Annual Report
2016-17

IRTC

30th Year of IRTC

Integrated Rural Technology Centre (IRTC)

Mundur, Palakkad - 678592, Kerala

Phone: 0491-2832324, 2832663

Email: mail@irtc.org.in

Web: www.irtc.org.in

2016-17
ANNUAL REPORT

IRTC

30th Year of IRTC

INTEGRATED RURAL
TECHNOLOGY CENTRE

ANNUAL REPORT
2016-17

Integrated Rural Technology Centre
Mundur, Palakkad, Kerala-678592
Tel: 0491 2832324, 2832663
Email: *mail@irtc.org.in*
Website: *www.irtc.org.in*

IRTC'S MISSION
(As per Memorandum of Association)

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

CONTENT

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 2016-17 for your consideration, scrutiny and for valuable suggestion. IRTC is going complete its 30th year and during the course of this period IRTC had contributed a lot, with our specific mission of providing appropriate science and technology solutions to support rural economy development. Even though IRTC is not undertaking per say any basic research, the area specific, target oriented and problem solving intervention of IRTC had created the niche for its activities, and that has been identified as appropriate technological intervention and accepted. A qualitative change in R&D methodology is brought in by adopting the action research approach of ensuring peoples participation in all possible interventions, especially in addressing issues such as natural resources management, local area interventions, technology options for drudgery reduction, efficiency improvement and capacity building.

This year also 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 , creating necessary infrastructures for the above activities and also to carry out digitization of the office.

The initial phase funding of the DST core grant support is for five years programme and this is completed by March 2017. The assigned objective of the DST core grant were Revamping traditional pottery, Technology based watershed Development, Post-harvest technology and Medicinal garden. This grant helped us to maintain a set of core staff, developing necessary infrastructures and equipping the lab facilities in the respective areas. The major deliverable of the project component is the 'microwavable terracotta pot' which is now promoted and marketed as an ecofriendly product. This product got special prize for innovation in the RIM -16 held at Kozhikkode. A 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, value added products of jackfruits; herbal soaps are the deliverables of other components of the project respectively.

A major change in administration of IRTC during this year is Sri PK. Narayanan, former treasurer KSSP, took charge as registrar of IRTC on deputation from Juy 4th 2016, releaving Sri. VG. Gopinathan.

This year IRTC got a special assistance Rs. 50 lakh from Govt of Kerala for improving the solid waste management activities. IRTC prepared a proposal for transforming the SWM division as a Centre of excellence in solid waste management. The proposal is a three year project, with various components. The major components are, improving the Environment laboratory by acquiring advanced analytical equipment such as Atomic absorption spectrophotometer, Gas analyzer, etc. The infrastructure facilities of the lab will be improved along with. A demonstration facility of all available waste management equipment and process will be set up at IRTC and hand books of the SWM activities will be brought out.

For the financial year 2017-18 also the Govt. has sanctioned Rs 50 lakh in addition to the Grant in aid. The annual grant in aid is enhanced to Rs 35 lakh this year.

This year we have initiated steps for conducting two major training programmes. One is training in waste management for the elected representatives and officials of the Local self Govt.The training will be conducted on demand basis by collecting training fees of Rs1500/-per head. The LSG Department has issued a GO for approving the training programme .The training started, and the responses from the LSG's is very positive.

Second is the training programme for the Anganwadi teachers and workers, through a Project Viz.Programme for Quality Transformation of Preschool Component of Anganwadies.The project has been submitted to the Social Welfare Department and is under consideration of the Govt.

IRTC has under taken three projects of the Thadheesamithram (KLGSDP) to prepare DPR for backward Panchayaths , two in Palakkad district and one in Trichur District. The report was prepared in time and submitted.

The results of the EMO-Project carried out with support of KSCSTE,is encouraging. Experiments are progressing to assess the possibility of to reduce the amount of cow dung required as initial inoculum for portable bio- gas plant, and composting process. The project work is carried out by a team lead byProf.VR Reghunandanan. The team had initiated R&D work for the safe management of the septic tank residues by bio methanation.

Development of the rain water filter system for well recharging is an appropriate and timely intervention .It has gained good acceptance due to its simple design and user friendliness. Several set of trainings were conducted at Panchayath level. Even this is included in the Panchayath projects and for MGNREGS programme considering the feed backs new models and modifications are under testing stage.

Dr.Seethalakshmi Rtd. Scientist from KFRI is now with IRTC for continuing her research on bamboos under the Emeritus Scientist Scheme of KSCSTE. 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 Organization Promoting Institution) and the other is the implementation of the WADI, a horticulture based livelihood support for the Attappady tribal communities. The producer company got registered with a brand name 'Susthira'. The WADI project aims to improve the income of the tribal families through the promotion of, horticulture, agro forestry and inter crops. It also supports other livelihood activities though JLG's.

By consolidating the experiences of natural resource management and watershed based development approaches IRTC prepared a programme for Greening the Palakkad Gap. The project has been prepared by IRTC and submitted to the green Climate Fund jointly with the District Panchayath Palakkad and the KSCSTE Govt. of Kerala. Its aims to mitigate the climate change impact in the Palakkad region. The proposal was submitted through NABARD and is now in the Ministry of Environment, Govt of India.

Nilambur block Panchayath had entrusted IRTC to prepare an integrated Development master plan, Viz "Malinya muktha Chaliyar"The project work started with primary data collection from more than 40000 households. During the initial phase of the

MGNREGS IRTC had prepared watershed based master plans for several local bodies. Edappata Gramapanchayath had entrusted to revise their plan for effective implementation of MGNREGs in the Panchayath.

In continuation to the Holistic water shed development project NABARD Kerala entrusted IRTC to conduct an evaluation of the 45 VWC committees for deciding on the continued assistance to them for coming two years. The evaluation workshop was conducted on Nov.19th. NABARD selected 24 watersheds as eligible for additional funding of Rs.8 Lakhs each for implementing their 'sustainable plan' and decided IRTC as the Resource Support Agency.

IRTC had a longstanding in the area of mushroom cultivation, spawn production, capacity building, trainings etc. Earlier we had undertaken projects for the popularization of the mushroom cultivation and had gained lesions of its sustainability. KSCSTE , Biotechnology commission had sanctioned a project for developing a sustainable model through promotion of JLG based approach in cultivation. . The project work started with initial phase funding.

During this year IRTC personnel's had attended major trainings and exhibitions. Participated in the India international Technology fest Unnath Abhiyan at New Delhi from December 7- 11 and the four components of the core support projects were exhibited. A national work shop on the modernization of the terracotta products were held in November at IRTC campus in which 50 participants attended the work shop needs special mention.

Several trainings were conducted by IRTC during the year. Also IRTC personals attended various training programme Major trainings are listed as annexure.

The publication of IRTC newsletter restarted by publishing as a trimonthly. A monograph "Modernization of the traditional pottery" prepared by Dr. Lalithambika was released by Dr. Suresh Das Vice Chairman KSCSTE.

There is a steady inflow 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 opted IRTC for their work. Altogether 56 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 a visitor, 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 were also conducted on demand basis.

Another major training under taken during this period is the training in the production of FRP bio gas plants jointly with State Nermith Kendra . The training is planned for 10 centers with the duration of 25 days.

Our association for providing technical and managerial supports in the Theeramythri project and for the Palakkad small hydro company 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 headed 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 drudgery reduction, capacity building and micro mechanization.

New and appropriate management options and institutional structures were incorporated 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 for fishers, and JLGs for the tribal groups. Institutional mechanisms such as apex federation, category federation and JLG formations promoted in the Theeramythri project has shown positive impacts.

Environmental & Microbiology lab is supporting the people in getting an analysis certificate of water and soil samples which are

pre-requite for obtaining license for shops and small production units. 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. The Energy and Electrical Division undertakes the general maintenance of electrical system and equipment's and also undertakes solar PV installations on a pilot mode. The major installation during this year is the 40 KW unit for the District cooperative bank Palakkad. We also under took the solar street lighting system of the Poriyani–IRTC road under the MP LAD of MB Rajesh MP.

The Social Science Division is mainly engaged in activities focusing on local area planning, project preparations, and also support in project implementation. The task of library digitization activities is also monitored by this division.

This year also several LSG's had entrusted their works of solid waste management projects to IRTC for implementation. The process of delinking of project implementation 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. As we desired during the formation of the PIU, all the project implementation demands from the local bodies were followed up by PIU and signing the agreements for the execution. By end of March 2017 PIU signed work contracts worth around Rs 11 crore for more than 110 projects.

The "Chithrakala" a JLG formed by the artist group is now self-sustaining through the various works under taken by them specially in preparing decorative pots and ornaments.

The computer centre manages the data and communication systems and the system maintanance. IRTC office campus is equipped with Wi- Fi connectivity.

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 it 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.. The process for digitizing the library activities are progressing which will improve its functions.

Four executive committee meetings were held and its decisions supported the chief functionaries for 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 annual general body meeting of 2015-16 was held on Augest 28th 2016 and was attended 44 members. The second general body meeting of IRTC was held on February 26th 2017 at IRTC campus and attended by 38 members.

The detailed accounts 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. 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 to fulfill it stated objectives. With the word of gratitude to everybody for the cooperation and assistance rendered, I am presenting the Annual Report of IRTC for the year 2016-17 for your consideration.

Dr. N.K.Sasidharan Pillai
Director

FINANCIAL REPORT

The total receipt for the year 2016-17 is Rs.454.17 lakhs.

Since the project works of local self-governments and others were implemented through newly created IRTC Project Implementation unit, there is a decrease in the total inflow of money to IRTC in this year. Rs.109.85 lakhs were received and paid to PPC during this year towards old project balance outstanding.

The major source of receipts IRTC were DST, KSCSTE, SAF and KILA.

DST - Core Support	25,47,562.00
KLGSDP	11,35,951.00
KSCSTE - Centre of Exce.in Waste Management	50,00,000.00
KSCSTE Grant in Aid - 2016-17	30,00,000.00
SAF	14,40,000.00
KILA	29,51,458.00

There is a substantial increase in the receipt from accommodation charges received during this year (ie Rs.6.25 lakh in previous year and Rs.11.25lakh in the current year). Receipt of Hall rent increased from Rs. 3.04 lakh to Rs.6.91lakh in this year.

IRTC has revised the salary structure of the staff from 01/08/2016. ESI benefits were started for the welfare of general staff in this year. Since the period of DST core support was ended on 31/12/2016, there is an increase in the honorarium and salary paid during this year. The total expenditure for administrative over heads in the year is Rs. 53.38lakhs.

The building construction at the New campus was completed during this year. The total Income and expenditure in this year is Rs. 82.14 lakh and Rs.73.42 lakh respectively.

A new bank account was opened for a Contingency Reserve fund of Rs.16.56 lakh to meet urgent financial needs of IRTC in future.

The detailed financial statements are attached for verification which was audited by our internal auditors Sri. VV Shaji and Sri. TP Sureshbabu and chartered accountant.

I. SPONSORED PROJECTS

TDF (WADI)
Project at Pudur Grama Panchayath , Attappady

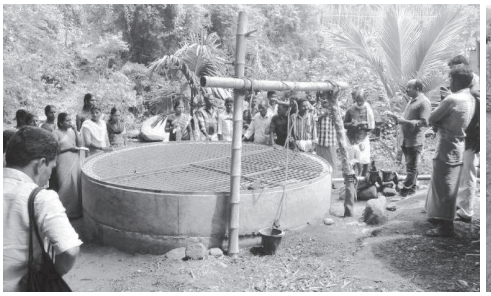
Funding Agency : **NABARD**
Cost : **232.481 Lakh**
Duration : **5 years**
Project Team : R.Sathish, *Team leader*
P.S.sabumon, *Progrmme Co-ordinator*
Vaishakh ,Engineer
Ganesh, Field Asst.
Selvan Field Asst.
Vijesh P.R., Field Asst.
Chithra Office Asst

NABARD has sanctioned a Tribal Development Fund project with IRTC as the Project Implementing Agency (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 being implemented for a period of five years is to improve the livelihood by developing 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 lift irrigation schemes.

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

NABARD GM Sri. Balachandran visiting the nursary of the JLG

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 Rs 88.09 lakhs received from NABARD out of this Rs 62.58 lakhs expended.



Irrigation water - Shelvan's plot

Wadi - Paloor well

1. Horticulture saplings of mango, saporta, guava, coconut, areca nut, pomegranate, pepper, amla, nutmug and lime were planted in the plots of 241 tribal farmers. Along with this agro forestry plants like silver oak, teak and mahogany were also planted on the boundaries of each plot.
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 Liability Groups for starting various income generating activities. Twelve of these groups are engaged in banana cultivation.
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.Two JLGs are producing coirpith compost and distributing to the farmers of the project area.
5. Village Planning Committee meet regularly and planning the actvities and future programmes.

6. Soil and water conservation activities like Water Percolation Pits, Contour Bunds and trenches are constructed in the field of beneficiaries.
7. Impart Trainings and awareness classes to the tribal farmers for protecting the planted trees from drought and cattle attack.

Shramdan work Plumbing

2. Need Assessment Survey & DPR Preparation of 3 Backward Grama Panchayaths

Funding Agency : **KLGSDP**
Cost : **18.24 Lakhs**
Project team : Dr. K. Rajesh (Project Coordinator)
Prasanth S., Basil PV., Sajeevan V.
Abhilash T.K., Seraphin Pinhero,
K.C.Thyagarajan, Manesh V., Chandran A.,
Praveen K.V.

IRTC has udertaken the task of preparing Detailed Project Report (Development Master Plan) for three backward panchayats of Kerala under Kerala Local Government Service Delivery Project (KLGSDP).

Vellinezhy and Keralassery GPs from palakkad and Poomangalam from Thrissur were the three panchayats selected under this project. It was a short term assignment for four months started at July 2016 and finished in the month of October. Three seperate project team comprising of one engineer, one social worker and a team leader worked in three panchayaths.

We have followed an intensive participatory approach to identify the development requirements of these panchayats. Multiple methods used to prepare the backward status report of the panchayath.

Secondary data collection and focus group discussions were conducted for documenting the backwardness and to locate the major development requirements.

A list of projects were submitted to the concerned Grama Panchayath for final selection and Detailed Project Reports were prepared. The DPR was submitted within stipulated timeline. Following are the project submitted for the special grant assistance of two crore each allotted to the GPs.

Major projects in the DPR are the following:

Poomangalam Grama Panchayath: Energy production through solar, Vertical axis motor pump for paddy fields, Building for Paliative care unit and schools.

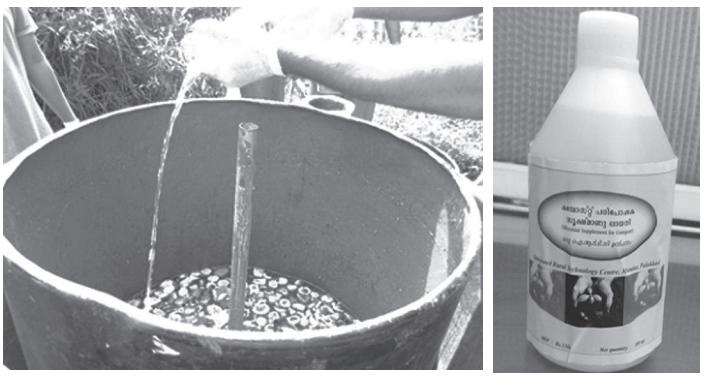
Vellinezhy Grama Panchayath: Drinking Water supply scheme, Building for Ayurveda Hospital, Construction of Anganwadi.

Keralassery Grama Panchayath: Community Hall, PHC building, Building for Ayurveda Hospital, Road connecting to two Grama Panchayaths, Solar projects

3. A pilot study on the effectiveness of, Bacillus sp enriched EM solution as a partial substitute for fresh cow dung

Sponsored project by : KSCSTE
Duration : 1 year
Project cost : 3.5 Lakhs
Principle investigator : Prof. VR. Reghunandanan
Co-investigator : Susmitha V.

The study revealed that we can isolate the facultative bacterial isolate(FBI) from cow dung. Tested the facultative nature by using oil over lay technique. DNA analysis done at Kerala Agricultural University (KAU),Vellanikkara, Thrissur for their species level identification. IRTC, EM preparations in the recommended dose for biogas is 30ml /kg cow dung of 1X 10-6 cfu/ml. 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 benefit of the EM technology can be extended to community level. Quarterly report has been submitted to the KSCSTE.



Experiment on biogas with EM solution

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

Sponsored by : KSCSTE under Emeritus Scientist Scheme
Project Cost : 6.15 Lakhs
Principal investigator : Dr. K. K. Seethalakshmi (Emeritus Scientist)
Co-investigaator : Divya P.V.

This programme was initiated 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 are envisaged along with a handbook on bamboo cultivation and post harvest technology in Malayalam.

