

Annual Report 2019-2020

RCI- IIT Palakkad



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Introduction

Indian Institute of Technology Palakkad has become the Regional Coordinating Institute of UBA for the districts Palakkad, Kozhikode, Kannur, Wayanad and Kasargod in the First National Level executive Committee Meeting held on 28th Nov 2019. Currently, there are 21 participating institutions in this region under UBA. Since its inception, IIT Palakkad has been trying to connect and coordinate with the participating institutions for supporting their activities in their adopted villages. A UBA Cell is also constituted under the chairmanship of Director IIT Palakkad for the implementation of the program at IIT Palakkad.

The following is the **composition of the UBA Cell at institute level:**

Chairman - Director Ex-officio

Dr. Athira P., Assistant Professor (Regional Coordinator UBA)

Members of UBA Cell:

- Dr. Sahely Bhadra, Assistant Professor (Institute Coordinator)
- Dr. Anand, Dean (Student Affairs)
- Dr. Athira P., Assistant Professor & Regional Coordinator UBA
- Mr. S. Samuel, Advisor (Student matters)
- Dr. Deepak Rajendra Prasad, Assistant Professor and Associate Dean (Academics)
- Dr. Sarath Sasi, Assistant Professor
- Dr. Ganesh Natarajan, Associate Professor
- Dr. Arun Rahul S., Assistant Professor
- Dr. Uma Divakaran, Assistant Professor
- Dr. Praveena Gangadharan, Assistant Professor
- Dr. Dinesh Jagadeesan, Assistant Professor
- Mr. Nikhil R. R., UBA Project Coordinator (Convener)
- Mr. Sanil Sharahudeen, Junior Technical Superintendent
- Mr. Vinu D., Junior Technical Superintendent

1. IIT Palakkad as the Regional Coordinating Institute

1.1 Pale Blue Dot- Public Lecture Series

Pale Blue Dot is a public lecture series that IIT Palakkad organised jointly with the Palakkad District Library and Unnat Bharat Abhiyan. The series features eminent professionals and academicians engaging with the general public on a wide range of topics in science and technology. The confluence of cultures that characterises this border region is the perfect locale for a regular assemblage of intellectually stimulating interactions, encouraging us to question the known and explore the unknown. As a young institute, we envision to participate in, learn from, and contribute to the vibrant intellectual and cultural life of this region and we consider the lecture series to be a step towards that.

A. Why evolution is central to both biology and our lives by Prof. Amitabh Joshi, Jawaharlal Nehru Centre For Advanced Scientific Research, Bangalore.

IIT Palakkad, in partnership with the District Public Library, jointly organised a Public Lecture on January 24, 2020. The first of the lectures in this series was delivered by Prof. Amitabh Joshi, renowned for his research and perspectives in Evolutionary Biology.

Evolution is often considered a topic of only academic interest and few if any applications. It is also, unfortunately, a rather neglected field in India despite the fact that some of the most significant Indian contributions to the growth of biological knowledge have come from our small community of ecologists and evolutionary biologists. There is also a tendency in many quarters to dismiss evolutionary biology as “merely a theory” and fundamentally flawed. In the talk, Prof. Amitabh addressed some of these misconceptions about evolution and showed that (i) evolutionary biology is a very well established and verified body of scientific knowledge, and (ii) an evolutionary perspective is not just central to biology as a discipline but is crucial to how we address many pressing societal problems. He also mentioned some of the significant Indian contributions to the development of evolutionary thinking over the three decades or so.



B. Global Climate Change: Causes, Concerns and Commitments by Dr. Madhavan Nair Rajeevan, Secretary, Ministry of Earth Sciences, Government of India.

The second lecture in the Pale Blue Dot lecture series was delivered by Dr. Madhavan Nair Rajeevan, Secretary of Ministry of Earth Sciences, at the Surya Resmi convention Centre, Palakkad. Dr. Rajeevan spoke on "Global Climate Change: Causes, Concerns and Commitments". The District Collector Shri D. Balamurali, IIT Palakkad Director Prof P. B. Sunil Kumar, Secretary of District Public Library Shri T. R. Ajayan were among the esteemed guests of the evening. The talk took the audience through the basic physics of climate change, past and future climate change scenarios, the impact of climate change and how climate models are used. The long-term climate trends across/over Kerala and particularly the Western Ghats and the recent extreme weather events in the state, including the 2018 and 2019 floods were discussed. He explained some interesting studies which have attempted to bring out the attribution of environmental phenomena to climate change. The impact of climate change on health, agriculture, water, energy and well being was touched upon by the speaker. Dr. Rajeevan was felicitated with a token of honour by the District Collector.



C. Learning Online: Opportunities and Challenges by Shri. K. Anvar Sadath, Chief Executive Officer, Kerala Infrastructure and Technology for Education (KITE) and Prof. Andrew Thangaraj (IIT Madras), a National MOOCs Coordinator for National Programme on Technology Enhanced Learning (NPTEL) in the Swayam project of the MHRD.

