library. Vikasana Rekha (Development Reports) of various panchayatiraj institutions in Kerala is another valuable asset of this library.

IRTC library is also the documentation centre of Kerala Sastrasahitya Parishad. Most of the KSSP publications are available here. Documentation of newspaper clippings is done subject wise as well as on the basis of contemporary issues, which are available for reference.

We have the bound volumes of many of the important journals like Current Science, Economics & Political weekly, Down To

Earth, New Scientist, Sucheemukhi, Unasylva, KSSP publications like Sastragathy, Sastrakeralam, Eureka etc. General public and Research scholars from various institutions visit our library for reference purposes.

11. Computer and Communication Centre

IRTC has a computer and communication centre basically for providing support to its research and training activities. It is also providing opportunity for youngsters for getting experience in DTP and documentation activities. The computer center is providing DTP support for various activities carried out by IRTC. The huge volumes of Watershed based development project reports of various Gramapanchayaths and Block Pachayaths are prepared in this centre.

The entire computer and communication system is working in Linux platform, except for a couple of machines in Accounts Department where we have to maintain the old accounting softwares and data in windows platform. The computer centre is maintaining a website as well

12. Student Projects 2015-16

Coordinator : Prof.BM.Musthafa

Graduate and post graduate students from Kerala and Tamilnadu opted IRTC for their project work. They undertake projects of diversified nature and subjects. List of the projects carried out by students during 2015-16 are apended.

Sl. No	Name of Students	College	Title of the Project
1	Manju.S	Jawaharlal College of Engineering & Technology, Lakkidi, Palakkad	A Novel Transformerless Adaptatble Voltage, Quadrupler DC-DC Converter with Low Switch Voltage Stess
2	Ooshma.K		
3	Roopa.R		
4	Geethu.M.P		
5	Mathew Devasia	Marian College, Kuttikkanam, Peerumede, Idukki	Nil
6	Mugeesh.M		
7	Muhammadali Jauhar	E.M.E.A.College of Arts and Science Kondotty, Malappuram	Characterisation and Determination of effiencincy of Local Tricoderma Isolate as bio fertilizer
8	Raseena.P.K	Majlis Arts and Sceince College, Puramannur, Valancheri	Charecterisation of Plant Growth Promotions Traits of Pseudomonas Clouresemce on tea Plant
9	Shahina.K	Majlis Arts and Sceince College, Puramannur, Valancheri	Biodegradation of kitchen waste using elephant dung bacilli
10	Anandu.S.Renjes	University of Kerala Department of Sociology	Field data Scondary data toclimate change project Preparation
11	Rakhi Rajagopal.R	University of Kerala Department of Sociology	Field data Scondary data toclimate change project Preparation
12	Navami.S	MSW, Department of Sociology University of Kerala Kariavattom Campus	Field data Collection, Secondary data related to climate change project Proposal
13	Suja.P	Sri Vyasa Nss College Vyasa GIRI. P.O, Wadakkanchey, Thrissur	An Institute Method for Defluoridation using Magnesium Tons

14	Aiswary Sukumaran	Sri Vyasa Nss College Vyasa GIRI. P.O, Wadakkanchey, Thrissur	Determination of Various Nutrients and Heavy metal (cadmium) in different compost samples
15	Akhila.P	Sri Vyasa Nss College Vyasa GIRI. P.O, Wadakkanchey, Thrissur	Study of Pesticidalefla & Phytochemical analysis of leasf Extract of Vitex Negundo & Spheranthus Indicus
16	Santhosh.K	M.E.S. Kalladi College P.O Mannarkad, College	Study of Performacne of Solar Panel- Temperature Versus Current
17	Sajeev.K	M.E.S. Kalladi College P.O Mannarkad, College	Thermal Conductivity Measurement of Heat Loses in Heat Insultating Thermocole Boxes
18	Sooryaprabha.C.M	M.P.M.M.S.N.Trust College, Shoranur	Study to find out Efficient Light Sources
19	Zevituolie	Rajagiri College of Social Sceinces, Kalamasseri, Kochi, Kerala	Livelihood Project of Watershed Development Programme
20	Chindu Mansa.P.K	Rajagiri College of Social Sceinces, Kalamasseri, Kochi, Kerala	Livelihood Project of Watershed Development Programme
21	Mark Haokip	Rajagiri College of Social Sceinces, Kalamasseri, Kochi, Kerala	Livelihood Project of Watershed Development Programme
22	Fathima.C.S	Govt.College, Palakkad	Study the working and Performace and Induction lamp and comparing it with other lamps
23	Prila Kumaran.V	Nehru College of Engineering and Resarch Centre, Thrissur	Performance Analysis of Biomas Production Using Different Biodegradable materials
24	Anaswara.M.G	Nehru College of Engineering and Resarch Centre, Thrissur	Design and Fabrication of a low cost Biogas digester using poultry waste and pig manure
25	Malini.T	Nehru College of Engineering and Resarch Centre, Thrissur	Evaluation of Biogas Production potential from Elephant Dung
26	Hisham.U	C.M.S Collge of Sceince and Commerce, Coimbatore	A Baseline Assessment of Water Quality of Different Water Sources in IRTC Campus

27	Anila Kumaran Vadakkepurakkel	Nehru College of Engineering and Resarch Centre, Thrissur	Performance Analysis of Biomas Production Using Different Biodegradable materials
28	Shibu.P.Abraham	Amritha Vishwa Vidhyapeetham Amritapus Campus, Kollam	Review on Inegraly and Outlook of Rural & Urban Inhabitan in the midth of sexual catogory towards sustainable utilisation of the water resources-A case study of Palakkad District.
29	Akhil Sadhasivan	Amritha Vishwa Vidhyapeetham Amritapus Campus, Kollam	Review on Inegraly and Outlook of Rural & Urban Inhabitan in the midth of sexual catogory towards sustainable utilisation of the water resources-A case study of Palakkad District.
30	Bipin.P	Amritha Vishwa Vidhyapeetham Amritapus Campus, Kollam	Review on Inegraly and outlook of Rural & Urban inhabitans in the midth of sexual catogory towards sustainable utilisation of the water resources-A case study of Palakkad District.
31	Rajimol.K.R	School of Gandian Thought and Development Studies, MG University, Kottayam	Impact of NABARD Holistic Waterhsed Devleopment Project at Pullandasseri Watershed, Palakkad District
32	Meera Anni Mathew	School of Gandian Thought and Development Studies, MG University, Kottayam	Impact of NABARD Holistic Waterhsed Devleopment Project at Pullandasseri Watershed, Palakkad District
33	Riyas.K.K	Tata Institute of Social Sciencets, S.R. Sankaran Block, AMP APARD Campus, Rajendra Nagar, Hydrabad	Impact Assessement Survey of Kazhanichungam Potters Cluster
34	Rugmini Devi.M	Tata Institute of Social Sciencets, S.R. Sankaran Block, AMP APARD Campus, Rajendra Nagar, Hydrabad	Attappadi: A case study of Paloor and Cheerakadavu Harmlets

35	Elizabeth Edison	Tata Institute of Social Sciencets, S.R. Sankaran Block, AMP APARD Campus, Rajendra Nagar, Hydrabad	Attappadi: A case study of Paloor and Cheerakadavu Harmlets
36	Tushara Ravindranath	Tata Institute of Social Sciencets, S.R. Sankaran Block, AMP APARD Campus, Rajendra Nagar, Hydrabad	Attappadi: A case study of Paloor and Cheerakadavu Harmlets
37	Haseev,P.P	Tata Institute of Social Sciencets, S.R. Sankaran Block, AMP APARD Campus, Rajendra Nagar, Hydrabad	Attappadi: A case study of Paloor and Cheerakadavu Harmlets
38	Amrutha.V	IRTC, Munudr, Palakkad	Determination of Adulterants in Milk, Estimation of CO2 in Biogas Comparative Study of Biological Parameters of Fruit Juices, Live Feed Production for fish
39	Varsha.G	Nehru Arts and Science College, Coimbatore	Determination of Adulterants in Milk, Estimation of CO2 in Biogas Comparative Study of Biological Parameters of Fruit Juices, Live Feed Production for fish
40	Shansire Bhanu.M.S	IRTC, Munudr, Palakkad	Determination of Adulterants in Milk, Estimation of CO2 in Biogas Comparative Study of Biological Parameters of Fruit Juices, Live Feed Production for fish
41	Sree Saila.N.P	IRTC, Munudr, Palakkad	Determination of Adulterants in Milk, Estimation of CO2 in Biogas Comparative Study of Biological Parameters of Fruit Juices, Live Feed Production for fish
42	Neethu.S.R	IRTC, Munudr, Palakkad	Determination of Adulterants in Milk, Estimation of CO2 in Biogas Comparative Study of Biological Parameters of Fruit Juices, Live Feed Production for fish

43	Keerthy.M.R	Nehru Arts and Science College, Coimbatore	Bacteriological Estimation of Water by Multiple Tube Fermination Test
44	Megha.A	Nehru Arts and Science College, Coimbatore	Bacteriological Estimation of Water by Multiple Tube Fermination Test
45	Aruna	Nehru Arts and Science College, Coimbatore	Bacteriological Estimation of Water by Multiple Tube Fermination Test
46	Muhammed Anshad.D	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
47	Mohammed Ansel	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
48	Evin Paul	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
49	Dilshad.K	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
50	Bibin.N.D	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
51	Shakkir.M	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
52	Mohammed Shamal.A.L	N.S.S.College of Engineering, Palakkad	Fabrication and Testing of Solar Airmesh Drier
53	Sunil.J.Sam	M.E.S.College, Erumely, Kottayam	Study of the structure and Functions of the Agency and Techiniques for implementing the Participatory Project
54	Rohini.M.Nair	M.E.S.College, Erumely, Kottayam	Study of the structure and Functions of the Agency and Techiniques for implementing the Participatory Project
55	Neethu Vijayan	M.E.S. College, Erumely, Kottayam	Study of the structure and Functions of the Agency and Techiniques for implementing the Participatory Project

56	Durgamol.S	M.E.S. College, Erumely, Kottayam	Study of the structure and Functions of the Agency and Techiniques for implementing the Participatory Project
57	Mohammed Yassob.N	M.E.S. College, Erumely, Kottayam	Study of the structure and Functions of the Agency and Techiniques for implementing the Participatory Project
58	Alida Baby	Christ University, Bangalore	Effect of Pseudomonas in Seed germination and Plant growth
59	Anitha Joseph	Christ University, Bangalore	Effect of Pseudomonas in Seed germination and Plant growth
60	Anakha Sadhanandan	Sree Sankara College,Kalady, Ernakulam	Determination of cellulolytic activity of bacteria isolated from cow dung
61	Sreepriya Nathan.V	Sree Sankara College,Kalady, Ernakulam	A Comparitive study of phosphate solubiliing activity of micro organism isolated from soil
62	Seemol Devassy	Sree Sankara College,Kalady, Ernakulam	A Comparitive study of phosphate solubiliing activity of micro organism isolated from soil
63	Jismol John	Sree Sankara College,Kalady, Ernakulam	Determination of cellulolytic activity of bacteria isolated from cow dung
64	Roopka.S	S.N.Colldge, Aalathur	Evaluation of Latrine Linked Biogas plant Reduced Carbon foot print from Residence
65	Shibin.M	S.N.Colldge, Aalathur	Evaluation of Latrine Linked Biogas plant Reduced Carbon foot print from Residence
66	Greeshma.G	S.N.Colldge, Aalathur	Evaluation of Latrine Linked Biogas plant Reduced Carbon foot print from Residence
67	Lincy.S	S.N.Colldge, Aalathur	Evaluation of Latrine Linked Biogas plant Reduced Carbon root print from Residence

68	Sisira.P.S	S.N.Colldge, Aalathur	A Study on Solid waste Management in Chittur municipality, Palakkad
69	Sjiji.S		
70	Meenu.K		
71	Minu.R		
72	Apsara.P		
73	Keerthy Varghese	Govt. Engineering College, Sreekrishnapuram, Palakkad	Electronic and communication Engineering Induction lamp for household purposes
74	Keerthy Prasannan		
75	Ajay Kumar.D		
76	Muhammed Abdyl Sathira.C		

VI. OTHER ACTIVITIES

1. National Science Day Celebration

27th Feb., 2016

Every year since 1987, National Science Day is celebrated on February 28. On this day in 1928, Sir. CV.Raman discovered the famous "Raman Effect", about scattering of light. He was awarded Nobel Prize in physics for this discovery in 1930.