During this period, farmers interested in bamboo planting were contacted and discussions were held in small groups. Area proposed for planting was inspected in June 2016 at two locations. Based on the natural vegetation and plantation crops already cultivated, boundary planting with a spacing of 5 m between two plants was suggested. Three species, Bambusa balcooa (Assam bamboo), Ochlandra travancorica (kareeta, ooda), Thyrsostachys oliveri (Rangoon bamboo) were recommended for planting. The planters are being contacted and assessment of the status of plantations is in progress.

For creating awareness about the possibilities and benefits of value addition to bamboo craft, a meeting was organized in one of the

Bamboo plantation–Perinthalmanna (Sunoj & Krishnan Namboothiri's plot)

Training for Neelakkurinji bamboo artisans cluster - Kaithakkuzhi, Erattakkulam , Palakkad

clusters (Neelakurinji Bamboo Artisans Cluster) at Kaithakuzhi, Erattakulam, Elappully Panchayath on October 4, 2016. In the meeting, the ward member Mr. Sree Ram, Mr. Balasubramanian, President of the Cluster, Mr. Rajan, President of Eeta Thozhilali Union, Palakkad District, Mrs. Nibha Namboothiri, Uravu and two master trainers Mrs. Kavitha and Mr. Benny from Haritham arts and crafts, participated along with Dr. K. K. Seethalakshmi and Mrs. Divya P.N. IRTC. The potential of bamboo, various schemes for development of bamboo sector, and the scope for value addition were presented. About 38 traditional artisans participated in the meeting. Follow up actions such as one week training on value addition to selected five artisans, develop a proposal for cap[acity building for traditional bamboo artisans, the participation in the Kerala Bamboo Fest during 2-6 December 2016 organized by Kerala Bamboo Mission at Marine Drive, Cochin where decided.

The participants stressed the need for innovative technology, mechanized primary processing, reduction of production cost and better marketing facilities.

As decided in the project launching meeting, one week training programme was organized for selected five traditional artisans with good weaving skills. Two resource persons Mrs. Kavitha and Mr. Benny, master trainers (Haritham Group) introduced the participants to four items of value added products – Bamooda, chapathi baskets, fruit baskets and painted winnows. Children in the cluster with drawing skills were also introduced to the value addition of woven products like winnows.

For detailed training programmes and establishment of a production unit a proposal was developed from IRTC and handed over to the

President, Neelakurinji Bamboo Artisans Cluster for submission to District Panchayath for funding .

First draft of the book on bamboo species suitable for cultivation, propagation and plantation technology is ready.

Publications, professional meetings and doctoral programmes

Paper in refereed journal - 2

1. Jijeesh, C.M. and Seethalakshmi, K. K. 2016. Litter decomposition, decomposition and nutrient release dynamics of six year old Ochlandra travancorica Gamble : An endemic reed bamboo of western Ghats. Plant Archives Vol. 16 No. 1, pp. 31-36.

2. Jijeesh, C.M. and Seethalakshmi, K. K. 2016. Litterfall and decomposition dynamics of six year old Bambusa balcooa Roxb: Homestead block plantation in Palakkad,central kerala. Range management and Agroforestry 37(2): 155-161.

Chapter in Book - 1

Seethalakshmi, K. K , Jijeesh, C. M and Divya, P. N. 2016. Genetic Resources of Bamboos and its Conservation in India In. Forest Genetic Resource Management, Institute of Forest Genetics Conservation and Management. Institute of Forest Genetics and Tree Breeding, Coimbatore.

Invited presentations in professional meetings - 3

Seethalakshmi, K. K , Jijeesh, C. M and Divya, P. N. 2017. Genetic Resources of Bamboos and its Conservation in India. Training for IFS officers on Forest Genetic Resources Management in November, 2016 and in February 2017 (two Programmes).

Seethalakshmi K.K and Divya P.N. 2017. Establishment of bamboo plantations

Bamboo log seminar in Uravu, Thrikkaipetta, Wayanad

in Non-Forest Areas - Opportunities and Challenges. Paper presented in the technical session on Raw materials and strategy enhancement -"Bamboo Log" – National Seminar on Bamboo organised by Uravu and INHAF, 11 to 14 March, 2017. Thrikkaipetta Village, Wayanad, Kerala.

Doctoral thesis submitted

Kuruvila Thomas IFS: Population structure, Carbon sequestration, Litter dynamics and propagation of selected rare Bamboos of Western Ghats. FRI University, Dehra Dun. Submitted in February, 2017.

5. Mushroom cultivation: Capacity development program for the livelihood enhancement of the rural women through promoting Rural Innovations

Sponsored by	: BIRD, KSCSTE
Project Amount	: Rs.90000/-
Project Investigator	: I.A. Chakko
Co Investigator	: Surya Sethumadhavan

Use of mushroom can contribute positively towards the challenge of nutritional defiency, prevailing in the rural women and children. Generally cultivating mushroom was thought to be simple, but in fact it is a complicated process. So the project is done to promote and popularize mushroom cultivation as a sustainable livelihood activity.

The project is a centralized mushroom cultivation program for women in rural areas, coordinated by IRTC. The project involves Mushroom cultivation training, demonstration and practice to promote micro entrpreneurship.

1. Progress made so far :
   a) Formation of JLG's
      i) First meeting of beneficiaries
      ii) Short-listed 7 JLG's
      iii) Selection of teams with facilities and high interest
      iv) Ensured cooperation between the team members
      v) Selected 4 JLG's with 16 beneficiaries for the first phase from the surrounding area.
      vi) Formed 4 JLG's named Nanma, Devi, Thilakkam and Bhaktam
      vii) Meetings conducted with JLGs at their place
   b) Training for JLG's were conducted

Establishing new units

Regular visits to the areas of JLG operation were undertaken to provide technical support for the development of new units. One JLG has already established in all respect and for others harvesting rooms are under fabrication.

6. Promotion of Farmers Producers Organization (FPOs)

Sponsored by : NABARD
Cost : 9.06 Lakhs
Duration : 3 years
Principal Investigator : I.A. Chakko

NABAD had entrusted IRTC to form a Farmer Producer Company. Financial assistance also given by NABARD for the initial expenses. Accordingly "SUSTHIRA FARMERS PRODUCER COMPANY" was Incorporated on 15-3-2016.The Authorised Share Capital is Rs.10 Lakhs.

The company started its function by promoting toxin free rice production and marketing the same. The share amount collected till date is Rs: 512000/-and action for increasing membership is going on.

FPO Office inauguration

Release of Susthira Rice

The members have been grouped into clusters and the cluster level activities have been planned as immediate action plan. As per statutory audit report for the year 2016-2017, Profit of the company is Rs.79,734. Action for the increase of Authorised share capital is progressing. Next year company expects a business turnover of 40lakh and profit Rs. 2.5lakh.

Toxin free rice cultivation

7. Hands on Training on Fabrication of Portable Biogas Plant

Sponsored by : Kerala State Nirmithi Kendra, Thiruvananthapuram
Cost : 6.25 Lakhs
Faculty Team : Prof. K. Sreeedharan, V.G. Gopinathan, K. Sudheendran, C.R. Ratheesh, Babu
Master Trainers: M.S. Subramanyan, S. Manoj

Integrated Technology Centre organized 25 days training program on hands on training on fabrication of mould, portable biogas plant including installation at Nirmithi Kendra Campus Kozhikkod. The programme was sponsored by Kerala State Nirmithi Kendra, Thiruvananthapuram.

Participants are selected from 5 Grama Panchayaths and Corporation of Kozhikkod district. Total 14 trainees participated in the programme. Kozhikkod Corporation (4), Nanmanda GP (2), Kakkodi GP (2), Naduvannur (2), Kunnummal (2), Maniyoor (2).

The training programme was inaugurated by Prof. L. Lakshmanan Nair, former Director of State Nirmithi Kendra on 6th September, 2016. Prof. K. Sreedharan, former Director of IRTC presided over the programme. Sri. Gireesh, senior Engineer, KESNIK, facilitated the programme.

Training module was developed by IRTC with the consultation of State Nirmithi Kendra. The module consists of deifferent type waste management units and its management, technology and science of biogas plant, service and repaire of biogas plants, etc.

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

LONG TERM CORE SUPPORT PROGRAMME
SEED DIVISION, DST; GOVT. OF INDIA

Project Support	: DST., Govt. Of India
Project Cost	: 121.38 lakhs
Date of Start	: January, 2012
Date of completion	: March, 2017
Programme Co-ordinator	: Dr. N.K. Sasidharan Pillai
Team members	: Dr. M. Lalithambika Prof. B.M. Musthafa R. Satheesh, Mahesh E., Sajith Sukumar, Rose Mary

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 program was initiated in Jan. 2012 . on the spot-assesment of the work carried out during 2012 and took place during 5-6 March 2014. The Five Year Core Support was completed on 31st March 2017.

Objectives

There are 4 objectives to this project

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

The work carried out during the Core Support period:

I. Revamping of Traditional Pottery

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

a) Fabrication and supply of potter's wheel and pugmill and cluster development activities

b) Arranging Workshops / trainings in niche areas
c) Glazing of terracotta
d) Publication of Monogragh
e) Exhibitions participated
f) Other activities and services

a) Supply of drudgery removing equipments like potter's wheel and pugmill

As in previuos years the supply of potter's wheel and pugmill was continued at subsidised rates. Sales report of pugmill and potters wheel in the year 2016.

Sl. No.	Date	Particulars	Qty.	Beneficiary
1	10/08/2016	Potters Wheel	1	Mohanesh, Thirunellaya, Palakkad
2	14/10/2016	Pugmill	1	Ratheesh, Kavassery, Palakkad
3	26/11/2016	Potters Wheel	1	Raman, Pulinelli, Kottayi, Palakkad
4	02/12/2016	Pugmill	1	Suresh, Kumbharathara, Palakkad
5	02/12/2016	Potters Wheel	1	Raju, Kavassery, Palakkad

b) Workshops/Trainings
National Workshop on Pottery

A five day National workshop on "Modern Techniques in Traditional Pottery" was conducted in Nov-2016. Differnt techniques like Smoke firing, Slip casting, Jigger jolly, Ornament making and Pot painting(Decoupage) were introduced to the participants. They really enjoyed this hands-on-training program. 54 persons participated. Six resource persons were from outside the State. Dr. P. Bhagavatheeswaran and Shri.

Adv. K. Shanthakumari, President, District Panchayath, Palakkad Inaugurating the workshop

P. Maharajan were resource persons from Thamil Nadu and Shri. Ullaskar de, Shri Sivalingaiah. Shri. Ganesh Manikkavasakam and Smt. Lakshmi.C were from Bangalore

Training and Skill Development Program for the Rural artisans in Terracotta Pottery

This program was jointly sponsored by CSIR-CGCRI Naroda Centre, Ahmedabad, Gujarat. IRTC has send 11 artisans from Kerala. The training was aimed at improving their skill in processing of clay, plaster mold making, shaping by slip casting and throwing, pressing, pugging, glazing with different colours, handmade jewelry making and packaging of different products. The partipants were really benefited by this exposure training. Shri. Subesh.K from IRTC took the responsibility of taking the artisans to Ahmedabad and back as language was a problem for many of them.

Training in potter's wheel and pugmill operation

Backward Community Development Corporation (BCDC) Govt. of Kerala arranged a 2 day training camp for 3 batches to pottery artisans from Palakkad District, Kerala. 50 artisans participated in the training. BCDC is supplying potter's wheel and pugmill to these artisans a part of skill development to reduce drudgery and increase their income level. The skill of painting on pots was imparted to them.

Shri. Vipin George, Co-ordinator of the program from BCDC addressing the participans

c) Low Temparature Glazing of Terracotta with metal oxides and Ceramic stains

Differnt glazes are transparent and coloured glaze

- **Transparent glaze**
  - Frit - 75%
  - di-Sodium tetra borate - 25%
- **Coloured glazes**
  - Frit - 75%
  - di-Sodium tetra borate - 20%
  - Ceramic stain/ metallic Oxide - 5%

Frit which has a composition of Borax-33%, potash feldspar-14%, soda feldspar-14%, soda ash-10%, quartz-10%, Lithium carbonate-4%, Barium carbonate-3%, Zinc Oxide-3% and Calcite-7% has been heated at 900-925°C. The molten mixture is poured into water and the solidified material is seperated. This is called frit. Frit is finely ground and it is used for glazing.

Glaze preparation

Frit and borax are ground for 1 hr using pestle and mortar, adding water. The slurry density should be 1.2-1.3 gm/cc. This slurry is applied on the fired body with a brush after cleaning its surface. Allow to dry and fired in a programmable electrical furnace.

Glazed terracotta by using ceramic stain and metal oxides

d) Publication of Monograph

Release of book:

"*Modernization of Traditional Pottery*"

A comprehensive monograph of the work carried out at IRTC in the area of traditional pottery has been prepared by Dr. M.Lalithambika. The introduction of potter's wheel, pugmill, diversified value-addition techniques, training imparted in and outside the campus, exhibitions held, cluster development activities undertaken and also a future perspective of this traditional industry are highlighted in this book.

Dr.Suresh Das, Exe. Vice President, Kerala State Council for Science , Technology and Environment(KSCSTE), released the book. Shri.M.K. Narayanan, President, Grama Panchayath, Puthuppariyaram, Palakkad is receiving the same

e) Participation in Indian International Science Festival

IRTC participated in the India International Science Festival held at National Chemical Laboratory(CSIR), New Delhi during 7th to 11 th december 2016.

25 TARA-DST core groups participated in IISF-2016. IRTC was one among them. Innovative Rural Technologies were showcased there and the DST Unnat Bharat Abhiyan stall bagged the first prize.

6. Other Activities and Services

IRTC - A Nodal Agency of Handicrafts Marketing and Service Extention Centre(HMSEC) Trichur (Ministry of Textiles, Govt. of India)

Since the year 2006, IRTC works as a nodal agency of HMSEC for helping the potter community. During 2006-2007, 450 pottery artisans got their Artisan Identity Card through IRTC. During the current year a trade test for 170 persons were held at IRTC. Their applications were computerised and submitted to the Trichur office by IRTC. Apart from this IRTC has actively participated in the trade test conducted for 70 pottery artisans at Mudappallur, Palakkad as well.

Trade Test for Artisan ID Card

2) Technology 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 labo-

ratory 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 Master plan

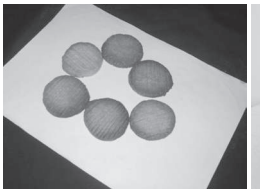
3. Post Harvest Technology

Jackfruit processing

Jackfruit processing has become a topic of public interest as it is a good source of carbohydrate, calcium, phosphorus and fibre. This fruit is absolutely free of any type of pesticides. Total production of jackfruit in Kerala is around 20 lakh tons of which 40% is getting wasted. Krishi Vigyan Kendras at Kayamkulam (South Kerala) and Pathanamthitta (Central Kerala) are training centres but the accessibility to these for women of North Kerala Panchayaths is rather limited. Hence IRTC is growing as a jackfruit processing and training centre for this region.

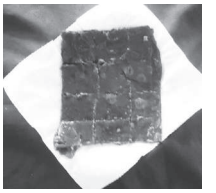
Products developed at IRTC

Dried Jackfruit



Jackfruit Biscut

Jackfruit Pickle



Jackfruit bar/toffee

The above products are prepared , packed and preserved. They are sold through our sales centre.

Recently FSSAI certification has been obtained for our products. Training is being arranged for the public, especially Kudumbashree members and self help groups. During the reporting period products like jackfruit buiscut, toffee/bar, pickle and squash work Rs. 53000/- has been sold through our sales centre, Gramakala.

During March 2017, we have arranged a One-Day-Awareness program in jackfruit processing. 80 women participaed some of them showed interest in becoming entrepreneurs. Lots of requests are being received from women for training in jackfruit processing. There were two technical lectures by Dr.P.Nisha from NIIST Trivandrum and Smt. Padmini Sivadas from Vayanad.

Dr. P. Nisha touched upon the different varieties of jack fruits found in this part of the country. She emphasised the importance of dietary fibre in reducing blood sugar and decreasing cholesterol content. She also explained that for storing food items preservatives are sometimes necessary but only the optimum amount of preservatives are to be used. (Potassium metabisulphite, potassium benzoate, sodium benzoate etc.).

Sri. T.K. Narayana Das, Vice President, District Panchayath, Palakkad inaugurated the awareness program by planting a jackfruit tree at IRTC campus

Lecture by Dr. B.P.Nisha, NIIST, TVM

Lecture by Smt. Pathmini Sivadas, Wayanad

The lecture by smt. Pathmini Sivadas was very interesting. Her point of emphasis was zero- wastage of jackfruit. From the outer green thorny skin of the jackfruit to the soft inner core finds use in our everyday life. During the afternoon there was a demonstration session. The items demonstrated were preparation of jackfruit biscuits, jackfruit squash, jackfruit pickle and jack fruit leather (bar).

4. Medicinal Plant Cultivation

In continuation of the previous year's work, we developed herbal soaps using extracts of medicinal plants . The production of herbal soaps using thulsi, danthapala, hibiscus, turmeric, beet root etc. Were quite popular. The soap unit received orders of medicinal soaps for festive occations (eg. Birthday, marriage gifts etc.).