IIT Palakkad with Palakkad District Library and Unnat Bharat Abhiyan jointly organised its third public lecture series online on the topic, 'Learning Online- Opportunities and Challenges' on 17 July 2020. Shri. K. Anvar Sadath, Chief Executive Officer, Kerala Infrastructure and Technology for Education (KITE) and Prof. Andrew Thangaraj (IIT Madras), a National MOOCs Coordinator for National Programme on Technology Enhanced Learning (NPTEL) in the Swayam project of the MHRD were the key speakers. While Shri K. Anvar Sadath focussed on how Free and Open Source Software (FOSS) has accelerated digital education in Kerala, particularly school education, Prof. Thangaraj discussed the formidable role and experience NPTEL has had in making online college education unprecedentedly mainstream in the country. Prof. Thangaraj also talked about IIT Madras's new online diploma and BSc degree in programming and data science. Their interaction provided valuable insights on both the opportunities and challenges that this new pedagogy presents to learners and teachers. The collective feedback from the participants was that the workshop was prolific and insightful. The discussion marked the attendance of about 180 participants.



Sunitha K Nayar



Andrew Thangaraj



Anvar Sadat

zoom

1.2 Regional Workshop for the Participating Institutes to Start UBA Activities in their Adopted Village Clusters

The Regional Coordinating Institute, IIT Palakkad, organised a one-day workshop on 13 July 2020 for the participating institutes to start UBA activities in the adopted village clusters. The workshop was conducted in google meetup given the current pandemic situation. The workshop marked the attendance of around 50 participants.

Dr. Athira P, Assistant Professor and Regional Coordinator UBA welcomed the guests and participants and gave a brief introduction to the workshop. She described the activities of IIT Palakkad UBA cell. She assured all the technical support to the participating institutes for their activities in their respective village clusters. Prof. P B Sunil Kumar, Director IIT Palakkad, in his inaugural address discussed three significant steps for initiating UBA activities: 1. Identification of problems/issues which need addressal; 2. Identification of resources within the institute; 3. Commencement of work in the villages and receiving financial support. Prof. V K Vijay, National Coordinator UBA in his address provided a clear understanding of the vision and mission of the UBA program. In his presentation, he described the achievements and initiatives of UBA. His introductory presentation was adequate enough to understand the objectives of the UBA activities.

Prof Vivek Kumar, Co-Coordinator UBA, suggested steps and guidelines to the participating institutes for formulating a 'plan of action' for village development in his session. He also explained the importance of establishing contact, awareness and participation, situation analysis and need identification. Prof. Vivek shared the methods of project formulation, monitoring, assessment and evaluation, and also the long-term action plan for village development. He has also discussed the funding and convergence possibilities and answered queries from the participants.

Ms. Bharti Jasrotia demonstrated the web portal and ERP system of UBA. Following the demonstration, Dr. V. Sampath Kumar, UBA Coordinator, Vimal Jyothi Engineering college shared their experiences and best practices adopted by the institute. The discussion session concluded the workshop. The collective feedback from the participants was that the workshop was prolific and insightful. They all committed to continuing their excellent work for the adopted villages. IIT Palakkad UBA cell is planning a series of workshops for the participating institutes to initiate various activities in their respective adopted villages.



Regional workshop for the participating institutes

13 July 2020



1.3 Panel Discussion - Capacity Building of the Higher Education Institutions for Rural Engagement

UBA cell of IIT Palakkad as the Regional Coordinating Institute organised a panel discussion on “Capacity Building of the Higher Education Institutions for Rural Engagement” to encourage the faculty and students of higher education institutions for an inclusive engagement with the rural community. The panel discussion aimed to build the capacity of institutions to work with the people of rural India in identifying development challenges and to evolve appropriate solutions for accelerating sustainable growth.

Panelists

1. Shri S. M Vijayanand, Chairman, Sixth State Finance Commission, Kerala State.
2. Dr. Usha Titus IAS, Principal Secretary, Department of Higher Education, Government of Kerala.
3. Dr. R Ramesh, Associate Professor & Head, Centre for Rural Infrastructure, NIRD&PR, Hyderabad.
4. Dr. C. Kathiresan, Associate Professor & Head, Centre for Panchayati Raj, Decentralised Planning and Social Service Delivery, NIRD&PR, Hyderabad.

Moderator: Dr. Amrita Roy, Assistant Professor, Department of Humanities, IIT Palakkad.

Dr. Amrita Roy in her introductory remarks, explained the context of the panel discussion, introduced the panelists and welcomed the panelists and participants.

Key takeaways from Shri S M Vijayanand talk

Initiating the discussion, Shri S M Vijayanand said that UBA has evolved from the concept of Academic Social Responsibility. He commented that Unnat Bharat Abhiyan can be best operationalised in Kerala because of the experience in mobilising the college students informally for the People’s Plan Campaign over the last 20 years. He also suggested that Higher Education Institute (HEI)s should support the Gram Panchayats (GP), support the Self Help Group (SHG) networks and the CSOs which are linked to the Gram Panchayats by handholding Project Ideation, Project Preparation, Troubleshooting, Quality Assurance and Impact Analysis. He informed that all the Gram Panchayats in India are under the process of preparing the Gram Panchayat Development Plan (GPDP) and the gram panchayats in India will receive an amount of approx. 8-10 lakh crore in the next five years. He mentioned some broader priority areas such as Local Economic Development coupled with the ecological development, Poverty and Social Justice, User Technologies, Technology for various problems, Mapping of Assets, Rejuvenation of Gram Sabhas etc for prospective interventions by education institutions. He

also suggested the participating institutes to devise a system for giving credits to the students for their participation. He proposed a state-level and district-level steering committee involving various stakeholders such as different Universities, IIT, IIM, KILA, LS GD, Higher Education and Panchayat Departments to identify issues that need interventions from education institutes. He expressed his willingness to take the lead to work out a detailed plan of action for every educational institute in Kerala for an effective rural engagement if the Higher Education Department and Local Self Government Department agree upon.

