



NERDC NEWS

Newsletter of National Engineering Research and Development Centre of Sri Lanka

VOL. 02 | ISSUE 02

MAR - APR | 2021

Inside this..

MOU in between NERDC & NIPHM

PAGE 02

NERDC won awards of recognition / Sharing External Expertise

PAGE 03

NERDC Virgin Coconut Oil Expellers /Sharing Internal Expertise

PAGE 04 / PAGE 05

Evolution of NERDC / Traditional Plough

PAGE 06

Awareness Programs

PAGE 07

Training Programs / Buddhist Society in to social welfare

PAGE 08



The State Ministress for Skills Development, Vocational Education, and Research & Innovation visits NERDC

State Ministress for Skills Development, Vocational Education, Research & Innovation Dr. Seetha Arambepola visited NERDC recently. She visited the technology incubator, mechatronic department and other research departments to observe their working schedules which are aimed towards the development of the country. She visited the Technology Park too. The higher officials of the State Ministry participated in this visit & they also visited other research departments along with Ministress. During her visit, the State Ministress had a special meeting with the Director General Eng. Ananda Namal, Deputy Director General (Research & Development) Eng. J.A.D Jayasuriya, Deputy Director General (Service) Eng. A.A.S.P. Jayasinghe & other senior managers of NERDC, where she discussed & advised on future plans, based on guidance of further developments.

Two National Institutes, NERDC and NIPHM, Initiated Collaboration on Research, Training, and Institutional Development

A Memorandum of understanding (MOU) between The National Engineering Research and Development Centre of Sri Lanka (NERDC) and The National Institute of Post-Harvest Management of Sri Lanka (NIPHM) was signed to establish collaboration between these two national Institutes on matters of common concern. This MOU will facilitate collaborative research and development projects & activities widely focused on reducing the loss of harvest of food produce in Sri Lanka. In addition, furthering joint interest through mutual collaboration in the areas of research, training and institutional development. NERDC plans to collaborate on projects that are conducted by NIPHM which require engineering inputs and technical solution formation as well. Under this MOU, NERDC and NIPHM agree to encourage and promote activities such as capacity building initiatives aligned to future workforce needs and national development, enhancing human capacity through knowledge transfer and skills development focused on institutional research and educational collaboration, carrying out research, development and industry sector partnerships aligned to economic, environmental and social imperatives and developing research collaboration between NERDC and NIPHM for solving nationally important issues that are mutually beneficial for both parties.



NERDC Chairman - Prof. L. Rajapaksha Addressing the Gathering

Further, it facilitates exchanging ideas, promotes, encourages interaction and increases understanding/awareness among researchers in both institutes and initiation of collaborative research projects in the field of food security, which are nationally important and are mutually beneficial for both parties in order to increase agricultural productivity and food security.





Exchanging agreements between Director General of NERDC & Director of NIPHM

Contact us





National Engineering Research and Development Centre of Sri Lanka.

 2P/17B, IDB Industrial Estate, Ekala, Ja-Ela, Sri Lanka.

 Telephone – 011-2236384,
011-2236284

Fax 011-2236434

 E-mail –
nerdcentre@nerdc.lk

 Web - www.nerdc.lk

<https://www.facebook.com/nerdc.ekala.7>



Director General of NERDC Awarded at IESL Annual awards

The IESL award for the best technical paper published by a Corporate Member was awarded to the Director General of NERDC, Eng. D.D. Ananda Namal. The title of the paper was “ Analysis of Energy Efficiency of Domestic Refrigerators” written by Eng. D.D. Ananda Namal and Eng. G.S.R. Costa and it was published in the “Engineer” journal during the sessions 2019/2020. And this was presented in 14 th Annual General Sessions.



NERD Centre receives APFASL Award for Its Annual Financial Report 2019



NERDC Centre was awarded second runner-up award among the best annual reports and accounts in the public sector (research institutions) at the Best Annual Report and Accounts Awards 2020 ceremony, organized by the Association of Public Finance Accountants of Sri Lanka (APFASL), the Public Sector wing of CA Sri Lanka, held at BMICH, recently. The Public Sector Best Annual Reports and Accounts awards is an initiative aimed at helping improve the quality of annual reports and accounts issued by public sector organizations in helping to enhance transparency and accountability within the sector, while also promoting the underlying need to develop high-quality financial reporting.

