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வருடாந்த அறிக்கை
ANNUAL REPORT

2018

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இலங்கைத் தெசிய பொறியியல் ஆராய்ச்சி அபிவிருத்தி நிலையம்
NATIONAL ENGINEERING RESEARCH AND DEVELOPMENT CENTRE OF SRI LANKA

විද්‍යා, තාක්ෂණ හා පර්යේෂණ අමාත්‍යාංශය
விஞ்ஞான, தொழில்நுட்பவியல் மற்றும் ஆராய்ச்சி, அமைச்சு
Ministry of Science, Technology and Research

ACKNOWLEDGEMENT

The Management expresses and places on record its appreciation to the Ministry of Science, Technology & Research, Other Ministries, Foreign Governments and Funding Agencies for providing facilities and financial assistance to the Research and Development activities and other functions of the Centre. The Chairman and Board of Directors of the Centre thank all its staff members for the cooperation and assistance extended by them in the activities of the Centre.

Eng. W J L Shavindranath Fernando
CHAIRMAN

CONTENTS

01 Acts, Legislation and Corporate Governance

National Engineering Research and Development Centre of Sri Lanka (NERDC) was established in 1974 in accordance with the provisions of the State Industrial Corporations Act No. 49 of 1957 and now it is functioning under the purview of the Ministry of Science, Technology and Research. NERDC is one of the premier institute established under the aforesaid Act with the primary objective of promoting and facilitating the Development of Domestic Engineering and Technological Research Industry. The Centre is instituted at Industrial Estate, Ekala, Ja-Ela.

The objectives of the Centre as per the Act are as follows;

1. *To provide for the institutional mechanism needed for the progressive development of indigenous technology by encouraging, recognizing and developing innovative and creative talent in Sri Lanka.*
2. *To provide facilities to co-ordinate the technological, engineering and research capabilities of various public and private sector industries and institutions in a productive manner through co-operative endeavor.*
3. *To ensure by adoption and adaptation the choice of technologies that would be consistent with the country's resource endowments and national planning objectives.*
4. *To examine direct and indirect mechanism of technology transfer and offer counsel to appropriate government and private institutions in Sri Lanka, when required to do so.*
5. *To promote the optimal exploitation of the country's human and material resources, particularly labor and raw material resources by promoting the growth of suitable technology.*
6. *To design, manufacture, and test prototype machinery, pilot plants as demanded by Industrial, commercial and other end users in an economical manner.*
7. *To provide for continuous monitoring of technological data and documentation relating to engineering designs and research through the co-operation of international and national agencies.*
8. *To offer sustained consultancy services to public and private sector enterprise and undertake research and promote training activities to broaden the base of the country's engineering and industrial design and research capabilities.*
9. *To make provision for purpose connected with engineering, research and development related to matters aforesaid.*

02 Board of Directors and Organization Structure

CHAIRMAN

Eng. W J L S Fernando
B Sc (Hon) Eng., M Eng., FIESL, MIET, C Eng.

MEMBERS OF THE BOARD - 2018

Up to 31.05.2018

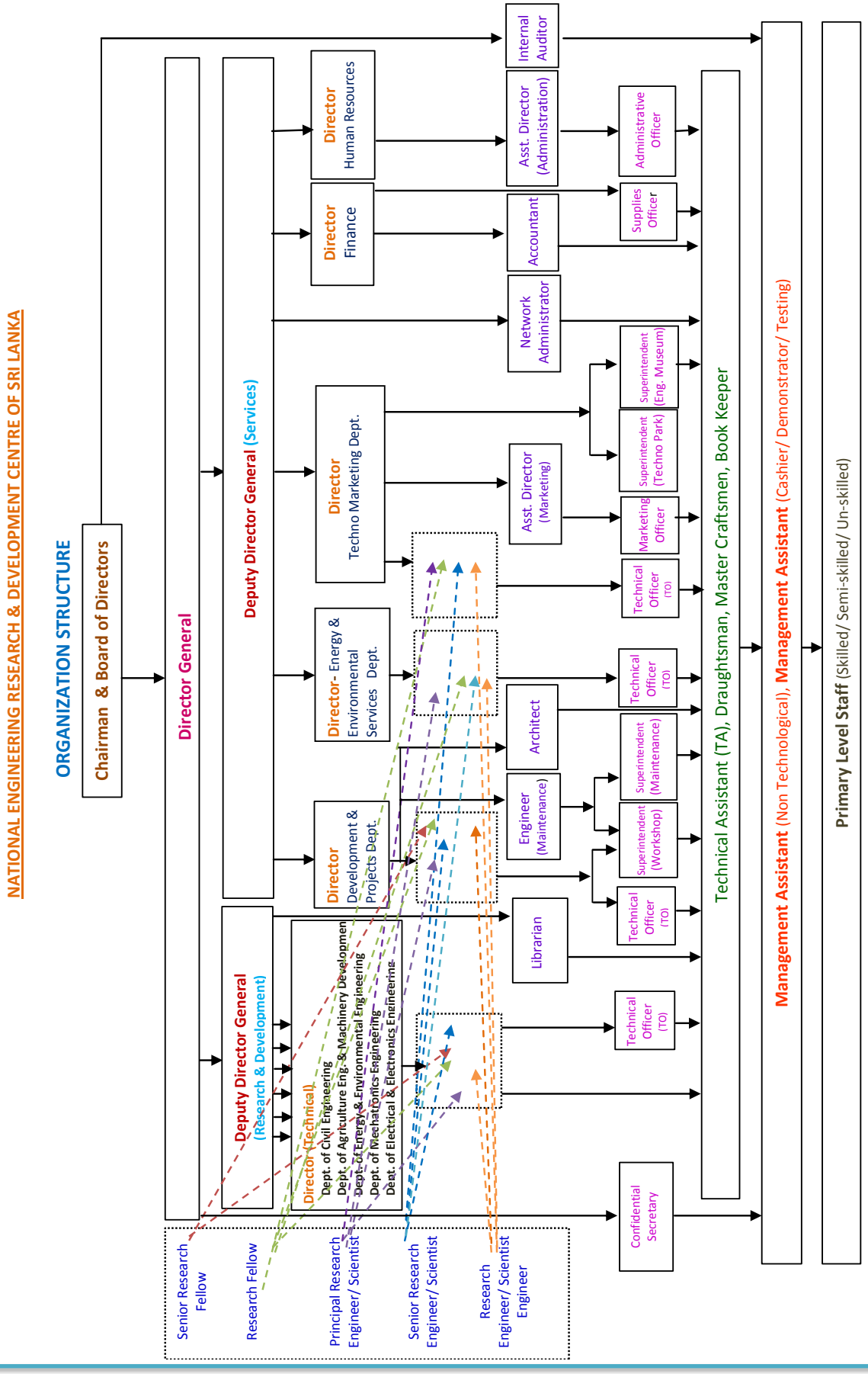
1. Eng. E A S K Edrisinghe
   C.Eng., MIET
2. Mr. G Chandrasiri
   B Com Degree
3. Mr. A S R Waidyasekera
   MBA(PIM-USJ), Chartered Marketer
4. Eng. A S Samarasinghe
   MSc, C.Eng.
5. Mrs. Niluka Kumari
   Master of Business Studies, CBA
6. Mr. A H M Anvar

From 01.06.2018

1. Eng. (Mr.) Mangala P B Yapa
   MSc (Hons) Eng., MBA
2. Eng. W P Jinadasa
   Dip. HE Delft (The Netherlands)
3. Mr. Sunil G Wijesingha
   MBA
4. Mr. N W A M U K K E Weerasinghe
   ME (Eng.), DHRM
5. Mrs. D G Niluka Kumari
   Master of Business Studies, CBA
6. Eng. A S Samarasinghe
   MSc, C.Eng.

Director General/ Secretary to the Board

Eng. D D Ananda Namal
M Eng. (Energy Technology), BSc Eng. (Hons), C Eng., MIE (SL)


NATIONAL ENGINEERING RESEARCH & DEVELOPMENT CENTRE OF SRI LANKA
ORGANIZATION STRUCTURE
Chairman & Board of Directors
Director General
Deputy Director General (Research & Development)
Director (Technical)
Dept. of Civil Engineering
Dept. of Agriculture Eng. & Machinery Development
Dept. of Energy & Environmental Engineering
Dept. of Mechatronics Engineering
Dept. of Electrical & Electronics Engineering
Deputy Director General (Services)
Director Development & Projects Dept.
Director- Energy & Environmental Services Dept.
Director Techno Marketing Dept.
Director Human Resources
Director Finance
Internal Auditor
Asst. Director (Administration)
Asst. Director (Marketing)
Network Administrator
Accountant
Administrative Officer
Supplies Officer
Superintendent (Eng. Museum)
Superintendent (Techno Park)
Marketing Officer
Technical Officer (TO)
Architect
Engineer (Maintenance)
Librarian
Superintendent (Maintenance)
Superintendent (Workshop)
Technical Officer (TO)
Technical Officer (TO)
Technical Officer (TO)
Confidential Secretary
Technical Assistant (TA), Draughtsman, Master Craftsmen, Book Keeper
Management Assistant (Non Technological), Management Assistant (Cashier/ Demonstrator/ Testing)
Primary Level Staff (Skilled/ Semi-skilled/ Un-skilled)
Senior Research Fellow
Research Fellow
Principal Research Engineer/ Scientist
Senior Research Engineer/ Scientist
Research Engineer/ Scientist Engineer

OFFICE ADDRESS

2P/17 B, Industrial Estate
Ekala
Ja-Ela

POSTAL CODE

11380

CONTACT INFORMATION

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+ 94-011-2236307
+ 94-011-5354597

+ 94-011-2233153

nerdcentre@nerdc.lk

www.nerdc.lk

BANKERS

- **Bank of Ceylon, Ja-Ela**
- **Bank of Ceylon, Corporate Branch**

AUIDITOR

Auditor General
Auditor General's Department

03 Chairman's Message

It gives me pleasure to present below the performance of the National Engineering Research and Development Centre of Sri Lanka (NERDC) during the year 2018.

As the premier organization involved in engineering research and development in the country, the NERDC continued to serve the nation in the year 2018 as well , through its numerous research and development projects; pilot projects; commercial projects; industrial and technological services; and technology commercialization and popularization activities .

A Security Robot for Real Time Monitoring and Capturing using an Android Mobile, a Pneumatic Tubing System to transport Clinical Samples, Development of an Intelligent Energy Management System for the Smart Home, Advancement of NERDC Cremator Technology, Development of a Fuel Wood Chips Feeding System for the Tea Drying Process, Development of an Economical and Light Weight Roof Tile, Mechanization of Slip-form Wall Construction and Development of a Device to Measure the Surface Water Content of Fresh Tea Leaves were the major research and development projects completed by the NERD Centre in the year 2018.

I am happy to state that the Centre could also make good progress during the year in some of the research and development projects that were started in the preceding years , such as the Development of a Street Light Controlling System, Development of a Roof Tile Dryer, Implementation of a Community Based Integrated Solid Waste Management System at Kotmale, Design and Fabrication of a Hyperbaric Oxygen Chamber, and Application of Fly Ash for making Cement Stabilized Compressed Soil Blocks and other Construction Material .

The pilot projects that were completed in 2018 involved the construction of foot bridges and cost effective retaining walls; the development of a smart parking monitoring system, a smoked fish processing unit, a domestic bio gas digester and machinery and equipment for the coconut industry.

During the year, the Centre also provided to the industry at their request, consultancy services in all disciplines of engineering. It also rendered technical services in the fields of precision machining, engineering designing and fabrication, industrial process monitoring and solutions, laboratory testing, environmental management, construction etc.

Throughout the year, the Centre conducted special training programmes for the benefit of industrialists, technicians, entrepreneurs, and apprentices in their respective areas of interest, such as energy and environmental management systems, technologies developed by the Centre , entrepreneurship development, programmable logic controller programming, industrial instrumentation, control systems, industrial applications, automation, Industrial health and safety etc.

It would not have been possible to successfully undertake all the above-mentioned projects and services if not for the support and assistance extended by Eng. D D Ananda Namal, Director General of the Centre. I very much appreciate the efforts he made to upgrade the overall performance of the Centre. I also take this opportunity to express my gratitude to the Board of Directors for their dedication, cooperation and guidance. I would also like to thank the Deputy Director Generals, Directors, Heads of Departments/Sections, research staff, technical staff and other support staff of the Centre for the services they rendered during the year without which our achievements during the year would have been near impossible.

Eng. W J L Shavindranath Fernando
CHAIRMAN

04 Top Management and Executive Staff

CHAIRMAN

Eng. W J L S Fernando
BSc (Hon) Eng., M Eng., FIESL, MIET, C Eng.

DIRECTOR GENERAL

Eng. D D Ananda Namal
M Eng. (Energy Technology), BSc Eng. (Hon), C Eng., MIE (SL)

DEPUTY DIRECTOR GENERAL (RESEARCH & DEVELOPMENT)

Eng. G K K A De Silva
MSc (Building Technology), BSc Eng. (Hon), C Eng., MIE (SL)

DEPUTY DIRECTOR GENERAL (SERVICES)

Mr. A H Piyasiri
MSc (Management of Technology), BSc Eng. (Hons)

ENGINEERING & EXECUTIVE STAFF IN DEPARTMENT WISE

Civil Engineering Department (CED)

Director (Technical)
Eng. J A C Chrishanthi
M Eng., BSc Eng.,C Eng., MIE (SL)

Principal Research Engineer

Eng. W W P K Perera
M Eng., BSc Eng. (Hons), C Eng. , MIE (SL)

Engineer

Ms. K S S Weerasinghe
Special Apprentice (Civil Eng.), IESL (Part I)

Research Engineer

Eng. I P Batuvita
BSc Eng., AMIE(SL)

Eng. A N S Amaradasa
BSc Eng., AMIE(SL)

Eng. M M M Manas
BSc Eng., AMIE (SL) - from 02.04.2018 to 31.12.2018

Agriculture Engineering and Machine Development Department (AE&MD)

Director (Technical)
Eng. K Y H D Shantha
MSc Eng., BSc Eng., AMIE(SL)

Principal Research Engineer

Mrs. Y M M K Ranathunga
NDT

Eng. A J G S Dahanayake
BSc Eng., C Eng., MIE(SL)

Principal Research Scientist

Dr. K M W Rajawatta - up to 22.01.2018
PhD, MSc, BSc.