Key takeaways from Dr. C. Kathiresan talk

Dr. C. Kathiresan started his presentation by sharing the vision of the Ministry of Panchayati Raj, Government of India -“rural transformation through sustainable development”. He discussed various NIRDPR approaches in the area of sustainable rural development such as i) Cluster approach where the selected Gram Panchayats will act as “action laboratories” or “learning labs” for other neighbouring GPs, ii) Action research/short studies in Panchayat Governance for the dissemination of best practices, iii) Saturation approach for skilling for wage and self-employment etc. Later he discussed NIRDPR’s Model GP Clusters Project in detail. NIRDPR initiated an ‘Action Research Project for 100+ Clusters Development Programme’ mainly with the support from the corporate sector to create model GPs and model GPDPs to motivate other GPs. It is done through the institutional strengthening of GPs and enablement of quality GPDP. He also discussed the most important entry-level activities, major activities, key deliverables and outcomes in those projects.

Key takeaways from Dr. Usha Titus IAS talk

Dr. Usha Titus initiated her discussion by briefing the areas where the students are participating with the local bodies besides Unnat Bharat Abhiyan. She enumerated the activities of National Service Scheme (NSS) units in the colleges. NSS units select one administrative ward from the neighbouring GP and spend their time during their vacation in this selected place and do the mapping of the ward and then identify the problems. The main activities undertaken by the NSS group also include the construction of houses for the homeless, distribution of organic seeds, awareness programs, and other sensitization programmes. She also highlighted the potential of the student group to intervene and involve during emergency situations such as natural calamities (flood, pandemic etc). She said that the whole idea of Unnat Bharat Abhiyan is that the HEIs should not remain as an island of knowledge, in fact, they should leverage their knowledge in the benefit of villages they adopted. She said that there is a clear communication gap between the local bodies and higher educational institutions. She also stated that education institutes often fail to understand or identify the needs of local bodies where the local bodies fail to approach the education institutions to address their concerns. She has also suggested forming a group of faculty from different education institutions and building their capacities for rural engagement.

Key takeaways from Dr. R Ramesh talk

Dr. Ramesh started his discussion saying that the crux of UBA program is that Science, Technology and Management can play a key role in enhancing the quality of life and in enabling the people to achieve the dignity of life. He said that some technological or innovative interventions do not reach the rural people and produce the outcomes as expected due to many reasons. He also shared his experience of reviewing technological proposals of UBA. Later in his presentation, he shared about the scope of different departments like Computer Science, Electrical Engineering, Home Science, Civil Engineering, Agriculture as well as Arts & Science institutes in the rural development process. His talk mainly discussed the activities that an HEI can initiate.

Question and Answer section

The moderator asked Shri S.M Vijayanad if there is a possibility for the LSGs to set up a unit that will actively seek technical help from HEIs as the education institutions struggle to coordinate the engagement. Shri S.M Vijayanad replied that it is possible if the government proactively facilitates the formation of such a unit for coordinating the interventions and he also suggested both HEIs and local bodies to brainstorm in order to come up with a list of plans for possible interventions. He also mentioned the possibility of utilizing the 10% of finance commission grant for capacity building activities as an answer to the moderator's question regarding meeting operational cost and support from the State government.

While discussing the possible intervention in the rural areas during COVID-19, Dr. Kathiresan shared some interesting and inspiring experiences during the pandemic such as holding small meetings, motivating young fellows to work with the Panchayats, online connect etc. Considering the HEIs being the external unit, the moderator asked Dr. Ramesh about the possible interventions to address the issues concerning the social living conditions (such as alcoholism, autonomy or respect for women etc) to achieve holistic development. He commented that these are sensitive issues which need attention and involve a change in the personal and social behaviour of the communities. As an answer to a question regarding different competitions such as Kerala Reboot Hackathon and Smart India Hackathon helping the student group in understanding the problems of rural areas. She explained that in Kerala reboot hackathon, there was a huge participation from the students and they worked on real-life problems that were posted by the officers from various government departments. She also answered a question from the chatbox regarding the possibility of providing credits to students who engage in rural development activities. She accepted it as a good suggestion and agreed to look upon it.

The panel discussion was indeed fruitful with the active participation of 120+ participants in the Zoom platform and 50+ participants on Youtube. Further, as suggested by the panelists, IIT

Palakkad agreed to work with the collective initiatives which enhance the involvement of HEIs in rural development.