Integrating Passion in to your profession: A presentation by Eng. Keerthi Kodithuwakku



In order to enhance the research and development (R&D) culture at NERDC with modern research strategies, the monthly research presentation was held on 23rd March 2021 at Kulasinghe auditorium with the topic of “Let the passion be your profession”. The Director General, senior management and all engineers of NERDC participated the session. The resource person was Eng. Keerthi Kodithuwakku. The presentation was highly focused on discussing tips & facts for hunting opportunities in 4th industrial revolution. Eng. Kodithuwakku shared best of his expertise and past experiences as the co-founder & CEO of Effective Solutions (Pvt) Ltd. He discussed about the passion for entrepreneurship, leadership and innovations.

He also pointed out the impotency of incorporating passion in to engineering innovations. Eng. Kodithuwakku was awarded a gift plaque, by the Director General of NERDC for the presentation and valuable inputs to the audience.

NERDC Expands Its' Licensees on Virgin Coconut Oil Expellers Production: An Innovative & Affordable Way of Improving a Healthy Life at Home

Virgin coconut oil has been used in many activities domestically as well as industrially. Among the many applications are used as an edible oil, food additive, in the production of Ayurvedic medicines and in the cosmetic industry. Today's context, coconut oil is one of the most widely discussed topic due to the prevailing situation in the open market. Because of its advantages over other types of oil, virgin coconut oil is widely accepted and recommended for consumption. Still, it is not commonly available to buy on the market and if available, it is not easy to afford. NERDC has introduced attractive & affordable technology to manufacture virgin coconut oil at domestic level, sometimes back. With the current situation in the country, it is worthwhile to recall these expellers, which come in various sizes. The smallest machine is manual, easy to operate & suited for domestic use. Medium scale & jack operated hydraulic machines are also manually operated and are mostly suited to small scale business start-ups in virgin coconut oil manufacturing. An industry level machine is meant for a medium-scale business, which is powered by electricity.



For domestic type, medium scale & jack operated machines were the main technology transfers performed and during the month of April & NERDC increased its' licensee base for virgin coconut oil expeller manufacturing up to 9 licensees. All of these machines are versatile, user-friendly and efficient whilst providing 100% natural virgin coconut oil which contains vitamins & nutritious value as it is. Since no artificial preservatives & other chemicals are added to virgin coconut oil produced here using these machines, it is the best way of keeping a healthy lifestyle and leading to a healthy life.

Internal Journal Club and Peer Learning Presentations

Opening a new page in NERDC history, the NERDC research fellows have formulated a Journal Club to advance engineer's confidence. There were two journal club discussions among engineers & interested technical staff on "An 80-kW isolated DC-DC converter for railway applications" by Eng. D.R.S.K. Wimalaratne and on "Use of recycled polythene terephthalate (PET) fibers in concrete cylindrical pipes" by Eng. Roshani Costa.



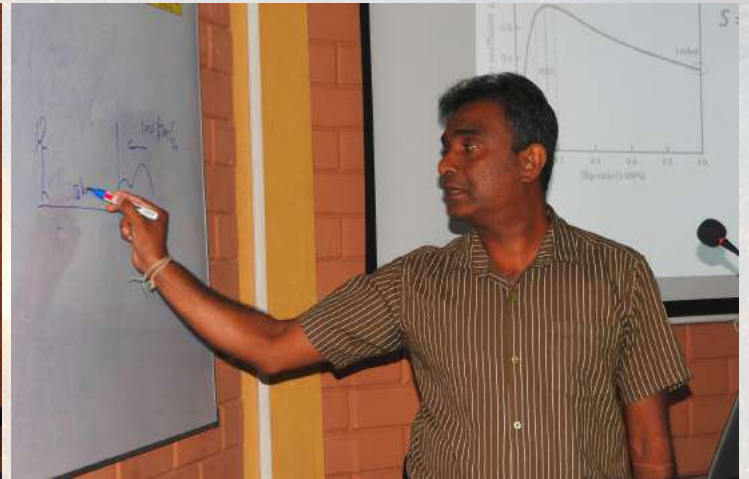
Eng. D.R.S.K. Wimalaratne

Pertaining to the peer learning program, for the months of February & March 2021, two sessions were conducted. The first presentation "Getting to know about motor vehicle" was conducted by Eng. H.P. Hemantha Kumara; transformation of Automobile Technology and important tips for

upkeep personal vehicles. The second presentation “NERDC experience in Incineration of solid waste” was conducted by Research Fellow Eng. Nandana Edirisinghe. It consisted the experiences of NERDC during construction and operation of incinerators, which were built for the industry & health sector, intergraded with automated liquefied petroleum gas (LPG) burning system and an improved operating system.