Senior Research Engineer

Eng. P M Y S Pathiraja
BSc Eng., MSc, AMIE (SL)

Eng. S A P Shalinda Silva
BSc Eng., M Eng., C Eng., MIE (SL)

Research Engineer

Eng. P F S Perera
BSc Eng., M Eng., AMIE(SL)

Eng. K Sivesudhan - from 02.04.2018
BSc Eng., AMIE (SL)

Energy & Environmental Engineering Department (ENED)

Research Fellow/ Head of Department

Eng. J A A D Jayasuriya
M Eng., BSc Eng., MIE(SL)

Research Fellow

Eng. W K R Peiris
MA (Buddhist Stud), BSc Eng., C.Eng. MIE(SL)

Eng. E A N K Edirisinghe
MPhil, BSc Eng., MIE (SL)

Principal Research Engineer

Eng. H M L U Herath
BSc Eng., AMIE(SL)

Research Engineer

Mr. H A K Hapuarachchi
BSc Eng., AMIE(SL) - from 03.05.2018

Electrical and Electronics Engineering Department (ELED)

Research Fellow/ Head of Department

Eng.(Ms) N G D Wijesiriwardhana
M Eng., C Eng., MIE (SL)

Senior Research Engineer

Eng. U C Botheju
BSc Eng. C Eng., MIE (SL)

Research Engineer

Eng. (Ms) D R S K Wimalaratne
B Tech. (Hon), AMIE(SL)

Eng. Y S P Weerasinghe
B Tech. AMIE (SL)

Eng. H K I S Lakmal
BSc Eng., AMIE(SL)

Mechatronics Engineering Department (MED)

Director (Technical)

Eng. D M Punchibanda
BSc Eng., AMIE(SL)

Senior Research Engineer

Eng. H P H Kumara
MSc Eng., EC(UK) PART I & II, AMIE(SL)

Research Engineer

Eng. S M S S Senaratne
MSc Eng.,B Tech, AMIS(SL)

Eng. W M S P K Wanasinghe
B Tech., AMIE (SL)

Eng. M A T M Kumara
BSc Eng., AMIE (SL)

Eng. J D M H Jayantha
BSc Eng., AMIE (SL)

Techno Marketing Department (TMD)

Director -Technical

Eng. A A S P Jayasinghe
BSc Eng.(Hons), MBA, C Eng., MIE(SL)

Research Scientist

Ms. B D P S Ranaweera
BSc

Research Engineer

Eng. P P S M K Ponseka — From 25.04.2018 to 19.11.2018
BSc Eng., AMIE (SL)

Asst. Director – Marketing

Ms. P N D Pathirana
BSc (Hons) Sp. MCIM (UK), MSLIM (SL)

Technology Incubator

Principal Research Engineer / OIC- Technology Incubator

Eng. A R C Salgado
BSc Eng., AMIE(SL)

Research Engineer

Eng. Suresh P Perea
C Eng. MMechE (UK), NDT, AMIE (SL)

Technology Park and Engineering Museum

Superintendent – Technology Park

Mr. A A N S Adikari
BSc (Computer Science), Diploma in IT (UK) - up to 08.11.2018

Superintendent – Engineering Museum

Ms. D K Jayaweera
BSc (Hons)

Energy and Environmental Services Department (E&ESD)	Development & Project Department (DPD)
Research Fellow/ Head of Department Eng. K T Jayasinghe M Eng., BSc Eng., C Eng., MIE(SL)	**Actg. Director (Technical)** Eng. K Y H D Shantha MSc Eng., BSc Eng., AMIE(SL)
Senior Research Engineer Eng. (Ms.) N P T Perera MSc, BSc Eng.(Hons.), AMIE(SL) Eng. (Ms.) A G M T Siriwardhana MSc, M Eng., BSc Eng., AMIE(SL)	**Principal Research Engineer** Mr. W P R D Weerasinghe NDT, CEI PART I, IESL Part I **Senior Research Scientist (Architecture)** Ms. B D R Chamika MSc, BSc. Chartered Architect AIA (SL)
Research Engineer Eng. M D Sahardeen BSc Eng., AMIE(SL) Eng. K P D D Jayasekera BSc Eng.(Hons), AMIE(SL) Eng. T K Geeganage BSc Eng., AMIE (SL) Eng. (Ms) G S R Costha BSc Eng., AMIE (SL)	**Engineer** Ms. D M A K Digala Special Apprentice (Civil Eng.), IESL(Part 1) Mr. W A L S Karunawardhana HNDE Mr. P A U W K Paranagampola NDES
	Maintenance Unit & Central Workshop
Engineer Ms. H D C Hettiarachchi NDT	**Engineer** Mr. N A D D J Prasanna NDT **Superintendent - Maintenance** Mr. U S Warnakula NDES
Human Resources Department	**Finance Department**
Director (Human Resources) Ms. D A M Munasinghe MBA (HRM), BSc (HRM), AM (CIPM)	**Director (Finance)** Ms. D V S Perera ICMA Professional Part II, IPFA, ICEA
Assistant Director (Administration) Mr. R Gamage MA in Sociology, MLRHRM, BA (Social Sc.) Sp.	**Accountant** Mr. J M R S Jayasinghe MBA, BBA Sp. , CPFA, ICASL – Prof. Part I
Information Technology Unit	**Library**
Network Administrator Mr. B P Wickramasooriya BSc (Computing & Information Systems)	**Librarian** Ms. D M T P K Devagiri MSc , B A (Library Science) Sp., ASLLA
Internal Audit	**Procurement Unit**
Internal Auditor Mr. B P Susantha MPM, HNDA	**Supplies Officer** Mr. R H A Jeewananda BSc (Physical Science)

05 Human Resources

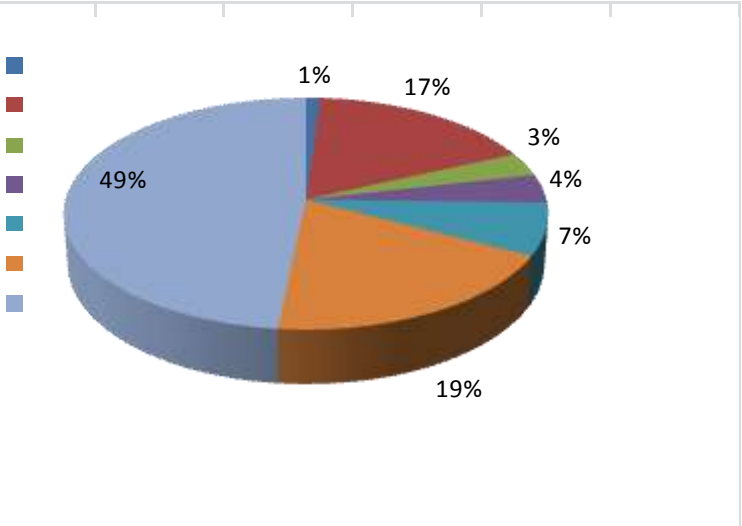
Human resource is the significant asset of any organization in accomplishing its goals and objectives. When it becomes a research institution, human resource is the key factor. The success of all major tasks of the Centre, i.e. conducting research and development projects, commercial projects, training programmes and providing industrial services, etc. are totally depend on the knowledgeable and competent staff. Among all the staff, engineering and technical personnel are very much important.

The major problem identified in Human Resource Management (HRM) of the NERD Centre is the recruitment and retaining of competent engineers and technical personnel. (This is a common issue for research organizations in Sri Lankan State sector). A comprehensive integrated strategy is required to address this issue, such as national policy on engineering researchers and technicians, programming, research application for national development and recruitment, incentives, rewards, recognitions, capacity development of engineering researchers and technicians etc.

However, within the capacity and limitations the Centre has undertaken all the measures to recruit and retain engineering researchers and technical staff through the strategy like providing capacity development opportunities (Eg: Higher studies, training and development, international exposures, etc.), creating a facilitating environment and assisting carrier development etc.

Summary Information on Staff Strength
As at 31.12.2018

Staff Category	Nos
Top Management	3
Engineers/ Scientist	47
Other Executives	9
Junior Managers	11
Management Assistants (Tech)	20
Management Assistants (Non-Tech)	52
Primary Level (PL) Staff	133
TOTAL	275



5.1 Cadre Management

5.1.1 New Recruitments during the year 2018

	Name	Designation	Category	Date of Recruitment
1	Ms. I R R T Sathsarani	Library Attendant	PL 1	02.03.2018
2	Mr. U S Warnakula	Supirintendant - Workshop	JM 1-2	15.03.2018
3	Mr. K N Nawarathne	Supplies Officer	MA 2-2	26.03.2018
4	Mr. M M M Manas	Research Engineer	AR 1	02.04.2018
5	Mr. K Sivasudan	Research Engineer	AR 1	02.04.2018
6	Mr. H M M G T K B Madawalage	Draughtsman	MA 2-2	02.04.2018
7	Mr. B J T Karunartne	Office Aide	PL 1	02.04.2018
8	Mr. K A W Dhananjaya	Office Aide	PL 1	02.04.2018
9	Mr. P P S M K Fonseka	Research Engineer	AR 1	25.04.2018
10	Mr. H A K Hapuarachchi	Research Engineer	AR 1	03.05.2018
11	Ms. W A K Sanjeewani	Management Assistant	MA 1-2	01.08.2018
12	Mr. P Thanojan	Management Assistant	MA 1-2	20.08.2018
13	Mr. W P A S O Abewardhana	Electronic Technician	PL 3	20.08.2018
14	Mr. D M Jayaratne	Vehicle Attendant	PL 1	09.03.2018
15	Mr. K A E M Kasthuriarachchi	Machinist	PL 3	15.10.2018
16	Ms. M S Dilshani Silva	Electronic Technician	PL 3	13.11.2018

5.1.2 Internal Recruitments during the year 2018

	Name	Previous Designation	New Designation	Date of Appointment
1	Ms. B D R Chamika	Architect (MM 1-1)	Senior Research Scientist (AR 2)	21.12.2018
2	Eng. S A P Shalinda	Research Engineer (AR 1)	Senior Research Engineer (AR 2)	21.12.2018

5.1.3 Retirements during the year 2018

	Name	Previous Designation	New Designation	Date of Appointment
1	Mr. W D K Jayaratne	Labourer	PL - 3	28.03.2018
2	Mr. B K U Rodrigo	Labourer	PL - 3	28.03.2018
3	Mr. K E J Fernando	Electronic Technician	PL - 3	15.07.2018
4	Mr. K M V L Perera	Labourer	PL - 3	28.10.2018

5.1.4 Resignations during the year 2018

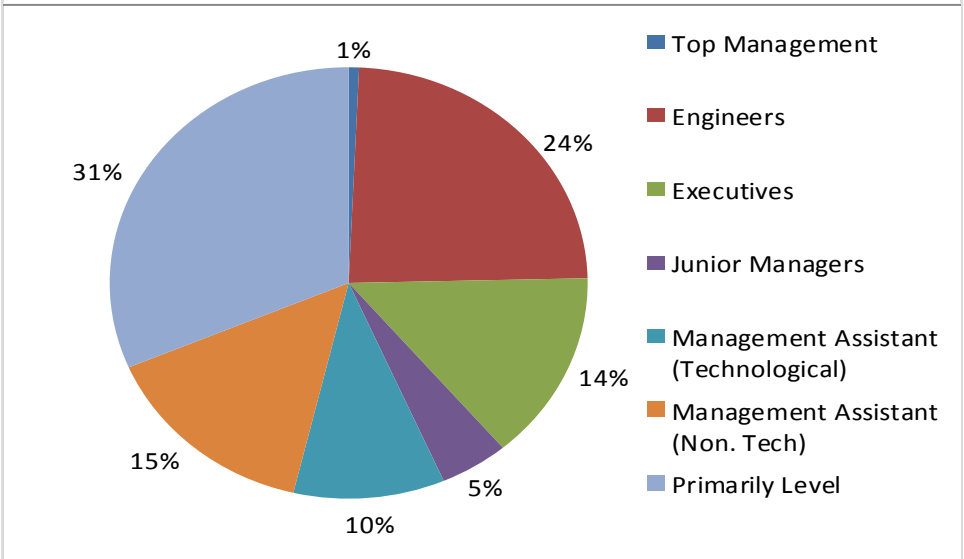
	Name	Designation	Category	Date of Resigned
1	Mr. G M C M Rajakaruna	Research Engineer	AR 1	05/01/2018
2	Dr. (Mrs.) K M W Rajawatta	Principal Research Scientist	HM 1-.3	22/01/2018
3	Mr. K S K B M R A B Lenawala	Superintendent - Maintenance	JM 1-2	14/03/2018
4	Mr. J P J Jayawickrama	Mould Maker	PL - 3	22/03/2018
5	Mr. M D H Fernando	Electrician	PL - 3	31/05/2018
6	Mr. M. Nihal	Machinist	PL - 3	01/07/2018
7	Ms. G G K H Kawshalya	Technical Assistant	MA 2-2	01/07/2018
8	Mr. H Y D Ranasinghe	Technical Assistant	MA 2-2	01/07/2018
9	Mr. E G Dilan Suminda	Machinist	PL - 3	09/07/2018
10	Mr. W L S Perera	Labourer	PL - 3	20/07/2018
11	Mr. M L S S S Gunarathne	Electrician	PL - 3	15/08/2018
12	Mr. A A N S Adikari	Superintendent –Techno. Park	JM 1-2	02/11/2018
13	Mr. T T S R Rodrigo	Technical Assistant	MA 2-2	08/11/2018
14	Mr. P P S M K Ponseka	Research Engineer	AR 1	19/11/2018
15	Ms. M G N Sandanayake	Book Keeper	MA 2-2	01/12/2018

5.2 Staff Training and Development

Since the fundamental responsibility of the NERDC is performing engineering researches and developments, where, constant concern is tendered in developing human resources capacity. Accordingly, all steps are taken by the Management to enhance knowledge, skills and competencies with correct attitudes in all categories of the staff having purposes of obtaining efficient and effective service to the Centre and career development of the staff.