Follow up plans

1. Formation of State and District steering committees involving various stakeholders to identify issues that need intervention from higher education institutes.
2. Development of action plan for the Wayanad district in collaboration with NIRD and State Government.
3. State-level planning for rural development by incorporating all the UBA institutes.
4. Adoption of a cluster-based approach for village development
5. Encouraging students to work on rural issues as part of BTech/ MTech projects

IIT PALAKKAD UNNAT BHARAT ABHIYAN
Capacity Building of the Higher Education Institutions for Rural Engagement
Friday, 28th August 2020 04:00 PM - 05:30 PM
Registration Link: <https://forms.gle/29REijU5W5UdV45PA>



INDIAN INSTITUTE OF TECHNOLOGY
PALAKKAD

Contact: uba@iitpkd.ac.in

Discussion platform:
Zoom Platform
IIT Palakkad Youtube Channel



Shri S. M. Vijayanand
Chairman,
Sixth State Finance Commission,
Kerala State



Dr. C. Kathiresan
Associate Professor & Head,
Centre for Panchayati Raj,
Decentralised Planning and Social Service Delivery,
NIRD&PR, Hyderabad



Dr. Usha Titus IAS
Principal Secretary,
Department of Higher Education,
Government of Kerala



Dr. R Ramesh
Associate Professor & Head,
Centre for Rural Infrastructure,
NIRD&PR, Hyderabad


MODERATOR



Dr. Amrita Roy
Assistant Professor,
Department of Humanities,
IIT Palakkad



Organized by Indian Institute of Technology Palakkad UBA Cell






Capacity Building of HEIs for Rural Engagement

Dr Kathiresan
NIRD&PR, Hyderabad





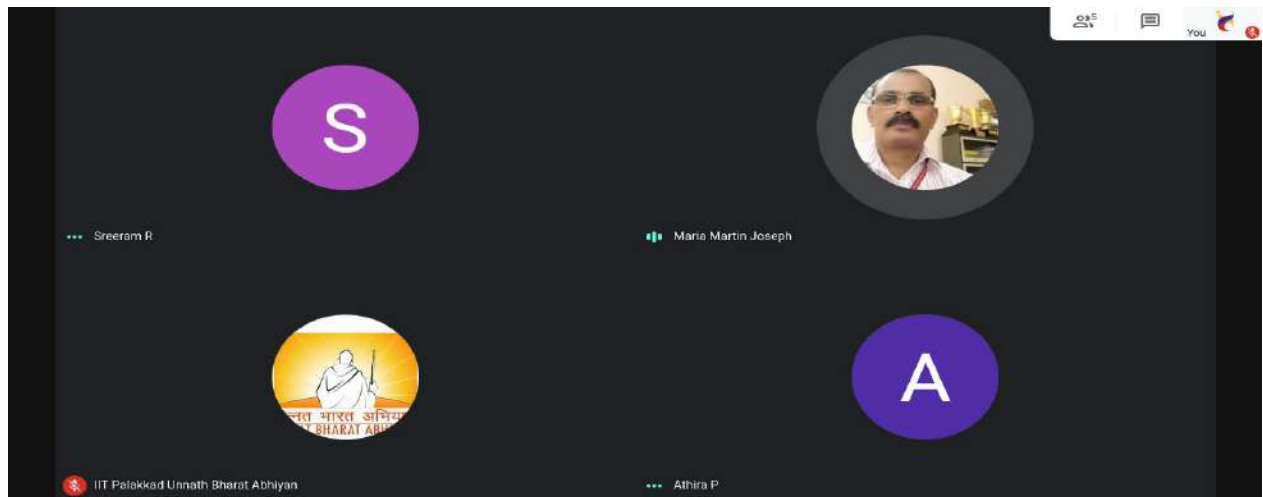
1.4 Evaluation for the Perennial Fund

IIT Palakkad as the Regional Coordinating Institute of UBA has evaluated Vimal Jyothi Engineering College and Kerala Agriculture University for the third round of evaluation for the perennial fund. As per the instructions from NCI IIT Delhi, UBA cell IIT Palakkad has verified the information given by the respective institute to the NCI and scores have been calculated according to the shared template.



1.5 Aspirational District Program

IIT Palakkad is planning to work with the participating institutes in Wayanad as a part of the Aspirational District Program. The institute as the RCI, has conducted an online meeting with the participating institutes of Wayanad to understand their constraints and also to plan the future activities. The institute has also sent an e-mail to the District Collector Wayanad expressing the willingness to participate in the developmental activities.



2. Main Activities by the Participating Institutes

2.1 Indian Institute of Technology Palakkad

A. Student Solar Ambassador Workshop

Fifty students from Government Vocational Higher Secondary School, Agali in Attapadi, Kerala, participated in the training program. A group of 10 trainers, including the faculty members, staff and research scholars from IIT Palakkad participated. A group of 5 students was allotted to each trainer. Instructions to the students required during the training were given through a PowerPoint presentation. A kit which consisted of a manual, lamp components, notepad and a pen was distributed to each of the students. The projectors in the lab aided in detailing the process of lamp assembly. Students were trained to do the proper gluing, soldering and assembling of the solar powered study lamp. In each stage of the training, trainers ensured the safety of the students and made sure that the students were completing the corresponding stage with complete understanding of the process and working. All the students successfully completed the solar lamp assembling. Finally, the working solar study lamp was properly packed in the envelope provided with the lamp assembly components.