Eng. Roshani Costa



Eng. H.P. Hemantha Kumara

Get to know about Research Fellows at NERDC



Eng. Nayana G.D. Wijesiriwardene is a Research Fellow at NERDC. She has around 30 years of experience at NERDC as an Electrical Engineer and in which more than 20 years working experience as a Chartered Electrical Engineer. Now she is a ‘Fellow’ member of the Institution of Engineers of Sri Lanka. She had graduated as an Electrical Engineer through the Institution of Engineers of Sri Lanka after obtaining a Technology Diploma from the University of Moratuwa. She has followed a Post Graduate Diploma from Institution of Production Management, India and obtained the Master of Engineering Degree in Electrical Engineering from University of Moratuwa. She served as the Head of the Department of Electrical & Electronics Engineering, NERDC, for more than 15 years. She contributed to many R&D projects by becoming the project leader especially for rural power generation projects.

Also made contributions to numerous R & D projects in the area of electrical engineering, such as electrical installation system designs, control systems designs and many others. Apart from R&D work, she has become the Quality Manager for NERDC established laboratories such as Photometric, Automobile Batteries, Solar Photo Voltaic and Meter Calibration for many years and has made a substantial contribution to upgrade the laboratory systems in NERDC. She has given contributions in various ways to electrical installations designs for the buildings and also upgrading the power distribution systems in NERDC.

She has given consultancy work for industrial services in various applications. She has initiated and conducted several training programmes in the area of electrical engineering. She has shared her professional knowledge to other Institutions by participating as a resource personnel in many institutions such as SLSI, SEA, PUCSL, SLAB, NAITA and MESCO.

Evolution of NERD Centre

Refrigerator testing laboratory of NERDC was established during the year 2014. Objective of establishing this laboratory was to test refrigerators for the accepted standards, before sending those to market. During the year 2018, refrigerator testing laboratory was received the accreditation from the Sri Lanka Accreditation Board for conformity. Presently this lab performs it's all testing procedures according to the standard of SLS 1690:2020. NERDC has been thriving well by serving the nation by implementing its' research findings and improved facilities to enhance the life style of general public of this country. Meanwhile in the year 2017, Technology Incubator was established with the support of Ministry of Science, Technology and Research. The objective of Technology incubator was to support to new inventors with their inventions by improving their ideas in to prototypes. In the year 2016, Environmental Laboratory of NERDC, received ISO 17025 accreditation from Sri Lanka Accreditation Board for the field of Chemical & Mechanical testing.

Through out of the 45 years of long history, NERDC has won many awards for its performance. NERDC has awarded twice during 2014 & 2015 consecutively at the Best Annual Reports and Accounts Awards organized by Association of Public Finance Accountants of Sri Lanka (APFASL). During the year 2017 NERDC placed as first runners up & in 2018 as the second runners up at the same awards ceremony. NERDC also received a special commendation at National Productivity Awards 2018, for the service sector – large category. The entire functioning of NERDC depends on the dynamic and dedicated team members of the all the departments. Today the life at NERDC, where every day offers a chance to find creative solutions, make the innovative ideas happen and ultimately supporting the nation's progress.



Traditional Sri Lankan plough (Nagula)



The plough consists with a handle to regulate ploughing depth, connected to the pulling beam with one or two wedges (Body). When the handle is pressed down, the wedge tightens on to the beam. Once the handle is released, the wedge is loosening up due to reduction of angle between the handle & the beam.

During pulling the beam, if the handle were not pushed down, the beam would depart from the handle/curved log. In case of stumbling the shoe with any hard object, the beam can be separated without causing any damage. The beam has 3 separate slots (front, middle and rear) to join with a wooden bar or yoke (වීය ගස), which worn at the bull's shoulder.

When the beam is slightly pushed down, the front slot of the beam should engage with the wooden bar or the yoke. At that time, the force of the bull is higher. When the ploughing shoe is punched downwards, the middle or rear slot should engage with the yoke, to reduce the encountered friction force.