5.2.1 Capacity building and skills development training opportunities provided in year 2018 are as follows;

Service Category	Nos. of Training Facilities Provided
Top Management	3
Engineers	103
Executives	61
Junior Managers	20
Management Assistant (Technological)	44
Management Assistant (Non. Tech)	64
Primarily Level	135
Total	**430**



5.2.2 Outbound Training Program organized

Three (03) days Residential Outbound Training and Development Programmes were arranged and it was on leadership development conducted by Commando Regiment Training School – Uva Kuda Oya.

Details of the staff participated are as follows;

09 - 11 March 2019 - 69 Staff Members

01 – 03 June 2019 - 65 Staff Members

5.2.3 Facilitation for Postgraduates Studies / Professional Qualifications

Post Graduate Studies Completed in 2018				
No	**Name & Designation**	**Program**	**Institution**	**date Completed**
1	Mr. R Gamage Asst. Driector (Admin)	Master in Labour Relations and HRM	University of Colombo	2018/03/01
2	Eng. J A C Chrishanthi Director (Civil Eng.)	M.Eng. Degree	University of Moratuwa	2018/06/01
3	Eng. S M S S Senaratne Research Engineer	M.Sc Eng Degree	University of Moratuwa	2018/07/01
4	Mr. B P S Kumara	MPM Degree	SLIDA	2018/07/02

Charter Qualifications Obtained in 2018				
No	**Name**	**Designation**	**Membership**	**Institution**
1	Eng. S A P S SIlva	Senior Research Eng.	Member	Institute of Engineers Sri Lanka

Post Graduate Studies Ongoing in 2018					
	Name & Designation	**Program**	**Institution**	**Started Date**	**Date to be completed**
1	Ms. G S R Costha Research Engineer	M Eng./PG Diploma Pro.in Energy Technology	University of Moratuwa	06/02/2016	05/02/2018
2	Ms. B D P S Ranaweera Research Scientist	M Sc Degree Programme in Industrial and Environmental Chemistry 2016/18	University of Kelaniya	18/06/2016	17/06/2018
3	Mr. B P Wickramasuriya Network Administrator	M Eng./PG Diploma in Information Tech. -2016	University of Moratuwa	22/10/2016	21/10/2018
4	Mr. K P D D Jayasekera Research Engineer	M Eng./PG Diploma in Environmental Eng. & Mgt.	University of Moratuwa	12/10/2016	21/10/2018
5	Mr. I P Batuvita Research Engineer	PG Diploma/M Eng in Highway &Traffic Eng.	University of Moratuwa	28/02/2015	22/06/2017
6	Mr. T K Geeganage Research Engineer	M Sc./PG Diploma Course in Sustainable Process Eng.	University of Moratuwa	05/12/2015	30/05/2018
7	Eng. (Ms) A G M T Siriwardhane Senior Res. Engineer	PhD Studies of Engineering and Computer Sciences	Australian National University	2017/11//01	2021/10/31

5.3 Participation for Foreign Training / Workshop / Seminars / Symposiums

	Name & Designation	**Programme Participated**	**Country**	**Period**
1	Ms. P N D Pathirana Asst. Director (Marketing)	International Workshop on "Technological Innovation and Management for Sustainable Development	India	27 – 28 March 2018
2	Eng. W J L S Fernando Chairman	The meeting of Senior Officials of SCO Member States and the Meeting of Heads of Ministries and Authorities of Science and Technologies of SCO Member States	Russia	17 – 19 April 2018
3	Eng. W J L S Fernando Chairman	Second Session of the Committee on Information and Communications Technology, Science, Technology and Innovation	Thailand	27- 31 August 2018

5.4 In House Training Programs organized

No	Program Name	Period	For Whom	No of Participants
01	Motivational Programme Change Your Life in 7 ways	02.02.2018	Mgt. Assistants /Primary Level categories	123
02	Workshop on Lightning Protection	28.08.2018	Mgt. Asst. (Tech.) and above categories	41
03	Speech Craft Programme	12.09.2018-05.12.2018	Mgt. Asst. and above categories	30

5.5 Other Corporate Social Responsibilities

Industrial/ Technical Training Facilities provided for apprentices

NERDC has provided in plant training opportunities for 51 nos. of apprentice/ trainees who were directed by National Universities and Technical Institutions for a training period of 03 months/ 06 months/ 01 year within the year 2018.

06 Performance Highlights of the year 2018

The National Engineering Research and Development Centre has involved in research and development works in different key areas such as water, irrigation, cost effective housing, energy and, environment management focusing to government development plan and sustainable development goals declared by the United Nations. As a result, NERDC was capable to introduce new product and technologies which will provide contributions to country development and upgrading the living conditions of the people in Sri Lanka. In addition to research and development works, NERDC conducted annual research symposium, Open day exhibition in 2018. In order to improve the science knowledge among the school children, outbound training programs have been organized including science and entertainment activities and special training program have been conducted for the industries in order to upgrade the knowledge of the key officers involved in the industries. Details of Important research and development activities carried out by NERDC in different areas during the year are given below.

6.1 Special Research and Development Projects Highlights in 2018

6.1.1 Development of Roof Tile Dryer

Objective is to develop feasible roof tile dryer to replace traditional tile dryer. In order to save energy consumption and improve productivity and efficiency of the tile industry, this project has been commenced. Construction of roof tile dryer has been completed and few field testing of tile dryer has been completed. As per the results of the field test, it was decided to make some improvements to the processes to enhance operational connivance further.

6.1.2 Community based integrated solid waste management system

To develop integrated solid waste management project for small community and to introduce a show case project to minimize the waste management issues relevant to local government bodies, this project was initiated. The project consists with biogas plant for bio degradable waste, incinerator for combustible waste and collecting system for recycle waste (such as glass, plastic, bricks, and steel). Project is operated with participation of residents of the village.

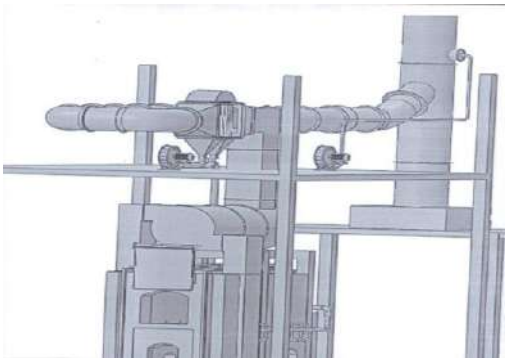
The projects have been completed and collecting of feedback information and monitoring part of the village are in progress. If the feedback is positive, it is expected to introduce the system for local Government Authorities.

Two biogas digesters constructed for biodegradable waste at CEB village in Kothmale.

6.1.3 Advancement of NERDC Crematorium Technology

Objective of the project is to introduce a system to improve the quality of flue gas from NERDC developed crematorium.

Project is commenced to improve environmental effects of the NERDC cremator based on the feedback information received during past periods. It includes multiple chamber type cremations chamber in order to satisfy the temperature and retaining periods requirements. A heat exchanger is also included with the purpose of extracting some of the waste heat of flue gases.



Flue gas duct line and heat exchanger

Cremation chamber

6.1.4 Implementation of Fuel wood chips feeding system

To implement a fuel wood chips feeding system for tea drying process to save energy is the objective of the project .

Conventional system required timber logs or split timber logs. But it is expected to use fuel wood more efficiently by burning in the form of wood chips. The screw type conveyer has been developed and field trials were done at tea factory and modifications are in progress.

6.1.5 Design & Fabrication of a Hyperbaric Oxygen Chamber

Objective of the project is to develop hyperbaric oxygen chamber for wound treatments.

Hyperbaric Oxygen Chamber

Hyperbaric oxygen therapy is a treatment used for wound treatment which is given in an environment of 100% oxygen environment at two, three times atmospheric pressure at sea level. Such dose of oxygen have number of beneficial such as biochemical, cellular and physiologic effects and today these type of hyperbaric facilities are available in many countries. Hyperbaric oxygen chamber has been fabricated and pressure test has been carried out. Now modifications are in progress.

6.1.6 Development of Machinery and Equipment for Coconut Industry

Objective of the project is to develop manually operated de-husking machine, industrial de husking machine and to introduce coconut plucking pole.

The Centre has commenced a research project to develop machines for de husking processes due to lack of Labour availability for de husking of coconuts. Manually operated machine and industrial type de husking machine have been developed. Field trials have been carried out and manually operated machine is now under technology transfer process. As per the feedback of the field trials further modifications will be completed.

Hand Operated Coconut De-husker

Industrial Coconut De-husker

6.1.7 Development of Coir Braiding Machine

Objective of the project is to develop a machine to make coir braid used for coir mats.

Coir mat production industry in Sri Lanka is required more labor and labor cost is about 60%. Coir mats are exported and in order to improve both quality and productivity of the industry, the. NERDC commenced a R&D project to make coir braid machine. Fabrication of a machine has been completed and modifications are in progress.

6.1.8 Mechanization of Slip-form Wall Construction

Having purpose of developing a machine to automate the construction of slip form wall which is not required an application of plaster.

Project was completed in last year and further developments have been identified after the field test at Awissawella. New vibration mechanism has been included to be more user friendly operations.

6.1.9 Development of a device to measure surface water of fresh tea leaves

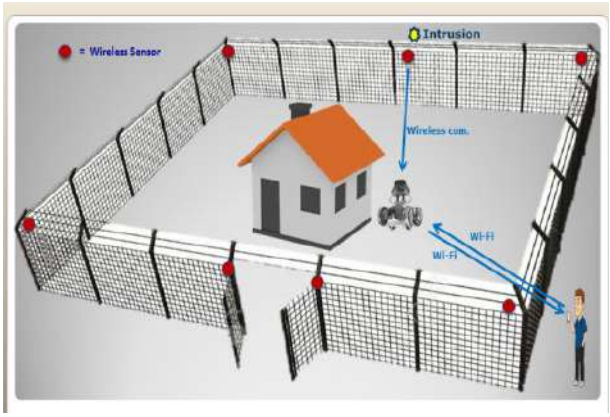
The objective of the project is to develop a machine to measure surface water level of fresh tea leaves in tea industry.

Normally, tea leaves suppliers tend to add water to tea leaves and buyers tend to cut weight of tealeaves in compensation to wetness of tea leaves. However this is caused to increase the cost of energy for tea drying processes. According to the request of Tea Board, the machine has been developed. Field trials and modifications are in progress

Instrument for measuring of Surface water level of tea leaves

6.1.10 A Security Robot for Real Time Monitoring & Capturing using Android Mobile

The project objective is to design and build a home security robot for surveillance purposes in a home environment having the capability of autonomous moving, smart charging, outdoor surveillance and output warnings via Wi-Fi network to mobile phones.



Security Robot sensor network

Security Robot unit in testing

6.1.11 Project Pneumatic Tubing System to transport Clinical Samples

National Hospital requested to develop a transporting system for clinical samples from wards to laboratory since it requires 200 laborers for transporting clinical samples. This is a collaborative project with the National Hospital.

6.1.12 Street Light Controlling System

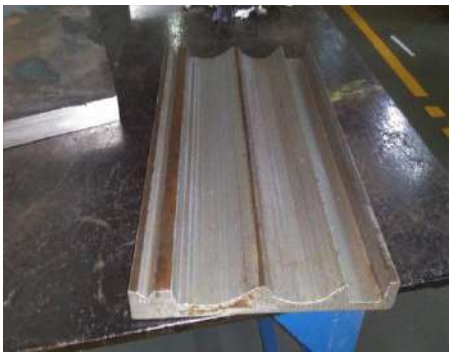
Street light control system in our country is not safe especially in rural areas and it does not operate on time. Hence considerable amount of energy waste is happened. This project is commenced focusing on this issue and started the project with LECO,CEB ,IESL (NSW) to develop a reliable technology for On and Off street lights through audio signal broad cast by SLBC when it is required. The model has been completed and now prototype model development is in progress.

6.1.13 Development of an intelligent energy management system for smart home

The project is to design a PCB for the energy meter to monitor the domestic power consumption individually in each device or the main output. Fabricating of PCB and developing of automated controlling light system are in progress.

6.1.14 Development of an economical & light weight roof tile

Considering the present issues on roof covering materials in building construction industry, this project is commenced to develop a cost effective roof tile. A sample tile has been made with cement and soil. Testing of the product developed is in progress.



A sample of tile made with cement and soil

6.1.15 Application of fly ash for making Cement Stabilized Compressed Soil Blocks (CSCSB)

Objective of the project is to develop a technology to improve unsuitable soil in to suitable soil for making CSCSB with application of fly ash.

Major issue for the manufacturing CSCSB is to find suitable soil. One solution is to convert unsuitable soil in to suitable soil by improving properties of soil by adding different materials. As per the request from Ceylon Electricity Board, a Project was commenced to improve unsuitable soil in to suitable soil using fly ash. Soil samples have been collected and numbers of blocks have been made with different percentage of fly ash. Testing is in progress. Relevant laboratory tests were done by adding fly ash with different percentage which is in progress.

6.2 Pilot Projects carried out by NERDC

The pilot projects have been completed based on the NERDC developed products, machineries and process technologies for demonstration, popularization and further studies. Following pilot projects have been completed during the year 2018

6.2.1 Construction of foot bridges

6.2.2 Smart Parking Monitoring System

Developing a smart parking monitoring system for more efficient, intelligent and convenient environment for the car park management

After the stake holders meeting held on mid of 2017, it was selected JAT Technologies (Pvt) Ltd to install the system as a field test at Janajaya City, Rajagiriya. According to the requirement of the customer, system was upgraded the to 100 No's of slots with wireless communication protocol.

6.2.3 Pilot projects to construct cost effective retaining walls

The Centre has developed two types of cost effective retaining walls. They are pre-stressed concrete retaining walls and pre-tensioned masonry retaining walls as alternatives to traditional retaining wall construction methods such as random rubble masonry and reinforced concrete retaining walls.

6.2.4 Pilot Scale operation of smoked fish processing units

The consumer demand is very high for smoked fish over salted dried fish in Sri Lanka. The improved processing method was introduced to make quality smoked fish by preventing unacceptable level of Polycyclic Aromatic Hydrocarbons (PAH) which are carcinogenic. This project was initiated in collaboration with NARA institute.

6.2.5 Community based solid waste management system at Kotmale

This project is to implement an integrated solid waste management project for a small community to develop a showcase project in order to disseminate similar projects in Sri Lanka to get rid of waste in economical way.