The National Science day 2016 was observed in IRTC on 27.2.2016. A fair gathering of schools students and teachers were present at IRTC campus for the function. In the program keynote address was given by Prof.B.M.Musthafa, Research Co-ordinator IRTC. In the speech he remembered the contribution of CV.Raman towards the world of science. He emphasized on the point that, in the history of science, we often find that the study of some natural phenomenon has been the starting point in the development of a new branch of knowledge. CV Raman spent his life in studying light and its properties. And he ended up in a great discovery.

The seminar inaugural address was delivered by Prof. K. Padmakumar, Associate Professor in Chemistry Govt. Victoria College, Palakkad. In his presentation he focused on the cause of Carbon Emission and how to reduce it. He also mentioned about the possibilities that we can make in our daily life to reduce the carbon emission. There is an ethical responsibility for each and every human being on earth to keep it in the best condition and hand over the earth to the future generations. Main content of the class was about zero carbon housing, zero energy building, carbon foot print, green house gases, emissions from households, industries, agriculture and entertainment sectors.

Sixty persons including teachers and students attended the seminar. As part of the programme an exhibition cum demonstration was also conducted displaying Energy efficient appliances.

2. National Technology Day Celebration

Seminar and Exhibition on

"Micro irrigation Technology for food production with minimum water usage and making water available for more production"

Date : 14.05.2015
Venue : IRTC, Mundur

The seminar commenced by 9.30 am with the registration of participants and welcome speech by Sri.V.G.Gopinathan, Registrar of IRTC. The inaugural session was presided over by Sri.Jose Mathews, RAC member, IRTC. In the welcome speech Sri V.G.Gopinathan described the need of appropriate micro irrigation technologies for food production. He welcomed all the resource persons and participants and requested them to practice the new technologies for irrigation and to save water for additional food production.

The seminar was formerly inaugurated by Smt.K.V.Usha, Project Director, ATMA, Palakkad. She stressed the need of additional food production using the available water efficiently. Her experience in this field was shared with the participants and wished all success to the programme.

The technical session was chaired by Prof:B.M.Musthafa, Research cordinator, IRTC. The first technical session was handled by Dr.Abdul Hakkim, Associate Professor ,KCAET, Tavanur. This session was opened with an introduction of soil characteristics and its water holding capacity. A detailed presentation was done by him on the available water in the soil and the absorption characteristics of the plants. He introduced different methods (sprinkler, drip, fertigation etc) of micro irrigation systems with audio- visual support. The importance of proper maintenance and selection of equipments were also described by him. The participants raised many questions and he cleared all doubts with suitable examples. This session was very informative to the participants.

In the second technical session Sri.Pradeep, a consultant in micro irrigation, introduced various equipments required for micro irrigation and fertigation. He displayed many equipments developed for drip and springler irrigation, fertigation, fogging etc.

In the third session Mr.A.Nagaraj (Progressive farmer from Chittur) shared his experience in micro irrigation. He has installed different kinds of micro irrigation systems in 25 acres of land owned by

his family. He irrigates coconuts, tapioca, banana, nutmeg, and vegetables with micro irrigation methods. He told that another plot is maintained by him with conventional method of irrigation. In his opinion that the micro irrigation is more suitable for crops , less expensive, less labour intensive and less time consuming. His presentation helped to generate confidence among participants towards micro irrigation methods.

In the interactive session participants shared their experience with resource persons and more clarity was acquired by them. The interactive session was lead by Sri.I.A.Chakko, Rtd DD of Agri Dept. Out of 38 participants 14 nos were women. The seminar helped to communicate the massage of saving water for additional food production using appropriate micro irrigation system. The seminar came to an end by 5.00pm with the vote of thanks by Prof.B.M.Musthafa, research cordinator.

3. National Seminar on

Energy Conservation and Renewable Energy

on 25.04.2016

By : *Integrated Rural Technology Centre (IRTC) Mundur, Palakkad.*

Sponsored by : *Energy Management Centre (EMC) Thiruvananthapuram.*

VENUE: JUBLEE CAMPUS, IRTC

In an effort to popularise energy conservation and renewable energy sources, IRTC conducted a national seminar on "Energy Conservation and Renewable Energy" with the financial support of Energy Management Centre [EMC]. In inaugural session was chaired by Prof. P.K.Ravindran, Fellow IRTC. Shri.VG. Gopinathan, Registrar, IRTC welcomed the gathering.

Summary of sessions

Session 1 inaugural speech

The seminar was inaugurated by sri. K.M. Dharesan Unnitthan, Director of Energy Management Centre Thiruvananthapuram. In his inaugural talk he emphasised on the need for energy conservation and the various sources of alternative sustainable energy. The Indian energy scenario and specifically the energy loss and possible ways for conserving it were the nucleus of the speech. One unit of energy saved at the consumer end avoids nearly 3 times of capacity augmentation due to PLF, Auxiliary consumption and T and D losses. Therefore to achieve this initiation should be done on reduce demand for energy and reduce demand to growth rate, provide competitive advantage, provide economic benefit and provide cheaper and better quality power to consumers. He also presented the energy consumption scenario in various sectors like industries, hotel, hospital, airport, as well as domestic settings.

For sustainable development one major thrust should be given on energy efficiency and energy conservation. Since in all sectors exist conservation opportunities. To achieve the goal we need inter-

ested consumers, interested financiers, and efficient mechanisms etc for the proper conservation which would benefit the whole national energy utility.

The second session was about ENERGY AUDIT- base line for energy conservation. Energy audit methodology and its logic was the nucleus of the talk. It illustrated- plan and organize energy audit, discussion with all divisional heads and persons concerned in any firm, primary data gathering, energy utility assessment followed by survey and monitoring of the energy systems, conducting trials for selected equipment and analysis of its energy use. These steps result in making an audit report which would help the firm to be cost benefit and energy efficient. Awareness has to be done to make the users aware of the energy utilization and conserving it. He also illustrated the instruments used in measuring energy like power quality analyser, thermal imaging, flue gas analysis, smart energy meters, combustion analyser, fuel efficiency meters, speed, and temperature pressure, measuring devices to find out energy leak etc.

Session 2 Sri. B V Suresh Babu: ccredited energy auditor, Auto-Tractions, Thiruvananthapuram

"Waste to Energy" was the subject of the talk. In his presentation he mainly focused on how to convert waste to wealth by re-using, recovering and recycling. There are mainly two methods to convert the degradable part of waste as thermal and non thermal. Thermal methods are incineration, pyrolysis, gasification etc. But these methods have its own disadvantages too. Mainly low energy output, high moisture content, fly ash and hazardous emissions. The better way is biological; such as composting, windrow composting or production of biogas. He also explained IRTC

Session 3 Prof. P K Ravindran RAC member IRTC. Retired professor of Chemistry

interventions in implementing such biogas plants and its implementation process too. IRTC`s intervention in waste management has made considerable ways domestic waste management with an energy alternative is widely accepted by thousands all over Kerala. He stressed at the significance in replicating such models.

The final session was about the various possibilities of non conventional energy resources. The session was led by Mr. Jayachandran. India ranked sixth in the world in total energy consumption. But comparing to other nations we are highly dependent on fossil fuels and natural resources for energy sources. This will lead to a serious threat in the near future. The search for renewable sources for energy is too low. Renewable energy sources are sources that are continuously replenished by natural processes. Possibilities of non conventional source of energy and renewable source of energy like solar energy; solar cookers, Solar cell, Solar water pumps, possibilities of wind energy, biomass and bio energy, bio fuels, ocean energy, tidal energy, geo thermal energy, small hydropower energy etc were the major areas of the debate. The demand of energy is growing owing to the development. Due to the problems associated with the development of conventional sources of energy the focus is now being shifted to renewable energy sources. India has potential of renewable energy source in abundance, which if developed properly can augment the growing demand of the energy. There is a need to make full use of renewable energy technologies to harness the untapped potential in cost effective manner and fulfil the energy demand.

Session 4 Sri. Jayachandran. Engineer ANERT

Students from engineering colleges [M.Tech] and staff members participated in the programme. A total of 81 participants, containing students and enthusiastic public and IRTC scientific staff especially the technical and scientific staff also participated in the programme.

4. World Wetland Day Celebration 2016

One day Seminar

(Supported by Kerala State Council for Science ,Technology and Environment)

A one day seminar on the subject was conducted at Integrated Rural Technology Centre (IRTC) on 9.2.2016. Sixty participants, including farmers, students, watershed committee members and agricultural labourers from different parts of Palakkad district attended the seminar. Dr. K .K. Seethalakshmi, Emeritus Scientist, KSCSTE Project, IRTC, presided the inaugural session. Prof. B.M. Musthafa, Research coordinator, IRTC gave a brief introduction on the subject during his welcome address. Dr. N.K. Sasidharan Pillai, Director, IRTC in his inaugural address, presented the importance and urgency of protecting the wetlands for the survival of the society. Despite the prevalence of so many laws to protect the wetlands, they are not at all enforced seriously. The provisions in the Finance bill of 2015 to regularise all the alterations of wetlands done till 2008 has made the protective laws a mockery, because mapping of wetlands as on 2008 not exist. The real values of natural resources are grossly under valued. There is massive market value addition to a filled up wetland as site for township and other commercial usage. This is the main temptation for the distruction of wet- lands .

The key note address was done by Dr.M.C.Narayanankutty, Director, Regional Agricultural Research station, Pattambi. His presentation was based on following points.

1. Kerala has around 1,60,590 Hectares of Wetlands and ranks first in India, which can enrich ground water and secure water availability in wells during off-season.
2. Wetlands regulate the flow of water during monsoon and reduces flooding and soil erosion.
3. Wetlands are destructed for industrial, commercial and housing proposes which results in shrinkage of paddy fields and food production.
4. Destruction of wetlands adversely affect ground water recharge and deteriorates water quality. It also causes rise of atmospheric temperature.
5. The shrinkage of wetlands seriously affects the livelihood of weaker sections and women.

Dr. K. K. Seethalakshmi, Emeritus Scientist (KSCSTE), IRTC Mundur gave a presentation on "Means of reducing sedimentation in Wetlands – Planting of grasses with reference to sustainable livelihood". Sedimentation due to soil erosion is one of the major factors affecting the wetlands. Reproduction of many native aquatic flora and fauna is affected and this results in their gradual disappearance. Sedimentation can be reduced by controlling soil erosion with planting of grasses like Vetiver (Chrysopogon zizanoides), Lemon grass (Cymbopogon citranus), Fodder grasses (Pennisetum sps.) etc. For long duration, different species of bamboos can be used. The role of these plant groups in sustainable livelihood of rural poor was emphasized by projecting their multifarious uses.

Sri.G.Mukundan Agricultural Officer, Puduppariyaram, expressed his anxiety in the land filling and alienation of wetlands including paddy fields for other purposes in the Panchayath area. Sri. I.A.Chakko, Retd. Director of Agriculture, presented the alternative methods to keep Wetland clean and Toxin Free. The views he shared with the participants are mainly based on the cultivation practises in wetlands with out heavy doze of chemical fertilizers and pesticides. Many on going models practicing by farmers were narrated by him. Sri.K.Gopalan, a practicing organic farmer, expressed the following opinion from the farmer's point of view. Lack of adequate return is the main reason why farmers do not cultivate the fields and keep it follow. He told that a higher return from agriculture field should be ensured. Farmer Producer Companies, organic farming practices, collective marketing etc could help the farmers to fetch higher returns. Products which will fetch a higher price, value addition of the products and direct selling it to the end consumer also will help in this direction. Sri. Jose Mathew, Sri .Rajan and Sri. M.K.Krishnan expressed the grievances faced by farmers.