Soaps in different shapes

Harvesting of *sathavari* has been started to use its roots for pickles and soft drinks.

Sathavari

Summary of Deatils of Achievements for the Completed Core Support Program

DST Approved Core Activities

1. Revamping Traditional Pottery
2. Post Harvest Technology
3. Medicinal Garden
4. Technology based Watershed Development.

1) **Technologies & Product Developed, disseminated, business model, etc.**

Mechanized Pug mill & Pottery Wheel	Production and training
Low Temperature Glazing	Training
Red soil based ornament	Training and production
Microwavable pot R&D	Production and marketing
Energy Efficient Kiln	Installation and testing
Dried Jack fruit products	Standardisation, production & marketing
Coconut oil based Herbal Soaps R&D	Trials, training & production
Web GIS – DSS	Training, GPS enabled mobile app
Farmer producer company	Business model developed
Rainwater filter	Fabrication, training & installation

2) Area of Influence & Problems Addressed

Pottery	Kerala state wise	Mechanization
Watershed	Palakkad district	Natural Resource Management
Rain Water Harvesting	Kerala State	Aquifer Recharging
Organic Farming	Palakkad and Thrithala Block (Karinkanni and Peringode)	Pesticide free rice
Cluster Activities	Puthukkod and Peravoor	Collective organizations
Labor Bank	Chittur-Muttichira	Women empowerment
Women JLG production unit	Decorated pots-Chithrakala	Women empowerment
Producer Company	Palakkad District	Production & Marketing of Agri. products, convergence of activities

III. GRANT-IN-AID SUPPORT OF KSCSTE

GRANT IN AID SUPPORT FOR RESEARCH & DEVELOPMENT INSTITUTIONS

Funding Agency	: Kerala State council for science Technology &Environment (KSCSTE),Thiruvanathapuram
Amount Sanctioned	: 30 Lakhs
Core Team	: Dr. N.K. Sasidharan Pillai Prof. B.M. Musthafa, Indrajith K., Rangaswamy R., Shinton P.C., I.A. Chakko, Dr. K.K. Seethalakshmi Dr. K. Rajesh, Anastes M.P.

During the year IRTC engaged in the Research & Development activities in the following areas under the Graint-in-aid support of KSCSTE.

I. Research and Development activities

a. Green Energy: Technology adaptation, improvement and dissemination
b. Promotion of waste to wealth.
c. Promotion of agri. Enterprises.

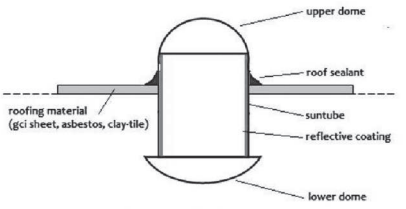
II. Infrastructure Development

a. Procuring analytical laboratory Equipment and providing required infrastructure
b. IT Enabling of the institution including digitilization documents

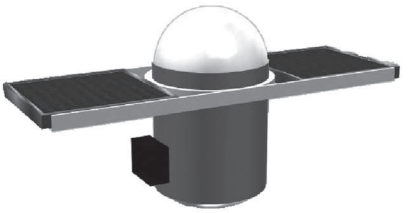
***Green Energy* : Micro Solar Dome**

Micro solar dome (MSD) is a off grid solar lighting system designed by NBIRT Thripura. Micro Solar Dome is a unique device which provide lighting solution for the poor people. The dome may also be used by Industrial houses in their factory sheds. Experimental Micro Solar Domes are working in different parts of the country. Good news is that these Solar Energy systems are changing the lies and the livelihoods of the unconnected. However IRTC decided to join this 'Surya Jyothi' national program with adaptive research and development of MSD with appropriate alteration suitable for Kerala scenario.

The Micro Solar Dome was assembled and installed with some modifications. It is noticed that the room temp is rising, making it difficult to work with the dome in place.



MICRO SOLAR DOME



Even though light is ensure to reduce the high room temperatures and radiation, especially in the hot and humid climate of Kerala, needs suitable modifications. The radiation levels were also expected to be high, judging from the experience of the operating personnel. The conventional IR filter was not enough to reduce heat from sun light. Research for better heat filter is going on by checking different transparent materials in an experimental step by measuring transmitted visible and IR light intensities.

Implementation of Solar System

Installation of 40 KW solar Photo voltaic system at District Co-

Shri. M.B. Rajesh M.P. delivering inaugural speech

operative Bank Head office, Palakkad. 125 Solar Panels covered 4000 s,ft. roof area of the building and it supply 160 unit per day to the KSEB grids. This is a major steps in the field of renewable energy interventions of IRTC.

Promotion of waste to wealth : *Biogas Purification using Amine solution*

The content of biogas depends on various factors, i.e. the production process, the raw material used for anaerobic digestion etc. Typical for biogas is that the gas contains methane and carbon dioxide. Calorific value of

biogas can be increased by removing CO_2 from that. By removing the H_2S, corrosive property of biogas can be avoided. There are different methods like water scrubbing for removing CO_2 , Iron filings for removing H_2S. Monoethanol amine or Diethanol amine can be used for removal of both H_2S and CO_2 simultaniously and the solution canbe reused by heating. This type of filters are used in petroleum industries and natural gas purification. For the adaption of this technology, IRTC developed a small scale biogas filter. The system is operated using 15% MEA solution. The first phase of the project was concentrated on the CO_2 removal. The raw biogas from the plant is fed into the inlet of the absorption column where the MEA solution flow counter to the biogas and the purified gas is collected from the outlet of the same column. CO_2 carrying amine solution from the column is regenerated and pumped back to the reservoir and the process is repeated. The inlet and the outlet composition of the biogas was then analyzed using gas chromatography. the methane percent increased to 90.8% in purified biogas from 65.75% in raw biogas and the CO_2 composition decreased from 33.13% to 8.2%. This clearly indicates that there is 75.24% removal of CO_2 and hence our system is 75.24% efficient in removing CO_2 or purifying the biogas. filtration rate is depend on flow rate, concentration of solution, etc. After successful completion of phase one, research for improving efficiency of filter by changing the concentration is going on.

Promotion of agricultural Enterprises : *Promotion of Farmer Producer Organisation*

IRTC formed a cluster of farmers in Valayakkad Padasekharam, Puduppariyaram Grama Panchayath Palakkad district. In this area the farmers cultivated 22 acres paddy by using biological measures of pest and disease control. IRTC provided technical and scientific support to the farmers for total mechanization and produced 40 MT toxin free paddy.

IRTC formed a Farmer Producer Company in Palakkad district with the support of NABARD

and village watershed committees. The pilot activity of the company was marketing the toxin free rice and rice flakes, named "Susthira".

Digitization of Library:

The digitization process of Library of IRTC is progressing, using KOHA an Integrated Library Management System. Users can avail facilities like Self-Check-in and Check-out, search books through the OPAC and also renew books, reserve books as well as create virtual shelves for their reading. Students are also encouraged to suggest book purchases for the library. Koha is an open source catalog system that will allow the public to search its collections of books, DVDs, CDs, audiobooks and other media materials from any phone, electronic tablet or computer that has online access. While the online catalog will look a little different, as before, persons will be able to view their record, place a hold on an item (reserve) for pick up

at a designated branch, renew a borrowed item and much more. Advantages of new Koha Catalog Patrons will be able to use a number of new features in the new online catalog system that includes:

- Managing their own privacy settings for reading and search history
- Sharing their favorite books on Facebook and Twitter accounts
- Saving their searches to be alerted when new materials arrive
- Searching the library's e-Content and print collection simultaneously

Creating, managing and sharing personal lists of favorite books Koha offers so many advantages for our users like complete access to all the catalog's features from a smart phone or tablet or being able to search for a title in both our print collections and our e-Content offerings simultaneously.

Centre of Excellence for Waste Management

Budgetry allocation : 50 Lakhs
Grant in aid Programme of Kerala State Gov. through KSCSTE

This year Govt. of Kerala has provided an additional grant of Rs. 50 Lakhs for improving the Solid Waste Management facilities of IRTC. We had prepared a project proposal of 3 year duration for establishing Centre of Excellence in waste management. This program is to improve the infrastructure and allied facilities currently available at IRTC by elevating it to a support centre for technology innovation, adaptation, quality assurance and quality control for the recycling of degradable, non-degradable and hazardous domestic wastes. As a part of this program SWM department is improving the infrastructure by establishing a sanitation park where working models of all available technologies in composting, bio-methanation, ecosan toilets, and toilet linked bio gasification and waste water treatment systems are displayed for learning by doing type of practical trainings to various stakeholders, would be the major output and achievement of the proposal. Demonstration plant for non-degradable wastes recovery facility is another important training aspect. R&D support for technology innovation and support services were ensured by strengthening the laboratory facilities.

Material Recovery Facility at IRTC Campus

Material Recovery Facility (MRF)

IRTC SWM department has established a material recovery facility (MRF) in the campus. The MRF accepts materials, whether source separated or mixed, and separates, processes and stores them for later use as row material for reuse and reprocessing. The facility at IRTC will function as a demonstration unit.

IV. CONSULTANCY & OTHER PROJECTS

1. Palakkuzhy Mini Hydel Project (2 X 500 KW)

Sponsored by : Palakkad Small Hydel Company
District Panchayath Palakkad
Cost of consultancy : 4% of Project Cost
Consultancy Team : E.P. Radhagopi
M. Venuopalan

Activities completed during 2016-17

a) Topographical survey conducted in the Weir site, Pen stock route and Power house site.
b) Identified the required private land and forest land.
c) 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.
d) All these has been purchased and registered at Vadakkenchery Sub Registrar Office.
e) 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. A agreement was signed between The President, Jilla Panchayath and Mr. Thomas in the presence of Sri. Prasannan, MLA,Alathur.
f) Civil design tender floated and M/s.Aarvee Associates, Hyderabad has been selected for the job and an agreement was signed between them and PSHC in this regard.
g) Civil design preliminary tender documents furnished by the civil designer and is under scrutiny. Civil tender may be published by end of June 2017.
h) Fencing of land purchased is in progress.
i) Tender documents for E&M works has been submitted to PSHC for their scrutiny.

Signing of Agreement with M/s. Aarvee Associates, Hyderabad for Civil Design works

Thendillam Water Falls, Palakkuzhi

2. Theeramythri Project

Sponsored by : SAF, Dept. of Fisherires, Govt. of India
Cost : 16 Lakhs
Project Team : Mr. A.K. Mathew, Sajith. S, Jai Somanath, Jayaprakash P.S., John V Joseph

It is a decade since IRTC began providing support, at different levels, to the Theeramythri project- the livelihood promotion programme of the Department of Fisheries, Government of Kerala. Originating from the post tsunami livelihood programme, implemented by the State Government along the Kerala coast line during 2006-2011, Theeramythri today predominantly covers ten districts of the state including nine coastal districts and Kottayam as well as a part of Wayanad.

Objectives of Theeramythri project

- 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, labelling, and marketing.

Initially, IRTC provided support to the department of fisheries through promotion of micro enterprises specialising in handmade toiletries, and during subsequent years, extended support on various fronts including the formation and capacity building of Theeramythri Management Councils (TMCs). Society for Assistance to Fisher women (SAF), the implementing agency for the Theeramythri project since 2011, has been engaging IRTC, through a formal agreement for last six years, as consultants for technical and management support as also for supporting in field level programme coordination.

IRTC's intervention points, as per the terms of reference (ToR) in the Memorandum of Understanding for the support, have largely remained same for last couple of years and include 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

Programme Planning and Implementation

The micro enterprises under the Theeramythri project recorded a total sales turnover of about Rs 46 crore during 2016-17. Sales showed a dip during November and December, two months soon after the demonetisation came into effect, and picked up again. IRTC team actively supported activity groups and federations in achieving this turnover.

End-to-end support, starting with planning to execution, was provided to SAF to facilitate its participation in the India International Trade Fair (IITF) in November 2016 at New Delhi. IRTC provided support in selection and training of District Mission Coordinators (DMCs) and Business Promoters (BPs). IRTC actively supported SAF and specifically, the Apex Federation during the manufacturing and distribution of 20,000 cloth bags for Onam kits.

Monitoring

IRTC has been supporting SAF in preparing reporting formats for monthly review meetings. The practice, till March 2016, was IRTC sending the forms to District Mission Coordinators (DMCs) and consolidating the data in the filled up sheets. These data would be presented at the monthly review meetings for discussion. The SAF team has now taken over this process.

Another way in which IRTC has been supporting SAF in the monitoring of the project was through regular and extensive field visits. Field visits, as in earlier years, were conducted this year also for trouble-shooting, for providing handholding support, and for assessing the overall performance from the sample units across categories.

Handholding Support

Keeping with the earlier practice, IRTC continued to provide consistent handholding support to the apex federation, category federations, 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 and dry fish.

IRTC provided support to supermarkets on a regular basis on operational issues; special support was provided during troubleshooting. Seafood centres and Community Provision stores were supported through regular visits and monitoring.

Support to Category Federations

IRTC provided support to Garments category federation in procurement of cloth materials and its distribution to the groups. The turnover of the garments business during the present reporting year was Rs 48 lakh.

IRTC supported SAF in procurement of dry fish and its direct distribution to retail outlets. During the reporting year, fish was procured regularly from twelve groups and distributed to 45 supermarkets in Ernakulam. The turnover of fish federation, during the year, was above 17 lakh. IRTC, jointly with SAF, conducted stock-taking at fish federation. Support was provided to SAF in coordination of the garments and dry fish stalls, at an exhibition organised at Marine Drive, Ernakulam, between September and November, 2016.

Category federations of supermarkets and catering groups were provided need-based support during the year. IRTC team supported the catering federation in planning the annual celebration of Sea Food Centre and in their participation in IITF, Delhi. Need based support was provided to Sea Food Centres at Wayanad, Kollam and Vadakara during the year.

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

Training

Since the beginning, IRTC has been instrumental in developing the training module and training method for Opportunity Guidance (OG), Achievement Motivation Training (AMT) and Management Training (MT) for new groups. IRTC provided support in conducting Opportunity Guidance training programmes in ten districts. Presentations were made at OGs, AMTs and MTs in all districts, where the programmes were held.

Training programme for the District Mission Coordinators (DMC) and Business Promoters (BPs) was conducted at IRTC.

Two-day workshop was organised at IRTC, in September, to formulate TMP 6 (Theeramythri Phase 6) activities and implementation

strategies. The entire IRTC project team, including Director and Registrar, participated. Action plan and implementation strategy were prepared and submitted to SAF.

Business Promotion and Marketing Support

IRTC has been providing support to SAF and federations in business promotion, procurement, and marketing activities. This year also it included bulk procurement of garments from major centres of trade and supervision of their distribution to groups across districts, and direct distribution of dry fish. IRTC had established linkages for supply of materials to ICDS programme, a margin of Rs 10 lakh through six supermarkets was achieved during the reporting year. IRTC team actively supported in preparation of 20,000 cloth bags in a time bound manner.

Revival of Defunct Groups

Keeping up with an earlier practice, IRTC took the initiative to conduct Micro Enterprise Clinics in ten districts with the objective of reviving defunct units. A total of 144 units that had gone out of business or had been facing serious crisis were identified and group members were encouraged to attend the clinics. Attempts were made to discuss the problems and find a way to reopen or revamp the businesses.

Theeramythri project has been generating an average turnover of Rs. 45 crores last few years, of which 20-25% goes as owners' wages or salaries for about 3000-3500 group members. The project has not only had an impact on the lives of said number of beneficiaries, it has also triggered creation of structures such as apex federation, category federations and Theeramythri Management Councils (TMCs). These structures have a potential to transform into fully independent functional and business entities.

V. SPONSORED PROGRAMMES

1) Water Conservation Programme by NABARD

Sponsored by : NABARD
Program Coordinator : R. Satheesh

Welcoming Monsoon

NABARD has sanctioned fund to Integrated Rural Technology Centre (IRTC), Mundur for conducting "welcoming the monsoon- water campaign" in six different places in Palakkad district. Even though, Palakkad district receives good rainfall, most of the areas in the district especially the blocks Chittur, Kozhinjampara and Palakkad face severe water scarcity during summer. The ground water situation during summer in the other blocks is also very precarious. In this background NABARD, IRTC and Kerala Sasthra Sahithya Parishad (KSSP) have jointly decided to conduct this water campaign.

Objectives:

1. The objective of the campaign was to create awareness among the people about the importance of water conservation and recharging
2. Propagate cost effective methods for recharging precipitation falling on roof tops.

As per this the water campaign training was conducted at Koottanad (Trithala Block), Mannannur (Ottappalam Block), Koppam Grama Panchayath Hall (Pattambi Block), Kadambazhipuram Gram Panchayath Hall (Sreekrishnapuram Block), and Ananganadi Grama Panchayath Hall (Ottappalam Block) and Bheemanadu (Mannarkkad Block).