6.2.6 Pilot project on Domestic Bio Gas Digesters

The main objective of this project is to stop the domestic garbage coming to the roadsides and generate biogas for domestic cooking and liquid fertilizer for domestic organic cultivation.

6.2.7 Development of machinery and equipment for coconut industry

Coconut harvesting and de-husking are labour intensive works. Nowadays, the labour scarcity is a major issue in coconut industry and this affects highly when harvesting and de-husking operations. As there are several drawbacks in manual de-husking and industrial de-husking operations, NERDC has developed a machine which has the de-husking capacity of 1200 nuts/hr. with less than 2% nut breakages.

6.3 Consultancy Services for Building Construction

6.3.1 Construction of VRC Building at Mahiyanganaya

Development and Project Department of the NERDC undertook design and construction work of the Vidatha Resources Centre at Mahiyanganaya on the request made by the Ministry of Science, Technology and Research. This is a two storied building with office facility, computer room and auditorium. Floor Area – 184.65 Square Meter and Cost – LKR 9.69 Million

6.3.2 Renovation work of the State Minister's Quarters

Renovation works of the quarters of Hon. State Minister of Science, Technology and Research was awarded to NERDC after the unsuccessful attempts with contractors twice. Entire cost for the renovation work was LKR 4,343,570.00.

6.3.3 Construction of PSC Foot Bridge at Lunuwilawatte, Katugoda

Pre-stressed concrete footbridge of 5'-6" wide and 30'-0'' long was constructed with direct involvement of NERDC staff at Lunuwilawatta, Katugoda area in Galle. Provincial Road Development Authority of Southern Province provided the funds of LKR 890,970.00 for completing the foot bridge.

In addition, 08 nos. of pre-stressed concrete foot bridges were constructed in Kegalle District with funds from Ministry of Rural Development, Sabaragamuwa Provincial Council and Ministry of Youth affairs and Southern Development Authority.

Location of the Foot Bridge	Dimensions	Estimated Cost
Dehimaduwa, Mawanella	6.15m x 1.575m	884,000.00
Near Dunukewala Diddeniya Kumbura, Dunukewala, Rambukkana	3.60m x 1.575m	758,000.00
Bulathkohupitiya, Alawathura, Ganegoda, Rangalle	9.10m x 1.70m	1,490,500.00
Doranewa Oya, Magala Kanuhenthenna Perupalla Vihara Mawatha, Magala, Deraniyagala	9.15m x 2.10m	1,912,280.00
Wadiyathenna, Kotagoda Road, Dambuluwawa, Mawanella	7.75m x 1.575m	1,239,875.00
Pandeniya Ela, Kumarapura, Aranayake	5.10m x 1.725m	1,119,780.00
Muwapitiya Maha Vidyala Road, Kotagama, Rambukkana	3.60m x 1.575m	1,119,780.00
Kotalawatte ElaBridge at Thibiripola, Dehiowita	9.00m x 1.575m	1,754,425.00

6.3.4 Rectification works of Automobile Workshop Building at District Vocational Training Centre, Inamaluwa, Matale

This building had been constructed by using NERDC construction technology by a licensee contractor about 20 years ago. Repair and maintenance work of the building was performed by NERDC addressing to the issues related to the precast concrete trusses with the expense of LKR 222,340.00.

6.3.5 Interior work to Technology Transfer Division of the Ministry Science, Technology and Research.

Interior work to Technology Transfer Division was undertaken by the NERDC on the request made by the Ministry of Science, Technology and Research. Interior architectural design suited for furniture, construction, fabrication including electrical installation works were completed within a period of 02 months at a cost of LKR 4,879,790.00.

6.3.6 Renovation works of the existing Pergola at Royal Botanical Garden, Peradeniya

Renovation work of the existing pergola structure was performed by NERDC using pre-stressed concrete components with the total cost of LKR 1,832,988.00

6.4 Consultancy Services for Crematoriums, Bio Gas and other Constructions

	Description	Value of work
01	Construction of Biogas Digester Boy's Town, Diyagala	1,290,242.00
02	Construction of Biogas Digester Ayurvedic Hospital, Anuradhapura	459,184.00
03	Consultant services for pilot Biogas Digester at SLIDA	68,173.00
04	Repair of Crematorium at Ududbaddawa	605,000.00
05	Repair of Crematorium at Negombo	314,000.00
06	Repair of Crematorium at Habaraduwa	840,000.00
07	Repair of Crematorium at Ambalangoda U.C.	1,756,000.00
08	Fabrication of Smoked Fish Unit	701,000.00
09	Inspection of Metal Scrap for Certificate of Payment	21,870.00
10	Fabrication of Crusher Machines	995,800.00
11	Fabrication of Jack operated Oil/Juice Extractor	300,000.00

6.4.1 Construction of Biogas Digester at Boy's Town, Diyagala

Construction of Bio Gas Digester for piggery and dairy farm in Diyagala Boys' Town was collaboratively funded by Ministry of Science, Technology & Research and the Management of Diyagala Boys town as 70% and 30% of the project estimate respectively.

- Feeding material - Cow dung and Pig dung

Biogas Digester at Boys Town –Diyagala

Biogas Digesters at SLIDA

6.4.2 Construction of Biogas Digester at Ayurvedic Hospital, Anuradhapura

Construction of Continuous Type Bio Gas Digester for Anuradhapura Ayurvedic Hospital was funded with the total estimate of LKR 528,061.22 by Assetline Leasing Company Ltd. Capacity of the digester is 20 M3. Feeding material is Food waste generated in the hospital premises and Gas is used to make medicine in the hospital medicine making section.

6.4.3 Consultancy services for pilot Biogas Digester at SLIDA

Biogas system was constructed and commissioned to SLIDA for disposal of kitchen food waste generated at the restaurant. The digester system is mainly consisted with 5 Nos. of 2m3 capacity plasti-shell biogas digesters, floating gas holder made up with steel, biogas lines and collection lines for bio slurry. 50kg of kitchen food is fed daily and biogas is used at the kitchen for cooking. Bio slurry is supposed to be used for cultivation and flowering.

6.4.4 Repair of Crematoriums at Ududaddawa P.S. and Habaraduwa P.S. and Ambalangoda

The repair of Ududaddawa crematorium was to replace the flu gas duct line and 3Nos. of Stainless Steel Stay Wires. The total cost of LKR 605,000.00

Crematorium at Ududaddawa

Crematorium at Habaraduwa

Crematorium at Ambalangoda

The total cost of repair of Habaraduwa is LKR 840,000.00 for repairing of fire grate
The cost of repair of gas system and duct line for Ambalangoda Crematorium is LKR 1,756,000.00.

6.4.5 Fabrication of Smoked Fish Unit, Crusher machines and Jack operated Juice Extractors

Responding to the request from Ministry of Primary Industries, 03 Nos. of smoked fish units were manufactured and supplied with the total cost of LKR 701,000.00. Smoked fish unit includes a drying chamber and a smoke generator.

Smoked Fish Unit

Crusher Machine

Jack Operated Juice Extractor

13 Nos. of crusher machines and 06 Nos. of Jack operated oil Expellers were fabricated and supplied to the Ministry of health, Nutrition and Indigenous Medicine at a cost of LKR 1,295,800.00.

6.5 Consultancy Services for on Going Activities

	Description	Value of work without Tax
1	Consultancy services for proposed clinical building at Wadduwa	7,500,000.00
2	Consultancy services for Atomic Energy Board	2,040,000.00
3	Consultancy services for German Technical College at Mount Lavinia	330,000.00
4	Construction of Cost Effective House for CEB at Kandy	1,035,392.00
5	Consultancy work for Proposed Health Centres Polonnaruwa District	213,043.48
6	Fabrication of Palmyra Juice Extractor and Pinto Drier, Delph	1,525,000.00

6.5.1 Consultancy Services for Proposed Clinical Building at Wadduwa

The scope of this project is to provide Consultancy Services for Construction of Medical Office Building at Wadduwa. The three storied building includes OPD, Antenatal Clinic, Arunodaya Child's Development Unit, Medical Officer's Office, Dental Clinic and an Auditorium. The total floor area is 1440m2. The value of Consultancy Service is 5% of Construction Contract amount approximate LKR 3.2 Million.

6.5.2 Consultancy services for Atomic Energy Board

The project is to provide Consultancy Services for Construction of an Exposure Room for NCNDT of Sri Lanka Atomic Energy Board (SLAEB). The single storied building includes Gamma pit, Control and Operating unit of approximate area of 113 m2. The value of Consultancy Services is 6% of Construction Contract amounting approximately LKR 1.64 M.

6.5.3 Consultancy services for German Technical College at Mount Lavinia

6.6 Techno Marketing Department Activities for the year 2018

Main objective of the Techno Marketing Department is to dissemination of successful technologies developed by the NERD Centre.

6.6.1 Technology Transfer for the Entrepreneurs

Technology Developed	Technology License Issued
Bottom Ash Mixed Cement blocks and paving block	12 Nos.
Cinnamon Oil Distillation Unit	02 Nos
Crematorium Technology	01 No.
Cost effective building technology	03 Nos.
Vegetable Drier	01 No.
Bakery Oven	01 No.
Solar Water Heater Technology	01 No.
Bottom Ash Technology	01 No.
Manufacturing of Pre-stressed Precast Concrete Wall Panel for Retaining Wall	01 No.

Technology Transfer Income - 119,000.00

6.6.2 License Renewal

Technology	No. of Renewals
Vegetable Drier	01
Crematorium	07
Cost Effective Building Technology	21
Pre-stressed Yard	05
Cashew Drier	01
Biogas Technology	01

6.6.3 Awareness Programmes on NERDC Technologies

Date	Awareness Programme	No. of participants
09.02.2018	for Electronics Industry	19
23.03.2018	on NERDC Technologies & Foot bridge technology at Kaluthara	100
26.03.2018	on NERDC Technologies & Foot bridge technology at Kandy	70
20.04.2018	on NERDC Technologies & Foot bridge technology at Batticaloa	30
22 – 25.05. 2018	on Cost Effective Building Technology at Batticaloa	9
25.05.2018	on Foot Bridge technology at Polonnaruwa District Secretariat Office	50
28.05. 2018	on NERDC technologies at Kurunegala District Secretariat Office	150
14.06. 2018	on NERDC Technology on at Yakkala Sanasa Building	50
25.06.2018	on Cinnamon Oil Distillation unit for the entrepreneurs	05
18-19.09. 2018	on NERDC technologies for Business clinic at Ampara	40
20.09.2018	on NERDC technologies at Pannala District Secretariat Office	45
18.12.2018	on Mechanized slip form wall construction technology	45

6.6.4 Training Programmes conducted

	Name of the Training Programme	Nos. of Participants	Income (Rs.) (Without taxes)
1	Cement Soil Blocks Manufacturing	09	16,873.04
2	Two day training on Pre cast Concrete Component for EU Funded beneficiaries (Coordinated by World Vision)	48	328,768.70
3	Cost Effective Building Technology Training Prog. (4 day)	09	72,860.86
4	Compressed Cement Soil Blocks Manufacturing on 16.05.2018	15	31956.52
5	Cost Effective Building Technology (4 day) Training Programme	20	149,982.61
6	Bottom Ash Mixed Cement blocks and paving blocks	09	-
7	Cost Effective Building Technology (4 day) Training Programme	20	149,982.61
8	Cost Effective Building Technology (4 day) Training Program	15	112,486.95

6.6.5 Exhibitions participated

Date	Exhibition
11.05.2018	Participated a Mini Technology 2018 organized by EDB at Matara Sanaya Hotel
18-20.05 2018	Build SL 2018 organized by Chamber of Construction Industry Sri Lanka at BMICH
22-24.06 2018	Participated a Inco 2018 Exhibition at BMICH
10-12.08. 2018	Participated a COMEXPO 2018 Exhibition organized by IDB at BMICH
17.08. 2018	Participated a Mini Technology 2018 Exhibition organized by EDB at Hotel Blue Sky Grand, Kurunegala
29– 31.08. 2018	Participated an Enterprise Sri Lanka (V2025) 2018 Exhibition organized by the Ministry of Finance & Media from at Monaragala
12-14.10. 2018	Techno 2018 Exhibition at BMICH
16-17.11. 2018	Engineering Exhibition – 2018 at NERD Centre

6.6.6 TV and Radio Programmes arranged

Date	Programme
7,14,21,28.01.2018	04 nos. “Kedella” Programmes on Cost Effective Housing Technology in Sirasa TV on Sundays – Recorded 15 minutes. each
21.02.2018	01 Radio Programme “Sith Pahan Weta” on Cost Effective Housing Technology on Lak Viru Radio – Live 01 hour.
05.01.2018	01 no. Malpara Live Prog. (ITN TV)
11–18.02.2018	02 nos. “Kedella” Programmes on Cost Effective Housing Technology in Sirasa TV on Sundays – Recorded 15 minutes. each
27th Feb. 2018	01 nos. live Radio Programme (about environmental issues & renewable energy)
16.03.2018	01 no. live Radio Programme (about Agric. Machines)
05.07.2018	01 hr. Live discussion on Lakviru Radio
12-17.11.2018	TV crawlers on Derana TV for Engineering Exhibition 2018 at NERDC

6.6.7 Newspaper Articles presented

No.	Details of the activity
1	01 no. FB advertisement on training programme
2	01 no. Web advertisement on training programme
3	01 no. Web article on training programme
4	03 nos. of paper advertisements on first quarter training programs
5	02 nos. Web articles
6	Web advertisement on technology transfer of Milking machine
7	Web + FB advertisement on “How to use electricity “
8	Web advertisement on Cost Effective Building Technology (4 day) Prog.
9	Web advertisement on workshop - Noise and ambient air quality management
10	01 no. Article Kedella Magazine – September issue
11	12 Nos. News updates to Ministry Media Units
12	12 nos. Web articles
13	03 nos. Paper advertisements
14	Web articles /News updates

6.6.8 Patent Processed During the year 2018

Patent No.	Patents	Filing Date
16068	Patent obtained – Palmyrah Juice Extractor	
19847	Patent filed – Floating Mechanism for Easy Operation of Lifting Gates in Irrigation Canals	24.04.2018
20273	patent filed - (A system for security surveillance with mobile controllable robot and wireless sensor network)	11.12.2018

6.7 Services by Technology Incubator

6.7.1 Objectives of Technology Incubator

I. Share the manufacturing resources with industry to help them in meeting standard quality levels
II. Arrange awareness programs and workshops to help SME sector.