During field visit, Sri. T Chenthamarakshan, member of Nakshathra SHG (group of farmers conducting organic farming in 22 acres), explained the interventions done by them in Valeyakkad, during the last second crop season. It is the first time that they adopted mechanised transplanting using single variety seed in the whole Padasekharam. He explained the benefits they got by using pseudomonas and Trico-cards for controlling pest and diseases. The participants conducted a good interaction with the farmers.

The seminar and exposure visits concluded by 5.30 pm.

World Wetland Day Celebration 2016- Awareness classes

Ten awareness classes were conducted at different locations in Pattanchery Grama panchayath. The importance of preservation of wetlands in Kerala, with special reference to Pattanchery Gramapanchayath, was seriously discussed in the camps. Farmers, students and agricultural labourers were attended. The location, no of participants, date and names of resource persons are furnished below.

Sl No	Date	Place	No. of Participants	Resource persons
1	02.02.2016	Nandiyod Pullimanchalla	47	Prof.B.M.Musthafa
2	04.02.2016	Vembra Asmar Kovil	20	Prof.B.M.Musthafa
3	07.02.2016	Nandiyode Kavarathodu	21	Leonard Thekkegramam
4	08.02.2016	Nandiyode Kizhakkekad	17	Sasikumar.K Kannimari
5	08.02.2016	Nandiyode Tharakan challa	18	Premdas.M Thekkegramam
6	10.02.2016	Vilayodi	19	Balan master Thekkegramam
7	10.02.2016	Parakkalam	31	Prasad. Navukkode
8	12.02.2016	Dhafedarchalla	17	Rajamani. Nalleppilli
9	12.02.2016	Kuttikkalchalla	21	Leonard Thekkegramam
10	14.02.2016	Chemmnamthode	24	Sasikumar Kannimari

5. Training Programs Organized by IRTC

Sl.No	Activity	No.of participants
1	KILA training (27 batches)	1040
2	NABARD-WSP/PFA/Review Meeting/RSO/GM Visit	360
3	Mushroom Training (5 batches)	123
4	Pottery/Decopage	182
5	Soap Training	89
6	Ornamental Fish Training	28
7	SWM/Biogas filtering	60
8	Out side-Karshakasangam, Mahila Association, NGO union, KSTA, DIET	754
9	GIS training (5 batches)	28
10	CREST (2 batches)	145
11	KSSP	985
12	Visit (student from various schools, collages, and institutions)	672

Exhibition 2015-16		
Sl.	**Venue**	**Date**
1	Kerala Science Congress, Calicut University Campus	28-01-2016 to 30-01-2016
2	TECHXPO-2016; Malabar Polytechnic Campus, Cherpulassery	04-01-2016 to 06-01-2016
3	Nehru Science Innovation and Technology Expo; Nehru College of Engineering and Research Centre, Lakkidi, Palakkad	04-02-2016 to 05-02-2016
4	SARAS Fair; organised by NABARD, Mumbai	16-01-2016 to 28-01-2016
5	INVENTO-2016; Sreekrishnapuram Engineering College	20-02-2016 to 21-02-2016
6	Rural Innovators Meeting; Calicut Jubilee Hall	09-03-2016 to 11-03-2016

VII. APPENDIX

1. Executive Committee Members 2015-16			
Sl. No.	**Name**	**Profession**	**Responsibility**
1	Dr. K.P.Aravindan Aman, Krishnamenon Road Panniyamkara,Calicut-673003	President of KSSP	EC Chairman
2	Dr.N.K.Sasidharan Pillai, Alummoottil,Kalnjoor , Pathanamthitta-68964	Director of IRTC	Director
3	Sr.V.G.Gopinathan Niranjana, F.C.I,Bi-lane-4, West Chalakkudy, Thrissur-680307	Registrar, IRTC	Registrar
4	P.Muraleedharan Kerala Forest Dept. Officer's quarters	General Secretary of KSSP	EC Member
5	Sri.P.K.Narayanan Pathiyilmana, Mezhathoor (PO),Thrithala, Palakkad-675534	Treasurer of KSSP & Commercial Tax Inspector,Govt. of Kerala	EC Member
6	Prof.P.K.Ravindran Soorya,Njanrakkal, Ernakulam-682505	Dy .Director College of Education Govt. of Kerala (Rtd)	EC Member
7	Dr.P.M.Sidharthan, Padinharath madam, Vilayancode p.o, Pilathara,Kannur-670504	Electronics engineer (Rtd.), ISRO, India	EC Member
8	Dr.Kavumbai Balakrishnan Swathi, Kalpamandiram lane, Sankarayyar Road, Poothol,Thrissur-680004	College Professor (Retd)	EC Member
9	Dr.M.P.Parameswaran Arunima,Madangarli mana, Poothol,Thrissur-680004	Nuclear Scientist & Social Activist	EC Member

10	Dr.C.Ramakrishnan, Palat house, Pilicode, Kasargode-671353	Principal (Retd.) Higher Secondary school	EC Member
11	Dr.Geroge Thomas Professor,Agronomy Department College of Horticulture, Vellanikkara, Thrissur	Professor, Agronomy Department College of Horticulture,	EC Member
12	Prof.V.R.Raghunandanan Priyadarshini Nagar, Paravattani(PO), Thrissur-680005	Professor (Retd.) Kerala Agriculture University (Rtd)	EC Member
13	Dr. T.K.Aanandi, Kapilavastu, Kalpa Mandiram Lane, Chennakakl, Thenjippalam, Calicut University, Malappuram	Research Associate Calicut University	EC Member
14	Dr.M.Lalithambika IRTC, Mundur, palakkad	Senior Project Fellow,IRTC	ECmember
15	Sri.Ajithkumar C.T, ANERT, Thrissur	Project Engineer, ANERT, Thrissur	EC Member
16	Sri Sudheer.K.S Parishad Bhavan ,Palakkad	District Secretary KSSP Palakkad	EC Member
17	Prof.B.M.Musthafa Research Co-ordinator IRTC	Rtd.Professor ,Department of Physics,Govt. College Chittur	Ex-officio
18	Dr. K. Rajesh IRTC, Mundur	Head, Social Science Division, IRTC	EC Member
19	Representative of KSCSTE, Thiruvananathapuram		Ex-officio
20	Representative of DST, New Delhi		Ex-officio

2. Research Advisory Committee (RAC) 2015-16

1. Dr.R.V.G.Menon, Chairman, Research Advisory Committee.
2. Dr.Ajaykumar Varma, Scientist, Centre for Earth Science Studies, Trivandrum
3. Dr.Ajith Prabhu, Joint Director, KSCSTE,Thiruvananthapuram
4. Dr.T.K.Anandi, Fellow, IRTC
5. Dr.K.P.Aravindan, Professor (Rtd..) Medical College, Calicut
6. Dr.C.Bhaskaran, Professor(Retd.), College of Agriculture, Vellayani.
7. Dr. Rajesh.K, Fellow IRTC
8. Dr. C.Ramakrishnan, Principal(Retd.) GHSS, Kasaragode
9. Sri.Dileep Kumar, Engineer Pollution Control Board, Govt. of Kerala.
10. Dr.K.N.Ganesh, Dept.of History(Retd.), Calicut University
11. Dr.E.J.James, Former V.C., Karunya Institute of Technology, Coimbatore
12. Dr.K.K.Janardhanan, Amala Institute of Cancer Research, Thrissur
13. Shri.O.M.Sankaran, Former Principal, DIET, Kannur
14. Prof.T.P.Kunhikannan, Professor of Economics (Retd.) Govt. College, Kozhikkode
15. Dr.C.T.S.Nair, Former Vice Chairman, KSCSTE., Govt of Kerala
16. Sri.S.B.K.Menon, Former Chief Engineer, KSEB
17. Sri.M.N.P.Namboothiri, Formerly Chief Engineer, Neyveli Lignite Corporation,Tamil Nadu
18. Dr.M.P.Parameswaran, Fellow, IRTC
19. Prof.M.K.Prasad, Fellow, IRTC, Former PVC, Calicut University
20. Dr.Prasada Varma Thampan, Asst.Professor, NSS Engineering College, Palakkad.
21. Dr.Rani Joseph, Professor of Polymer Science and Rubber Technology, CUSAT
22. Dr.S.Rajasekharan, Scientist (Retd.,) JNTBGRI., TVM
23. Dr.C.Renuka, Sr.Scientist, KFRI, Thrissur
24. Prof.V.R.Raghunandanan, Associate Professor (Retd) Veterinary College, KAU, Thrissur
25. Dr.K.G.K.Warrier, Scientist (Emeritus), NIIST., TVM.
26. Sri.R.Radhakrishan, Former President, KSSP
27. Prof.K.Sreedharan, Professor of Physics(Retd.), Devagiri College,Kozhikkode.
28. Dr.Padmakumar.K.G, Director (Retd.)Rice Research Institute, Mankombu, Alappuzha
29. Dr.P.S.Geethakutty, Prof. Agri.University, Mannuthy, Thrissur
30. Dr.N.Shaji, Professor of Physics, Maharaja's College, Ernakulam
31. Dr.P.Muhammed Shafi, (Retd.) Prof. Calicut University

32. Sri. I.A.Chacko, Deputy Director(Retd.), Agriculture Deprtment.
33. Dr.Kannan, Professor, (Retd.)Chemistry,Govt. Victoria College Palakkad
34. Dr.Babu, Professor(Retd.), Botany
35. Sri.Unnikrishnan, Biogas Expert
36. Sri. N.Jagajeevan, Livelihood Expert
37. Sri.Y.Kalyanakrishnan, NRM Expert
38. Sri.Jose Mathew, Practicing Agriculturist
39. Sri.P.S.Jhon, Agronomist
40. Dr.Anna Mercy, Professor (Retd.), KUFOS, Kerala
41. Dr.Sudhi, Veterinary Department,Kerala
42. Dr. K.K.Seethalakshmi, Retd. Scientist, KFRI (Chief Consultant,National Bamboo Mission)
43. Dr.Raju.V.K,Director of Research(Retd.), KAU, Thrissur
44. Dr.Uma.J.Vinod ,Research Fellow,I RTC
45. Prof. B.M.Musthafa,Research Co-ordinator, IRTC(Convenor, RAC)

3. General Body 2016-17

Balakrishnan.A.M, Alanthatta, Cheruvathur, Valiyapoyil , Kasargode– 671353
Gopakumar.P, Manaveeya, Neelama, Nemom, Ookko-de, Thiruvananthapuram – 695020
Meera Bhai.T.K, Thanal, Mathilakam, Thrissur – 680685
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Manoharan.K, Karanthodi, Cherpulassery, Palakkad – 679503
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Dr.Aravindan.K.P, Amal, Panniyamkara, Calicut 673003
Riswan.C, Vail, Mullanpara, Manjeri, Malappuram 646121
Anandi.T.K, 5/256-A, Kapilavasthu, Chjenakkal, Thenhipalam, Calicut University, Malappuram 673635
Balakrishnan Kavumbai, Swathi, Kalpa Mandiram Lane, Sankarayyar Road, Thrissur 68004
Joji Koottummel, Kumarakom North, Kottayam 686566
Santhakumari.N, Indubhm Kunnamangalam, Chelavur P.O, Kozhikode 673571
Ramesh.B, Ujjayani, Peyad, Trivandrum-695573
Muraleedharan.P, R-13, Forest Quarters, Paravattani, Trissur 680005
Gopinathan.K, Parishad Bhavan, Kannur 670002