The inaugural training programme of the campaign was held at Vattenadu Govt.LPS, Koottanad on 25/06/2016. Trithala Block Panchayath President Smt. K.P.M.Pushpaja inaugurated the programme. This was followed by a presentation on different water conservation measures by Mr. R. Satheesh, scientist, IRTC. In the

Inaugural session progressing at Vattenadu Govt. Lower Primary School, Koottanadu

afternoon there was a practical demonstration by Prasad Kizhkkacheri on well recharging in the house premises of Mr. Narayanan (Registrar,IRTC) at Mezhathoor. There were totally 78 participants consisting of KSSP workers, farmers, local body members, political leaders and general public attended the training programme.

Inauguration by Anangandi Gram Panchayath President Ranjith in DDM Ramesh Venugopal's presence

The second training programme was held at Mannannur on 09/07/2016 at Mannannur UP School. Nearly 30 participants attended this training programme which was inaugurated by Mr. Ranjith, Ananngandi GP president. Mr.Ramesh Venugopal, DDM, Palakkad gave the keynote address. Mr. Unnikrishnan, Regional Secretary, KSSP welcomed the participants; R. Satheesh, scientist, IRTC took class on the theme "importance and different measures of water conservation and ground water recharge". This was followed by a demonstration of well recharging in the house premises of Mr. Subramanian by fitting the rain water filtering system & accessories.

Field demonstration in Subramanian's well at Mannannur

Water recharging training at Koppam

The third training programme was held at Koppam Grama Panchayath Hall on 16/07/2016. 55 persons participated in the training programme, the participants include Grama Panchayath members, KSSP workers and general public. Mr. Lakshmanan, KSSP Area secretary welcomed the gathering. The training was inaugurated by Smt. Sunitha, Koppam Grama Panchayath President, Gram Panchayath Vice president Sri. Balan Master was the chairman of the session. R.Satheesh, IRTC gave presentation on different water conservation measures.

Practical demonstration at Kailasanadhan Master's house

The practical demonstration of the filtering & recharging system was conducted in the open well of T.G.Kailasanadhan Master, Thadampulliyalil,Pulasseri PO. The participants raised a lot of doubts about the different aspects of the recharge system. R. Satheesh & Prasad Kizhakkancheri clarified their doubts. There was good coverage of the programme in the local TV channels. The Koppam GP has already set apart Rs 2 lakhs for doing recharging in 40 wells; the implementing officer of this project has agreed to use filtering system introduced by IRTC during the demonstration as a component of their project.

Water campaign training at Mannarkkad

The fourth programme was held at Bheemanadu, Mannarkkad on 17/07/2016, 82 participants attended the training programme. Smt. Anitha, KSSP Secretary welcomed the gathering. Dr.K.Vasudevan Pillai, Coordinator, Water Education Centre, NSS College, Nenmara took class on the theme "water conservation & well recharging ". The participants include KSSP workers, teachers, Grama panchayath members and general public. After lunch, there was a practical demonstration by installing the water

Dr.Vasudevan Pillai taking class during the training programme

filtering system to the well of Mr.Ramachandran. IRTC staffs Rangaswamy (Engineer) and Prasad, (Plumber) conducted the demonstration.

Water campaign Kadampazhippuram training

The fifth training programme was conducted at Kadampazhippuram Gram Panchayath Hall on 23/07/2016. This programme was organized jointly by the Kadmpazhippuram Gram Panchayath, IRTC and NABARD. The training was inaugurated by Smt. Ambujakshi, President, Kadampazhippuram GP. Sri. Ramesh venugopal DDM, NABARD gave the keynote address followed by a class on the theme "importance of water conservations and roof water recharging " by R. Satheesh, Scientist, IRTC, 49 persons attended the training programme.

Field demonstration was done in the well of Mr. Balaraman, Kadampazhippuram by fitting the filtering system on the outer wall of the house . This GP has got a well recharging project sanctioned under MGNREGS, the MGNREGS officials of the panchayath told that they are seriously considering the utilization of the filtering technology developed by IRTC for implementing their well recharge project.

Field demonstration of filtering system in the house of Mr.Balaran, Kadambazhippuram

Culmination of the water campaign

The culminating function of the water campaign was conducted with training at Ananganadi GP Hall on 30/07/2016. The GP president Mr. Ranjith, inaugurated the training programmed and urged the trainees to motivate people to participate actively in water recharging activities. The Joint BDO, Smt. Bindu told that water recharging is the need of the hour and felicitated the participants. R. Satheesh, Scientist,

Aananganadi Gram Panchayath President Mr.Ranjith inaugurates the training organized as part of the culmination of the water campaign

IRTC took class on the theme "importance of water conservation & different methods of water recharging with specific reference to well recharging". 145 participants from different walks of life such as the GP members, MGNREGS laborers', Ananganadi Higher Secondary School students, teachers, farmers and general public attended the training programme. After the training, demonstration of the recharge system was done in the Gram Panchayath well near to the GP office.

Rangaswamy demonstrates the filling and fitting of the filter unit at Aanangandi GP office

Outcome of the campaign

A positive outcome of the campaign and training conducted at six different places of the district is that it was possible to create awareness on water recharging among a good number of people. After starting the programme there are regular enquiries at IRTC from different places for fitting recharge system and filter unit for recharging their wells. There were also requests from Gram Panchayaths for conducting similar training in their respective areas.

2) World Wetland Day

Sponsored by : Kerala State Council for Science, Technologgy and Environment *(*KSCSTE)

Program Coordinator : R. Satheesh

The International Wetland Day was celebrated at V. V. College of Arts and Science, Chullimada on 22nd February 2017. Principal of the College Prof. Kaladharan Unni inaugurated the Wetland Day celebration and the function was presided by B. M. Musthafa, Rtd. Physics Professor, Govt. College Chittoor.

The first presentation was made by Prof. Kaladharan Unni, in which he explained the importance of wetland ecosystem services to the environment with special emphasis on protection of paddy fields.

R.Satheesh, Head, Natural Resource Management Division, IRTC delivered a class on the theme "wetlands and environmental importance". He elaborated the importance of paddy fields in Palakkad district as a wetland system which provides many kinds of ecosystem services to the people such as facilitating the storage and recharge of rainfall, promoting food security and regulating local climate. Watershed is a geographical boundary from which water drains out through a common outlet. The land use pattern, slope, soil type etc. are the signatures of a watershed which influences it's hydrology features. A watershed has got a run off zone, percolation zone and storage zone. Watershed treatment is meant to reduce the velocity of surface run off, increase the recharge and reduce the soil erosion.

Rajan.M, the GIS analyst was conducted a presentation on the topic "wetlands and its geography". The highlights from the presentation are introduction to Geographical Information System, type of GIS data, General facts of GIS, types of spatial entities, projection system and datum in GIS, software like proprietary and open source in GIS, various processes in GIS like how can import the base map in to the software, need of Georectification process and its general outline also given, how to digitization done, Analysis like buffering ,spatial query, filtering, network analysis etc. had been described here. Besides these GIS basic things, the application of GIS had been described broadly in this session. In the topic like GIS and its application- GIS mapping as general, GIS in telecom and network services, accidental analysis and hot spot analysis, Urban planning and GIS, Wetland Agriculture and GIS, Role of GIS in disaster management, flood damage estimation and Wetland Mapping.

B. M. Musthafa, Rtd. Physics Professor, Govt. College Chittoor had done another presentation based on the topic "wetlands for disaster risk reduction". In the presentation he emphasised, how the wetland ecosystem equilibrium disturbed with the solid waste and liquid waste discharge to it, excessive flooding, discharge of excess fertilizer and insecticides, ecosystem equilibrium disturbances due to extreme climate conditions, aggressive human interventions, over all how all these factors affects the biological harmony in wetland system and how these risks can be minimized by scientific protective measures.

A total of 64 persons including teachers and students from department of Geography, selected students from other departments of VV College and farmers from the neighbourhood were participated in the function.

3) National Technology Day - 2016

Sponsored by : KSCSTE

Program Coordinator : R. Satheesh

National Technology Day was celebrated at IRTC campus on 7th May, 2016. This year's technology day was celebrated with the theme of rain water harvesting and conservation. The reason of selecting this theme was the acute water scarcity due to rainfall shortage, Palakkad district experienced during the summer of 2016. The technology day function was inaugurated by Dr.N.K.Sasidharan Pillai, Director, IRTC.

Dr.Vasudevan Pillai, Associate Professor, NSS College, Nenmara took class on the techniques for roof water harvesting. This was by a demonstration in assembling roof water harvesting system in the IRTC campus by Dr.Pillai and Prasad ,professional plumber. This new filtering system helps in getting clear water with very good quality. This water can be directly use or recharged to the well. The total cost of this rain water harvesting assembly is nearly Rs.10,000. Nearly 65 people from different parts of the district participated in this programme. The participants are KSSP activists, professional plumbers, teachers and general public.

R.Satheesh, Engineer, IRTC gave the introductory speech and welcomed the gathering. Sri.Sabu Mon.PS, engineer TDF project Attappadi, explains the various civil structures that can be adoptable for rainwater harvesting and storage. Sri.Abhilash, civil engineer from Muthalamada, delivered a class on how to keep harvested water in ferocement tanks without affecting contaminations. Prof.B.M.Mustafa, Research Coordinator

extended vote of thanks. 65 persons from different parts of Palakkad district participated in this workshop. It was also decided to conduct follow up programmes to this at different parts of the district.

Thrust in the presentation by Dr.Vasudevan Pillai is described below.

Less than 2 percent of the water on earth is freshwater. And most of that is locked up in the polar ice caps or is part of the ground water. More than five million people, most of them children, die each year from illness caused from drinking unsafe water. The privatization of water industry a 400 billion dollar a year business globally one third larger than global pharmaceuticals. Every year, the average Briton uses 10,000 gallons of water, 500 percent more than average Indian does. The total wastewater generated in India is to the tune of 22900 million litters per day. Of this quantity a mere 5942 million litters per day is treated.

Rainwater harvesting is the collection of raindrops. In most cases, a roof is used for this purpose. The collected water can be used for recharging water bodies, small scale irrigation , clothes washing, bathing and after treatment also for drinking and food preparation. Rainwater offers advantages in water quality for both irrigation and domestic use. Rainwater is naturally soft (unlike well water), contains almost no dissolved minerals or salts, is free of chemical treatment, and is a relatively reliable source of water for households

One of the advantages of rainwater harvesting systems is their flexibility. A system can be as simple as a barrel placed under a rain gutter downspout for watering a garden or as complex as an engineered, multi-tank, pumped and pressurized construction to supply residential and irrigation needs.

Rainwater harvesting systems are integrated with the house, which makes the water easily accessible. Rainwater harvesting systems are personal, which prevents arguments about who should take care of maintenance.

The increasing water demand, unrestricted growth of the city, erratic supply of water and the current dry spell has resulted in panic drilling of Bore wells, which has caused depletion of the water. The only way to improve ground water levels is by harvesting rainwater. We use major part (80%) pure drinking water for flushing, washing clothes & utensils and gardening.

It is possible to collect rainwater throughout the year and use the same for Gardening, car washing and domestic non-potable purpose like washing clothes, dishes, bathing, toilet, swabbing the floor, etc.

4) National Science Day 2017

Sponsored by : KSCSTE
Program Coordinator : Rangaswami R.

Workshop on "user friendly technology for the specially abled persons"

As a part of National Science Day celebration-2017 Integrated Rural Technology Centre (IRTC) conducted a two day workshop on "user friendly technology for the specially abled persons" with the aim of technology sharing and skill development among specially abled persons. The training was held on 27th and 28th Febuary 2017 at Aaswasa bhavan, Karingarappully, Palakkad and was jointly organized by IRTC & KSCSTE with support of teachers from Aaswasa Bhavan Trust. A total of 40 persons participated, of which 30 were specially abled persons.

The training programme was inaugurated by Mr. N. S. K. Umesh IAS, Assistant Collector of Palakkad District, Mrs. Rima Sudhahar, Teacher of the Aaswasa bhavan trust welcomed the participants. Prof. B. M. Musthafa, Research Co-ordinator of IRTC gave an introduction about the workshop. The programme was facilited by Mrs. Jyothy Balachandran, President of OISCA, Palakkad and Mr. A. K. K. Menon, Director, Parivar, Palakkad. Sri. Gopakumar. P., Sri Subhesh V., Smt. Rema R. and Smt. Yasodha were the trainers in this workshop.

There was a display of tools arranged for the workshop. After the inauguration, Mr. Umesh IAS visited potters' wheel unit, decoupage unit and pottery ornaments unit. The Assistant Collector appreciated the IRTC's contribution amongst the pottery community, particularly the fabrication of user friendly mini motorized wheel. The participants had been separated

into three groups. Mr. Gopakumar, master artisan from Kuthanur, Palakkad introduced about pottery making, explained the difference between old and new potter's wheel. Mrs. Rema and Mrs Yasodha handled the practical classes in decoupage. Mr, Subhesh, handled theory and practical sessions on terracotta ornament making.

The participants went on training session which was entirely practical oriented. Each participant got chance to handle the machine for pot making. In the session, the pugged clay was put on the potters' wheel and it was rotated for making pot by hands. The participants were involved in this practical session one by one. As the training focused on skill development to specially abled students, there were some difficulties felt by these students in this session but two of them were showing better performance in using the machine.

At the same time Second group of participants were trained in decoupage works which was handled by Mrs. Rema and Mrs. Yasodha from Chithrakala JLG.

The third group of participants were engaged in terracotta ornaments making using dyes by Sri Subhesh. This group consisted of the most disabled to making terracotta but they were involved in making articles using dyes.

5. World Environment Day

Sponsored by : KSCSTE
Program Coordinator : Rangaswami R.

"Protect River for Future Generation"

As part of the World Environment Day (WED) celebration, Integrated Rural Technology Centre (IRTC) had planned to conduct a campaign with theslogan "protect river for our future generations". The activity was to conduct a transit walk through the bank of Thoothapuzha (kunthipuzha) which is one of the main tributaries of the Bharathapuzha River, the second-longest river in Kerala, mainly used by the people of Mannarkkad taluk of Palakkad district.

The World Environment Day Campaign programme was jointly organized by KSSP,IRTC & KSCSTE with the support of NSS volunteers and Teachers from two sub educational districts. Cherpulasery & Mannarkkad on 18th June 2016. The student participants come from Govt. Higher Secondary School, Vellinezhi (Cherpulassery Edn district) and TENM HS Kundurkunnu (Mannarkkad Edn district.)

Mannarkkad zone

A group of 70 members including NSS valunteers of TNM HSS Kundurkunnu, Social workers from kssp, Yuvasamithi-Balavedhi members, elected members of gramapnchayaths and Library council members were

R. Satheesh delivering a class

NSS volunteers with KSSP activists at Kunthippuzha

joined together at 9:30 am at Kuruthichal, basin of Kunthipuzha river Mannarkkad.. A class was delvered to the gathering by scientist from IRTC R.Sathessh.

The upper portion of the river was very neat & clean & it was a place which shows the beauty of the river. There was no dredging around the river. There were large rocks & cold fresh water. The lower portion of river had a face that was opposite to that of upper portion. The width of river is getting reduced by encroachment to that place & there is dredging also. The programme was wound up at 4:15 pm by giving a vote of thanks by NSS student. Ajmal & Anagha.

Cherpulassery Zone

A group of 27 members including 15 NSS students of Govt. HSS Vellinehi, 12 social workers from KSSP joined at Muriyankanni bridge at 9:30 am. The programme inaugurated by Vellinezhi Gramapanchayath President Sri.Sreedharan Master along with classes by Sri. C.Radharkrishnan ,ward member and Smt. NM Geetha, actvist, KSSP regarding importance of river protection.

Nss volunteers and KSSP activists at Muruvankanni

NSS volunteers and KSSP activists at Kalikadavu, Karmanamkurrissy

The team consisting of vellinezhi NSS valunteers walked from Muruvankanni bridge to Karimanamkurissi Kalikadavu bridge covering a distance of 3km. A main problem seen on this journey was that local people planted "Naykarimba", which resulted in encroachment

6. International Year of Pulses - 2016

Sponsored by : KSCSTE
Program Coordinator : I.A. Chakko

a) One day Seminar

A one day seminar on pulses was conducted at Integrated Rural Technology Centre (IRTC). Fifty participants, including students, farmers, watershed committee members and agricultural labourers from different parts of Palakkad district attended the seminar. Mr. I. A. Chakko, Agronomist, IRTC welcomed all participants. Prof. B.M. Musthafa, Research Coordinator, IRTC, informed that 2016 was declared as International Year of Pulses by the United Nations because of their nutritive value as well as the nitrogen assimilation capacity in the soil. He also gave a detailed account on the health benefits of pulses as well as its role in food security. Cultivation of pulses keeps the soil more rich in nitrogen as well as sufficient in minerals.

Dr. N.K. Sasidharan Pillai, Director, IRTC during his inaugural address, presented the importance and nutritive value of pulses in our day to day life. He stressed the need for cultivation of pulses alone or in combination with other crops and the advantages of including pulses in our daily diet. The slogan "Grow pulses to have normal pulses for environment " was well explained by him. Package of practice for cultivation of pulses and its effect on soil health, need for organic farming and intercropping were briefly dealt by him.