Facilities available

- CAD/CAM Integrated SOFTWARE – (Solid works - 2014)
- CNC Lathe Machine
- CNC EDM Machine (Spark Erosion)
- High speed Scanning machine
- Surface Grinder
- Copy milling and engraving
- 3D Printer
- CNC Milling Machine
- CNC EDM Wire cut machine
- Precision Cylindrical Grinder
- Mould polishing Equipment
- Testing and measuring equipment
- Coordinate measuring machine

6.7.2 Summary of Services carried out in year 2018 by the Technology Incubator in Areas of Precision Machining, Engineering Designing and Fabrications Services for Inventors / Students / Startups

Item Description	% completion	Estimated cost(Rs)
1.Coconut scraper Cum milk extractor	60%	9,000.00
2.Precision machining of customized components of formula car	100%	-
Marketable level of selected twenty prototype Inventions from School students for "Innova Mind 2018" competition.		
i. Motorcycle side stand safety system	100%	5,000.00
ii. 3D print the parts of pollination machine –	100%	10,000.00
iii. 3D print the circuit boxes for safety bus footboard	100%	7,000.00
iv. Modification of Flood cover mould	100%	2,000.00
v. 3D print the water heater handle cover-	100%	5,000.00
vi. Machining motor mounting brackets for bush trimmer pole	100%	5,000.00
vii. Fabricate new fruit plucker stick	100%	15,000.00
viii. Fabricate new Door lock	100%	5,000.00
ix. Roles making machine	100%	30,000.00
x. 3D print the Sand separating sleeve for Dustpan	100%	2,000.00

6.7.3 Providing machinery services to SME's and other Industries

Service provided	Client	Amount (Rs)
1. Surface Grinding of die plates	LIAS Pvt Ltd Pilimathalawa	22,500.00
2. Surface Grinding of 2 Plates	for Crystal pak	101,000.00
3. Hardness testing of pickers 11 nos.	Warna Exporters Ltd, Padukka	15,000.00
4. Hardness testing 1 Pcs	K.K Jagathsiri, Udugampola	1,200.00
5. AutoCAD Training	Bernard Perera / Sena Jayaweera	25,500.00
6. Hand die for fishing hooks		13,293.90
7. Thickness testing of GI sheets 10 nos	(Macbertan)	10,000.00
8. Hardness testing of 4 pcs	(Ardmel (Pvt) Ltd)	5,000.00
9. Surface grinding of mould plate	Sachentha Pvt Ltd	5,000.00

6.8 Services Provided by Energy and Environmental Services Department

Energy and Environmental Services Department had provided the services to industries based on the demand under the following categories.

- Environmental Laboratory Testing
- Providing solutions to control environmental issues for industries
- Providing environmental monitoring services as per the regulations
- Boiler performance and flue gas analysis
- Industrial process monitoring and consultancy
- Training programs
- Conducting energy related services

The expected contribution target and achievement were LKR 8.01M and LKR 8.69 M respectively.

6.8.1 Number of Services Carried out in Other Activities – 2018

Activity Type	Nos of Services
Boiler performance and emission monitoring of stationary sources combustion systems	168
Noise level measurements as per the regulations	130
Ambient air quality monitoring as per the regulations	72
Providing solutions to control environmental issues in industries	29
Industrial process monitoring services	53
Energy audit in Coats Threads (Pvt.) Ltd., Horana	1

6.8.2 Laboratory Services – 2018

Activity Type	Nos of Services
Waste water sample analysis	92
Electrical lamp testing	83
Refrigerators testing	4
Automotive battery testing	5

6.8.3 Commercial Activities Targets and Achievements

A summary of physical & financial targets and achievements of commercial activities in 2018

Project/Activity	Physical (No. of Services)		Financial (Million LKR)					
			Income			Contribution		
	Target	Achievement	Target	Achievement	Target Over Achievement (%)	Target	Achievement	Target Over Achievement (%)
Services to Industries	433	455	13.35	14.55	109	8.01	8.69	109
Laboratory Testing for Industries	278	173	2.49	1.92	77	1.24	0.39	32
Training Programs Conducted	2	2	0.30	0.15	50	0.15	0.06	40
Total			16.14	16.62		9.40	9.14	

6.8.4 Training Programs Conducted

In 2018, two training programs were conducted by focusing to share knowledge among the industries related to energy and environmental fields. The conducted programs are as follows;

"Workshop on Noise and Ambient Air Quality Management"

This program was held on two days and mainly focused on

- Air quality basic parameters, standards
- Test methods & instrumentations
- Noise basics, standards, test methods & instrumentations
- Noise control techniques and
- Air quality control techniques

"Workshop on Efficient Way to Operate and Emission control of Bio Mass Boilers"

This program has focused in two areas such as efficient ways to operate boilers and emission controlling and monitoring.

6.8.5 ISO 17025 Achievements

In 2018, E&ESD had planned to obtain ISO 17025-accreditatation to refrigeratortesting laboratory and lamp testing laboratory. Both tasks were completed in line with the activity plan. In addition to the implementation of ISO 17025 accreditation in the above highlighted two laboratories, E& ESD managed to continue and update ISO "17025 accreditation" for "waste water testing" and "noise level measurements" which were received in 2016.

07 Welfare and Religious Activities

In order to enhance the interpersonal relationship, cooperation, teamwork of the staff and staff commitment to the institutional common activities, the NERDC has given special consideration for employee welfare and religious functions. Accordingly, summary of the activities executed by the welfare society and the religious societies in 2018 are as follows;

7.1 Welfare Society

Following activities have been undertaken by the welfare society of the NERDC during the year 2018

- Blood Donation Campaign in commemoration of the late Vidyajyothi Dr. A N S Kulasinghe, former Chairman of the NERDC was held on 23 November 2018.
- Organized the Annual Get-together for all Employees and their family members at Kulasinghe Auditorium at NERDC on 20 December 2018.

7.2 Religious Societies

Two religious societies have being actively operated in the NERDC, namely Buddhist society and Catholic society. These societies organize various religious and Corporate Social Responsibility (CSR) programmes and activities in order to enhance the spiritual wellbeing of the NERDC staff members. One prominent feature of these societies is that all employees of the staff are a member of either the Buddhist society or the Catholic society voluntarily.

Following religious activities have been organized by these societies in the year 2018.

7.2.1 Buddhist society

- Conducted a Seth Pirith chanting ceremony in order to mark commencement of the Centre activities of the year 2018 on 01.01.2018.
- Conducted a Dharmadeshana (sermon) by by Poojyapada Polpitimukalane Pagngnasiri Thero on 26.02.2018.
- Conducted a Dharmadeshana (sermon) by Poojya Rajakeeya Panditha Alankulame Premasiri Thero on 24.04.2018.
- An alms giving programme for the children in Jayawardena children's, Home, Weligampitiya on 25.10.2018.
- Conducted a Pirith Chanting and Arms giving programmes at NERDC on 07.12.2018

7.2.2 Catholic Society

- Conducted the Annual Christmas Mass on 19.12.2018 at the NERDC.

08 Accounting Policies

1. Basis of Preparation

Financial Statements, which comprise the Statement of Financial Position, Statement of Performances, Changes in Equity and Cash Flows together with Accounting Policies and Notes to the Financial Statements, have been prepared in accordance with Sri Lanka Public Sector Accounting Standards.

Current accounting period is from 1st January 2018 to 31st December 2018

These Financial Statements are for year ended 31st December 2018.

1.2 Basis of Measurement

The Financial Statements of the Centre, which comprise the Statement of Financial Position, Statement of performances, Changes in Equity and Cash Flows have been prepared on the basis that the Centre is going concerns and on a historical cost basis.

1.3 Functional and Presentation of Currency

Items included in the Financial Statements of Centre are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). Financial Statements are presented in Sri Lankan Rupees, which is the Centre's functional and presentation currency unless stated otherwise.

1.4 Comparative Information

The Financial Statements for the comparative periods comprise results for the twelve months period from 1 st January 2017 to 31 st December 2017. In this circumstance, the comparative information for the Statement of Financial Position, Statement of Performances, Statement of Changes in Equity and Cash Flow Statement and related notes are comparable with the current period.

1.5 Significant Accounting Judgments, Estimates and Assumptions

The preparation of Financial Statements are in conformity with Sri Lanka Public Sector Accounting Standards requires Management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income, expenses and the disclosure of contingent liabilities. However, uncertainty about these assumptions and estimates could results in outcomes that require material adjustment to the carrying amounts of the assets or liabilities affected in future periods. The Centre's Management has made an assessment of its ability to continue as a going concern and is satisfied that it has the resources to continue in business for the foreseeable future. Furthermore, Management is not aware of any material uncertainties that may cast significant doubt upon the Centre's ability to continue as a going concern. Therefore, the financial statements continue to be prepared on the going concern basis.

2 Property, Plant and Equipment

2.1 Recognition and Measurement

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the assets to a working condition for their intended use, the costs of dismantling and removing the items and restoring the site on which they are located and capitalized borrowing costs. Purchased software that is integral to the functionality of the related equipment is capitalized as part of that equipment. When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment. The gain or loss on disposal of an item of property, plant and equipment is determined by comparing the proceeds from disposal with the carrying amount of the property, plant and equipment, and is recognized net value within other income/other expenses in Performance Statement. When revalued assets are sold, any related amount included in the revaluation reserve is transferred to retained earnings.

2.2 Revaluation

The items within a class of property, plant and equipment are revalued simultaneously in order to avoid selective revaluation of assets and the reporting of amounts in the Financial Statements that are a mixture of costs and values as at different dates. However, a class of assets is revalued on a rolling basis provided revaluation of the class of assets is completed within a short period and provided the revaluations are kept up to date.

The fair value of items of property, Plant & Equipment, is usually determined from market-based evidence by appraisal. An appraisal of the value of an asset is normally undertaken by a member of the valuation profession, who holds a recognized and relevant professional qualifications. For many assets, the fair value will be readily ascertainable by reference to quoted prices in an active and liquid market.

If the carrying amount of a class of assets is increased as a result of a revaluation, the increase shall be credited directly to revaluation surplus. However, the increase shall be recognized in surplus or deficit to the extent that it reverses a revaluation decrease of the same class of assets previously recognized in surplus or deficit.

If the carrying amount of a class of assets is decreased as a result of a revaluation, the decrease shall be recognized in surplus or deficit. However, the decrease shall be debited directly to revaluation surplus to the extent of any credit balance existing in the revaluation surplus in respect of that class of assets.

Revaluation increases and decreases relating to individual assets within a class of property, plant and equipment has been offset against one another within that class but must not be offset in respect of assets in different classes.

2.3 Depreciation

Depreciation is based on the cost of an asset less its residual value. Significant components of individual assets are assessed and if a component has a useful life that is different from the remainder of that asset, that component is depreciated separately. Depreciation is recognised in profit or loss on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment. The estimated rates of the current and comparative years are as follows :

Asset Category	Depreciation %
Building	2.5
Office Equipment	15
Tools	15
Demonstration items	15
Computers	33 1/3
Vehicle	15
Furniture & Fittings	10
Plant Machinery & Lab Equipment	15
Library Books	5
Infrastructure	15
Soft ware	33 1/3

2.4 De-Recognition

The carrying amount of an item of property, plant and equipment is de-recognised on disposal of or when no future economic benefits are expected from its use or disposal. Gains and losses on de-recognition of the asset are determined by comparing the proceeds from disposal with the carrying amount of property, plant & equipment and are recognised net within 'other income' in the Performance Statement .

2.5 Intangible Assets

Intangible assets that are acquired by the Centre and have finite useful lives are measured at cost less accumulated amortisation and accumulated impairment losses. Subsequent expenditure is capitalized only when it increases the future economic benefits embodied in the specific asset to which it relates. Amortisation is based on the cost of an asset less its residual value. Amortisation is recognised in Performance Statement on a straight-line basis over the estimated rates of intangible assets, from the date that they are available for use. The estimated rates for current and comparative years are as follows:

• Software 33 1/3 years Amortisation methods, useful life and residual values are reviewed at end of each year.

3. **Inventories**

Inventories are measured at the lower of cost and net realisable value. The cost of inventories is based on the first-in-first-out (FIFO) principle, and includes expenditure incurred in acquiring the inventories and other costs incurred in bringing them to their existing location and condition.

Chemical stocks and the Work in progress of projects are valued at the cost or net realizable value whichever is lower.

4. **Trade Receivables**

Trade receivables of the Centre are recognized initially at fair value and subsequently measured at amortised cost using the effective interest method, less provision for impairment.

5. **Cash and cash Equivalents**

In the Statement of Cash Flows of the Centre, cash and cash equivalents includes cash in hand, cash at bank ,Temporary call deposits & State Institutional Surplus Fund deposits.

6. **Loans and receivables**

Financial assets with fixed or determinable payments that are not quoted in an active market, such assets are recognized initially at fair value plus any directly attributable transaction costs. Subsequent to initial recognition Loans and receivables comprise cash and cash equivalents, trade receivables and amounts due from related parties.

7. **Financial Liabilities**

The Centre classifies non-derivative financial liabilities into the other financial liabilities category. Other financial liabilities comprise trade payables and related party payables. Such financial liabilities are recognized initially at fair value plus any directly attributable transaction costs. The Statement of Financial Position when, and only when, the Centre has a legal right to offset the amounts and intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

8. **Employee Benefits**

Retirement benefits to employees are provided according to the laid down statutory requirements. Centre contribution for provident fund and employees' Trust Fund is 15% and 3% respectively. Gratuity provision is made according to the Gratuity Act No.12 of 1983. Provision is done for the employees from year one of service in the Centre. The funds required for payment of gratuity is given by Treasury when requires. Provision is calculated as follows

(Last drawn Basic Salary plus cost of living & other allowances) x ½ x Completed Number of Years.

9. Provisions

A provision is recognized if, as a result of a past event, the Centre has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation.

10. Provisions, contingent assets and contingent liabilities

Provisions are made for all obligations existing as at the Balance Sheet date when it is probable that such an obligation will result in an outflow of resources and a reliable estimate can be made of the quantum of the outflow. All contingent liabilities are disclosed as a note to the financial statements.