Divakaran.P.V, Kodolipram Pattannoor, Kannur 670595
Sreesankar.T.P, Sreenilayam, Thonnallur, Mevallur, Kottayam 686609
Sreenivasan.V.V, Bharatheeya Nagar, Karinkalkuzhi, Kolacheri, Kannur 670601
Abdul Hameed.E, Harmayam, Peringalam, Kunnamagalam, Kozhikode 673571
Narayanan.P.K, Pathiyilmana, Trithala, Mezhathur, Palakkad 679534
Sabu.K.V, Kanav, Kannayankav, Kadukkamkunnu, Palakkad 678005
Dr.K.Rajesh, Kottarath, Kandassankadavu, Thrissur 680613
Raviprakash.K.P, Nikunjam, Mathilakom P.O, Trissur 680685
Jiju.P.Alex, LE NID Stay Green Apartments, Near Trust Industries, Fram Road, Kozhukkulli, Thrissur 680752
Sasidharan Pilla.N.K, Aloommoottil, Kalanhoor, Pathanamthitta – 689694
Vijayakumar.K 67, Pratheeksha, TPRA 21, Palkulangara P.O, Thiruvananthapuram – 24
Nishamol.M, C/o. Abdul Majeed, Puthenpurackal, Judge Muku, Thrikkakkara P.O, Cochin - 23
Leckha.J, Thekkumkatti, Lakkattoor P.O, Kottayam 686502

Balagopal.K, Poorna Chandra, Moolamkavu P.O, Sulthan Bathery, Wayanand 673592
Balan.K, Bamsuri, Parapram P.O, 670741
Harikumaran Thampi, Thiruvathira, Near Jyothi Ars and Sports Club, Meppadam, Pathirakavu P.O, 673019
Midhun, Souparnika, Kuttikkattu P.O, Kozhikode 673008
Muralledharan.A.P, Theeram, Karumallur P.O, Ernakulam 681511
Muhammed Aslam, Udyanam, Thamallakkal P.O, Harippad 690548
Sanu.P.S, Cherooda, Kadappa, Mainagapally, 690519
Sethunath.R, Ushas, Pattathalil, Thuravur South P.O, Alappuzha 688532
District Secretaries
Rameshan, Kundena, Madikkkai, Echikkanam P.O, Kasargode 671531
Divakaran.M, Deepam, Kulappuram, Vilayamkode P.O, Kannur 670501
Jiji.P.Varghese, Pulikkottil, Pidavannur P.O, Malappuram 679574
Sudheer.K.S, Ardram, Karimba P.O, Palakkad 678597
K.K.Bhaskaran, Kunnumpurath House, Kayanad, Ooramana P.O, 686663
Raveendran.P.D, Puliyammanal, Purappuzha P.O, Thodupuzha, Idukki 685583
Krishnakumar.B, Cheruthittayil, Nangyarkulangara.P.O, Harippad, Alappuzha 690513
Bijo Paul.K, Kunnathu, Kumbalery P.O, Meengadi 673591
Premanand.A.P, Meppalangad, Cherooppa 673661
Sanoj K.S, Keecheril, Murkkottuthara P.O, Erumely
Laltithan.T, Puthakkulath, Kannanuman, Koonamkara P.O, Ranni-Perunad 689711
Kaladharan.G, Ambika Sadhanam, Kizhakkekkara, Kottarakkar 691506
Shibu Aruyvippuram, Santhan House, SN. Nagar, Aruvippuram P.O 695126

4. Infrastructural Dtails	
Jubilee Campus	
a. Land Office campus Residential campus Agricultural land and commercial Plot near NH 213 (Jubilee campus)	Total of 4 ha
Old Campus	
b. Building Office Block Civil Engineering block Chemistry and Environmental laboratory Clays and Ceramic laboratory Electronics laboratory Soap production unit Mushroom production unit Mechanical workshop Aquaculture laboratory Library, Seminar hall, Auditorium Apparel Tailoring Centre Green Technology Centre Vermi and Windrow Composting unit Accommodation facility for 100 persons (Staff quarters, Dormitory and Ladies quarters)	Total built in area 4620m2
c. Other facilities Rainwater harvesting tanks (2 Nos)	Total capacity of 1.65 lakhs lit
d. Bore well	1 no.

SOCIETY FOR INTEGRATED RURAL TECHNOLOGY CENTRE
Mundur, Palakkad - 678 592

BALANCE SHEET AS AT 31ST MARCH, 2016

LIABILITIES	SCH.	Amount As On		ASSETS	SCH.	Amount As On	
		31.03.2016	31.03.2015			31.03.2016	31.03.2015
Capital Fund	1	2,67,53,460.29	2,34,99,312.35	Fixed Assets	4	2,60,46,831.73	2,70,40,797.30
Project Fund Balances	2	3,13,45,228.48	2,98,35,724.58	Capital Work in Progress	5	96,97,573.00	85,39,722.00
Current Liabilities & Provisions	3	1,39,00,339.75	1,62,52,423.75	Advances from General Fund	6	2,25,65,516.25	2,51,92,501.25
				Current Assets, Loans & Advances	7	1,36,89,107.54	88,14,440.13
		7,19,99,028.52	6,95,87,460.68			7,19,99,028.52	6,95,87,460.68

Schedule Forming Part of Balance Sheet as at 31-03-2015		
SCHEDULE : 1		
Capital Fund		
	31-03-2016	**31-03-2015**
Capital Fund		
Opening balance	2,34,99,312.35	2,29,00,278.06
Add/Less: Excess of Income over Expenditure	32,54,147.94	5,99,034.29
Total	**2,67,53,460.29**	**2,34,99,312.35**
SCHEDULE : 2		
Project Fund Balances		
Biogas Plant - Airport, Karipur	-	9,960.00
Biogas Plant - Balussery	-	1,05,146.00
Biogas Plant - Idukki	2,65,119.00	4,683.00
Biogasplant - Irinjalakuda	1,77,160.00	1,77,160.00
Biogas Plant - Kadakkal (Taluk Hospital)	85,389.00	85,389.00
Biogasplant - Koyilandy Municipality	1,93,771.00	1,65,599.00
Biogas Plant - Kunnamangalam	-	1,36,226.00
Biogasplant - Malabar Cancer Centre ,Thalassery	68,933.00	1,31,250.00
Biogas Plant - Manjeri (Gen.Hospital)	2,56,245.00	6,06,245.00
Biogasplant - Mavoor GP	43,995.00	11,300.00
Biogas Plant - Medical College,Kozhikode	4,80,059.00	8,72,174.00
Biogas Plant - Metric Hostel Kannur	-	2,56,280.00
Biogas Plant - MILMA, Kalpetta	2,73,848.00	1,43,359.00
Biogasplant - MILMA , Kannur	2,22,823.00	2,29,875.00
Biogas Plant - MILMA, Kozhikode	89,721.00	1,39,721.00
Biogas Plant - MILMA, Palakkad	1,20,186.43	1,20,186.43
Biogas Plant - Payyannur	52,882.00	52,882.00
Biogas Plant - Sreekandapuram Kannur	-	20,932.00
Biogasplant - Tribal Hostel ,Kozhikode	-	-
Biogas Plant - Unnikulam GP	-	61,089.00
Biogasplant - Dist Panchayath ,Palakkad (Schools)	-	3,67,982.00

Biogasplant - Dist Panchayath ,Kozhikode(Schools)	4,92,000.00	-
Biogasplant - Dist Panchayath ,Thrissur(Schools)	10,27,272.00	-
Biogasplant - Govt. College Kottayam	-	-
Biogasplant - NAULS Kalamasseri	-	
Biogasplant - Govt Eng College ,Sreekrishnapuram	-	6,136.00
Biogasplant - Thalikulam GP	-	1,54,324.00
Biogas Plant - Govt College ,Chittur	-	79,101.00
Biogasplant - Polytechnic ,Shornur	-	1,34,636.00
Biogasplant - Post Metric Hostel ,Nurani	-	77,192.00
RWH Tank - Hemambika Nagar	-	11,744.00
Biogasplant - ITDP ,Attappady	1,72,011.00	1,72,011.00
Biogas Plant - Kodingi(Cherumukku)	1,22,489.00	84,144.00
Biogasplant - MRS -Mukkali ,Attappady	1,54,010.00	1,54,010.00
Biogasplant - Old Age Home , Kozhikode	63,770.00	1,65,403.00
Biogas Plant - Old Age Home, Thavanur	-	6,97,000.00
Biogasplant - Ponnani Block Panchayath	-	88,264.00
Biogasplant - Premetric Hostel-Azhikode	1,15,231.00	1,15,231.00
Biogas Plant - Alappuzha Municipality-II	-	5,74,155.00
Biogas Plant - Cost Ford, Trivandrum	-	2,31,775.00
Biogasplant - Dst Panchayath ,Kozhikode (Schools)	-	4,92,000.00
Biogas Plant - Dt.Panch.Thrissur(Schools)	-	10,27,272.00
Biogasplant - Edappal GP	-	1,66,388.00
Biogasplant - Erimayur GP	-	-
Biogas Plant - Kallissery GP	-	1,64,250.00
Biogasplant - Kadapuram GP	71,000.00	-
Biogasplant - Kaladi GP	72,080.00	-
Biogas Plant - Kollam Corporation Stage II	8,68,890.00	-
Biogas Plant - KTDC Ltd,Kozhikode	-	-
Biogasplant - Kuthanur GP	-	24,400.00
Biogas Plant - Nilamel GP	540.00	540.00
Biogasplant - Ottasekharamangalam GP	2,70,000.00	-
Biogasplant - Sreekrishnapuram GP	-	-

Biogas Plant - Thalakkad GP	-	72,000.00
Biogas Plant - Tholoor GP	-	19,840.00
Biogas Plant - Panachikkad GP	1,53,136.00	
Biogas Plant - Punnapra GP	3,900.00	
Biogasplant - Urangattiri GP	45,450.00	-
Biogas Plant - Vakathanam GP	2,700.00	-
Biogas Plant - Vakathanam GP	-	2,700.00
Biogas Plant - Veliyam GP	3,19,500.00	5,120.00
Biogasplant - Vellinezhi GP	1,08,000.00	1,08,000.00
Bio Park Raj Bhavan ,TVM	1,42,191.00	1,80,191.00
Chittur - Tattamangalam Municipality - SWM Uni	-	55,500.00
DST - SoRF (DISHA) - Uma.J.Vinod	-	2,12,600.00
IHSDP Project - Palakkad	48,849.00	48,849.00
ILCS - Kanhangad	16,816.00	89,885.00
IWMP - Chittur	2,09,817.00	82,033.00
IWMP - Kanjikuzhy	-	2,92,256.00
IWMP -Thuneri Block	-	24,681.00
KSCSTE -Emeritus Scientist Scheme -Dr. Seethalakshmi	4,64,600.00	4,48,700.00
Meenvallom Small Hydel Project	33,87,483.15	30,87,483.15
NABARD - Akathethara (FIP Cheekuzhy)	-	14,708.00
NABARD - Alangad/Vengasseri(FIP)	-	-
NABARD - Chazhiyattiri (FIP)	-	7,03,076.00
NABARD - Konnakkalkadavu (FIP)	-	6,71,360.00
NABARD - Nagalassery (FIP)	-	5,59,716.00
NABARD - Poothanakkayam(FIP)	-	5,32,763.00
Nabard - Pottery Cluster, Peravur	1,71,376.00	-
NABARD - Training & DEmo(Alan/Venga)	-	38,655.00
NABARD - Training & Demo(Anchammile)	-	73,140.00
NABARD - Training & Demo(Chazhiyattiri)	-	49,760.00
NABARD - Training & Demo(Cherambi)	-	21,994.00
NABARD - Training & Demo(Moon.Mada)	-	75,650.00
NABARD - Training & Demo(Nadupathy)	-	83,800.00
NABARD - Training & Demo(Nagalassery)	-	7,074.00
NABARD - Training & Demo(Poothanak-kayam)	-	44,520.00