When the beam is slightly pushed down, the front slot of the beam should engage with the wooden bar or the yoke. At that time, the force of the bull is higher. When the ploughing shoe is punched downwards, the middle or rear slot should engage with the yoke, to reduce the encountered friction force.

NERDC assists “Technology Clinic” for SME in Colombo & Rathnapura districts



The Vidatha Sector of State Ministry of Rattan, Brass, Pottery, Furniture and Rural Industry has scheduled a series of “Technology Clinic” to be held in each district and completed the 1st set of 25 clinics by end of the year 2021. The first technology clinic was held at Kuruwita, aiming of Rathnapura districts’ small & medium entrepreneurs (SME), during the last week of March. The Second one was held at Narahenpita on 31st March 2021, for Colombo district SME. NERDC delivered awareness programs during both sessions, where were able to support SME with possible technological & marketing interventions for their businesses. Participants were interested in various technologies, relevant to cottage industry, solid & liquid waste management, packaging technologies. and even for guidance to develop their existing business. During the first session at Rathnapura were over 200 entrepreneurs and about 150 have visited the second session in Colombo district.

Awareness on NERDC technologies used for small scale business start-ups for women entrepreneurs in Piliyandala: To support them in commemoration of International Women’s Day



Businesses in the food sector is known to thrive in adverse conditions. At Weniwelkola Grama Niladhari division in Piliyandala, NERDC officials held an awareness programme with demonstration for producing manioc chips as bites & snacks. It was a half a day programme and was done upon the request of “Sethsiri” community organization

for improve the knowledge of women entrepreneurs among their membership. It was an initiative to start a cottage industry on preparation of bites & snacks produced with available crops that these women grew in their backyards. They have grown manioc which generate excessive yield so that some of them have thought of stepping to preparation of bites. In the 1st half of the programme NERDC officials made them aware on bites & snacks preparation and basic food care & marketing practices to initiate a business in small scale. The 2nd half of the programme was nourished with a demonstration, which these participants also gave the opportunity to actively participate & experience the usage of technology. The programme was held at the Community Centre of Weniwelkola, Piliyandala on 08th March 2021, in par with the commemoration of International Women’s Day.

Buddhist Society of NERDC, contributes to the improvement of “Newakada Temple” in Udubaddawa, Kuliypitiya



The Buddhist Society of NERDC devoted their manpower and cash donations to “Newakada Temple” Udubaddawa in Kuliypitiya. On Medin Poya Day 2021, the members of the society supported construction work of the new shrine room with the labour as well as with cash donation. This activity was organized upon the advice of Venerable Napane Pemasiri, the chief incumbent of Newakada Temple. The president, secretary and a few members of the Buddhist society participated in this programme as per the guidance provided by the Director General of NERDC. The whole day activities were organized complying with the health guidelines imposed by the government.

NERDC gets hands – in – hands with Ministry of Defense to create entrepreneurs in Cost Effective Building Technology among “Ranaviru Groups”

National Engineering Research and Development Centre (NERDC) and the Ministry of Defense initiated a series of training programs, dedicated for former officers of the Ministry of Defense, Sri Lanka Police & Civil Security Force. The NERDC Cost Effective Building Technology is one of the ideal technologies and suited to initiate as a new business, to meet the endless demand in the construction industry. It allows customers to build their dream house at an affordable cost and entrepreneurs to secure their future by serving the society. The second training program of this series was held at NERDC premises from 3rd March to 5th March 2021. This three days training program consists of series of lectures, seminars, discussion and individual & group practical sessions. The training program series is coordinated by the Techno Marketing Department with the support of the Civil Engineering Department of NERDC. There were 33 participants to receive the training for entrepreneurship.



NERDC NEWS TEAM



Advisory Board

Prof. Leelananda Rajapaksha
Eng. D. D. Ananda Namal

Newsletter Committee

Mrs. D. K. Jayaweera
Eng. H. P. Hemantha Kumara
Mrs. P. N. Dilrukshi Pathirana
Eng. S. M. V. P. D. Senanayake

Editorial Board

Dr. A. P. D. Liyanage
Eng. J. A. A. D. Jayasooriya
Eng. M. S. Devapura

National Engineering Research and Development Centre of Sri Lanka