Dr. Sheela Karalam, District Medical Officer, Indian Systems of Medicine Thrissur, delivered the key note address. In her presentation entitled "Pulses - Drug and Diet " she mentioned that International Pulses Year is observed to heighten public awareness about the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition. She gave a detailed account on 11 pulses used in food and medicine. Multiple uses of pulses in pharmaceutics, internal and external therapeutic, as dietetics and health drinks and cosmeceutics were explained citing common examples like green gram, horse gram and black gram. In her talk, the composition of pulses such as high level of iron and zinc, high fiber (15 g dietary fiber per cup), resistant and slowly digested starch, rich protein (23%) low fat (1%) , low glycemic index (GI), and high vitamins and minerals were covered. The benefit of including various pulses especially to women and children in different forms such as germinated, half cooked, mixed with other vegetables etc in daily diet was explained.

Sri, Abhilash Karimulakkal, Agricultural Officer, Chittur, Dr. K. K. Seethalakshmi, Emeritus Scientist (KSCSTE), IRTC, Mundur, Shri.

K. Gopalan, Practicing Organic Farmer also interacted and shared their experience with the participants.

In the interaction session following topics were covered.

1. Pulses an introduction
2. Different pulses and their varieties
3. Package of practice for cultivation
4. Effect of pulses cultivation on soil health
5. Organic farming and intercropping
6. Pulses for food security with special reference to proteins and oils
7. Pulses in Indian System of Medicine and their value addition
8. Support and services for cultivation and value addition from Govt. Departments.

During the interaction session participants cleared their doubts about wrong combination of foods like horse gram and curd (virudhaaharangal) and the different methods of preparation of pulses such as soaking in water, half cooked , frying etc.

b) Quiz competition for Higher Secondary School Students

A quiz competition was also conducted at IRTC for high school level students in connection with this event. A team of four students each from three High Schools belonging to Mundur, Puduppariyaram and Parli Gramapanchayaths participated in the competition. The names of the schools, participating students and the results are given below.

Details of high schools and names of students who participated in the quiz competition:

TEAM – A	TEAM – B	TEAM - C
P .H. S Parali	**C.B.K.M .H. S Mundur**	**H. S Mundur**
Thara M Santhosh	Aswathi. V	Ashish Chatterjee. K.S
Anirudh. V	Vijitha. R	Thanseer. A
Swathi. T. J	Midhun.K	Dhanya. C.R
	Abijith.S	Vishnumaya. M

The prizes were distributed by Sri. P.K Narayanan, Registrar, IRTC. In addition to the prizes, The book captioned '' Kanjeem Payarum" (കഞ്ഞിയും പയറും), and the certificate of participation were also given to each student for motivation.

VI. INHOUSE PROJECTS & ACTIVITIES

1) ROOF WATER HARVESTING SYSTEMS
R&D PROJECT

Team : Prof. K. Vasudevan Pillai (RAC member)
R Rangaswamy, Prof BM Musthafa, R Satheesh

Background for the study

Water Scarcity in Kerala - Project Data

- A study on water use and resources conducted by the Centre of Excellence in Environmental Economics (CEEE) of the Kerala Agricultural University (KAU) predicts severe water scarcity in the State by 2021.
- The study has projected a gap of 1,268 Mm3 (1,268 billion litres) between supply and demand for 2021 on the basis of current level of rainfall, storage and available groundwater.
- Current signals of climate change, land-use changes and demographic pressures point to a still wider supply-demand gap, warns the study.
- The projected demand by 2021 is 48,600 Mm3 whereas the available resources can provide only 47,332 Mm3 of water. The demand includes 28,900 Mm3 (59 per cent) water for irrigation, 7,500 Mm3 (15.4 per cent) for domestic and industrial uses, and 12,200 Mm3 (26 per cent) for salinity control and reclamation.
- The utilisable water quantity includes the expected 42,700 Mm3 rainfall and a projected groundwater availability of 4,632 Mm3. The groundwater status is alarming with Kerala in the third position among States.

Relative Vulnerability Index - Kerala Status

- Thrissur, Ernakulam, Malappuram, Thiruvananthapuram, Kollam, Kozhikode, Alappuzha and Kannur were categorised as highly vulnerable.
- Idukki and Wayanad districts were in the relatively safer group
- Kottayam, Palakkad, Pathanamthitta and Kasaragod are in the medium vulnerability status.
- Thrissur district is the most vulnerable to water stress with an index of 199.55
- Ernakulam comes second with an index of 152.58.

- Malappuram district with an index value of 108.52 is in the third position, but it has considerably improved its position since 2001.

Since ground water reserves are over-exploited, it leads to remarkable decline and deterioration with respect to its quantity as well as quality. This precarious situation needs to be addressed and rectified.

Among the various alternative technologies to augment freshwater resources, rainwater harvesting and utilisation is a decentralised, environmentally sound solution, which can avoid many environmental problems often caused in conventional large-scale projects using centralised approaches.

Advantages of Rain Water Harvesting

- Rainwater harvesting systems can provide water at or near the point where water is needed or used.
- The systems can be both owner and utility operated and managed. Rainwater collected using existing structures (i.e., rooftops, parking lots, playgrounds, parks, ponds, flood plains, etc.), has few negative environmental impacts compared to other technologies for water resources development.
- Rainwater is relatively clean and the quality is usually acceptable for many purposes with little or even no treatment.
- The physical and chemical properties of rainwater are usually superior to sources of groundwater that may have been subjected to contamination.
- Rainwater harvesting technologies are flexible and can be built to meet almost any requirements.
- Construction, operation, and maintenance are not labour intensive.

Why Filtration?

Since roof water carries contaminents including algea, dust, bird excrement, decayed moss and leafs, etc., so screening of this items should be required.

Types of Rain Water Management Programs

The categorisation of rainwater management systems depends on factors like the size and nature of the catchment areas and whether the systems are in urban or rural settings. Some of the systems are listed below.

1. Harvesting using simple roof water collection systems
2. Collection using larger systems for educational institutions,

stadiums, airports, and other facilities
3. Roof water collection systems for high-rise buildings in urbanised areas
4. Collection of storm water to recharge surface catchments (Ponds etc)
5. Collection of storm water in urbanised catchments

Data used for Diamensional requirements for the filter unit

Month	Av. RF (mm)	W C (ltr.)	Av. RF (mm)	WC (ltr.)	AW.RF (mm)	WC (ltr)	Av. RF (mm)	WC (ltr.)
Jan	0	0	0	0	0	0	0	0
Feb	54	4320	0	0	0	0	0	0
March	35	2800	0	0	6	480	0	0
April	34	2720	79	6320	152	12160	13	1040
May	16	1280	184	14720	279	22320	204	16320
June	896	71680	250	20000	384	30720	408	32640
July	839	67120	468	37440	258	20640	330	26400
Aug	178	13680	501	40080	180	14400	40	3200
Sep	267	21360	206	16480	255	20400	36	2800
Oct	171	13680	147	11760	114	9120	33	2640
Nov	38	3040	64	5120	145	11600	11	880
Dec	0	0	16	1280	22	1760	0	0
Total	**2013**	**201680 ltr**	**2014**	**153200 ltr**	**2015**	**143600 ltr**	**2016**	**86000 ltr**

Recorded Av. Rain Fall (2013-2016) at Vadakkancherry and possible Water Catchment (WC) from 100 Sq mt roof area @ 80% collection efficiency.

Designing Water Filter System

During the first Phase of the work, the team fabricated a simple filter system suitable to manage rain water drain from 100 sq. M collecting area. Activated charcoal embedded filter system has provisions for silt control, debris arresting and effective flush out. Different models were developed using PVC pipes and materials readily available in the market and they were subjested to performance study. Filtration rate and quality of water from the system were also studied. Systems mounted on wall was found to be convenient for operation and trouble shooting. The second phase activity is in progress to develop multi purpose tank based RWH system suitable for catchment from large roof area.

2) IRTC Project Implementation Unit (IRTC PIU)

IRTC Project Implementation Unit was registered on 02.03.2016 under Charitable Societies Registration Act. This unit was initiated in accordance with the decision of the general body of IRTC held on 14.12.2015 for the implementation of various projects all over the state. The office is functioning from 21.05.2016 at IRTC Jubilee Campus with all office facilities. At present IRTC PIU is signing agreement with various local Self Government, Government and private institutions for the implementation of solid waste management, sewage treatment and solar projects and implementing the same. The house hold solid waste management projects are mainly implemented through Parishad Production Centre and engineering projects through selected service providers.

This year around 130 LSGs had entrusted their projects to IRTC-PIU for implementation.

Sl no	Type of Project	Total Project Amount	Advance amount received
1	House hold solid waste management	11,67,81,990.00	3,56,32,166.00
2	Centralized Waste Management and STP (Eng.)	2,79,05,800.00	1,47,36,331.00
3	Solar Projects	59,85,913.00	59,85,913.00
	Total	15,06,73,703.00	5,63,54,410.00

The present executive committee of IRTC PIU consists of 9 members.

1.Chairman : Registrar IRTC (Sri.P.K.Narayanan)
2.Secretary : Sri. I.A.Chakko

Executive members

1.Director IRTC (Dr.N.K.Sasidhran Pillai)
2.Director PPC: (Sri. V.G.Gopinathan)
3.Sri.V.R.Regunandanan
4.Smt K.Binumol
5.Prof:P.K.Ravindran
6.Prof:B.M.Musthafa
7.Sri.P.V.Joseph

3) Social Science Division

Division Head	: Dr. Rajesh K.
Software Architect	: Anastes M. P.
Consultant	: Chinchu C.

The Social Science Division started its formal operation in February 2014, and has been engaged in research and academic support activities. The development of the new website of IRTC was overseen by the division, with content development taken up by the division. The division has also contributed to the content development of the Samata website. Digitalization of the library and documentation centre is also coordinated by the division. The Eureka digitalization project, supported by Friends of KSSP, is also progressing well. Websites for both have been developed and launched separately.

The division had submitted a proposal and subsequently undertook the DPR preparation for 3 Gram Panchayaths – Poomangalam in Thrissur district, and Keralassery and Vellinezhy in Palakkad district, under the Kerala Local Government Service Delivery Project (KLGSDP). The project is being implemented to enhance and strengthen the institutional capacity of the local government system in Kerala. The division had also assisted in preparing the concept note and proposal for Clean Chaliyar project of Nilambur Block Panchayath. The project is in the execution stage. The division was actively involved in the proposal preparation and subsequent operations of the Climate Change Adaptation and Mitigation project, currently under consideration of Government of India through NABARD for submission to Global Climate Fund. The concept note preparation for extended implementation of NABARD's WADI project in Nilambur is also undertaken by the division.

A proposal submitted to Pazhayannur Block Panchayath for enhancement of services in Buds special schools was sanctioned and the project has started. Through the four month project, vocational training will be provided to the students in four Buds special schools of the Block as a livelihood promotion-cum-life skill development activity. Academic support is being given to a proposed library for the youth in Attappadi tribal settlement.

The division has also supported the activities of Research Scholars' Collective in conducting a three day workshop on 'Introduction to Qualitative

Research', in association with Payyannur College, Kannur. A socio-economic survey among households and paddy farmers of Thurthikkara in Ernakulam district was also undertaken by the RSC with the support of the division. The survey report was released in a public function on May 28, 2017 by former MLA Shri. M. J. Jacob at Mulanthuruthi, Ernakulam.

Proceedings of the Kerala Development Congress, compiled as a book on Kerala Development, is in the final revision stage. Faculty from the division had handled training sessions and delivered lectures in various programmes conducted by institutions such as Academic Staff College, Calicut University, Government Victoria College Palakkad, National University of Education Research Planning and Administration, New Delhi, etc. and has produced an approach paper on Block Planning for Foundation for Ecological Security, Gujarat. Personnel from the division had participated in the regional workshop on science popularization projects conducted by CUSAT and KSCSTE, at Kochi, on April 26, 2017. Mr. Prajeesh has been designing and preparing the IRTC Newsletter. The division has also provided support to other divisions in preparing proposals and reports that have been submitted to various bodies including NABARD, KSCSTE, Department of Biotechnology, Government of India (DBT), Department of Science and Technology, Government of India(DST), and Local Self Governing Institutions.

The application submitted to Department of Social Justice, Kerala Government, for accreditation is in progress. The division is coordinating an in-house project for producing monographs on various areas of operations and accomplishments of IRTC for the last three decades. The project is being conducted as a paid internship program.

More than 15 Post Graduate students in Social Work and other Social Science disciplines were provided with internship/project guidance by the division. Research Scholars from various institutions have also received support from the division. Some of the student projects were done as independent studies, as part of an effort to produce a comprehensive frame of research outcomes with future applicability and social significance. The topics covered include Career path of women LSG members, Parents' Aspiration and Children's Educational Attainment, Livelihood Status and Attitude towards Agroforestry among Tribals etc.

4) Web-GIS based Decision Support System

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.

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.

The reporting year IRTC conducted training programs on Web GIS based projects to Agricultural Officers and engineering students.

5) Mushroom Cultivation Unit

Team Members : Surya Sethumadhavan
Sunitha P.L , Padmavathi P.V,
Sajitha N.C, Sudha P.S

A central spawn cultivation unit as well as a model mushroom cultivation unit is operating 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 laying 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 300 kg of Mushroom spawn every month.

Mushroom production and sales details

SI. No	Particulars	Quantity
Production		
1	Total beds prepared	3064
2	Damaged due to contamination	84
3	Total production of mushroom	1230.500 kg
Sales		
4	Fresh mushroom(200 g pack)	5856
5	Dry mushroom(50 g pack)	45
6	Mushroom power(10 g pack)	42
7	Mushroom bed	78

Training Programs

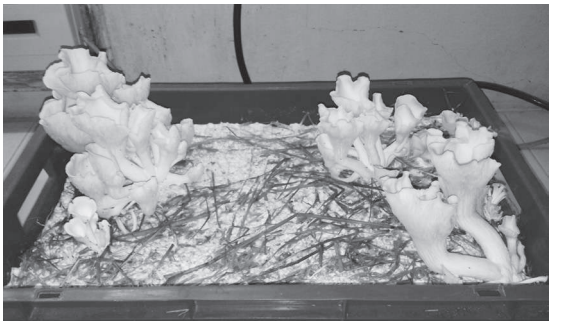
During the reporting year IRTC has conducted 5 training programs with a total of 70 persons

Mushroom division has undertaken the following activities:

1. Mushroom cultivation for rural development; A project funded by KSCSTE entitled "Mushroom cultivation : Capacity development program for livelihood enhancement of the rural women through promoting rural innovations".

2. Inhouse Works :

a.Mushroom cultivation in plastic bottles



b. Mushroom cultivation in crate using the expired spawn

6)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.

7) Ornamental Fisheries 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 according 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 containers, 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.

8) Vermi Compost Unit

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

9) 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 bio-waste 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 strategy 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	No. 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

10) 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.).

11) 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 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.

12) 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. 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.

13) Computer & 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. In this financial year 7 desktop-PC's, 5 Laptops, 1 Network Printer and a photocopier were purchased.