NABARD - Training & Demo(Pullundas-sery)	-	75,353.00
NABARD - Training & Demo(Tho.Padam)	-	75,810.00
NABARD - WADI TDF Project Measurers)	68,28,507.00	-
NABARD - WADI TDF Proj.(Manag.Fund)	10,31,723.40	-
Nirmithikendra,TVM - Training of Biogas Unit	6,25,000.00	-
Pipe Compost-Mannar GP(Alappuzha)	-	2,12,400.00
Ring Compost - Kallikad GP	22,805.00	11,620.00
Ring Compost - Swaraj Bhavan, Tvm	-	-
Ring Compost - Thirupuram GP	8,200.00	8,200.00
RWH Tank-Elappully (Govt.APHSS)	57,000.00	-
RWH Tank - Marakkara	-	-
RWH Tank - SC Colony,Nediyirup	-	18,760.00
Skill Devpt .Centre - Pattenchery GP	-	11,527.00
Slaughter House - Kunnamkulam	7,62,664.00	8,39,350.00
Smokeless Choolas - Forest Officer ,Nem-mara	2,16,000.00	2,16,000.00
Smokeless Choolas- Silent Valley Divn. Mannarkad	-	1,24,737.00
SWM - Areacode	-	5,00,000.00
SWM - Nemmara	-	60,682.00
SWM - Palakkad	-	9,09,097.50
SWM - Parali	2,29,925.00	2,29,925.00
SWM - Puthanvelikkara	87,580.00	87,580.00
SWM - Vaniyamkulam	2,36,532.00	2,36,532.00
Theeramythri Project 2014-15	9,16,175.00	1,41,019.00
Theeramythri Project 2015-16	22,619.00	-
Vadakara Development Plan	-	1,99,319.00
WGDP - Sreekrishnapuram	40,395.00	40,911.00
WGDP - Thrithala Block	6,84,107.00	6,36,839.00
WSP - Akathethara (Cheekkuzhy)	-	25,000.00
WSP - Kondotty Block	-	2,86,001.00
WSP - NREGS Masterplan Preparation	87,42,753.50	89,65,593.50
Total	**3,13,45,228.48**	**2,98,35,724.58**

SCHEDULE : 3		
Current Liabilities & Provisions		
Current Liabilities		
Avanashiappan Industries ,CBE	-	47,572.00
Energy Efficient Klin (DST) Payable	43,316.00	-
Fabrica Charge Capital Assets Payable PPC	2,34,650.00	-
PNB Loan A/c No:431800NG00000188	-	64,363.00
Hariharan. K.C	1,284.00	1,284.00
Salary/Honorarium Payable - Sub Sch I	15,82,000.00	11,47,000.00
ICDS - Kottayi GP	8,250.00	8,250.00
K.V.S.Kartha, Kollam	30,000.00	30,000.00
Audit Fee Payable	-	60,000.00
M/s. TERI	2,206.50	2,206.50
NABARD Integr.Tribal Dev.Programe(IT-DP)	10,00,000.00	-
Outstanding Payments	13,231.00	13,231.00
Staff welfare fund	18,217.25	30,657.25
PPC Waste Management Unit	1,09,42,910.00	1,37,17,118.00
Provision for Repairs-Fisheries Unit	-	1,40,140.00
TDS Payable 2014-15	-	3,034.00
TDS Payable 2015-16	1,750.00	-
Service Tax Payable 2013-14	-	4,17,485.00
Service Tax Payable 2014-15	-	5,70,083.00
Service Tax Payable 2015-16	22,525.00	-
Total	**1,39,00,339.75**	**1,62,52,423.75**
SCHEDULE : 5		
Capital Work in Progress		
Capital WIP - Hostel Block (Material)	12,32,573.00	1,41,297.00
Capital W.I.P - Hostel Block(NH) I	73,30,000.00	73,30,000.00
Capital W.I.P - Hostel Block(NH) II	10,00,000.00	10,00,000.00
Capital W.I.P - NH Campus	1,35,000.00	-
Capital W.I.P - Building Main Campus	-	68,425.00
Total	**96,97,573.00**	**85,39,722.00**

SCHEDULE : 6		
Advance from General Fund		
Biogas Plant - Airport, Karipur	4,00,617.00	-
Biogas Plant - Ayurveda College,Kottakkal	-	92,090.00
Biogas Plant -Alanallur	-	46,750.00
Biogas Plant - Manjeri Municipality	14,259.00	14,259.00
Biogas Plant- Malabar Cancer Center Thalassery	-	-
Biogas Plant - Pazhayannur	67,631.00	67,631.00
Biogas Plant - SC/ST Colony Kannur	-	2,10,180.00
Biogas Plant - Thamarassery	-	2,247.00
Biogas Plant - Akathethara	48,750.00	48,750.00
Biogas Plant -Central Excise Cochin	46,170.00	-
Biogas Plant -Govt. Eng. College Sreekrishnapuram	16,510.00	
Smokeless choola - Akathethara	47,377.00	
Biogas Plant - Govt.College, Kottayam	-	25,000.00
Biogas Plant - Cheruthazham GP	93,235.00	93,235.00
IHSDP - Chittur	1,97,400.00	1,97,400.00
Biogas Plant - Koduvally	1,61,300.00	1,61,300.00
Biogasplant - Pattuvom	23,250.00	23,250.00
Biogas Plant - Alappuzha Municipality (Suchitwa)	15,75,135.00	32,69,002.00
Biogas Plant - Alappuzha Municipality II	6,88,647.00	
Biogas Plant - Areacode GP	1,98,000.00	54,000.00
Biogas Plant - Ayiloor GP	13,500.00	2,80,000.00
Biogasplant - Chadayamangalam GP	34,500.00	34,500.00
Biogas Plant - Chavakkad Municipaliy	3,000.00	3,000.00
Biogasplant - Chengamanad GP	2,17,980.00	2,52,000.00
Biogas Plant - Cherunniyur GP	-	8,500.00
Biogas Plant - Cherupuzha GP	-	2,53,800.00
Biogas Plant - Chowannur GP	-	68,565.00
Biogas Plant - Cost Trivandrum	83,066.00	-
Biogas Plant - Govt College Chittur	16,750.00	-
Biogasplant - Edappal GP	1,84,612.00	-

Biogasplant - Elayavoor GP	1,45,530.00	4,06,530.00
Biogasplant - Eriyad Grama Panchayath	-	1,04,000.00
Biogasplant - Irikkoor GP	-	1,51,200.00
Biogasplant - GPLAC,Poothadi GP,Wayand	41,600.00	-
Biogasplant - Kadampazhipuram	92,925.00	92,925.00
Biogas Plant - Nedumangad Municipality	-	10,000.00
Biogas Plant - Kadampazhipuram-II	85,575.00	1,31,250.00
Biogasplant - Kaiparambu GP	3,000.00	2,47,500.00
Biogasplant - Sreekrishnapuram GP	-	2,10,000.00
Biogasplant - Kaiparambu GP	-	-
Biogasplant - Kaladi GP	-	3,38,000.00
Biogas Plant - Kalluvathukkal GP	-	250.00
Biogas Plant - Kallyassery GP	4,35,000.00	-
Biogasplant - Kannadi GP	67,500.00	1,01,800.00
Biogas Plant - Karavaloor GP	-	2,60,400.00
Biogas Plant - Kattakada GP	84,000.00	-
Biogasplant - Kavanur GP	-	-
Biogasplant - Keezhuparambu GP	10,11,300.00	13,19,100.00
Biogasplant - KIIDC , TVM	24,800.00	4,75,000.00
Biogas Plant - Kizhekkenchery GP	-	1,33,400.00
Biogasplant - Kollam Corporation	16,38,870.00	22,23,780.00
Biogasplant - Kollayil GP	6,000.00	-
Biogas Plant - Koodali GP	3,61,300.00	3,61,300.00
Biogas Plant - Koratty GP	61,000.00	-
Biogas Plant - Kottopadam GP	-	-
Biogas Plant - Koovappady GP	-	2,36,300.00
Biogas Plant - Kozhikode Corporation	5,78,850.00	3,23,850.00
Biogas Plant - Kudappanakunnu,karshika karmasena	17,33,520.00	-
Biogas Plant - KTDC Ltd,Kozhikode	-	-
Biogasplant - Kundara GP ,Kollam	66,000.00	66,000.00
Biogas Plant - Kunnathukal GP	12,240.00	12,240.00
Biogas Plant - Kunnothuparamba GP	1,08,000.00	-
Biogas Plant - Kuthanur GP	600.00	-
Biogas Plant - Kuttiattor GP	23,340.00	-

Biogas Plant - Kuzhalmannam GP	3,43,200.00	-
Biogasplant - Lakkidi Perur (Jalanidhi)	4,13,445.00	61,675.00
Biogasplant - Lakkidi Perur GP	6,000.00	
Biogasplant - Manakkad GP	10,500.00	1,52,900.00
Biogasplant - Manamboor GP	47,600.00	-
Biogasplant - Mangalam GP	87,500.00	67,500.00
Biogas Plant - Mankara GP	30,000.00	-
Biogasplant - Meenachil GP	900.00	900.00
Biogasplant - Meenangadi GP	82,185.00	-
Biogasplant - Mulanthuruthy GP	1,78,500.00	21,000.00
Biogasplant - Nallepilly GP	-	3,000.00
Biogasplant - Nedumangad Municipality GP	10,000.00	-
Biogasplant - Ottoor GP	58,800.00	-
Biogasplant - Padiyur GP	1,20,600.00	-
Biogasplant - Pattazhy vadakkekara GP	1,21,500.00	-
Biogasplant-Perinthalmanna Municipality	-	1,80,000.00
Biogasplant - Perinad GP	1,49,500.00	2,17,500.00
Biogas Plant - Perunad GP	-	-
Biogasplant /pipe Compost - Akathethara GP	-	36,000.00
Biogasplant - Pookkottukavvu GP	1,26,000.00	1,26,000.00
Biogas Plant - Puduppariyaram GP	-	6,70,124.00
Biogasplant - Pulincunno GP	44,100.00	-
Biogasplant - Punnapra GP	-	4,25,165.00
Biogasplant - Puthuppally GP	36,000.00	1,07,330.00
Biogasplant - Social Justice, TVM	50,000.00	-
Biogasplant - Sreekrishnapuram GP	2,10,000.00	-
Biogas Plant -Tarur GP	6,64,500.00	6,76,470.00
Biogasplant - Thodiyoor GP	83,225.00	80,750.00
Biogasplant - Thrithala GP	9,000.00	90,000.00
Biogasplant - Tirur Municipality	-	30,960.00
Biogasplant - Trikkaderi GP	-	-
Biogasplant - Velloore GP	29,700.00	1,40,200.00
Dept.of Drink.Water Supply - Dry Compost Latrine	5,22,826.00	4,38,340.00

Digitisation of GIS Data - Kozhikode GP	-	-
DST - Campaign for Sec.Sch. Children(Chemistry)	-	-
DST - Core Support	23,56,348.00	17,74,559.00
DST - SORF (DISHA)-Uma J vinod	59,041.00	-
DST-Vigyan Pras.Proj(Wonderful World of Chemistry)	48,325.00	48,325.00
EMC - Eurekha Workshop I	-	-
EMC - Eurekha Workshop II	26,495.00	-
Hariyali - Malampuzha	-	2,29,896.00
ISON Workshop - DST (NCSTC)	50,045.00	50,045.00
IWMP -Kanjikuzhy	3,10,870.00	-
IWMP -Pampakuda	1,31,249.00	1,15,550.00
Jalanidhi - RWH Tanks Idukki	2,50,000.00	-
KSCSTE Core Support 2014-15	-	2,065.00
KSCSTE Core Support 2015-16	3,549.00	-
KSCSTE - Devlop Rotomoulded Biogas Plant	6,097.00	1,98,847.00
KSCSTE - EMO Preparation (Biowaste Recycling)	1,95,160.00	2,943.00
KSCSTE - National Science Day 2016	17,143.00	-
KSCSTE - Technology Day 2015	22,010.00	
KVIC - RISC Project	-	-
MPEDA Exhibition - Rural Innovators Meet		-
MPEDA - Fish Breeding Unit (OFTC)	-	76,592.00
MPEDA Training - 2013-14 (Basic Trai. Prog)		-
NABARD - Akathethara	1,56,173.00	1,56,173.00
NABARD - Akathethara (FSR Ambattuthodu)	55,553.00	55,553.00
NABARD POPI Project	59,011.00	10,29,224.00
Nabard - Pottery Cluster, Peravur	-	1,45,409.00
NABARD - Training & Demo(Konn.Kadav)	-	3,324.00
NABARD - Training & Demo (Muttuchira)	-	580.00
NABARD - WADI Project DPR Preparation	-	2,01,494.00
Palakkad Small Hydro Co., Palakkad	-	10,00,000.00