11. Revenue

Revenue is recognized to the extent that it is probable that the economic benefits will flow to the Centre, and the revenue and associated costs incurred or to be incurred can be reliably measured. Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts, NBT and value added taxes. The following specific criteria are used for recognition of revenue:

a) Sale of Developed Products

Revenue from the sale of developed products, is recognized when the significant risk and rewards of ownership of the products have passed to the buyer with the Centre retaining neither a continuing managerial involvement to the degree usually associated with ownership, nor an effective control over the products which are sold.

b) Rendering of Services

Revenue from rendering of services is recognized in the accounting period in which the services are rendered or performed.

c) Construction Revenue

Construction revenue is recognized by reference to the stage of completion where the contract outcome cannot be measured reliably and revenue is certain.

d) Taxes

Taxes include Income Tax, Value Added Tax, Nation Building Tax. Centre Companies in the Centre pay such taxes in accordance with the respective statutes.

e) Interest Income

Interest income is recognized as and when the interest accrues.

f) Gains and Losses on Disposal of Assets

Net gains and losses of a revenue nature arising from the disposal of property, plant and equipment and other non-current assets, are accounted for in the Income Statement, after deducting from the proceeds on disposal, the carrying amount of such assets and the related selling expenses. Gains and losses, arising from activities incidental to the main revenue, generating activities and those arising from a Centre of similar transactions which are not material, are aggregated, reported and presented on a net basis.

g) Other Income

Other income is comprised with net income of Technology Transfer Projects which are completed, Interest income on call deposits, Liquidity damages, Bond income, Interest on loans, Nonrefundable deposits, Registration of Suppliers, Sundry income, Damaged Stock disposal income, Gain on disposal of assets and overhead recovery etc.

h) Differed Income

Where the Capital grant relates to an asset released from the general treasury, when the recurrent grant relates to an expense item, it is recognized as income over the period necessary to match the grant on a systematic basis to the costs that it is intended to compensate.

12. Grants

Grants are recognized when there is reasonable assurance that the grant will be received and all attaching conditions will be complied with. When the recurrent grant relates to an expense item, it is recognized as income over the period necessary to match the grant on a systematic basis to the costs that it is intended to compensate. Where the Centre receives non-monetary grants, the asset and that grant are recorded at fair value.

13. Expenditure and Presentation in Income Statements

Expenses are recognized in the income statement on the basis of a direct association between the cost incurred and the earning of the specific items of income where appropriate. All expenditure incurred in running of the Centre and depreciation of the property, plant & equipment has been charged against to income in calculating the surplus/ (deficit) for the period.

14. Research & Development

Research & Development projects are mainly funded by the Treasury. If Research projects are partly funded by a client this income is taken against the expenditure.

When costing the research projects only the direct cost considered.

09 Statement of Financial Position as at 31/12/2018

Figures in LKR

	2018	Restated 2017
Assets		
Current Assets		
Cash & Cash Equivalent	140,354,049.19	136,516,464.38
Trade Receivables	18,517,051.79	2,365,845.75
Inventories	10,843,891.09	9,254,216.45
Pre – Payments	737,229.51	815,851.44
Other Current Assets	45,101,583.44	74,938,853.44
	215,553,805.02	223,891,231.46
Non-Current Assets		
Property ,Plant & Equipment	553,816,062.45	544,199,245.80
Other Intangible Assets	368,195.45	345,770.45
Other non-current Assets	26,096,072.67	26,771,564.62
	580,280,330.57	571,316,580.87
Total Assets	795,834,135.59	795,207,812.33
Liabilities		
Current Liabilities		
Trade & Other Payables	46,845,177.06	38,372,182.91
Total Current Liabilities	46,845,177.06	38,372,182.91
Non - Current Liabilities		
Provision for Gratuity	103,094,433.50	101,529,300.36
Security Deposit	6,200.00	6,200.00
	103,100,633.50	101,535,500.36
Total Liabilities	149,945,810.56	139,907,683.27
Total Net Assets	**645,888,325.03**	**655,300,129.06**
Differed Income	140,353,874.58	125,705,996.60
Capital contributed by the	211,475,012.24	246,853,427.74
Revaluation Reserve	530,627,685.82	530,627,685.82
Accumulated surplus/(deficits)	(236,568,247.61)	(247,886,981.10)
Total Net assets/Equity	**645,888,325.03**	**655,300,129.06**

Eng. C M Delpachitra
Chairman

Eng. D D Ananda Namal
Director General

D V S Perera
Director Finance

10 Statement of Financial Performances for the year ended

Figures in LKR

	2018	Restated 2017
Revenue		
Transfers from the government entities	277,620,000.00	259,040,000.00
Differed Income	64,155,104.67	57,860,922.57
Other Income	49,308,858.65	23,862,106.58
Total Revenue	391,083,963.32	340,763,029.15
Expenditure		
Administrative Cost	276,012,522.51	256,159,093.30
Other Expenses	33,816,159.28	27,098,777.07
Depreciation	69,844,589.35	63,535,779.30
Financial Cost	91,958.69	46,846.93
Total Expenditure	379,765,229.83	346,840,496.60
Surplus/(Deficit) for the period	**11,318,733.49**	**(6,077,467.45)**

11 Cash Flow statement for the Year ended 31/12/2018

	2018	Figures in LKR Restated 2017
NET CASH FLOWS FROM OPERATING ACTIVITIES		
Surplus/(deficit) from ordinary activities	11,318,733.49	(6,077,467.45)
Non- Cash movements		
Depreciation	69,844,589.35	63,535,779.30
Increase in provision for bad debts	-	(113,107.71)
Increase/(decrease) in deffered Income	(64,155,104.67)	(57,860,922.57)
Increase/(decrease) in payables	12,704,255.15	8,197,681.82
Increase/(decrease) in relating to employee costs	(2,666,127.86)	619,167.86
(Gains)/losses on sale of property, plant and equipment	1,321,844.68	1,144,351.41
(increase)/decrease in other current assets	29,001,709.24	(35,705,482.61)
(Increase)/decrease in receivables	(16,151,206.04)	23,435,869.86
Net Cash Flows from operating activities	41,218,693.34	(2,824,130.09)
CASH FLOW FROM INVESTMENT ACTIVITIES		
Purchase of Assets	(80,818,492.37)	(30,795,703.46)
Proceeds from sales of equipment	12,816.69	1,084,163.36
Net Cash Flows from Investment Activities	(80,805,675.68)	(29,711,540.10)
CASH FLOW FROM FINANCING ACTIVITIES		
Capital grant	34,900,000.00	37,997,000.00
Funds from Sri Lanka Inventors Commission	8,524,567.15	35,570,540.88
Net Cash Flow from Financing Activities	43,424,567.15	73,567,540.88
Net Increase/(Decrease) in Cash & Cash equivalents	3,837,584.81	41,031,870.69
Cash & Cash Equivalent at beginning of the period	136,516,464.38	95,484,593.69
Cash & Cash Equivalent at end of the period	**140,354,049.19**	**136,516,464.38**

Statement of Change in Equity as at 31/12/2018

	Capital Introduced	Restated Government Contributed Capital	Restated Deffered Income	Capital from Other sources	Restated Revaluation surplus	Restated Accumulated Surplus /(Deficit)	Total Net Assets/Equity	Balance As At 31/12/2016
Balance as at 01/01/2017	1,000,000.00	45,252,317.70	162,046,853.46	148,553,634.87	530,695,685.82	(241,809,513.65)	645,738,978.20	672,681,789.66
Changes in equity for 2017							-	
Capital Grant received -Treasury		37,997,000.00					37,997,000.00	31,114,964.00
Capital Grant received		35,570,540.88					35,570,540.88	
Net of Capital purchase less recoverable depreciation to Deffered Income		(21,520,065.71)	(36,340,856.86)				(57,860,922.57)	(53,875,510.82)
Surplus/Deficit for the period						(6,077,467.45)	(6,077,467.45)	(4,182,264.64)
Increase in revaluation reserve					(68,000.00)		(68,000.00)	
Balance as at 31/12/2017	1,000,000.00	97,299,792.87	125,705,996.60	148,553,634.87	530,627,685.82	(247,886,981.10)	655,300,129.06	645,738,978.20
Changes in equity for 2018								
Capital Grant received -Treasury		34,900,000.00					34,900,000.00	37,997,000.00
Funds from Sri Lanka Inventors Commission		8,524,567.15					8,524,567.15	35,570,540.88
Net of Capital purchase less recoverable depreciation to Deffered Income		(78,802,982.65)	14,647,877.98				(64,155,104.67)	(57,860,922.57)
Surplus/Deficit for the period						11,318,733.49	11,318,733.49	(6,077,467.45)
Increase in revaluation reserve					-		-	(68,000.00)
Balance as at 31/12/2018	**1,000,000.00**	**61,921,377.37**	**140,353,874.58**	**148,553,634.87**	**530,627,685.82**	**(236,568,247.61)**	**645,888,325.03**	**655,300,129.06**

(මූල්‍ය ඒකකය - රුපියල්)

Notes to the final Position as at 31/12/2018

01. Previous Year Adjustments

Figures in LKR

Ref No	Description		Detailed adjustment		2017	Balance before 1/1/2017	Effect to the balance sheet
				Declared / After adjustment			
	Balance b/f				**(5,129,044.67)**	**(236,353,117.68)**	
1.01	APH/COM/99/2017 - Fabrication & Delivery of Pinatu Dryer - Recovery of Transport expenses from the client incurred in 2017	Income	2,200,000.00	2,229,184.01			
		Cost	(1,890,741.49)	(1,890,741.49)			
		Net	309,258.51	338,442.52	29,184.01		Increase in Trade Debtors
1.02	Over provision in Vehicle maintenance is reduced- PD-8992				11,750.00		Decrease in Accrued Expenses
1.03	RED/COM/146/14 - Construction of LPG Crematorium Dibulagala - Over Provision of Expenses	Income	2,643,492.06	2,643,492.06			
		Cost	(2,580,581.47)	(2,369,770.06)			
		Net	62,910.59	273,722.00		210,811.41	Decrease in After sales services
1.04	RED/COM/147/14 - Construction of LPG Crematorium Alahara -Over Provision of Expenses	Income	2,643,492.06	2,643,492.06			
		Cost	(2,412,595.09)	(2,338,785.09)			
		Net	230,896.97	304,706.97		73,810.00	Decrease in After sales services
1.05	APH/RES/74/16 - Development of Smoked Fish Processing Unit for SMES - Over Provision Testing & Transport Charges	Cost	714,020.52	624,270.52	89,750.00		Decrease in Liability
1.06	Board Paper No 141 ,Bord meeting NO 2-2018 granted approval to write off ex-employee.Nilanka Wickramarachci (gratuity & Penalty)					115,613.00	Increase in Debtors
1. 07	OBT Training on 2017				(494,000.00)		Increase in Accrued Expenses
1.08	Project RED/COM/127/2014 - Rehabilitation of bio digesters - Rantabe LKR.37,045.76 is unrecoverable amount is written off according to Board paper No 170 of board meeting No 4-2018 on 04/04/2018,	Income	37,045.76	-		(37,045.76)	Decrease in Value of work done on projects
		Cost	(60,699.39)	(60,699.39)			
		Net	(23,653.63)	(60,699.39)			
1.09	RED/COM/106/13 -Flap gate Lifting mechanism & concrete housing structure – Reduction in Income	Income	227,000.00	223,795.65		(3,204.35)	Decrease in Value of work done on projects
		Cost	(411,417.16)	(411,417.16)			
		Net	(184,417.16)	(187,621.51)			
1.10	RED/COM/121/14 - Flap gate for Wagalmodara canal -value of work done is reduced	Income	364,000.00	362,612.60			
		Cost	(93,788.38)	(93,788.38)			
		Net	270,211.62	268,824.22		(1,387.40)	Decrease in Value of work done on projects
1.11	RED/COM/95/15 - Repairing of the stack of incinerator of Kurunegala Hospital - reduced the Income	Income	239,000.23	230,749.71			
		Cost	(175,270.00)	(175,270.00)			
		Net	63,730.23	55,479.71		(8,250.52)	Decrease in Value of work done on projects

Ref No	Description		Detailed adjustment		2017	Balance before 1/1/2017	Effect to the balance sheet
			Declared	After adjustment			
1.12	Honorarium payment made to Dr. N Somarathne was taken to income .				2,000.00	Honorarium payment made to Dr. N Somarathne was taken to income account as he has refused to claim for the service	Total Net Assets/Equity is increase.
1.13	Over provision of Incentive -Administrative deduction and excess provision				349,409.78		Reduction in provision for Incentive
1.14	N/MD/COM/04/118/2015 Transport changes of the machine to be brought to NERDC for repairs under the warranty period which was not provided at the time of closing the project	Income	840,248.55	840,248.55			Increase in creditors
		Cost	(764,942.37)	(784,942.37)			
		Net	75,306.18	55,306.18	(20,000.00)		
1.15	Unclaimed retention money is transferred to income Shehara Electricals CVL/1.21B/13		33,986.05				
	Daya Chandrasiri CVL/RES/102/12		15,938.45			49,924.50	Reduction in Retention payable
1.16	Refundable deposits not claimed over five years taken to income						
	W A K U Pushpakumara		4,500.00				
	Smart Janitorial Pvt Ltd		1,500.00				Reduction in accumulated loss
	S J Y Construction		3,000.00			9,000.00	
1.17	Correction of erroneous entry in the popularization account Funds receivable from Dr Kamal Kuruneru-FUJI Innovations Pvt Ltd expenses incurred in clearing …as per the ministry instructions of the line ministry taken to receivable account				359,498.39		Increase in receivables
1.18	RED/COM/136/14 Over provision in retention receivable	Income	1,241,000.15	1,225,804.60			Reduction in Retention receivable
		Cost	(1,039,932.06)	(1,039,932.06)			
		Net	201,068.09	185,872.54		(15,195.55)	
1.19	RED/COM/142/14 Income taken on 2016 is written off according to Board Paper 225 of Board Meeting No 8-2018 on 23/11/2018	Income	2,699,338.71	2,069,096.06			Reduction in debtors, Value of closed projects
		Cost	(3,933,810.84)	(3,933,810.84)			
		Net	(1,234,472.13)	(1,864,714.78)		(630,242.65)	