14) Student Projects

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	Course	College	Title of the Project
1	Keerthy.M.R	B.Sc. Microbiology	Nehru Arts and Science College, T.M.Palayalam Comibathore	Internship
2	Aruna	B.Sc. Microbiology	Nehru Arts and Science College, T.M.Palayam Comibathore	Mushroom Spawa Production and Biogas Plant
3	Aswathi.C	B.Sc. Microbiology	Nehru Arts and Science College, T.M.Palayam Comibathore	Mushroom Spawa Production and Biogas Plant
4	Sruthi.S		Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
5	Varsha.V		Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology

6	Snehaja.C.S		Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
7	Jessy Kurian	M.Sc. Biotechnology	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
8	Aishwarya.S		Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
9	Reshma Sugunarajan	s	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
10	Greeshma Sugunarajan	M.Sc. Biotechnology	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
11	Shereena.M.R	M.Sc. Biotechnology	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
12	Deepthi.K	M.Sc. Biotechnology	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
13	Aswathi.V	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Techninques in Microbology
14	Vishnupriya.P.S	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Techninques in Microbology
15	Sudhina.M	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Techninques in Microbology
16	Hitheswar. C.R	B.Sc. Microbiology	Nehru Arts and Science College, T.M.Palayam Comibathore	Proces in microbial biotechnology
17	J.Jasim	M.Sc. Biotechnology	Nehru Arts and Science College, Comibathore	Phytochemical an analysis and antimicrobial activates of Weightia Tincloria

18	J.Jasim	M.Sc. Biotechnology	Nehru Arts and Science College, Comibathore	An assesment of qulaity of water source in IRTC campus
19	Akhila.K.M	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Bacteriological Examination of Water Samples in Tirur River, Malappuram District, Biogas and Greywater Treatement Technology in iRTC
20	Sruthi.V	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Bacteriological Examination of Water Samples in Tirur River, Malappuram District, Biogas and Greywater Treatement Technology in iRTC
21	Priya.S.Nair		Govt.Engineering College, Sreekrishnapuram, Palakkad - 678633	Electronics and communication Engineering Peltier Cooling and its Modeling
22	Reena Ahraham		Govt.Engineering College, Sreekrishnapuram, Palakkad - 678634	Electronics and communication Engineering Peltier Cooling and its Modeling
23	Ashmitha.E.G		Govt.Engineering College, Sreekrishnapuram, Palakkad - 678635	Electronics and communication Engineering Peltier Cooling and its Modeling
24	Sreerekha Valsan.K		Govt.Engineering College, Sreekrishnapuram, Palakkad - 678636	Electronics and communication Engineering Peltier Cooling and its Modeling
25	Akshatha.R	M.Sc. Biotechnology	Barathidasan University, Trichy	Isolation of Pathogene Bacteria from Diseased Fish
26	Hemalatha.R	M.Sc. Biotechnology	Barathidasan University, Trichy	Isolation of Pathogene Bacteria from Diseased Fish
27	Ranjitha.P	MSW	Sree Sankaracharya University of Sanskrith Regional Cenre, Tirur, Thirunnavaya	KLGSDP, DPR Preparation of backward Panchayath, Keralassery
28	Princy.K	MSW	Sree Sankaracharya University of Sanskrith Regional Cenre, Tirur, Thirunnavaya	KLGSDP, DPR Preparation of backward Panchayath, Keralassery

29	Arathi.Menon		Sree Sankaracharya University of Sanskrith RC, Payyannu	KLGSDP, DPR Preparation of backward Panchayath
30	Athira.M		Sree Sankaracharya University of Sanskrith Regional Cenre, Tirur, Thirunnavaya	KLGSDP, DPR Preparation of backward Panchayath\
31	Ayisha.M.P		Sree Sankaracharya University of Sanskrith Regional Cenre, Tirur, Thirunnavaya	KLGSDP, DPR Preparation of backward Panchayath
32	Chaduri.P.K	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Internship
33	Amrutha.N	B.Sc. Microbiology	Nehru Arts and Science College, Comibathore	Internship
34	Karthika.P.K		Nehru College of Engineering & Research Centre, Pampady, Thiruvilwama, Thrissur	Performacne Analysis of Biogas Prodcution Potential from Banana Peudo-stem
35	Roshith.M	M.Sc. Chemistry	Kungumadas Arts And Science College, G.N.Mill Post, Coimbathore	Internship
36	Jishy.K.J	M.Tech	Kannampally, Payyanadam, Mannarkkad, Palakkad	Production of bioliesal from chocken and pork waste: perfoance Analysis
37	Christeena Mathew		Nehru College of Engineering & Research Centre, Pampady, Thiruvilwama, Thrissur	Production of bioliesal mixture of micro alage oil and sunlfower oil performance analysis
38	Rufaida	M.Sc. Physics	Assambah Arts and Science College, Valayamkulam, Malappuram 679591	Dielectric Behaviour of Glazed and Unglazed pots
39	Faseena.T.A	M.Sc. Physics	Assambah Arts and Science College, Valayamkulam, Malappuram 679592	Energy Auting in a food production system

40	Asiya.T.V	M.Sc. Physics	Assambah Arts and Science College, Valayamkulam, Malappuram 679593	LED Specctrum Analysis
41	Ayisha Sahla.N.P	M.Sc. Physics	Assambah Arts and Science College, Valayamkulam, Malappuram 679594	Pettier Cooler
42	Fathima Suhra.P	M.Sc. Physics	Assambah Arts and Science College, Valayamkulam, Malappuram 679595	Earth air heat Encheyor
43	Divya.P.K	M.Sc. Chemistry	Mercy College, Palakkad	"A Comparitive Study of the Cation Exchange Capacty (CEC) of Different soil samples and its Dependence on pH and Calcium 10N Concentration"
44	Minu Elizabeth.M	M.Sc. Chemistry	St.Mary's College, Thrissur	Study of Pesticidal Effect and Phytochemical Analysis of Vitex Negundu and Cleistanthus Collinus
45	Sajitha.R	M.Sc. Chemistry	M.P.M.M.S.N.Trust College, Shorannur	A Study on the Quality or Through Different Treatment
46	Vidhya.R	M.Sc. Chemistry	N.S.S. College, Nemmara, Palakkad	An Insitu Method for Deflouridation Using Magnesim Hardness
47	Annu Cherian	M.Sc. Chemistry	Baselius College, Kottayam	Extraction of Turmeric & Kaffirlime by Simple Disttilation to test its action as mmosquito repellm
48	Deepika.M	M.Sc. Chemistry	Baselius College, Kottayam	Estimation of Phenol & Lignin from Compost Samples
49	Anila.M	M.Sc. Chemistry	M.P.M.M.S.N.Trust College, Shorannur	An Analytical Study on the Response of Soil Nutrients on the Production of Curcumin in Turmeric Rhizomes

50	Ann Maria.C.G	M.Sc. Chemistry	Vimala College, Cheroor, Thrissur	An in Situ Method for De Fluoridation using Magnesium Hardness
51	Deepa Joseph.K	M.Sc. Chemistry	Vimala College, Cheroor, Thrissur	Determination of Physio Chrmical Propertirs and Heavy Metal Contents in Varipus Compost Samples
52	Nimisha.K	M.Sc. Chemistry	N.S.S. College, Nemmara, Palakkad	Study of Pesticidal Effect and Phytochemical Analysis of Extract of Strychmos-Mux-Vomalia and Annona Squamosa
53	Sangeetha.P	M.Sc. Chemistry	N.S.S. College, Nemmara, Palakkad	Determination of Various nutrientsaned Heavy metals in different Compost samples
54	Madhu.M	M.Sc. Chemistry	Indira Ganghi College of Arts & Science Nellikuzhi, Kothamangalam	Performance analysis of biogas production from colocasa
55	Sreeja.P.S	Microbiology	SNGIST Arts and Science College, Mannakkapady, North Paravoor,	Biological Characteristics and Mechanism of Actions of Ficus Religiosa
56	Sreeja.K.G	Microbiology	SNGIST Arts and Science College, Mannakkapady, North Paravoor,	Assessment of Biological Properties and applications of Artocarpus Heterophyllus Lam

15) TRAINING PROGRAMS @ IRTC (2016-17)

Sl.No	Activity	Sponsor	No.of Participants
1	Training for Grma Panchayath representatives and Officials-32 bacthes	KILA	1481
2	Training for Commercial Tax Officers-16 batches	Commercial Tax Dept,	640
3	Watershed Trainings & workshop	IRTC & NABARD	195
4	Mushroom Training (2 batches)	RATTC & IRTC	226
5	Pottery/Decoupage	IRTC	110
6	Soap Training	IRTC	162
7	Training on Jack fruit processing	IRTC	100
8	Two days training programmes for Bamboo artisans for value added bamboo products at erattakulam ,Elapully as part of KSCSTE Emeritus Scientst scheme	IRTC	48
9	2 days MNREGS workshop	MNREGS & IRTC	100
10	Training in Ornamental Fisheries for Msc. Aplied fisheries for St. Albert,s college,Ernakulam	IRTC	24
11	AIPSN rural Technology Workshop	AIPSN& KSSP	25
12	Training Programme for Biogas implementation	IRTC	33
13	10 days Social Responsability Camp for Transalation Engineering Students of Govt. engineering College ,Thiruvananthapuram	IRTC	20
14	Training on rain water filter unit in selected Gramapanchayath	NABARD & IRTC	400

15	One day solar installation trianing for Secretaries of Co-operative Banks	IRTC	50
16	GIS Training for Agricultural Officers & Engineering students (4 batches)	RATTC	100
17	Vermi Compost Training for farmers	IRTC	25

16) Trainings/ Workshops attended by IRTC Personnel

Sl. No	Programmes	Person Attended
1	Solar dome installation training at NBIRT kolkota	Indrajith K.
2	Training on Chemical Analysis at KAU Thrissur	Jilsha & Susmitha V.
3	National wrkshop on smallm Hydro project at EMC ,Thiruvananthapuram	Radhagopi E.P. & Indrajith K.
4	Training on GIS familiarisation on Sattelite imageries at Periyar tiger conservation at Thekkadi	R.Sathish & M.Rajan
5	National workshop on Energy and Environment At govt. engineering College Kannur	Prof. B.M.Musthafa, Indrajith K. & Rahul R.
6	A Case Stud of initiatives in Technology Transfer- a collaborative training Programme in Rural Technology-organised by CIRDP,NIRDPR &INFRA Kualampur,Malasia	Dr. N.KSasidharan Pillai
7	Training programme on formation, Nurturing & linkage of SHG Fedration at Mysore	P.K.Narayanan
8	Kerala Science Congress -2017 at marthoma college, Thiruvalla	Dr. M.Lalithambika, Kum. Surya sethumadhavan , Sri.Lalithan & R. Rangaswamy

VII. APPENDIX

ADMINISTRATIVE WING

Director	: Dr. N. K. Sasidharan Pillai
Registrar	: P. K. Narayanan
Research Co-ordinator	: Prof. B. M. Musthafa
Administrative Officer	: M. Ramachandran
Accountant	: M. Ramani
Cashier	: M. Deepika
Office Assistant	: K.M. Sushama
Campus Manager	: V. C. Selvaraj

EXECUTIVE COMMITTEE MEMBERS 2016-17			
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 Dy. Director of Fisheries (Rtd.)	Director
3	Sri.P.K.Narayanan Pathiyilmana, Mezhathoor (PO),Thrithala, Palakkad-675534	Registrar, IRTC	Registrar
4	Sr.V.G.Gopinathan Niranjana, F.C.I,Bi-lane-4, West Chalakkudy, Thrissur-680307	Executive Director Parishad Production Centre	EC Member
5	P.Muraleedharan Kerala Forest Dept. Officer's quarters	General Secretary of KSSP	EC Member
6	Prof.P.K.Ravindran Soorya,Njanrakkal, Ernakulam-682505	Dy .Director College of Education Govt. of Kerala (Rtd)	EC Member
7	K. V. Sabu Kanavu Kannayankavu Kadukkakunnu Palakkad-678005	Industrial Extension Officer, District Industrial Centre, Palakkad	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 (HOD) Agronomy Department College of Horticulture,	EC Member
12	Prof.V.R.Raghunandanan Priyadarshini Nagar, Paravattani(PO), Thrissur-680005	Professor (Retd.) Kerala Agriculture University	EC Member
13	T.K. Meerabhai Thanal Mathilakam Thrissur-680685	AEO (Rtd.)	EC Member
14	Dr.M.Lalithambika Haritha Kesavadasapuram Road Thiruvananthapuram	Senior Project Fellow,IRTC Deputy Director (Rtd.), RRL, Thiruvananthapuram	ECmember
15	Sri.Ajithkumar C.T ANERT, Thrissur	Project Engineer, ANERT, Thrissur	EC Member
16	Sri Sudheer.K.S Ardram Karimba P.O Palakkad-678597	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 Kottarath Kandassamkadavu Thrissur-680613	Head, Social Science Division, IRTC	EC Member
19	Representative of KSCSTE, Thiruvananathapuram		Ex-officio
20	Representative of DST, New Delhi		Ex-officio

RESEARCH ADVISORY COMMITTEE (RAC) - 2016-17

1. Dr.R.V.G.Menon, Chairman, Research Advisory Committee. (Chairman, RAC)
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.Prameswaran, 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 (Rtd.), KUFOS, Kerala
41. Dr.Sudhi, Veterinary Department,Kerala
42. Dr. K.K.Seethalakshmi, Rtd Scientist, KFRI
    (Chief Consultant,National Bamboo Mission)
43. Dr.Raju.V.K,Director of Research(Rtd.), KAU, Thrissur
44. Dr.Uma.J.Vinod ,Researc Fellow,I RTC
45. Prof. B.M.Musthafa,Research Co-ordinator, IRTC(Convenor, RAC)
46. Dr. Vasudevan Pillai, Nss Eng. College, Nenmara, Palakkad

IRTC GENERAL BODY MEMBERS

1	Dr.Aravindan.K.P	17	Santhoth.P.V
2	Santhakumari.N	18	Balagopal.K
3	Ramesh.B	19	Anandi.T.K
4	Muraleedharan.P	20	Dr.Harikumaran Thampi
5	Balakrishnan.A.M	21	Abdul Hamee.E
6	Meerabai.T.K	22	Dr.Midhun
7	Joji koottummel	23	Saji Jacob
8	Gopinathan.K	24	Riswan.C
9	Gopakumar.P	25	Manoharan.K
10	Divakaran.P.V	26	Narayanan.P.K
11	Sreesankar.T.P	27	Sabu.K.V
12	Nazar.V.T	28	Geetha.N.M
13	Karthyani.V.T	29	Dr.Kavumbai Balakrishnan
14	Sreenivasan.V.V		
15	K.Balan Master	30	Radhakrishnan.P
16	Vilasini.K	31	Dr.Rajesh.K

32	Adv:Raviparaksh.K.P
33	Dr.Jiju.P.Alex
34	Manojkumar.V
35	Santhidevi.K.R
36	Muraleedharan.A.P
37	Vijayakumar.V.A
38	Shaji.V.V (Internal Auditor, IRTC)
39	Dr.N.K.Sasidharan Pilla
40	Stalin Pathanamthitta
41	Muhammed Aslam
42	Sooryalakshmi.S
43	Sanu.P.S
44	Sadheera Udayakumar
45	Dr.K.Vijayakumar
46	Harikrishnan.K.G
47	Nishamol.M
48	Sethunath.R
49	Janamma.B
50	Pushpalatha.M.N
51	Lekha
52	V.G.Gopinathan
53	Prof.P.K.Ravindran
54	Dr.M.P.Parameswaran
55	Dr.C.Ramakrishnan
56	Dr.George Thomas
57	Prof.V.R.Reghunandanan
58	Dr.M.Lalithambika
59	C.T.Ajithkumar
60	Sudheer.K.S
61	Prof.B.M.Musthafa
62	T.P.Sureshbabu (Internal Auditor, IRTC)
63	KSCSTE Representative
64	DST Representative

INFRASTRUCTURAL DETAILS	
Jubilee Campus	
a. Land Office campus Residential campus Agricultural land and commercial Plot near NH 213 (Jubilee campus)	4 Ha area
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 4620m^2
c. Other facilities Rainwater harvesting tanks (4 Nos)	Total capacity of 4 lakhs liter
d. Bore well	1 No.

VIII. FINANCIAL STATEMENT

BALANCE SHEET AS AT 31ST MARCH, 2017							
LIABILITIES	**SCH.**	**Amount As On**		**ASSETS**	**SCH.**	**Amount As On**	
		31.03.2017	**31.03.2016**			**31.03.2017**	**31.03.2016**
Capital Fund	1	33,599,439.94	26,753,460.29	Fixed Assets	4	35,298,463.00	26,046,831.73
Project Fund Balances	2	14,686,430.15	24,981,576.05	Capital Work in Progress	5	-	9,697,573.00
Current Liabilities & Provisions	3	11,970,925.25	12,239,093.25	Advances from General Fund	6	12,281,657.00	17,347,179.00
				Current Assets, Loans & Advances	7	12,692,074.34	13,284,995.04
		60,256,795.34	**63,974,129.59**			**60,272,194.34**	

Schedule Forming Part of Balance Sheet as at 31-03-2017	
SCHEDULE : 1	
	Amount (Rs.)
Capital Fund	31.03.2017
Opening balance	26,753,460.29
Add: Excess of Income over Expenditure	1,061,143.25
Add : Amount Transferred from Project Fund	4,128,173.40
Total	**31,942,776.94**
Reserve Fund	
Contingency Reserve Fund:	
Opening balance	1,656,663.00
Add: Amount transferred to Contingency Reserve Fund	1,656,663.00
Total	**33,599,439.94**
SCHEDULE : 2	
Project Fund Balances	
Biogasplant - Koyilandy Municipality	193,771.00
Biogas Plant - Medical College,Kozhikode	699,070.25
Biogas Plant - Payyannur	64,182.00
Biogasplant - Peruvambu GP	127,500.00
Biogasplant - Vakathanam GP	2,700.00
Biogasplant - Muthuthala GP	(67,860.00)
Biogasplant - Kaladi GP	72,080.00
Biogas Plant - Kollam Corporation Stage II	(1,581,780.00)
Biogas Plant - Nilamel GP	540.00
Biogasplant - Ottasekharamangalam GP	(3,000.00)
Biogas Plant - Panachikkad GP	(54,089.00)
Biogas Plant - Punnapra GP	3,900.00
Clean Chaliyar Project- Nilambur Block Panchayath	596,857.00
ILCS - Kanhangad	14,696.00
IWMP - Chittur	206,153.00
KSCSTE -Emeritus Scientist Scheme -Dr.Seethalakshmi	441,552.00