At the end of training sessions, feedback from the students and trainers were collected. After the training, Student Counsellor of IIT Palakkad delivered a small inspirational talk which conveyed the importance and student responsibility of environmental protection and solar energy.



B. Plastic Free Village Campaign

A group of 100 students of IIT Palakkad, under the directions of Haritha Kerala Mission, undertook a plastic-free campaign in the ward no: 02 of Pudussery panchayat which included the permanent campus of IIT Palakkad. Students visited 400 households, collected their plastic waste, conducted a survey of the waste management practices used by the households, and distributed pamphlets on how to effectively segregate solid waste. The collected survey data will be used for planning the future activities of UBA activities. The collected plastic waste was handed over to the Material Collection Facility (MCF) of Pudussery Gram Panchayat.





C. Clean Water Campaign

As part of the Gandhi Jayanti Celebrations, a Clean Water Campaign was conducted to the students from Government Vocational Higher Secondary School, Agali, Attappadi. The Clean Water Campaign demonstrated the significance of turbidity in drinking-water quality and its measurement using a digital turbidity meter. In addition, various cost-effective water purification methods were exhibited as:

- (i) Coagulation using aluminium sulphate (alum) and Moringa oleifera seeds powder for the removal of colloidal particles;
- (ii) Filtration by a slow sand filter constructed by fine sand, coarse sand and activated carbon to remove dissolved solids;
- (iii) Disinfection using chlorine tablets to kill pathogenic microorganisms.



D. Distribution of Alcohol-based hand sanitizer during COVID-19 pandemic

IIT Palakkad has also been playing a proactive role in protecting the public and medical professionals from the first line of infection. Ever since the spread of COVID-19 took place, IIT Palakkad has been making hand sanitizer in its chemistry laboratories and supplying it to the public totally free of cost. Till date, IIT Palakkad has supplied close to 350 litres of IPA based hand sanitizer to various hospitals in Palakkad.



E. Development of Respirator masks with replaceable antiviral filters

IIT Palakkad has developed indigenously designed masks and filters containing antiviral coatings. The masks have been tested at the laboratories of IIT Palakkad and reviewed by medical doctors at the District hospital of Palakkad. IIT Palakkad has signed a Know-how transfer agreement with Kooper Medical Technologies, Palakkad who will be the industry partner to mass produce the respirator masks and replaceable antiviral filters.



F. Smart Farming Project

This project proposes a unique combination of AI and smart technologies such as internet of Things (IoT) and Cyber Physical Systems (CPS) to overcome pressing challenges like urbanization, shortage of water resources, reduction in farming land, increased use of uninformed choices for pesticide and fertilizer which are the deterring factors that hinder proper growth in the Agricultural productions in India. We have compartmentalised the technology transfer in the following three steps.

- (a) Smart water and fertilizer dispenser
- (b) AI based preventive framework for plant diseases
- (c) Supply & Demand for Agricultural commodities



2.2 Ahalia College of Engineering

A. Old Age Home Visit

Students and some staff visited Karunya Old Home on 6th August 2019 and spent time with them. They provided fruits and refreshments for the inmates. Volunteers also entertained inmates by presenting various cultural programmes.



B. Flood Relief Materials

Students of Ahalia School of Engineering and Technology collected flood relief materials worth Rs.25000 for the needy and handed over the same at the collection centre in NSS Engineering College, Palakkad.



C. Blood Donation Awareness

A Flash Mob was performed by the Students of Ahalia School of Engineering and Technology on 01/10/2019 (National Voluntary Blood Donation Day), to create awareness among the public about the importance of blood donation. The motto was "GIVE BLOOD, SAVE LIFE". The venues included Stadium Bus Stand, Town Bus Stand and Fort Maidan, Palakkad.



D. Gandhi Jayanti Observation

A plastic waste cleaning activity was conducted at Nelliampathy, Palakkad on account of Gandhi Jayanthi observation. Around 50 Students participated in the program. Some of the forest officers also joined in the activity.



E. Plastic Pollution Control

A one day session on Plastic Pollution Control was organized by Ahalia School of Engineering and Technology on 19-12-2019. The workshop was attended by representatives from various villages and municipalities from Palakkad and by students from various institutions. The workshop was inaugurated by Er. Krishnan M.N, Environmental Engineer in Kerala State

Pollution Control Board. He delivered an address on the need to reduce the use of plastic and different laws relating to the use of plastic.

Dr.Hema Nalini A.V., Professor and Head of Department of Civil Engineering of MEA Engineering College was the keynote speaker for the first session of the workshop. She discussed the various harmful effects of the usage of plastics and the need to stress on the concept of Reduce, Reuse and Recycle.