Palakkuzhy Small Hydel Project	5,09,465.00	80,333.00
Pipe Compost - Cherplassery GP	3,19,600.00	12,750.00
Pipe Compost - Kasaragod Municipality	1,43,280.00	1,43,280.00
Pipe Compost - Kayamkulam Municipality	-	2,25,000.00
Pipe Compost - Koottilangadi GP	13,500.00	13,500.00
Pipe Compost - Kunnummal GP	-	22,500.00
Pipe Compost - Mankada GP	-	1,77,700.00
Pipe Compost - Pirayiri Panchayath	95,400.00	1,12,500.00
RWH Tank - Marakkara	-	55,000.00
RWH Tank - Vellangallur GP	2,65,721.00	-
SWM - Guruvayur	7,17,534.00	7,17,534.00
SWM - Kunnamkulam	22,25,697.00	22,25,697.00
SWM - Puduppariyaram	32,670.00	32,670.00
Women Technology Park	3,47,360.25	3,47,360.25
Total	**2,25,65,516.25**	**2,51,92,501.25**
SCHEDULE : 7		
Current Assets, Loans and Advances		
Cash and Bank Balances		
Cash in Hand	63,383.00	2,02,138.00
SBI A/c No:10590557836	(42,652.41)	11,58,294.49
SBT A/c No:57028787163	53,486.00	35,414.00
SBT A/c.No:57028786873	12,31,795.15	15,50,035.65
SBT A/c.No:67324608083	13,58,951.50	-
SBT A/c.No:67324608107	3,370.00	-
PNB A/c. No. 4318000100074822	2,036.00	-
PNB A/c. No. 4318000100050549	23,87,250.88	1,94,620.59
PNB A/c. No. 4318000100051557(DDWS)	4,053.92	3,961.90
PNB A/c. No. 4318000100053139(PFA AN-CHAMMILE)	377.00	695.00
PNB A/c. No. 4318000100053148(PFA CHERAMBI)	663.00	866.00
PNB A/c. No. 4318000100053157(PFA MOONGILMADA)	858.00	1,001.00

PNB A/c. No. 4318000100053166(PFA NADUPATHY)	139.00	542.00
PNB A/c. No. 4318000100053175(PFA MUTTUCHIRA)	137.00	540.00
PNB A/c No:4318000100053272(PFA Alangad/Vengasseri)	249.00	605.00
PNB A/c No:4318000100053290(PFA Pullundassery)	219.00	586.00
PNB A/c No:4318000100053306(PFA Thottarappadam)	392.00	700.00
PNB A/c No:4318000100053315(PFA Konakkalkadavu)	137.00	540.00
PNB A/c No:4318000100053324(PFA Poothanakkayam)	1,821.00	804.00
PNB A/c No:4318000100053333(PFA Nagalassery)	567.00	808.00
PNB A/c No:4318000100053342(PFA Chazhiyattiri)	10,166.00	566.00
PNB A/c No:4318000100057223(RSO NABARD)	8,932.00	6,688.00
Treasury Savings Bank A/c No:5607	143.00	100.00
Canara Bank A/c No: 077310104773	68,44,806.00	-
Canara Bank A/c No: 0773101015124(ITDP)	10,00,000.00	-
Total A	**1,29,31,280.04**	**31,59,505.63**
Advances		
Ancy	10,000.00	15,000.00
Bindu AK	-	16,000.00
Bio Energy System	-	8,23,854.00
BVGS Exposure Visit	46,000.00	(4,000.00)
Coordinator, WM Project Kollam	2,35,000.00	-
Co-Ordinator, Mushroom Unit	-	-
Community Development Soceity-Perinthalmanna	-	(31,000.00)
Co-Ordinator IWMP Kanjikuzhy	-	75,000.00
CREST Calicut	-	3,43,313.00
T.F.Francis - ILCS Project	-	1,00,000.00

Gopinathan	-	51,073.00
Jai Somanathan	-	-
Muralidas. A	-	-
Nabard Office WATI Project Aleyamma KC	30,000.00	30,000.00
NABARD WADI	-	-
NABARD WADI Project Measures	(20,000.00)	-
Prof BM Musthafa	-	-
Project Co-ordinator Pottery Unit	-	
Sophy K Antony	-	10,000.00
Secretary Kunnamkulam Municipality	-	76,686.00
TDS - Anilkumar. K	12,700.00	12,700.00
TDS - Dennis Joseph	12,575.00	12,575.00
TDS - ECG - Chennai	23,970.00	23,970.00
TDS - T.F Francis	33,124.00	33,124.00
T.F.Francis (ILCS Project)	1,00,000.00	-
Gandhi Smarak Grama Seva Kendram EKM	-	9,029.00
Akathethara GP VWC NABARD	-	-
NABARD - NHWDP Training Program (RSO)	-	94,935.00
NABARD -Exhibition Hyderabad	-	3,180.00
National Seminar Energy Conservation EMC	-	-
KSSP Palakkad	32,946.50	32,946.50
KSSP Alappuzha	7,500.00	-
Krishnadas M Mess Manager	-	-
Railway Divisional Office Olavakkode	-	68,706.00
RK Associates	3,944.00	3,944.00
KILA , Thrissur	1,24,054.00	2,85,505.00
Samatha Production Centre	33,455.00	33,455.00
SMART -ATDC (TVM)	-	50,542.00
Susthira IRTC Palakkad	-	-
SAF IITF New Delhi	-	
Parishad Production Centre	(4,15,703.00)	28,76,761.00
Proffessional Tax 2015-16	-	
TDS FY 2013-14	-	3,58,814.00

TDS FY 2014-15	2,48,822.00	2,48,822.00
TDS FY 2015-16	2,39,440.00	
Total B	**7,57,827.50**	**56,54,934.50**
Total (A + B)	**1,36,89,107.54**	**88,14,440.13**

STATEMENT OF FIXED ASSETS AND DEPRECIATION FOR THE THE YEAR ENDED 31ST MARCH 2016									
WDV as on 1st Apr 2015	Additions Up to Sep 30th	Additions After Sep 30th	Deletions Up to Sep 30th	Balance	Rate (%)	Depreciation (Full Rate)	Depreciation (Half Rate)	Total	WDV as on 31st March 2016
1,44,034.24	-	34,000.00	-	1,78,034.24	10%	14,403.42	1,700.00	16,103.42	1,61,930.82
60,403.50	-	-	-	60,403.50	10%	6,040.35	-	6,040.35	54,363.15
1,66,87,610.22	-	-	-	1,66,87,610.22	5%	8,34,380.51	-	8,34,380.51	1,58,53,229.71
638.84	-	-	-	638.84	15%	95.83	-	95.83	543.02
1,36,055.72	-	-	-	1,36,055.72	15%	20,408.36	-	20,408.36	1,15,647.37
26,401.70	-	-	-	26,401.70	10%	2,640.17	-	2,640.17	23,761.53
1,046.03	-	-	-	1,046.03	10%	104.60	-	104.60	941.42
9,349.43	-	-	-	9,349.43	10%	934.94	-	934.94	8,414.48
13,971.25	56,078.00	-	-	70,049.25	60%	42,029.55	-	42,029.55	28,019.70
5,280.09	-	-	-	5,280.09	15%	792.01	-	792.01	4,488.08
869.32	-	-	-	869.32	15%	130.40	-	130.40	738.92
694.85	-	-	-	694.85	15%	104.23	-	104.23	590.63
2,20,984.61	-	3,800.00	-	2,24,784.61	10%	22,098.46	190.00	22,288.46	2,02,496.15
46,246.43	-	-	-	46,246.43	15%	6,936.96	-	6,936.96	39,309.46
1,482.35	-	-	-	1,482.35	15%	222.35	-	222.35	1,259.99
532.06	-	-	-	532.06	15%	79.81	-	79.81	452.25

837.22	-	-	-	837.22	15%	125.58	-	125.58	711.64
7,93,262.77	-	-	-	7,93,262.77	10%	79,326.28	-	79,326.28	7,13,936.49
43,732.22	2,500.00	-	-	46,232.22	10%	4,623.22	-	4,623.22	41,609.00
1,808.97	-	-	-	1,808.97	15%	271.35	-	271.35	1,537.63
1,934.29	-	-	-	1,934.29	15%	290.14	-	290.14	1,644.15
54,942.88	-	-	-	54,942.88	15%	8,241.43	-	8,241.43	46,701.45
52,793.84	-	-	-	52,793.84	15%	7,919.08	-	7,919.08	44,874.77
561.09	-	-	-	561.09	15%	84.16	-	84.16	476.93
8,383.29	-	-	-	8,383.29	15%	1,257.49	-	1,257.49	7,125.79
1,196.01	-	-	-	1,196.01	15%	179.40	-	179.40	1,016.61
3,385.81	-	-	-	3,385.81	15%	507.87	-	507.87	2,877.93
9,207.32	-	-	-	9,207.32	10%	920.73	-	920.73	8,286.59
4,461.35	-	-	-	4,461.35	15%	669.20	-	669.20	3,792.15
3,187.74	-	-	-	3,187.74	15%	478.16	-	478.16	2,709.58
1,298.34	-	-	-	1,298.34	15%	194.75	-	194.75	1,103.59
3,584.31	-	-	-	3,584.31	10%	358.43	-	358.43	3,225.88
26,613.35	-	-	-	26,613.35	15%	3,992.00	-	3,992.00	22,621.34
24,970.86	-	-	-	24,970.86	15%	3,745.63	-	3,745.63	21,225.23
3,181.17	-	-	-	3,181.17	15%	477.18	-	477.18	2,703.99
4,790.18	-	-	-	4,790.18	15%	718.53	-	718.53	4,071.65
2,573.18	-	-	-	2,573.18	15%	385.98	-	385.98	2,187.21
5,39,565.31	-	-		5,39,565.31	15%	80,934.80	-	80,934.80	4,58,630.52
80,97,800.00	-	-	-	80,97,800.00	0%	-	-	-	80,97,800.00
-	-	64,135.00	-	64,135.00	15%	-	4,810.13	4,810.13	59,324.88
2,70,39,672.15	58,578.00	1,01,935.00	-	2,72,00,185.15		11,47,103.35	6,700.13	11,53,803.48	2,60,46,381.67

Salary/Honorarium Payable - Sub Sch I	
B.M Musthafa	6,87,000.00
P.K Ravindran	40,000.00
NKS Pillai	3,35,000.00
Satheesh R	97,000.00
MP Parameswaran	1,00,000.00
Dr. M Lalithambika	1,53,000.00
TP Kunhikannan	1,50,000.00
Sajith .S	20,000.00
	15,82,000.00

SOCIETY FOR INTEGRATED RURAL TECHNOLOGY CENTRE
Mundur, Palakkad - 678 592

INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2016

	EXPENDITURE	SCH.	AMOUNT			INCOME	SCH.	AMOUNT	
			31.03.2016	31.03.2015				31.03.2016	31.03.2015
	Administrative Overheads		46,94,614.29	74,14,010.58	By	General & Administrative Income	7	88,24,185.80	85,69,812.00
To	Agricultural Expenses	18	2,72,180.00	1,26,753.00	By	Agriculture Income	8	1,17,510.00	78,953.00
To	Fisheries Expenses	19	1,01,572.00	63,722.00	By	Fisheries Income	9	12,175.00	32,580.00
To	Mushroom Expenses	20	2,14,670.00	-	By	Mushroom Income	10	5,20,410.00	4,07,125.00
To	Pottery Expenses	21	3,31,948.00	2,95,311.00	By	Pottery Income	11	5,33,010.00	3,14,154.00
To	SWM IRTC Expenses	22	49,365.00	66,363.00	By	SWM IRTC Income	12	65,685.00	1,16,992.00
To	Hot Box & Toiletery Exp	23	-	43,797.50	By	Hot Box & Toiletery Income	13	-	10,685.00
To	Gramakala Expenses	24	-	56,165.00	By	Workshop Income	14	-	2,27,024.00
To	Depreciation	4	11,54,478.57	12,09,277.63	By	Gramakala Income	15	-	1,12,389.00
To	Excess of Income		32,54,147.94	5,99,034.29	By	Food Technology Income	16	-	4,720.00
	over Expenditure								
			1,00,72,975.80	98,74,434.00				1,00,72,975.80	98,74,434.00