KSCSTE -EMO Preparation II	47,330.00
KSCSTE - Mashroom 'bird' Training	71,084.00
KLGSDP	363,007.00
Meenvallom Small Hydel Project	1,000,000.00
Nabard - Pottery Cluster, Peravur	(139,916.00)
NABARD - WADI TDF Project Measurers)	2,909,759.00
NABARD - WADI TDF Proj.(Manag.Fund)	28,379.40
Pipe Compost-Mankada GP	176,400.00
RWH Tank-Elappully (Govt.APHSS)	197,398.00
Slaughter House - Kunnamkulam	732,664.00
SWM - Parali	229,925.00
SWM - Vaniyamkulam	236,532.00
Theeramythri Project 2015-16	427,246.00
Theeramythri Project 2016-17	127,112.00
Sustainability Plan for NHWDP Watersheds (NABARD)	(39,413.00)
WGDP - Sreekrishnapuram	145,067.00
WGDP - Thrithala Block	950,036.00
WSP - Edapatta	87,094.00
WSP - NREGS Masterplan Preparation	6,420,453.50
Total	**14,686,430.15**
SCHEDULE : 3	
Current Liabilities & Provisions	
Current Liabilities	
Anjali Electronics	32,500.00
Best power system and control, Palakkad	36,713.00
Chemind Chemicals, Palakkad	10,988.00
Chemind Chemicals, Thrissur	439,502.00
Co Ordinator, Pottery Cluster Peravur	98,052.00
Co-Ordinator Waste Management Project	211,388.00
Elico Limited	1,656,440.00
Energy Efficient Klin (DST) Payable	26,969.00
Fabrica Charge Capital Assets Payable PPC	234,650.00

NABARD Integr.Tribal Dev.Programe(ITDP)	42,635.00
Staff welfare fund	10,217.25
PPC Waste Management Unit	7,879,980.00
TDS Payable 2016-17	16,120.00
Jeyam Steels (Branch) Palakkad	8,145.00
Kerala Scientific Co. Palakkad	5,926.00
Kumar Retail P Ltd	17,100.00
Powermech Diesel Generator	435,000.00
Rajesh P.S (Fabricator)	37,185.00
Subix , Palakkad	6,340.00
Sunil Contractor, Biogas plant	250,000.00
Supreme Biogas, Kanjany	18,500.00
Mohan Steels , Palakkad	121,500.00
Parishad Production Centre(Centre of Excellence)	375,075.00
Total	**11,970,925.25**
SCHEDULE : 5	
Capital Work in Progress	
Capital WIP - Hostel Block (Material)	-
Capital W.I.P - Hostel Block(NH) I	-
Capital W.I.P - Hostel Block(NH) II	-
Capital W.I.P - NH Campus	-
Total	-
SCHEDULE : 6	
Advance from General Fund	
Biogas Plant - Airport, Karipur	322,473.00
Biogas Plant - Manjeri Municipality	14,259.00
IHSDP - Chittur	197,400.00
Biogas Plant - Koduvally	161,300.00
Biogasplant - Pattuvom	23,250.00
Biogas Plant - Alappuzha Municipality (Suchitwa)	1,254,510.00
Biogas Plant - Alappuzha Municipality II	733,197.00

Biogas Plant - Areacode GP	108,000.00
Biogas Plant - Ayiloor GP	13,500.00
Biogas Plant - Chavakkad Municipaliy	3,000.00
Biogasplant - Chengamanad GP	284,940.00
Biogas Plant - Cost Ford, Trivandrum	36,080.00
Biogasplant - Elayavoor GP	8,530.00
Biogasplant - GPLAC,Poothadi GP,Wayand	10,400.00
Biogasplant - Kadampazhipuram	92,925.00
Biogas Plant - Kadampazhipuram-II	85,575.00
Biogasplant - Kaiparambu GP	3,000.00
Biogasplant - Kannadi GP	67,500.00
Biogas Plant - Kattakada GP	6,000.00
Biogasplant - Keezhuparambu GP	322,800.00
Biogasplant - KIIDC , TVM	24,800.00
Biogasplant - Kollayil GP	(2,500.00)
Biogas Plant - Koodali GP	210,000.00
Biogas Plant - Koratty GP	61,000.00
Biogas Plant - Kozhikode Corporation	578,850.00
Biogas Plant - Kudappanakunnu,karshika karmasena	1,148,520.00
Biogasplant - Kundara GP ,Kollam	66,000.00
Biogas Plant - Kunnathukal GP	12,240.00
Biogas Plant - Kuthanur GP	600.00
Biogas Plant - Kuttiattor GP	(84,600.00)
Biogasplant - Lakkidi Perur (Jalanidhi)	64,181.00
Biogasplant - Lakkidi Perur GP	6,000.00
Biogasplant - Manamboor GP	(374,000.00)
Biogas Plant - Mangattidam GP	30,000.00
Biogasplant - Meenachil GP	900.00
Biogasplant - Mulanthuruthy GP	21,000.00
Biogasplant - Nedumangad Municipality GP	10,000.00
Biogasplant - Ottoor GP	58,800.00
Biogasplant - Padiyur GP	120,600.00
Biogasplant - Pattazhy vadakkekara GP	121,500.00

Biogasplant - Perinad GP	149,500.00
Biogasplant - Pookkottukavvu GP	126,000.00
Biogasplant - Puthuppally GP	81,000.00
Biogasplant - Social Justice, TVM	(349,810.00)
Biogas Plant -Tarur GP	664,500.00
Biogasplant - Thodiyoor GP	83,225.00
Biogas Plant- Thikkodi	27,000.00
Biogasplant - Velloore GP	29,700.00
DST - Core Support	1,097,405.00
District Hospital (W&C) Palakkad, STP Plant	75,000.00
DST - SORF (DISHA)-Uma J vinod	59,041.00
Green Climate Fund Palakkad Gap of Western Ghats	17,195.00
IWMP -Kanjikuzhy	406,215.00
IWMP -Pampakuda	134,976.00
Jalanidhi - RWH Tanks Idukki	250,000.00
KSCSTE Centre of Excellence in waste management	14,080.00
KSCSTE Core Support 2016-17	5,280.00
KSCSTE - Technology Day 2015	22,010.00
KSCSTE- National Science Day	26,251.00
KSCSTE - Workshop on Jack Fruit Processing	18,010.00
NABARD POPI Project	(208,771.00)
Palakkuzhy Small Hydel Project	143,639.00
Pipe Compost - Cherplassery GP	319,600.00
Pipe Compost - Kasaragod Municipality	143,280.00
Pipe Compost - Koottilangadi GP	53,500.00
Pipe Compost - Pirayiri Panchayath	95,400.00
SWM - Guruvayur	717,534.00
SWM - Kunnamkulam	2,225,697.00
SWM - Puduppariyaram	32,670.00
Total	**12,281,657.00**
SCHEDULE : 7	
Current Assets, Loans and Advances	
Cash and Bank Balances	

Cash in Hand	28,098.00
SBI A/c No:10590557836	371,599.95
SBT A/c.No:57028786873	1,509,484.20
SBT A/c.No:67324608083	55,801.00
SBT A/c.No:67324608107	294,015.00
PNB A/c. No. 4318000100074822	11,724.00
PNB A/c. No. 4318000100050549	200,362.95
PNB A/c. No. 4318000100051557(DDWS)	4,166.24
PNB A/c. No. 4318000100082177(Conting. Reserv.Fund)	1,657,663.00
PNB A/c No:4318000100057223(RSO NABARD)	9,856.00
Treasury Savings Bank A/c No:Spl TSB 66	5,000,143.00
Canara Bank A/c No: 077310104773	2,926,058.00
Canara Bank A/c No: 0773101015124(ITDP)	42,635.00
Total A	**12,111,606.34**
Advances	
Ancy	10,000.00
Dr. Sreelakshmi KK	(29,000.00)
IRTC Project Implementation Unit	97,050.00
Rasiya Khadar Room Rent Advance - Edapatta	5,000.00
Nabard Office WATI Project Aleyamma KC Room Rent Adv.	30,000.00
Room Rent- Project staff Wadi	5,000.00
Medical Officer, PHC, Vadavannur	19,320.00
TDS - Anilkumar. K	12,700.00
TDS - Dennis Joseph	12,575.00
TDS - ECG - Chennai	23,970.00
TDS - T.F Francis	33,124.00
T.F.Francis (ILCS Project)	100,000.00
Rugmini AP	23,125.00
PPC- Training Nirmithikendra	(12,496.00)
Secretary, Sparo HRD Trg, Institute. Palakkad	22,500.00
BUDS Schools& Reha. Centre pazhayannur	(599,870.00)
RK Associates	3,944.00

KILA , Thrissur	65,661.00
Commercial Taxes TVM	29,388.00
Director , IMG	153,075.00
Parishad Production Centre	(198,606.00)
Susthira , IRTC, Palakkad	10,000.00
TDS FY 2014-15	248,822.00
TDS FY 2015-16	239,440.00
TDS FY 2016-17	275,746.00
Total B	**580,468.00**
Total (A + B)	**12,692,074.34**

STATEMENT OF FIXED ASSETS AND DEPRECIATION FOR THE THE YEAR ENDED 31ST MARCH 2017								
Additions Up to Sep 30th	**Additions After Sep 30th**	**Deletions Up to Sep 30th**	**Balance**	**Rate (%)**	**Depreciation (Full Rate)**	**Depreciation (Half Rate)**	**Total Depreciation**	**WDV as on 31st March 2017**
		-	161,930.82	10%	16,193.08	-	16,193.08	145,737.73
		-	54,363.15	10%	5,436.32	-	5,436.32	48,926.84
	9,893,773.00	-	25,747,002.71	5%	792,661.49	247,344.33	1,040,005.81	24,706,996.90
		-	543.02	15%	81.45	-	81.45	461.56
		-	115,647.37	15%	17,347.10	-	17,347.10	98,300.26
		-	23,761.53	10%	2,376.15	-	2,376.15	21,385.38
		-	941.42	10%	94.14	-	94.14	847.28
		-	8,414.48	10%	841.45	-	841.45	7,573.03
60,550.00	240,651.00	-	329,220.70	60%	53,141.82	72,195.30	125,337.12	203,883.58
		-	4,488.08	15%	673.21	-	673.21	3,814.87
		-	738.92	15%	110.84	-	110.84	628.09
		-	590.63	15%	88.59	-	88.59	502.03
111,562.00	35,500.00	-	349,558.15	10%	31,405.81	1,775.00	33,180.81	316,377.33
		-	39,309.46	15%	5,896.42	-	5,896.42	33,413.04
		-	1,259.99	15%	189.00	-	189.00	1,071.00
		-	452.25	15%	67.84	-	67.84	384.41
		-	711.64	15%	106.75	-	106.75	604.90
282,330.00	10,000.00	-	1,006,266.49	10%	99,626.65	500.00	100,126.65	906,139.84
		-	41,609.00	10%	4,160.90	-	4,160.90	37,448.10
		-	1,537.63	15%	230.64	-	230.64	1,306.98
		-	1,644.15	15%	246.62	-	246.62	1,397.52
		-	46,701.45	15%	7,005.22	-	7,005.22	39,696.23

		-	44,874.77	15%	6,731.22	-	6,731.22	38,143.55
		-	476.93	15%	71.54	-	71.54	405.39
		-	7,125.79	15%	1,068.87	-	1,068.87	6,056.92
	7,890.00	-	8,906.61	15%	152.49	591.75	744.24	8,162.37
		-	2,877.93	15%	431.69	-	431.69	2,446.24
		-	8,286.59	10%	828.66	-	828.66	7,457.93
		-	3,792.15	15%	568.82	-	568.82	3,223.33
		-	2,709.58	15%	406.44	-	406.44	2,303.14
		-	1,103.59	15%	165.54	-	165.54	938.05
32,051.00		-	35,276.88	10%	3,527.69	-	3,527.69	31,749.19
		-	22,621.34	15%	3,393.20	-	3,393.20	19,228.14
		-	21,225.23	15%	3,183.79	-	3,183.79	18,041.45
		-	2,703.99	15%	405.60	-	405.60	2,298.39
	31,000.00	-	35,071.65	15%	610.75	2,325.00	2,935.75	32,135.90
		-	2,187.21	15%	328.08	-	328.08	1,859.13
			458,630.52	15%	68,794.58	-	68,794.58	389,835.94
		-	8,097,800.00	0%	-	-	-	8,097,800.00
3,800.00	-	-	3,800.00	15%	570.00	-	570.00	3,230.00
6,641.00	-	-	6,641.00	15%	996.15	-	996.15	5,644.85
		-	59,324.88	15%	8,898.73	-	8,898.73	50,426.14
496,934.00	**10,218,814.00**	**-**	**36,762,129.67**		**1,139,115.32**	**324,731.38**	**1,463,846.69**	**35,298,282.98**
-	-	-	450.06	60%	270.04	-	270.04	180.02
-	-	-	**450.06**		**270.04**	-	**270.04**	**180.02**
496,934.00	**10,218,814.00**	**-**	**36,762,579.73**		**1,139,385.35**	**324,731.38**	**1,464,116.73**	**35,298,463.00**

SOCIETY FOR INTEGRATED RURAL TECHNOLOGY CENTRE							
Mundur, Palakkad - 678 592							
INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2017							
EXPENDITURE	**SCH.**	**AMOUNT**		**INCOME**	**SCH.**	**AMOUNT**	
		31.03.2017	**31.03.2016**			**31.03.2017**	**31.03.2016**
Administrative Over-heads	14	5,128,646.95	4,694,614.29	By General & Administrative Income	8	7,439,292.93	8,824,185.80
Agricultural Expenses	15	72,576.00	272,180.00	By Agriculture Income	9	157,580.00	117,510.00
Fisheries Expenses	16	68,511.00	101,572.00	By Fisheries Income	10	25,775.00	12,175.00
Mushroom Expenses	17	398,304.00	214,670.00	By Mushroom Income	11	536,178.00	520,410.00
Pottery Expenses	18	-	331,948.00	By Pottery Income	12	-	533,010.00
SWM IRTC Expenses	19	21,263.00	49,365.00	By SWM IRTC Income	13	55,735.00	65,685.00
Depreciation	4	1,464,116.73	1,154,478.57				
Excess of Income over Expenditure		1,061,143.25	3,254,147.94				
		8,214,560.93	**10,072,975.80**			**8,214,560.93**	**10,072,975.80**

SOCIETY FOR INTEGRATED RURAL TECHNOLOGY CENTRE		
Mundur, Palakkad - 678 592		
Schedule Forming Part of Income & Expenditure Account for the year ended 31-03-2017		
	Amount as at	
	31.03.2017	31.03.2016
Schedule- 8		
General & Administrative Income		
Accommodation Charges Received	1,125,125.00	625,775.00
Documentation Charges Received	17,500.00	11,500.00
Consumables	-	10,098.00
Chemical Charges	30,190.00	23,264.00
Honorarium	112,067.00	35,800.00
Institutional Fee	4,713,096.93	7,236,943.80
Interest Received	49,509.00	97,335.00
Interest on Income Tax Refund FY 2013-14	-	38,976.00
Office Stationary	49,675.00	10,625.00
Printing & Xerox Received	31,279.00	11,170.00
Rent Received:-		
Hall Rent	676,692.00	15,200.00
Hall& Equipment Rent	14,750.00	289,101.00
Rent (BSNL)	46,990.00	29,073.00
Chemical Lab	20,055.00	21,650.00
Scrap Sales	26,689.00	-
Testing Fee:-		
CE Lab	423,180.00	288,135.00
EE Lab	30,700.00	32,400.00
Subsidy Received	12,000.00	-
Security Deposit-BSNL	-	1,001.00
Training Materials -Consumables	4,350.00	-
Faculty Charges Received	11,200.00	-

Travel & Conveyance- Resource Person	2,700.00	260.00
Vehicle Hire Charges Received	41,545.00	45,879.00
	7,439,292.93	**8,824,185.80**
Schedule- 9		
Agricultural Income		
Nursery Plants	3,063.00	40,469.00
Rubber Sheet	106,000.00	64,100.00
Hand Book	-	1,250.00
Vegetables	8,300.00	11,691.00
Consumables	40,217.00	-
	157,580.00	**117,510.00**
Schedule- 10		
Fisheries Income		
Azola	2,675.00	2,320.00
Fish feed and Accessories	23,100.00	9,855.00
	25,775.00	**12,175.00**
Schedule- 11		
Mushroom Income		
Mushroom- Spawn	536,178.00	520,410.00
	536,178.00	**520,410.00**
Schedule- 12		
Pottery Income		
Pots - Decorated	-	533,010.00
		533,010.00
Schedule- 13		
SWM IRTC Income		
Compost Sales	26,515.00	23,910.00
Compost - Earthworm	19,750.00	23,400.00