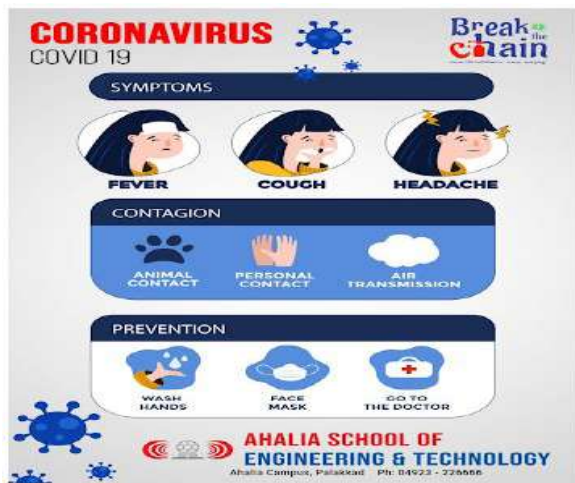
Sri. Y. Kalyana Krishnan, District Coordinator of Haritha Kerala Mission delivered a lecture on the ban of one time plastic from 01-01-2020. He stressed on the need to promote non-plastic commodities as substitutes for the plastics. Various collection methodologies of plastics were discussed during the session.

The workshop concluded with a Discussion Session chaired by Dr.P.R.Sreemahadevan Pillai, Principal of Ahalia School of Engineering and Technology.



F. Corona Prevention Activities

- Provided to the District Administration, accommodation for 100 persons with sufficient toilets, kitchen and other necessary facilities.
- Provided 1500 litres of sanitizer to the Palakkad District Hospital and 500 litres of sanitizer to the Police.
- Posters creating awareness of COID-19 and prevention were created and circulated.



2.3 Sreepathy Institute of Management and Technology (SMAT)

A. *Communicating Science for All*

A Poster presentation competition on the theme Green Technologies was conducted on 28th February 2019. The poster presentation was jointly organized by the Design Engineering faculties and IEDC under the support of KSCSTE. Prof. Aparna M (AP - CSE), Amogh T K (AP - ME) & Durga Lakshmi (AP - CE) coordinated the programme.



B. *Gandhi Global Solar Yatra - Solar Student Ambassador*

Gandhi Global Solar Yatra, A sensitization programme to sensitize 1 million Students towards adverse effects of climate change and making them future propagators of renewable energy, was organized by Innovation & Entrepreneurship Development Center (IEDC) & National Service Scheme unit of SIMAT (Unit 233) on 12th November 2019. The inauguration of the solar lamp assembly workshop was done by Rajeesha (Nagalassery Panchayath President) by accepting a solar emergency lamp assembled by students of SIMAT from Varun Warior (NSS Volunteer Secretary). K B Brahmadathan (Director, Sreepathy Trust) felicitated the event. The inaugural session was followed by an introduction to renewable resources by Renjith P C (AP-EEE & Master Trainer of GGSY 19). The introductory session provided an in depth knowledge on renewable resources and the need of sustainable energy. The introductory session was followed by a session on tool familiarization by Mr. Shibu K (Lab Instructor - EEE & Master Trainer of GGSY 19). The session provided a basic idea on toolkit, Solar lamp components, physical and technical testing of the components. After the lunch break a hands on training session was provided to students to assemble the solar lamps. Mr. Syam Prasad (AP-ME) & Mr.

Rejaneesh R (AP - EEE) gave the basic training on the assembly of the lamps. The programme concluded with a feedback session from the students and faculties.



STUDENT SOLAR AMBASSADOR PROGRAMME - Dr.KB MENON MEMORIAL HSS Trithala



SREEPATHY
INSTITUTE OF MANAGEMENT & TECHNOLOGY
Vavanoor, Palakkad - 679533





STUDENT SOLAR AMBASSADOR PROGRAMME - GVHSS DESAMANGALAM



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Vavunoor, Palakkad - 679833



2.4 Indian Institute of Management (IIM), Kozhikode

A. Rapport Building with Kuttikkattoor Village (Peruvayal GP)

It is necessary to address the Panchayat officials by UBA Cell, IIM Kozhikode for introducing Unnat Bharat Abhiyan activities of IIM Kozhikode in Kuttikkattoor village under Peruvayal Grama Panchayat. As part of it, UBA Coordinator Prof. Anubha Shekhar and Project Associate Ubaidulla KV visited the Panchayat offices and had initial discussions with the President, Secretary and Assistant Secretary. As an outcome of the meetings, UBA officers addressed the Panchayat Board Meet on next week and delivered the orientation to Board Members about UBA activities to be implemented in the village with the support from Panchayat. UBA household survey forms have been provided to the CDS office (Kudumbasree) after the meeting with Chairperson of CDS as they agreed to provide the facilitation to survey in Ward level by assuring the field support from ADS members.



B. Rapport Building with Mavoor Village

The initial discussion with Mavoor village officials by UBA Cell, IIM Kozhikode, was held with the Secretary and Assistant Secretary. UBA Coordinator Prof. Anubha Shekhar and Project Associate Ubaidulla KV visited the Panchayat office for the initial discussion and followed by addressing the Board Meet next week. Orientation about UBA activities in the village was delivered to Panchayat members and requested the complete support from the Board members. Secretary collected the UBA household survey forms to move forward to the next process.