Ref No	Description		Detailed adjustment		2017	Balance before 1/1/2017	Effect to the balance sheet
			Declared	After adjustment			
1.20	Magazine taken under library books are taken to newspapers & Periodicals						Reduction in fixed assets
		2008	634,068.74				
		2009	616,924.42				
		2010	135,844.42				
		2011	558,698.33				
		2012	315,678.00				
		2013	520,441.22				
		2014	80,892.45				
		2015	319,201.67				
		2016	211,995.00			(3,393,744.25)	
		2017	205,351.99		(205,351.99)		
1.21	Over provision in incentive N/MD/COM/04/118/2015 income has been reduced therefore relevant incentive provision is reduced				10,000.00		Reduction in liabilities
1.22	Transfer of depreciation on Magazines provided transferred	2008	289,368.60				
		2009	267,765.30				
		2010	50,144.22				
		2011	171,903.53				
		2012	78,962.74				
		2013	112,013.02				
		2014	12,144.95				Reduction in accumulative depreciation
		2015	33,334.73			1,026,265.88	
		2016	10,628.79				
		2017	1,761.00		1,761.00		
1.23	Unabsorbed VAT on recurrent items prior to year 2006					(806,236.99)	Reduction in receivables
1.24	RED/COM/ACT/106/17	Income	88,626.08	122,713.03			
		Cost	(82,620.69)	(82,620.69)			
		Net	6,005.39	40,092.34	34,086.95		Under stated income
	Assets disposal in year 2017 is taken back to assets as they are repairable according to Director Civil						Increase in Fixed Assets
			Value	Depreciation			
			54,000	8,100	72,000.00		
	FA 0002893		8,000	1,200	(10,800.00)		
	FA 0002941		10,000	1,500			
	FA0002928						
1.25	Plant & Machinery				6,000.00		
			6,000				
	FA0003739			900	(900.00)		

Ref No	Description		Detailed adjustment		2017	Balance before 1/1/2017	Effect to the balance sheet
			Declared	After adjustment			
1.26	Understatement of disposal income 2017				5992.93		Increase in receivables
1.27	Incentive Provision in year 2016 is reduced due to decrease on income in tax adjustment-RED/136/14					6,078.22	Current Liabilities are reduced
1.28	Incentive Provision in year 2016 is reduced due to decrease on income in tax adjustment-RED/95/15					3,300.20	Current Liabilities are reduced
1.29	RED/Com/110/2016	Income	2,046,298.30	2,091,000.00	44,701.70		Trade debtors are increase
	Under provision in income	Cost	(1,468,337.95)	(1,468,337.95)			
		Net	577,960.35	622,662.05			
1.30	Over provision of depreciation in library books				(83.59)	443,632.27	Accumulated depreciation is reduced
1.31	Under provision of depreciation Other sources-Plant & Machinery				(1,042,050.00)		Accumulated depreciation is increased
	-Tools				(36,997.50)		
1.32	Over provision in Software depreciation				12,950.54		
1.33	Under /Over Provision of Audit fees	2015	191,475.00	198,375.00			Increase in Current Liability
		2016	191,475.00	358,800.00		(174,225.00)	
		2017	191,475.00	358,800.00	(167,325.00)		
1.34	Over recovery of differed income in year 2013					(2,325,298.98)	
	Understating the 2017 income				**(6,077,467.45)**	**(241,809,513.65)**	

Decrease in transfer of cost of equipment purchases now adjusted 55,754,346.69

Revaluation surplus Adjustment

Unabsorbed VAT potion is taken to revaluation surplus as revaluation has been done after year 2006

		530,627,685.82
Building	912,778.49	
Furniture Fittings	138,817.24	
Office Equipment	225,068.10	
Plant and Machinery	3,303,482.18	(4,580,146.01)
		526,047,539.81

02. Deposits kept as securities for Guarantee Bonds

Guarantee is issued in favor of	Bond No/Date	Bond	Certificates Pledge as Security	Amount LKR.	Bank	Bond Value LKR.
Toyota Lanka Pvt. Ltd	15/2008 19/12/2018-18/12/2019	Guarantee Bond	C/33734579-507908	100,000.00	BOC Ja-ela	75,000.00
Municipal Commissioner-Kurunegala	10/2017 21/12/2017-21/12/2018	Guarantee Bond	1057614-81889909 1057615-81889925 1057616-81889906	1,000,000.00 1,000,000.00 1,000,000.00		2,845,000.00
National Botanical Garden	3/2018 1/9/2018-26/1/2019	Performance bond	1305449-83057498	1,000,000.00		127,413.25
	4/2018 28/8/2018-28/12/2018	Guarantee Bond				509,653.01
Atomic Energy Board	5/2018 6/9/2018-30/11/2018	Guarantee Bond	1305490-83092247	1,000,000.00		500,000.00
Bhiksu University of Sri Lanka	9/2018 4/12/2018-26/12/2019	Guarantee Bond	1473755-83503832 1473756-83503837 1473757-83503700 1473758-83503765 1473759-83503726 1473760-83503712	1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00		5,808,673.47
	7/2018 4/12/2018-26/12/2019	Performance bond	1473754-83503820	1,000,000.00		968,112.24

03. Disposal of Fixed Assets **Figures in LKR.**

Asset Category	Cost	Accumulated Depreciation	Written down value	Proceeds	Profit/(loss)
Computer	317,000.00	211,312.20	105,687.80	6,851.47	(98,836.33)
Demonstration	4,600.00	1,380.00	3,220.00	74.57	(3,145.43)
Furniture Fittings	34,128.53	6,825.71	27,302.82	2,229.80	(25,073.02)
Equipment's	1,043,040.00	312,912.00	730,128.00	799.94	(729,328.06)
Office Equipment's	213,932.00	64,179.60	149,752.40	77.85	(149,674.55)
Plant and Machinery	96,500.00	28,950.00	67,550.00	2,336.28	(65,213.72)
Software	380,000.00	253,308.00	126,692.00	-	(126,692.00)
Tools	177,089.08	52,760.73	124,328.35	446.79	(123,881.57)
Grand Total	**2,266,289.61**	**931,628.24**	**1,334,661.37**	**12,816.69**	**(1,321,844.68)**

04. Library Book Adjustments

Figures in LKR

Magazines and periodicals purchase under library books were transferred to newspapers & Periodicals as given below.

Year	Cost	Depreciation
2008	634,068.74	289,368.59
2009	616,924.42	267,765.30
2010	135,844.42	50,144.22
2011	558,698.33	171,903.53
2012	315,678.00	78,962.74
2013	520,441.22	112,013.02
2014	80,892.45	12,144.95
2015	319,201.67	33,334.73
2016	211,995.00	10,628.79
2017	205,351.99	1,761.00
	3,599,096.24	**1,028,026.88**

05. Vehicle Accidents during the Year

Figures in LKR

Vehicle No.	Date of Accident	Estimate Cost of Damage	Insurance Agent	Claim Form Handover On	Claim value Recovered	Claimed Received Date	Clamed received by
NB-1631	14/02/2018	21,600.00	SLI	10/3/2018	21,600.00	8/8/2018	Sonali Motors
NB-1631	18/09/2018	166,000.00	SLI	10/10/2018	159,050.00	Pending	NERDC
NB-1631	28/09/2018	15,000.00	SLI	10/10/2018	18,000.00	Pending	NERDC
KX-7908	31/10/2018	38,900.00	SLI	02/11/2018	38,900.00	10/11/2018	Sonali Motors
KR-5435	18/07/2018	9,950.00	SLI	01/08/2018	9,950.00	20/08/2018	Sonali Motors

Director (Human Resources)

06. Temporary deposits

Funds received as bond Income from NERDC employees who has left the services before completion of the bond period is invested in State Institutions Temporary Surplus Trust Fund maintained at Bank of Ceylon, a sum of LKR.8,994,089.90 with dividends & interest and withdrawal of LKR.1,500,000.00 to pay the Special loan advance as per the circular 1/2017 from finance and Mass media on 31/07/2017 .In Year 2018 LKR 6,000,000.00 was withdrawn on 15/11/2018 as recurrent money approved was not received .At present balance is LKR. 6,151,535.11 as at 31/12/2018 .

Advances received from the customers are secured in the form of temporary call deposits with the bank, until such time it is used for the purpose. Interest earned is shown under other income.

07. Work in progress in ongoing projects

In the year 2018 Work in progress in ongoing projects has been disclosed under other current assets in reporting year it has been shown under inventories.

08. Related party disclosures (SLPSAS 14)

The following disclosures are made in the financial statements of National Engineering Research & Development Centre of Sri Lanka for the year 2018, which is a separate reporting entity. During reporting period Centre had not provided any remuneration compensation to close family members of key management personnel.

09. Assets Purchase from the Treasury Funds released through Sri Lanka Inventors Commission (SLIC)

Figures in LKR

Item	Received from SLIC	Actual Cost
	44,095,108.03	12,664,792.52
3D coordinate measuring machine		
CNC milling Machine		26,150,477.45
Plastic 3D Printer Machine		
		5,279,838.06
	44,095,108.03	**44,095,108.03**

Sri Lanka Inventors Commission has transferred LKR 44,095,108.03 to purchase assets in Incubator.

01.Cash Flow Note for the Year Ended 31st December 2018 **Figures in LKR**

	2018	Restated 2017
Cash flow from Operating activities		
Receipts		
Project Income	62,207,772.63	55,904,619.33
Recurrent & Research Grants	277,620,000.00	259,040,000.00
Interest Received	7,415,183.80	7,680,450.93
Other Receipts	885,376,.19	2,629,753.80
Payments		
Employee Cost	(230,329,391.58)	(203,222,488.29)
Superannuation cost	12,506,031.94	(8,734,241.47)
Supplies	(94,370,253.43)	(88,277,084.70)
Other Payments	5,655,315.63	(27,845,139.69)
Tax	(371,341.84)	
Net Cash flow from Operating Activities	41,218,693.34	(2,824,130.09)
Cash Flow From Investment Activities		
Purchase of assets	(80,818,492.37)	(30,795,703.46)
Proceeds from sales of assets	12,816.69	1,084,163.36
Net Cash Flows from Investment Activities	(80,805,675.68)	(29,711,540.10)
Cash Flow From Financing Activities		
Capital grant	34,900,000.00	37,997,000.00
Funds from Sri Lanka Inventors Commission	8,524,567.15	35,570,540.88
Net Cash Flow from Financing Activities	43,424,567.15	73,567,540.88
Net Increase/(Decrease) in Cash & Cash equivalents	3,837,584.81	41,031,870.69
Cash & Cash Equivalent at beginning of the period	136,516,464.38	95,484,593.69
Cash & Cash Equivalent at end of the period	**140,354,049.19**	**136,516,464.38**

Notes to the Cash Flow Notes for the year Ended 31st December 2018

Figures in LKR

	2018	2017
2. Non Cash Transactions		
Vehicles received from Treasury	-	-
	-	-
3. Cash & Cash Equivalent		
Bank of Ceylon Ja-ela Branch A/C No 404949	607,997.66	10,507,686.29
Bank of Ceylon Ja-ela Branch A/C No 405005	115,623.98	21,189.09
Bank of Ceylon Ja-ela Branch A/C No 404956	2,326,387.03	1,214,636.27
Bank of Ceylon Corporate Branch A/C No 1667	1,904,451.84	5,331,410.73
Cash in Hand	48,053.57	9,358.41
Temporary Call Deposits-Ja-ela Branch	74,200,000.00	53,000,000.00
Temporary Call Deposits-Corporate Branch	55,000,000.00	55,000,000.00
State Institutional Temporary Surplus Fund	6,151,535.11	11,432,183.59
	140,354,049.19	**136,516,464.38**

14 Report of the Auditor General on the Financial Statement

The Chairman,

National Engineering Research and Development Centre of Sri Lanka

Report of the Auditor General on the Financial Statements and other legal requirements of the Sri Lanka National Engineering Research and Development Centre for the fiscal year ended 31st December 2018 pursuant to Article 12 of the National Audit Act no. 19 of 2018

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1. Financial Statements

1.1 Opinion

The audit of financial statements of the National Engineering Research and Development Centre of Sri Lanka for the year ended 31 December 2018 comprising the financial statements, financial performance statement, titles changes statement, cash flow statement, notes related to the financial statements for the year then ended, and the financial statements for the year ended December 31, 2018 comprising of important accounting principles summary was carried out under my direction in pursuant to provisions of Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with the provisions of the National Audit Act no. 19 of 2018 and Finance Act no. 38 of 1971. My report will be tabled to the parliament pursuant to Article 154 (6) of the Constitution.

In my opinion, the financial statements as at 31 December 2018 and the financial operation and the cash flow for the year then ended give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards.

1.2 Basis for the Opinion

I have carried out the audit in accordance with Sri Lanka Accounting Standards (S. L. A. S.) My obligations under the said audit standards have been further clarified under 'Auditor's responsibility in relation to the auditing of the financial statements of this report.' I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

1.3 Responsibility of the Management's and Parties Charged with Governance for Financial Statement

The management is responsible for the preparation and fair presentation of these financial statements in accordance with the Sri Lanka Public Sector Accounting Standards and for such internal controls as the management determines is necessary to enable the preparation of financial statements that are free from material misstatements whether due to fraud or error.

In preparation of the financial statements, it is the responsibility of management to determine centre's ability to continue. Unless management intends to shut down the centre or cease operations when there is no other option, it is also the responsibility of the management to maintain accounts on a continuum basis and disclose matters related to the continuity of the center.

The responsibility of the financial reporting process at the Center is borne by the parties charged with governance.

In accordance with the National Audit Act no 19 of 2018, Sub-Section 16 (1), the Center must maintain proper books and records of its income, expenses, assets and liabilities in order to prepare annual and periodic financial statements..