Organic Manure	-	250.00
Pots - Vermi (Earth worm)	5,250.00	12,750.00
Coir Pith Compost	4,220.00	5,375.00
	55,735.00	**65,685.00**
Schedule- 14		
Administrative Overheads		
Audit Fee	63,100.00	-
Bank Charges	3,924.95	11,555.99
Annual Maintanence Contract Fee	8,200.00	8,200.00
Computer Rent	55,400.00	-
Consultancy Charges	30,000.00	90,000.00
Consumables	235,937.00	133,472.00
Communication Expenses	9,738.00	-
Contingency	16,484.00	7,252.00
CSR Expenses	-	403,996.00
Documentation Charges	-	21,475.00
Electricity Charges	341,192.00	348,200.00
Equipment - DST	7,000.00	83,924.00
Exhibition Expenses	-	5,130.00
Exgratia Allowances	148,750.00	-
ESI Employers contribution	57,737.00	-
Fabrication pottery wheel	-	28,770.00
Fabrication Expenses	-	95,294.00
Festival Allowances	164,800.00	-
Mess & Refreshment Expenses	-	534,077.00
Honorarium	1,950,857.00	989,858.00
Group Insurance Paid (Employers Contribution)	102,542.00	111,968.00
Incentive	-	20,300.00
Institutional Overhead	48,834.00	650,873.30
Inspection Fee - Elec.Inspectorate	1,703.00	1,703.00

Infrastructure Development	-	50,000.00
Interest on loan	-	1,218.00
Interest on Service Tax	100,591.00	2,423.00
Interest on TDS	54.00	61.00
Installation charges	10,000.00	-
Library & Periodicals	18,480.00	21,122.00
Labour charges	148,516.00	-
Motor Vehicle - Insurance	27,010.00	27,300.00
Motor Vehicle - POL	40,377.00	28,727.00
Office Expenses (Kozhikode Office)	62,960.00	107,800.00
Office Stationery	52,067.00	22,962.00
Postage & Courier	10,310.00	10,417.00
Pension Contribution	99,573.00	-
Registration Fee & resource Materials	880.00	-
Renewal Fee	5,300.00	10,409.00
Rent, Rates & Taxes (Building)	66,587.00	90,284.00
Repairs & Maintenance - Motor Vehicle	68,984.00	70,529.00
Repair & Maintenance	86,395.00	4,825.00
Refreshment	94,200.00	-
Maintenance of Campus	162,499.00	-
Salaries & Allowances	324,979.00	225,000.00
Share Purchase	9,000.00	-
Service Tax Paid	652.00	
Telephone Charges	58,341.00	99,593.00
Training Expenses	-	15,290.00
Transportation Charges	110.00	-
Travel & Conveyance	113,986.00	97,334.00
Vehicle Hire Charges	46,520.00	20,100.00
Wages	133,230.00	202,127.00
Water Charges	79,750.00	-
Xerox & Printing Charges	61,097.00	41,045.00
	5,128,646.95	**4,694,614.29**

Schedule- 15		
Agricultural Expenses		
Consumables	9,595.00	37,155.00
Honorarium	33,600.00	156,000.00
Repairs and Maintenance	2,631.00	-
Wages	26,750.00	79,025.00
	72,576.00	**272,180.00**
Schedule- 16		
Fisheries Expenses		
Consumables	41,181.00	18,242.00
Honorarium	21,000.00	63,300.00
Vehicle Hire Charges	1,080.00	5,750.00
Wages	5,250.00	14,280.00
	68,511.00	**101,572.00**
Schedule- 17		
Mushroom Expenses		
Wages	398,304.00	214,670.00
	398,304.00	**214,670.00**
Schedule- 18		
Pottery Expenses		
Consumables	-	331,948.00
	-	**331,948.00**
Schedule- 19		
SWM IRTC Expenses		
Consumables	3,413.00	1,265.00
Wages	17,850.00	48,100.00
	21,263.00	**49,365.00**

RECEIPTS AND PAYMENT ACCOUNT 2016-17

Receipts	2016-17
Opening Balance	
Bank Accounts	12,910,549.45
PNB Loan Account	(42,652.41)
Cash-in-hand	63,383.00
Current Liabilities	
Chittur Municipality- Motorised Sieve	60,000.00
IRTC Contingency Reserve Fund	886,828.00
IRTC Staff Welfare Society	5,686.00
Krishi Kalyan Cess @ 0.5% 16-17 STC	10,545.00
Krishi Kalyan Cess @0.5 % 16-17(TIC)	1,888.50
Krishi Kalyan Cess @ 0.5% 2016-17 (MAK)	9.00
Krishi Kalyan Cess @ 0.5% 2016-17 WCS	100.00
Loan - KSSP Thrissur	1,000,000.00
NABARD - Integr. Tribal Dev..Program(ITDP)	238,348.00
PPC - Waste Management Unit	108,000.00
ST @ 14.5 % 2016-17(14%) - TIC	5,180.00
ST @ 14.5% 2016-17 (14%) WCS	7,857.00
ST @ 15% 2016-17 (14%) - MAK	245.00
ST @ 15% 2016-17 (14%) STC	295,305.00
ST @ 15% 2016-17 (14%) TIC	52,834.00
ST @ 15% 2016-17 (14%) - WCS	2,800.00
Staff Insurance (LIC) - Jeevan Tharang	64,950.00
Swa.Bharat Cess 0.5% 16-17(MAK)	9.00
Swa.Bharat Cess .5% 2016-17 WCS	380.00
Swa.Bharat Cess @ 5% 16-17 (TIC)	2,076.50
Swa.Bharath Cess @ 0.5% 16-17 STC	10,545.00
Current Assets	
Biogas Plant - Alappuzha Municipality-II	589,950.00
Biogas Plant - Alappuzha Municipality (Suchitwa)	536,625.00
Biogas Plant - Areacode GP	270,000.00
Biogasplant - Chadayamangalam GP	34,500.00
Biogasplant - Chengamanad GP	203,040.00
Biogas Plant - Cost Ford, Trivandrum	196,986.00

Biogasplant - Edappal GP	184,612.00
Biogasplant - Elayavoor GP	137,000.00
Biogas Plant - GPLAC,Poothadi GP, Wynad	31,200.00
Biogasplant - Kadappuram GP	81,500.00
Biogasplant - Kallyassery GP	435,000.00
Biogasplant - Kattakkada GP	504,000.00
Biogasplant - Keezhuparambu GP	405,000.00
Biogas Plant - Kollam Corporation Stage II	1,542,600.00
Biogasplant - Kollayil GP	65,500.00
Biogasplant - Kudappanakunnu ,Karshika Karmasena	1,257,000.00
Biogasplant - Kunnothuparamba GP	108,000.00
Biogasplant - Kuttiattoor GP	621,240.00
Biogasplant - Kuzhalmannam GP	343,200.00
Biogas Plant - Lakkidi Perur(Jalanidhi)	337,095.00
Biogasplant - Manakkad GP	21,000.00
Biogasplant - Manamboor GP	421,600.00
Biogasplant - Mangalam GP	240,500.00
Biogasplant - Meenangadi GP	82,185.00
Biogasplant - Mulanthuruthy GP	157,500.00
Biogasplant - Muthuthala GP	106,740.00
Biogasplant - Panachikkad GP	467,775.00
Biogas Plant - Peruvambu G P	127,500.00
Biogasplant /pipe Compost - Akathethara GP	72,000.00
Biogas Plant - Puduppariyaram GP	176,700.00
Biogasplant - Pulincunnoo GP	54,600.00
Biogasplant - Puthuppally GP	204,000.00
Biogasplant - Social Justice , TVm	1,134,810.00
Biogasplant - Sreekrishnapuram GP	210,000.00
Biogas Plant - Thikkodi GP	63,000.00
Biogasplant - Thrithala GP	9,000.00
Biogasplant -Tiger Reserve,Parambikulam	90,000.00
Biogasplant - Urangattiri GP	45,450.00
Clean Chaliyar Project	602,900.00
DST - Core Support	2,547,562.00
DST - Vigyan Prasar Proj (Date with Disaster)	122,000.00

DST-Vigyan Pras.Proj(Wonderful World of Chemistry)	48,325.00
IHSDP Project - Ottappalam	176,150.00
KLGSDP	1,135,951.00
KSCSTE - Centre of Exce.in Waste Management	5,000,000.00
KSCSTE Core Support - 2016-17	3,000,000.00
KSCSTE -Emeritus Scientist Scheme -Dr.Seethalakshmi	614,800.00
KSCSTE - EMO Preparation (Biowaste Recycling)	175,200.00
KSCSTE - EMO Preparation II	160,000.00
KSCSTE - Mushroom "BIRD" Training	72,000.00
KSCSTE - National Science Day - 2016	15,000.00
KSCSTE - National Technology Day 2016	20,000.00
KSCSTE - Pulses Day 2016	15,000.00
KSCSTE - Wetland Day 2017	25,000.00
KSCSTE - Workshop on Jack Fruit Processing	17,500.00
KSCSTE- World Environment Day 2016	20,000.00
NABARD - POPI Project	578,151.00
NABARD - Training & Demo(Alan/Venga)	43,244.00
NABARD - Training & Demo(Chazhiyattiri)	25,750.00
NABARD - Training & Demo(Konn.Kadav)	65,783.00
NABARD - Training & Demo (Muttuchira)	33,205.00
NABARD - Training & Demo(Nagalassery)	46,956.00
NABARD - Training & Demo(Poothanakkayam)	10,170.00
NABARD - Training & Demo(Pullundassery)	15,047.00
NABARD - WADI TDF Project Measurers)	207,013.00
NABARD - WADI TDF Proj.(Manag.Fund)	38,835.00
Nabard -Water Conservation Campagin	54,000.00
National workshop -Modernising Trad. Pottery	75,000.00
Palakkuzhy Small Hydel Project	871,306.00
Pipe Compost - Koottilangadi GP	170,000.00
Pipe Compost - Mankada GP	176,400.00
RWH Tank-Elappully (Govt.APHSS)	726,838.00
RWH Tank - Vellangallur GP	538,410.00
Theeramythri Project 2015-16	720,000.00
Theeramythri Project 2016-17	720,000.00
Theeramythri-Training to Missios Coordinators	56,813.00

WGDP - Sreekrishnapuram	105,672.00
WGDP - Thrithala Block	281,929.00
WSP - Edappatta	125,000.00
Loans & Advances (Asset)	7,886,261.00
Biogas Plants - BES	1,975,327.25
Biogas Plants - Shajan.K.V	122,539.00
Indirect Incomes	
General - Administration	885,202.00
General - Agriculture	157,580.00
General - Fisheries	25,775.00
General - Mushroom Unit	534,418.00
General - SWM Unit, IRTC	55,735.00
Total	**58,349,021.29**

Payments	
Capital Account	
Capital WIP - Hostel Block (Labour)	76,600.00
Capital WIP- Hostel Block (Materials)	81,750.00
Capital WIP - NH Campus	37,850.00
Current Liabilities	
Chittur Municipality	60,000.00
Co Ordinator, Pottery Cluster Peravur	25,448.00
Energy Efficient Kiln(DST) Payable	16,347.00
ESIC Deduction payable	80,874.00
Honorarium Payable -Divya.P.N (Proj Fellow)	48,000.00
Honorarium Payable - Dr.M.Lalithambika	342,000.00
Honorarium Payable - Sajith.S	20,000.00
IRTC Corpus Fund	165.00
IRTC Staff Welfare Society	1,071,040.00
Krishi Kalyan Cess 0.5% 16-17 (IMP)	180.00
Krishi Kalyan Cess @ 0.5% 16-17 STC	10,545.00
Krishi Kalyan Cess @0.5 % 16-17(TIC)	1,779.00
Krishi Kalyan Cess @ 0.5% 2016-17 (MAK)	3,087.00

Krishi Kalyan Cess @ 0.5% 2016-17 WCS	426.00
K.V.S.Kartha, Kollam	30,000.00
Loan - KSSP Thrissur	800,000.00
NABARD - Integr. Tribal Dev..Program(ITDP)	1,195,713.00
PPC - Waste Management Unit	10,985,203.00
Prof.K.R.Janardhanan Payable	107,000.00
Salary/Honora. Payable - B.M.Musthafa	457,000.00
Salary/Honora. Payable - P.K.Ravindran	40,000.00
Salary/Honorarium Payable - NKS Pillai	459,000.00
Salary/Honorarium Payable - Satheesh.R	97,000.00
ST @ 14.5% 2015-16(14%) -MAK	10,519.00
ST @ 14.5% 2015-16 (14%)- STC	7,581.00
ST @ 14.5% 2015-16 (14%) - TIC	7,117.00
ST @ 14.5% 2016-17 (14%) IMP	1,100.00
ST @ 14.5% 2016-17 (14%) MAK)	2,904.00
ST @ 14.5 % 2016-17(14%) - TIC	4,606.00
ST @ 14.5% 2016-17 (14%) WCS	7,857.00
ST @ 15% 2016-17 (14%) IMP	4,923.00
ST @ 15% 2016-17 (14%) - MAK	77,772.00
ST @ 15% 2016-17 (14%) STC	295,305.00
ST @ 15% 2016-17 (14%) TIC	45,913.00
ST @ 15% 2016-17 (14%) - WCS	11,931.00
Staff Insurance (LIC) - Jeevan Tharang	192,048.00
Staff Welfare Fund	8,000.00
Swa.Bharat Cess 0.5% 16-17(MAK)	3,190.00
Swa.Bharat Cess .5% 2016-17 WCS	706.00
Swa.Bharat Cess @ 0.5% 15-16(MAK)	376.00
Swa.Bharat Cess @.5% 15-16 (TIC)	155.00
Swa.Bharat Cess @ 5% 16-17 (TIC)	1,945.00
Swa.Bharath Cess @ 0.5% 16-17 STC	10,545.00
Swa.Bharath Cess @ 0.5% 2015-16(STC)	271.00
Swa.Bharath Cess @ 0.5% 2016-17 IMP	220.00
TDS Deducted/Payable 2015-16	1,750.00
TDS Deducted/Payable 2016-17	26,317.00
Fixed Assets	

Computer / Accessories	301,201.00
Electrical Fittings	147,062.00
Furniture	82,730.00
Television 21"	31,000.00
Vaccum Cleaner	7,890.00
Water Supply & Sani.Fittings	32,051.00
Weighing Balance	3,800.00
Wood Cutting Machine	6,641.00
Current Assets	
Biogas Plant - Cost Ford, Trivandrum	150,000.00
Biogasplant - Dst Panchayath ,Kozhikode (Schools)	466,177.00
Biogasplant - Social Justice , TVm	179,000.00
Biogasplant - Vellinezhi GP	108,000.00
Clean Chaliyar project Nilambur	6,043.00
District Hospital (W & C), Palakkad-STP Plant	74,250.00
DST - Core Support	864,619.00
Green Climate Fund(GCF)-Palakkad Gap of Wes.Ghats	17,195.00
ILCS - Kanhangad	2,120.00
IWMP - Chittur	3,664.00
IWMP - Kanjikuzhy	95,345.00
IWMP -Pampakuda	3,727.00
KLGSDP	728,845.00
KSCSTE - Centre of Exce.in Waste Management	1,027,407.00
KSCSTE Core Support - 2016-17	2,792,317.00
KSCSTE -Emeritus Scientist Scheme -Dr.Seethalakshmi	541,715.00
KSCSTE - EMO Preparation II	52,670.00
KSCSTE - Mushroom "BIRD" Training	916.00
KSCSTE - National Science Day 2017	10,951.00
Kscste - National Technology Day 2016	3,187.00
KSCSTE - Pulses Day 2016	7,619.00
KSCSTE - Wetland Day 2017	4,300.00
KSCSTE - Workshop on Jack Fruit Processing	1,550.00
KSCSTE- World Environment Day 2016	14,334.00
NABARD - POPI Project	310,369.00
Nabard - Pottery Cluster, Peravur	66,602.00

National workshop	18,750.00
NABARD - Training & Demo(Pullundassery)	15,000.00
NABARD - WADI TDF Project Measurers)	4,125,761.00
NABARD - WADI TDF Proj.(Manag.Fund)	1,047,928.00
Nabard -Water Conservation Campagin	39,598.00
Palakkuzhy Small Hydel Project	504,675.00
RWH Tank-Elappully (Govt.APHSS)	580,690.00
RWH Tank - Vellangallur GP	265,000.00
Slaughter House - Kunnamkulam	30,000.00
Smokeless Choolas - Forest Officer ,Nemmara	175,458.00
Sustainability Plan for NHWDP Watersheds (NABARD)	35,413.00
Theeramythri Project 2015-16	335,373.00
Theeramythri Project 2016-17	669,448.00
Theeramythri-Training to Missios Coordinators	7,463.00
Wadi -Nilambur	
WGDP - Sreekrishnapuram	1,000.00
WGDP - Thrithala Block	16,000.00
WSP - Edappatta	37,906.00
WSP - NREGS Masterplan Preparation	72,300.00
Loans & Advances (Asset)	6,170,016.00
Biogas Plants - BES	1,624,895.00
Indirect Incomes	
General - Administration	4,990,011.95
General - Agriculture	72,576.00
General - Fisheries	68,511.00
General - Mushroom Unit	397,024.00
General - SWM Unit, IRTC	21,263.00
Closing Balance	
Bank Accounts	12,083,508.34
Cash-in-hand	28,098.00
Total	**58,349,021.29**