C. Field Visit to Mavoor Village by IIMK Students

A few groups of PGP students from IIM Kozhikode, who had taken coursework project on understanding the needs of a village, accompanied by UBA Project Associate had visited Mavoor village to study the field realities, which would help UBA cell to draft Village Development Plan (VDP) for Mavoor. The prior permission was taken from Panchayat, and the MGNREGS Overseers guided the team in the field for the whole day. The team interacted with households, where groundwater harvesting (Well Recharge) projects were implemented by the Panchayat as part of Government Scheme. The drinking water issues of the area were analysed by the teams. The teams also visited some of the flood-affected areas. The whole Panchayat area except one ward of Mavoor has been affected by Kerala Floods 2019. Analysis meeting also conducted by the team with President, Secretary and Ward Member before & after the field visit. Students after the visit reported to UBA Coordinator Prof. Anubha Shekhar in a meeting conducted the next day and explained the observations of the visit. Students are then instructed to make a report on the same.



D. Focus Group Discussions (FGDs) at Mavoor Village

Focus Group Discussions (FGDs) have been planned at different wards of Mavoor after several meetings and discussions with Panchayat officials. A focus Group Discussion is a tool of qualitative research where a small group of people from similar backgrounds gather to discuss a specific topic of interest guided effectively by a host. The participants speak on the needs, opinion, attitudes and ideas of people from the ground level. This is basically a rich method of collecting data as both individualistic as well as interactive data gets deep data from the field. It has been decided by our UBA team to conduct 3-5 FGDs in different areas of an adopted village to collect the data on developmental needs with the help of ward members and CDS Office (Kudumbasree). A group of 2-3 wards have clubbed for each FGD.

As part of the plan, two FGDs were conducted on 06.03.2020 & 07.03.2020 at Mavoor. A group of students of IIMK along with UBA Cell facilitated the discussions. The whole talks have been video recorded with the permission of the participants and documented for future reference. There was a language issue for students, as most of them are from out of Kerala. Hence, UBA Project Associate mediated the session and students will translate the discussion later from the recorded video for making VDP. Different kinds of issues have been raised by the people on several developmental needs of the village such as housing, hospital, flood, drinking water, drug issue etc. A small refreshment has served after the program.

The rest of the FGDs planned at Mavoor, and Kuttikkattoor villages have been cancelled due to the order from Gov. of Kerala dated 10.03.2020 amidst COVID19, through which, all public gatherings and meetings have been banned in Kerala.





E. Helping hands in the crisis hour of COVID-19

The need of the hour for the villages during Lockdown has analyzed and intervened accordingly. As a part, with the support from IIMK Alumni Association, Rupees One Lakh has been donated to Gov. Medical College, Kozhikode as a relief fund for the replenishment of consumables essential for the treatment of COVID19. In addition to that, 50 numbers of Family Kits with hygiene items were distributed to the police staff of our local Police Station Kunnamangalam.



F. Rapport Building with Puthur and Puthuppadi Villages

Since the lockdown started in March, UBA Cell, IIMK couldn't conduct initial meetings with Puthur and Puthuppadi villages. However in June, during Unlock 1.0 in the country, UBA Cell

took special effort to meet Panchayat officials to orient about UBA activities to Board members and staff of Puthur & Puthuppadi Gram Panchayats. As part, initial discussions happened with the President, Secretary and Vice President and assured the permission to address the next Board Meet of respective Gram Panchayats. Prof. Anubha, UBA Coordinator, IIMK along with Mr Ubaidulla KV, UBA officer had then directed the Board Meet of Puthuppadi on 05.06.2020 and of Puthur (Omassey GP) on 09.06.2020. All the queries of Board members had cleared, and the complete support for the field activities has acquired. Separate meetings also conducted with CDS Chair for the smooth conduction of UBA household survey. Survey forms have also been provided to them.



G. Proposal of 'Jaalakam'- E- Centre Mavoor

UBA Cell, IIMK drafted a proposal named 'Jaalakam – E- Centre' for the Mavoor village and submitted for the institution's approval. The proposed project has aimed to create a hub for all E-Learning activities of Kalpally Ward, by developing it to an online study centre and career desk for students, youths and women. The skillsets of IIM-K students will be used in the second phase. The project has developed by having a marathon discussion with Mavoor Panchayat officials and ward people.



2.5 Vimal Jyothi Engineering College

A. Solar Tunnel Greenhouse Dryer Coupled with Biomass Backup Heater

Solar and biomass are the two sources of renewable energy highly suitable for drying application. Hence a combination of solar and biomass energy for drying is experimentally analyzed in this project for copra drying in Eruvessi panchayat, Kannur. This dryer works basically on the principle of the greenhouse effect in which all the radiation emitted by the sun is absorbed by this dryer since it is wrapped with the polyethene sheet of 200 microns that enhances the greenhouse effect. The dryer is having a rigid load-bearing frame which is placed at certain spans and does not deform under the loads acting on them and a transparent cover material placed on them which allows shortwave solar radiation to enter and is partially opaque to the longwave radiation leading to a greenhouse effect.