SOCIETY FOR INTEGRATED RURAL TECHNOLOGY CENTRE		
Mundur, Palakkad - 678 592		
Schedule Forming Part of Income & Expenditure Account for the year ended 31-03-2016		
	Amount as at	
	31-03-2016	31-03-2015
Schedule- 7		
General & Administrative Income		
Accommodation Charges Received	6,25,775.00	7,09,725.00
Biogas Unit R & D Income	-	70,827.00
Documentation Charges Received	11,500.00	35,000.00
Donation	-	2,125.00
Consumables	10,098.00	-
Chemical Charges	23,264.00	9,971.00
Honorarium	35,800.00	-
Institutional Fee	72,36,943.80	60,84,539.00
Interest Received	97,335.00	68,293.00
Income Tax Refund	-	60,354.00
Interest On Income Tax Refund FY 2013-14	38,976.00	5,126.00
Insurance Claim Received	-	67,494.00
Office Stationary	10,625.00	-
Printing & Xerox Received	11,170.00	43,493.00
Rent Received:-		
Hall Rent	15,200.00	1,66,224.00
Hall& Equipment Rent	2,89,101.00	13,500.00
Rent (BSNL)	29,073.00	27,350.00
Chemical Lab	21,650.00	6,84,000.00
Computer /LCD/PA System	-	1,80,000.00
Scrap Sales	-	800.00
Testing Fee:-		
CE Lab	2,88,135.00	2,54,399.00
EE Lab	32,400.00	27,500.00
Training Fee	-	30,500.00
Security Deposit-BSNL	1,001.00	-

Training Materials -Consumables	-	15,130.00
Travel & Conveyance- Resource Person	260.00	-
Vehicle Hire Charges Received	45,879.00	13,462.00
	88,24,185.80	**85,69,812.00**
Schedule- 8		
Agricultural Income		
Nursery Plants	40,469.00	10,473.00
Rubber Sheet	64,100.00	66,100.00
Hand Book	1,250.00	-
Vegetables	11,691.00	2,380.00
	1,17,510.00	**78,953.00**
Schedule- 9		
Fisheries Income		
Azola	2,320.00	3,080.00
Fish feed and Accessories	9,855.00	25,800.00
Consumables	-	3,700.00
	12,175.00	**32,580.00**
Schedule- 10		
Mushroom Income		
Mushroom Sales	-	1,26,087.00
Mashroom- Dry	-	600.00
Mushroom -Bed	-	13,920.00
Mushroom- Spawn	5,20,410.00	1,98,793.00
Mother Spawn	-	400.00
Soup Powder	-	700.00
Mushroom Spawn & cover	-	59,505.00
Training Fee - Mushroom	-	7,120.00
	5,20,410.00	**4,07,125.00**
Schedule- 11		
Pottery Income		
Clay - Pugged	-	5,050.00

Micro Wavable Pot	-	2,800.00
Pots - Decorated	5,33,010.00	2,27,870.00
Cups	-	1,200.00
Pots - Raw	-	1,675.00
Pottery Ornamentals	-	47,928.00
Cooking Pots	-	2,540.00
Training Fee - Pottery	-	15,841.00
Washed Clay	-	2,850.00
Wind Chain & Hanging Bells	-	6,400.00
	5,33,010.00	**3,14,154.00**
Schedule- 12		
SWM IRTC Income		
Compost Sales	23,910.00	53,852.00
Compost - Earthworm	23,400.00	17,910.00
Organic Manure	250.00	-
Pots - Vermi (Earth worm)	12,750.00	24,770.00
Coir Pith Compost	5,375.00	20,460.00
	65,685.00	**1,16,992.00**
Schedule- 13		
Hot Box & Toiletery Income		
Soap Mundoor GP	-	860.00
Transperant Soan	-	9,475.00
Transparent Soap (IRTC)	-	350.00
	-	**10,685.00**
Schedule- 14		
Workshop Income		
Potters Wheel	-	2,27,024.00
	-	**2,27,024.00**
Schedule- 15		
Gramakala Income		
Coir Pith Compost	-	90.00

Cooking Pots	-	6,615.00
Compost	-	400.00
Decorated Pots	-	22,550.00
Dry Jack Fruit	-	3,240.00
Food Supplement	-	240.00
Honey	-	1,775.00
Micro Wavable Pot	-	250.00
Nursery Plants/Seeds	-	12,461.00
Raw Pots	-	14,615.00
Soap - Mundur GP	-	18,762.00
Seeds	-	598.00
Soap - Transparent	-	18,708.00
Soap - Washing	-	470.00
Teracotta Item	-	250.00
Vermi Pots	-	650.00
Ornaments	-	9,265.00
Wind Chain	-	1,450.00
	-	**1,12,389.00**
Schedule- 16		
Food and Technology Income		
Dry Jeck Fruit	-	4,415.00
Food Supplement	-	105.00
Honey	-	200.00
	-	**4,720.00**
Schedule- 17		
Administrative Overheads		
Audit Fee		60,000.00
Bank Charges	11,555.99	14,229.81
Annual Maintanence Contract Fee	8,200.00	-
Computer Rent	-	3,28,500.00
Consultancy Charges	90,000.00	-
Consumables	1,33,472.00	36,445.00

Contingency	7,252.00	-
CSR Expenses	4,03,996.00	
Documentation Charges	21,475.00	43,800.00
Electricity Charges	3,48,200.00	4,46,021.00
Equipment - DST	83,924.00	2,90,465.00
Exhibition Expenses	5,130.00	31,588.00
Fabrication pottery wheel	28,770.00	
Fabrication Expenses	95,294.00	5,83,810.00
Mess & Refreshment Expenses	5,34,077.00	35,140.00
Honorarium	9,89,858.00	9,17,118.00
Group Insurance Paid (Employers Contribution)	1,11,968.00	82,067.00
Incentive	20,300.00	10,000.00
Institutional Overhead	6,50,873.30	25,18,723.77
Inspection Fee - Elec.Inspectorate	1,703.00	1,703.00
Infrastructure Development	50,000.00	-
Interest on loan	1,218.00	21,868.00
Interest on Service Tax	2,423.00	-
Interest on TDS	61.00	266.00
Library & Periodicals	21,122.00	19,783.00
Medical Expenses	-	13,153.00
Meeting Expenses	-	3,420.00
Motor Vehicle - Insurance	27,300.00	27,604.00
Motor Vehicle - POL	28,727.00	61,460.00
Office Expenses (Kozhikode Office)	1,07,800.00	1,23,700.00
Office Stationery	22,962.00	9,141.00
Postage & Courier	10,417.00	15,545.00
Pre project Expenses DST	-	14,301.00
Registration Fee & resource Materials	-	3,045.00
Renewal Fee	10,409.00	11,126.00
Rent,Rates & Taxes (Building)	90,284.00	1,17,563.00
Repairs & Maintenance - Motor Vehicle	70,529.00	1,34,168.00
Repair & Maintenance	4,825.00	58,575.00
Salary& Allowances	2,25,000.00	1,40,744.00
Service Tax Arrear 2008-12		3,98,741.00

Service Tax Arrear 2012-13		3,53,585.00
Telephone Charges	99,593.00	79,907.00
Training Expenses	15,290.00	-
Transportation Charges	-	7,435.00
Travel & Conveyance	97,334.00	1,12,380.00
Vehicle Hire Charges	20,100.00	-
Water Management Charges	-	70,380.00
Wages	2,02,127.00	1,02,118.00
Water Charges	-	92,850.00
Xerox & Printing Charges	41,045.00	21,542.00
	46,94,614.29	**74,14,010.58**
Schedule- 18		
Agricultural Expenses		
Consumables	37,155.00	26,753.00
Honorarium	1,56,000.00	73,600.00
Wages	79,025.00	26,400.00
	2,72,180.00	**1,26,753.00**
Schedule- 19		
Fisheries Expenses		
Consumables	18,242.00	62,222.00
Honorarium	63,300.00	1,500.00
Vehicle Hire Charges	5,750.00	-
Wages	14,280.00	-
	1,01,572.00	**63,722.00**
Schedule- 20		
Mushroom Expenses		
Wages	2,14,670.00	-
	2,14,670.00	**-**
Schedule- 21		
Pottery Expenses		
Consumables	3,31,948.00	62,515.00

Raw Materials	-	12,550.00
Wind Chain/Hanging Bells	-	3,000.00
Wages	-	2,17,246.00
	3,31,948.00	**2,95,311.00**
Schedule- 22		
SWM IRTC Expenses		
Consumables	1,265.00	7,241.00
Transpotation Charges	-	450.00
Vermi Compost Unit		-
Wages	48,100.00	58,672.00
	49,365.00	**66,363.00**
Schedule- 23		
Hot Box / Toiletry Expenses		
Consumables	-	25,083.50
Wages	-	18,714.00
	-	**43,797.50**
Schedule- 24		
Gramakala Expenses		
Wages	-	56,165.00
	-	56,165.00

Receipts And payment Account 2015-16	
Receipts	**2015-16**
Opening Balance	
Bank Accounts	29,57,367.63
PNB Loan Account	(64,363.00)
Cash-in-hand	2,02,138.00
Current Liabilities	
Advance - Equipments (Agricul)-WADI Project	20,000.00
Edu.Cess @ 2% 2015 - 16 (TIC)	103.70
High. Edu Cess @1% 2015-16 (TIC)	52.30
NABARD - Integr. Tribal Dev..Program(ITDP)	10,00,000.00
ST @ 12% 2015 - 16 (TIC)	4,812.00
ST @ 14% 2015 - 16 (TIC)	22,799.00
ST @ 14.5% 2015-16 (14%)- STC	49,581.00
ST @ 14.5% 2015-16 (14%) - TIC	15,064.00
Staff Insurance(LIC) - Jeevan Tharang	96,084.00
Staff Welfare Fund	60.00
Swa.Bharat Cess @.5% 15-16 (TIC)	544.00
Swa.Bharath Cess @ 0.5% 2015-16(STC)	271.00
Current Assets	
Biogasplant - Alanallur GP	1,74,250.00
Biogas Plant - Alappuzha Municipality-II	18,58,950.00
Biogas Plant - Alappuzha Municipality (Suchitwa)	2,32,875.00
Biogas Plant - Areacode GP	1,24,200.00
Biogas Plant - Ayiloor GP	2,66,500.00
Biogasplant - Chengamanad GP	2,97,720.00
Biogas Plant - Cherupuzha GP	2,53,800.00
Biogas Plant - Chowannur GP	76,965.00
Biogas Plant - Cost Ford, Trivandrum	4,28,159.00
Biogasplant - Elayavoor GP	4,76,100.00
Biogasplant - Eriyad Grama Panchayath	30,500.00
Biogas Plant - GPLAC,Poothadi GP, Wynad	2,91,200.00
Biogasplant - Irikkoor GP	1,51,200.00
Biogas Plant - Kadampazhipuram-II	45,675.00
Biogasplant - Kadappuram GP	71,000.00