B. Automated Coconut Broom Making Machine

Initially, the raw/dry coconut leaves are fed to the input roller set and the leaves are automatically pulled in by the input roller and are fed to the spiked roller which rotates at a speed greater than the input roller speed and at a slower speed compared to the output roller. Then when the leaves are inside the spiked roller the spikes of the roller cut the leaves or pierces it and when the leaves are transferred to the output roller set which rotates at a speed twice that of the spiked roller, the leaves are pulled out which separate the mid-rib from the leaves and the mid-rib comes out of the output roller and falls on the slopped vibrating table. The mid-ribs from the slopped vibrating table fall in the mid-rib collecting container which is pushed by the linear actuator towards the tying mechanism. Then the sensor-based tying mechanism ties the mid-ribs together with the plastic thread by rotating around the mid-ribs.

After tying the midribs together, the thread is cut off and the final broom is pushed out using the linear actuator through the tying mechanism outlet hole. Then the final produced broom is collected from the outlet of the tying mechanism. The separated leaf can be then collected from the bottom and can be used for different purposes such as the feeding of cattle, agricultural fertilizer etc.



C. Nightingale-19 Robot

The robot is designed to carry food and medicine for patients in the COVID-19 ward. Also, it is built with a video calling facility to interact with patients in the COVID-19 ward. Automobile parts are used for fabricating the robot. Two heavy-duty wiper motors are used for driving the robot. Wiper motors are designed to run continuously at full load for longer duration and its reliability is very high. Instead of using a hobby-grade remote, standard remote control used for aeromodelling is used for controlling direction. Additional features like controlling the solenoid valve of tea/coffee dispenser and temperature sensor are performed using the same remote. Robot speed can be controlled for 0 to 20 m/min for easy navigation and control. Machine language is used for programming the controls for better reliability. Safety features like obstacle sensors and the remotely operated buzzer can be attached for better safety of people around the robot.

The team behind the project:

Students: Noyal Jose, Amal Babu, Daniel Paul Lalat

Faculty: Mr. Sunil Paul, Dr. T D John, Dr. V Sampath Kumar, Mr. Sarin C R

D. Leg operated hand sanitizer dispenser

The proposed system contains two major components, pedal-operated lever and an actuation system with a nozzle for dispensing sanitizer. Both of the units are connected using an automobile brake cable for better flexibility. This device is purely mechanical operated so the running cost is absolutely nothing. Major materials used in this project are MDF sheets and automobile brake cable. Both are water and dustproof so it can be used in any weather conditions and both are highly reliable materials. Another advantage of this system is that it is designed for connecting the sanitizer inlet tube to a separate container so that the device can be connected to any type of container. This will reduce the requirement of frequent changing of sanitizer bottles.

Hon. Kadannappalli Ramachandran, Minister for Ports, Museums, Archaeology and Archives inaugurating the product. We have also installed the same at various police stations and received 50+ orders so far.

The same model is installed in Kannur international airport. The NRI Malayalees will be using the same upon arrival at the airport.

The team behind the project:

Students: Noyal Jose, Amal Babu, Daniel Paul Lalat

Faculty: Mr. Sunil Paul, Dr. T D John, Dr. V Sampath Kumar, Mr. Sarin C R



E. Hercules 19 - EV Kiosk

It is an Electric Vehicle based mobile Kiosk. The doctor can sit inside the Hercules 19, designed in a square shape. There are two holes through which the doctor can extend the hands to the patient. The doctor will use double-layered disposable gloves. There is an automatic sanitiser unit, which can be operated with a doctor's leg. A disinfecting mist will be sprayed after the patient's exit. Electric mobility is added which helps the doctor to drive the Kiosk to patients.

The kiosk will not require the staff to wear Personal Protective Equipment (PPE). The staff can stand inside the kiosk and collect the throat swabs without exposing themselves to the person under observation. The exposed part of the glove will be sanitised after each use.

The PPE kits which cost about Rs 1,200 per piece cannot be used more than once. Though at present there is no severe shortage of the kits in Kerala, medical staff have raised concerns that if there happens to be a sudden surge in the number of COVID-19 cases, then PPE kits' availability will become a problem.

The team behind the project:

Students: Aswad S Kumar, Aswin Sudhan, Athul Prasanth, Febin J Nalappat, Joyal Joy

Faculty: Dr. V Sampath Kumar, Dr. T D John, Mr. Sunil Paul, Mr. Sarin C R



F. Two-Wheeler based Sanitiser

These days, disinfectant jets, mists and sprays seem to have become weapons of choice against the coronavirus in public areas. A two-wheeler-based sanitiser spray will spray disinfectants in the hot-spot area or a street or at a congested and densely populated locality. It could be

attached to any two-wheeler or other vehicles. The system can be utilized for sanitizing shelter homes, quarantine centres and isolation wards. Wiping down surfaces with bleach is laborious. This project is under development and will be implemented within a day or two.

The team behind the project:

Students: Aswad S Kumar, Aswin Sudhan, Athul Prasanth, Febin J Nalappat, Joyal Joy

Faculty: Dr V Sampath Kumar, Dr. T D John, Mr. Sunil Paul, Mr. Sarin C R