Biogasplant - Kaiparambu GP	3,01,620.00
Biogasplant - Kaladi GP	4,10,080.00
Biogasplant - Kallyassery GP	1,80,750.00
Biogasplant - Kannadi GP	1,01,800.00
Biogas Plant - Karavaloor GP	2,60,400.00
Biogasplant - Kattakkada GP	1,26,000.00
Biogasplant - Keezhuparambu GP	3,07,800.00
Biogasplant - KIIDC , TVM	3,07,200.00
Biogas Plant - Kizhekkenchery GP	1,22,400.00
Biogasplant - Kodumbu GP	54,000.00
Biogasplant - Kollam Corporation	23,68,800.00
Biogas Plant - Kollam Corporation Stage II	13,77,000.00
Biogasplant - Kollayil GP	6,49,500.00
Biogas Plant - Koovappady GP	2,36,300.00
Biogas Plant - Koratty GP	3,17,000.00
Biogasplant - Kottopadam GP	25,500.00
Biogas Plant - KTDC Ltd,Kozhikode	50,000.00
Biogasplant - Kudappanakunnu ,Karshika Karmasena	12,76,000.00
Biogasplant - Kunnothuparamba GP	1,08,000.00
Biogasplant - Kuthanur GP	1,05,000.00
Biogasplant - Kuttiattoor GP	7,83,360.00
Biogasplant - Kuzhalmannam GP	90,600.00
Biogasplant - Lakkidi Perur GP	55,675.00
Biogasplant - Manakkad GP	2,98,400.00
Biogasplant - Manamboor GP	1,90,400.00
Biogasplant - Mangalam GP	2,50,000.00
Biogas Plant - Mangattidam GP	1,80,000.00
Biogasplant - Meenangadi GP	20,415.00
Biogasplant - Mulanthuruthy GP	8,92,500.00
Biogasplant - Nirmithikendra ,PKd	1,59,500.00
Biogas Plant -Nirmithi Kendra ,SC Colny, Vdadakkenc	72,500.00
Biogasplant - Nirmithi Kendra,Thrissur	50,000.00
Biogasplant - Ottasekharamangalam GP	2,70,000.00
Biogasplant - Ottoor GP	2,35,200.00
Biogas Plant - Padiyur GP	4,70,400.00

Biogasplant - Panachikkad GP	1,53,136.00
Biogasplant - Pattazhy, Vadakkekkara GP	6,40,200.00
Biogasplant - Perinad GP	68,000.00
Biogasplant - Perinthalmanna Municipality	1,80,000.00
Biogasplant /pipe Compost - Akathethara GP	3,97,800.00
Biogas Plant - Pudupparıyaram GP	8,14,124.00
Biogasplant - Pulincunnoo GP	3,65,400.00
Biogasplant - Punnapra GP	9,88,665.00
Biogasplant - Puthuppally GP	5,75,330.00
Biogasplant - Puzhakattiri GP	1,89,000.00
Biogasplant - Social Justice , TVm	29,000.00
Biogas Plant - Thalakkad GP	2,88,000.00
Biogasplant - Thodiyoor GP	2,18,025.00
Biogas Plant - Tholoor GP	72,060.00
Biogasplant - Thrithala GP	81,000.00
Biogasplant - Thurayur GP	1,41,300.00
Biogasplant - Tirur Municipality	30,960.00
Biogasplant - Urangattiri GP	45,450.00
Biogas Plant - Veliyam GP	7,13,980.00
DST - Core Support	30,50,302.00
DST - SoRF (DISHA) - Uma.J.Vinod	67,207.00
DST - Vigyan Prasar Proj (Atom to Stars)	1,22,000.00
EMC -Eurekha Workshop - I	89,500.00
IWMP - Chittur	2,85,000.00
IWMP - Kanjikuzhy	1,98,422.00
KSCSTE Core Support - 2015-16	30,00,000.00
KSCSTE - Devlop Rotomoulded Biogas Plant	1,92,750.00
KSCSTE -Emeritus Scientist Scheme -Dr.Seethalakshmi	5,46,012.00
KSCSTE -Environmental Day 2015	20,000.00
KSCSTE - World Wetland Day	25,000.00
Meenvallom Small Hydel Project	3,00,000.00
NABARD - Alangad/Vengasseri(FIP)	2,64,813.00
NABARD HWDP - RSO	5,52,427.00
NABARD - POPI Project	1,05,000.00
Nabard - Pottery Cluster, Peravur	4,80,000.00

NABARD - WADI TDF Project Measurers)	88,79,254.00
NABARD - WADI TDF Proj.(Manag.Fund)	17,61,690.00
Nirmithikendra,TVM - Training of Biogas Unit	6,25,000.00
Palakkad Small Hydro Co., Palakkad	10,00,000.00
Palakkuzhy Small Hydel Project	54,148.00
Pipe Compost - Cherplassery GP	2,79,650.00
Pipe Compost - Kayamkulam Municipality	2,43,000.00
Pipe Compost - Kunnummal GP	2,02,500.00
Pipe Compost - Mankada GP	1,77,700.00
Ring Compost - Kallikad GP	46,075.00
Ring Compost - Swaraj Bhavan, Tvm	15,000.00
RWH Tank-Elappully (Govt.APHSS)	2,82,000.00
RWH Tank - Marakkara	65,849.00
RWH Tank - Vellangallur GP	50,000.00
Smokeless Choolas- Silent Valley Divn.Mannarkad	80,000.00
TDS Input 2013-14	3,58,814.00
Theeramythri Project 2014-15	9,00,000.00
Theeramythri Project 2015-16	7,20,000.00
WGDP - Thrithala Block	2,50,000.00
WSP - NREGS Masterplan Preparation	96,300.00
Loans & Advances (Asset)	85,94,216.00
Biogas Plants - BES	41,56,379.00
Biogas Plants - Shajan.K.V	3,82,915.00
Biogas Plants - Unnikrishnan.M	7,71,948.00
Indirect Incomes	
General - Administration	6,90,789.00
General - Agriculture	1,17,510.00
General - Fisheries	12,175.00
General - Mushroom	5,18,910.00
General - Pottery	5,02,010.00
General - SWM Unit, IRTC	65,685.00
Closing Balance	
Bank Accounts	42,652.41
Total	6,90,19,740.04

Payments	
Capital Account	
Capital WIP - Building Main Campus	3,35,571.00
Capital WIP - Hostel Block(Labour)	3,80,896.00
Capital WIP- Hostel Block(Materials)	4,49,736.00
Capital WIP - NH Campus	1,35,000.00
Current Liabilities	
Avanashiappan Industries,CBE	47,572.00
C.P.Sasindran,Co-Ordinator, Watershed Project	1,81,135.00
CVM Auto Fuels, Payable	11,520.00
Edu.Cess @ 2% 2014 - 15(CTC)	197.00
Edu.Cess @ 2% 2014 - 15 (MAK)	3,994.00
Edu.Cess @ 2% 2014 - 15 (STC)	6,216.00
Edu.Cess @ 2% 2014 -15(TIC)	606.00
Edu.Cess @ 2% 2015-16 (MAK)	54.00
Edu.Cess @ 2% 2015 - 16 (TIC)	128.00
Energy Efficient Kiln(DST) Payable	1,06,684.00
High. Edu.Cess @ 1% 2014 - 15(CTC)	92.00
High. Edu.Cess @ 1% 2014-15(MAK)	2,001.00
High.Edu.Cess @1% 2014 - 15(STC)	3,108.00
High.Edu.Cess @ 1% 2014 - 15(TIC)	481.00
High.Edu.Cess @ 1% 2015-16 (MAK)	27.00
High. Edu Cess @1% 2015-16 (TIC)	63.00
Honorarium Payable - DST	67,500.00
Hono./TA Payable -Jayaraj (EMO Proj)	5,000.00
PPC - Waste Management Unit	2,20,98,058.00
PPC WM Project Payable	3,25,065.00
Salary/Honora. Payable - B.M.Musthafa	1,00,000.00
Salary/Honorarium Payable - NKS Pillai	1,79,500.00
Service Tax Collected/Payable	4,17,485.00
Solenergies, Thrithala Payable	2,44,268.00

ST @ 12% 2014 - 15 (CTC)	9,490.00
ST @ 12% 2014 - 15 (MAK)	1,99,433.00
ST @ 12% 2014 - 15 (STC)	3,10,797.00
ST @ 12% 2014 - 15 (TIC)	33,828.00
ST @ 12% 2015 - 16 (MAK)	2,700.00
ST @ 12% 2015 - 16 (TIC)	6,180.00
ST @ 14% 2015 - 16 (MAK)	12,062.00
ST @ 14% 2015 - 16 (TIC)	20,418.00
ST @ 14.5% 2015-16(14%) -MAK	16,252.00
ST @ 14.5% 2015-16 (14%)- STC	42,000.00
ST @ 14.5% 2015-16 (14%) - TIC	8,329.00
Staff Insurance(LIC) - Jeevan Tharang	2,08,052.00
Staff Welfare Fund	12,500.00
Swa.Bharat Cess @ 0.5% 15-16(MAK)	579.00
Swa.Bharat Cess @.5% 15-16 (TIC)	147.00
Swa.Bharath Cess @ 0.5% 2015-16(STC)	1,500.00
TA Payable to V.R.Raghunandanan,EMO Proj	5,000.00
TDS Deducted/Payable 2014-15	3,034.00
TDS Deducted/Payable 2015-16	77,419.00
TE Payable - Uma.J.Vinod	29,298.00
Uma.J.Vinod - Proj. Exp. Payable	96,641.00
Fixed Assets	
Air Conditioner	34,000.00
Computer / Accessories	56,078.00
Electrical Fittings	3,800.00
Induction Cooker	2,500.00
Solar Water Heater	64,135.00
Current Assets	
Biogas Plant - Alappuzha Municipality-II	3,51,000.00
Biogas Plant - Cost Ford, Trivandrum	3,23,000.00
Biogasplant - Social Justice , TVm	50,000.00
Bio Park Raj Bhavan ,TVM	38,000.00

DST - Core Support	23,56,342.00
DST - SoRF (DISHA) - Uma.J.Vinod	1,94,909.00
DST - Vigyan Prasar Proj (Atom to Stars)	1,07,000.00
EMC -Eurekha Workshop - I	37,673.00
EMC - Eurekha Workshop III	11,895.00
ILCS - Kanhangad	73,069.00
IWMP - Chittur	1,57,216.00
IWMP - Kanjikuzhy	7,61,548.00
IWMP -Pampakuda	15,699.00
Jalanidhi - RWH Tanks,Idukki	2,47,500.00
KSCSTE Core Support - 2015-16	28,11,162.00
KSCSTE -Emeritus Scientist Scheme -Dr.See-thalakshmi	5,30,112.00
KSCSTE - EMO Preparation (Biowaste Recy-cling)	1,53,017.00
KSCSTE -Environmental Day 2015	9,814.00
KSCSTE - National Science Day - 2016	3,093.00
KSCSTE -National Techonology Day 2015	4,720.00
KSCSTE - World Wetland Day	3,270.00
NABARD - POPI Project	1,42,491.00
Nabard - Pottery Cluster, Peravur	1,25,615.00
NABARD - WADI Project DPR Preparation	17,015.00
NABARD - WADI TDF Project Measurers)	20,50,747.00
NABARD - WADI TDF Proj.(Manag.Fund)	7,21,149.60
Palakkuzhy Small Hydel Project	4,83,280.00
Ring Compost - Kallikad GP	34,890.00
Ring Compost - Swaraj Bhavan, Tvm	13,500.00
RWH Tank-Elappully (Govt.APHSS)	2,22,750.00
RWH Tank - Vellangallur GP	3,09,972.00
SWM - Areacode	5,00,000.00
Theeramythri Project 2014-15	2,24,844.00
Theeramythri Project 2015-16	7,77,381.00

WGDP - Sreekrishnapuram	516.00
WGDP - Thrithala Block	2,02,732.00
WSP - NREGS Masterplan Preparation	79,140.00
Loans & Advances (Asset)	64,68,393.00
Biogas Plants - BES	39,53,751.00
Biogas Plants - Shajan.K.V	2,65,235.00
Biogas Plants - Unnikrishnan.M	12,66,434.00
Indirect Expense	
General - Administration	27,08,041.99
General - Agriculture	2,72,180.00
General - Fisheries	1,01,572.00
General - Mushroom	2,04,640.00
General - Pottery	2,50,787.00
General - SWM Unit, IRTC	49,365.00
Interest on vehicle loan	1,218.00
Closing Balance	
Bank Accounts	1,29,10,549.45
PNB Loan A/c	-
Cash-in-hand	63,383.00
Total	**6,90,19,740.04**

IRTC

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