1.4 Auditor's responsibility in relation to the auditing of the financial statements

In general, my objective is to issue auditor's report including my opinion and provide reasonable assurance that financial statements are free of material false and inaccurate information resulted from frauds and errors. Even though a reasonable assurance is a high-level assurance, when an audit carried out in accordance with Sri Lanka Auditing Standards, it does not always guarantee that it detects material misstatements. Frauds and errors individually or collectively influence, and hence, material misstatements are possible to incur. It is probable that they reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

I have audited in accordance with Sri Lanka Auditing Standards with professional judgment and professional skepticism. Moreover,

- In identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, when designing and performing audit procedures responsive thereto, obtaining audit evidence that is sufficient and appropriate is a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from an error, as fraud may be resulted from collusion, preparation of forged documents, intentional omissions, or override of internal control.
- An understanding of internal controls relevant to the audit in order to design audit procedures that are appropriate in the circumstances has been obtained, but it is not intended to express an opinion on the effectiveness of the Company's internal control.
- The appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management have been evaluated.
- Conclusion made on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, I must modify my opinion. However, future events or conditions may cause the Company to cease to continue as a going concern.
- The overall presentation, structure and content of the financial statements, as well as whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation have been evaluated.

I have communicated with the parties charged with governance regarding the significant audit findings, any significant deficiencies in internal control and other matters identified during my audit.

2. Report on other legal and regulatory requirements

Contains special provisions related to the below mentioned requirements stipulated in the National Audit Act No. 19 of 2018.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 12 (a), other than the influence made by the matters detailed in the section on the basis for my qualified opinion, I have obtained myself all the information and explanations needed for the audit and as seen in my investigation, a proper financial reporting centre has been maintained.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 6 (1) (d) (III), the financial statements presented by the Center correspond to the previous year.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 6 (1) (d) (IV), the recommendations that I have made last year are included in the submitted financial statements.

  Limiting within the measures followed and the evidence and quantitative facts obtained, None has came to my attention to make any of the following statements.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 12 (d), any member of the Board of Governors of the Center to have any relationship with the Center directly or otherwise outside the normal business conditions.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 12 (f), any other general and special directives issued by the Center's governing body being non-compliant to any applicable written law.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 12 (g), having acted non-compliant to the powers, duties and functions of the Center.

- In accordance with the requirements stated in the National Audit Act No 19 of 2018, Article 12 (h), the resources of the Center have not been procured and utilized in a provident, timely and efficient manner, in accordance with the relevant regulations.

3. Other Audit Observations

(A) Total value of receivable Rs. 11.189,088 from 11 completed projects 11 have not been collected as of March 2019, the advance given to a public institution on 18 December 2018 Rs. 294,790 has not been settled as of March 2019. Despite the expiration of the period of error coverage guarantee for three commercial projects completed by the Center, no action was taken to recover the retained amount Rs. 397,524.

(B) The expense incurred by the Center for patent licenses Rs 363.706 has been recognized and accounted for as intangible assets. Patents certificates for intangible assets of Rs. 121,300 accounted for as such have not yet been obtained.

(C) The Center has a library containing valuable books. Even though one-month grace period has been granted to return of the borrowed books taken out of the Center, it has been observed that 45 books given to 23 officers were kept for a period between 15 to 3 years without being returned.

(D) <u>Researches and Commercial Projects</u>

(i) Even though the Center has requested for 3 smoke fish units for the Value added Fisheries Project under the High-Fishery Zone Program of the Ministry of Primary Industries (DPD/COM/07/54/2018 - Fabrication of smoked fish units for Ministry of Primary Industries) on 23 February 2017, on 26 February 2018,viz after a year later, the institution has called for. It has been agreed upon that after payment of 50% of the all inclusive (total amount to fabricate the smoke fish unit, transportation charges, all taxes) amount of Rs. 822,602 the fabrication will be completed within 2 months, and it will be delivered to Ampara District Office after payment of the remaining 50%. On 12 July 2018, 50% of the project value was obtained as advance. The project was launched on 25 June 2018 and was scheduled to be completed by 25 October 2018, but was extended until 31 December 2018. As of the date of the audit, no action was taken to deliver 02 equipment thereof.

(ii) Based on the request made by Ministry of Industry and Commerce dated 15 October 2015, designing project of a roof tile dryer has been launched on 01 February 2016 and it has been agreed upon to complete the project by 31 December 2016. Rs. 2,000,000 has been received for this purpose, but Rs. 5,668,011 expense incurred. However, it was observed that the improvement on ease of operation has not been completed by March 2019.

(iii) The estimated expenditure for Design & Fabrication of a Hyperbaric Oxygen Chamber projects which was scheduled to start on 01 January 2014 and completed by 31 August 2015 is Rs.3,400,000. The total expenditure incurred so far is Rs. 2,503,177. For various requirements it has been extended for about eight times and by January 2019, only a 70% progress has been achieved. It was observed that the project, which was identified to be completed in 20 months, has taken so far four years and has been extended again until 30 June 2019.

(iv) Development and Commercialization of automated hopper production machine project launched in May 2015 was scheduled to be completed by 31 December 2015. But the project has been extended time to time until 31 March 2019. An amount of Rs. 1,309,652 has been spent on this project and even though nearly 4 years have passed this project is not yet completed..

(v) The Project (Consultancy Services for Construction of an Exposure Room for National Centre for Non – destructive testing for Sri Lanka Atomic Energy Board) with estimated value of Rs. 2,040,000 was planned to be launched on 19 July 2018 and completed by 31 December 2018. As per the original plan of the project, the estimated period for the second phase is four months, but the project period has been extended by one year.

(E) Issuance of Permits and Renewal

(i) Even though the target for year was set to issue 50 permits, only 23 permits could have been issued. The revenue achieved from them is Rs. 93,355. Renewal of 100 permits was the target for the year. However, even though there were 163 permit holders at the beginning of the year, only 40 of them have come forward to renew the permits. The revenue achieved from them is Rs. 93,095. Nevertheless, when analyzing Center's licensing and renewal procedures, it was observed that many of the technologies introduced were not adequately popular in the country.

(ii) Although the Center targeted introducing of 13 technologies during the year according to the action plan, only five technology and technology equipment with the cost of Rs. 1,102,892 could have been introduced. Even for such technologies, as of the date of the audit, no obtaining of patent, application for patent, assignment of the technology or grant of power had been made.

(F) Operational Inefficiencies

I. For the period 2014-2018, The Center has introduced 20 technologies and technology equipment and has incurred a cost of Rs. 15,400,882 for them. But, by 31 December of the year under review hereunder, only 6 technologies with the cost of Rs. 2,589,194 could have been assigned. None of the other technologies introduced were integrated into the society by April 2019.

II. Implementation of 'Ipilum Asaw' Gate Project

An agreement was made between National Engineering and Research Center of Sri Lanka and Southern Province Department of Irrigation with combined estimated cost of Rs. 7,250.000 for the experimental project of 'Ipilum Asaw' Gate Project for 'Ada Stream'. The proposed commencement date of the project was on 01 April 1 and was scheduled to be completed by 31 December 2018. The Provincial Irrigation Department has provided with Rs. 1,760,204 to the National Engineering Research and Development Center of Sri Lanka for this purpose. According to the MOU, the work should be carried out within three weeks from the receipt of the money by the National Engineering Research and Development Center of Sri Lanka. But, the tasks could not be completed within the said period and on 14 January 2019, Director of Southern Province Irrigation has asked the Center to refund the money paid for the proposed gateway as the location proposed for the gate is inappropriate. Accordingly Rs. 1,680,204 had been repaid. It was observed that based on the failure to conduct feasibility study both on institutional and environmental levels before the beginning of the experimental and research projects, the possibility of continuing these projects had been disregarded.

(G) The Center has incurred a cost of Rs. 359,248 based on the instructions of the Ministry for clearance of six water purification equipment donated by the Japanese government to a private company from the port. Although such value has been accounted for as receivable, it was not collected even by the end of the year under review.

W. P. C. Wickramarathna
Auditor General

15 Observation of the Board of Directors for the Report of the Auditor General 2018

Reports of the Auditor General on the Financial Statements of the Sri Lanka National Engineering Research and Development Centre for the year ended 31st December 2018 and other legal and regulatory requirements as per the national act on auditing no. 19, 2018

1. Financial Statements

2. Report on Other legal and regulatory requirements

3. Other audit observations

(A) Out of those 11 projects, arrangements are being made to recover the due money for 8 projects. Frequent reminders were made over the phone as well as in writing.

Project No.	Value
DPD/COM/6-2/12/18	3,405,230.53
DPD/COM/ 06/63/18	4,147,826.08
DPD/COM/06/62/18	83,635.59
DPD/COM/06/39/18	2, 731,524.81
DPD/COM/06/70/18	174,736.69
DPD/COM/07/56/18	87, 821.31
DPD/COM/06/(1)/ 61/18	106,521.74
DPD/COM/06/68/18	91 649.41
TOTAL	10,828,946.16

The due amount of Rs. 420 189.30 of DPD/COM/07/52/18 has been paid off.

For other two projects which had the issue of making the payments to us for a longer period status is stated below.

RED/COM/11/121/2014- The final request letter was sent on 08/04/2019 by the higher management of the centre. Apart from that telephone reminders were also made. It is expected that the money can be recovered despite the delay.

MED/COM/118/15- The retention period was over on 23/12/2018. The final request letter was sent on 18/04/2019 and when it was reminded over the phone it was informed that the payment is going to be made.

Three commercial projects for which retention payments to be recovered.

1. Construction of crematorium (LPG)- Dimbulagala, Polonnaruwa (REP/COM/146/2014)
2. Construction of crematorium (LPG)- Elahera, Polonnaruwa (REP/COM/147/2014)
3. Construction of Incinerator- Dehiwala Zoological Garden (REP/COM/67/2015)

For the first two projects despite the frequent written requests there is a delay in making the payment. For the third project, there is a small fault to be rectified and they agreed to release the retention payment after the rectification of the fault.

Cited here as "The advance payment done to a government institute" is the payment done to '"Salacine" for producing a video documentary, and it has been arranged to settle this issue.

(B) This payment of Rs. 121, 300.00 paid for obtaining patents has been mistakenly recorded as an intangible expense. This will be corrected in year 2019.

(C) The objective of establishment of the library is use of books for research activities and other related activities. Some times books are needed for use for prolonged periods. One month period is applicable at only on general situations. But books are allowed to keep for longer periods for research references.

(D) Research and commercial projects

(i) DPD/COM/ 07/54/2018- Fabrication of smoked fish units for Ministry of Primary Industries

The date 23/02/ 23 as the date of order for 3 smoked fish units by Ministry of Primary Industries is in-correct. The incorrect date might have mentioned by mistake. The actual date is 23/02/2018. The estimate sent by us to them is dated the same date.

All inclusive price of smoked fish unit (Rs. 822,602.04), stating that after payment of 50% is made the unit is fabricated within two months and statement of delivery to Ampara after payment of rest of 50%, are correct. Also the statement saying 50% payment was received on 12/07/2018 is correct. However, the project completion period was extended from 25/10/2018 to 41/12/2018 due to unavoidable reasons. However the smoked fish units were completed by 05/10/2018. The completion of 3 smoked fish units was informed to the Ministry of Primary Industries over the phone and by post. Delay from the ministry side in providing the details of distribution points to us disabled us to transport to the required locations. In addition the balance 50% of payment which was to be provided before handing over the units was received on 28/01/2019.

(ii) A proposal had been forwarded to the Ministry of Industry & Commerce on 05/12/2018 requesting Rs. 2.7 million to enhance the user friendliness of the process of the roof tile dryer.

In connection with the proposal a discussion was held with officials of Ministry of Industry and observation visit made by the additional secretary of Ministry of Industries on 26/03/2019. It is expected an agreement of Ministry of Industry for the proposal.

(iii) It is true that Design & Fabrication of a Hyperbaric Oxygen Chamber project commenced on 01/01/2014 for an estimated cost of 3.4 million LKR. It was supposed to be completed by 31/08/2015. It is also true that there have been 8 project extensions as the project is for treatment of patients with incurable wounds and it is involved with risky and complex requirements. Although expected results could not be achieved in time because of the importance of this project it is expected to reach to an successful completion with extra efforts. Project has been extended up to 30/06/2019 and project activities are ongoing.

(iv)Development and Commercialization of automated hopper production machine consists with two stages. In the 1st stage Research & Development part was done, 10 units were fabricated and field trials were completed. However, unexpectedly longer period was consumed to solve the issues arose during the 1st stage.

In the 2nd stage large scale automated hopper machine was researched, fabricated and tested. However, unexpectedly longer period was taken due to various technical requirements have to be addressed. The project is completed at this stage.

(v) Consultancy services for construction of an exposure room for National Centre for Non-Destructive testing for Sri Lanka Atomic Energy Board: Design stage of this project was completed by end of year 2018 and recommendations were forwarded to Atomic Energy Authority for award of contracts. But at the stage of project extension, Atomic Energy Authority informed us that advance payment to the contractors could be paid only by April 2019.

Accordingly project commencement was delayed to April 2019 and extension was taken up to 31/12/2019 for completion.

(E) <u>Issuing and renewal of Licensees</u>

(i) Although it was expected to complete 50 technology transfers only 23 entrepreneurs came forward to get technologies. The response of entrepreneurs were at a low level.

To motivate the entrepreneurs and licensees we have increased our propaganda and training programmes have been arranged to promote our technologies in all districts through Vidatha Centres, in order to carry the technology to the village level.

(ii) During 2018 it was expected to introduce 13 technologies but succeeded to introduce 5 technologies. Research projects do not succeed as expected.

It is expected to carry out technology transfers for the technologies introduced. It is not possible to obtain patents for all developed technologies and necessary steps will be taken to obtain patents for those applicable.

(F) Operational Inefficiencies

(i) Out of 20 technologies developed during 2014-2018, 6 technologies have been transferred to entrepreneurs, for 4 technologies the centre has produced equipment and disseminate to the society by selling and for 5 technologies field trials are ongoing. These technologies will be disseminated in the future.

(ii) Implementation of flap gate project

This collaborative project was requested by Irrigation Department of southern province in order to control the flood conditions associated with canal ' Anda Dola". It was expected by NERDC to design and fabricate the flap gate. The estimate for this part has been Rs. 7,250,000/- and irrigation department paid us an advance of Rs. 1,500,000.00.

The irrigation department of southern province, as their part of the project had to design and construct the civil engineering structure related with the project as per the guidance of NERDC. However, the engineering estimate for this structure had been very much higher than anticipated and they have decided not to go ahead with the project. As they requested their advance payment back, NERDC released it, deducting Rs. 80,000/- as the direct expenses to NERDC with regard to this project.

(G) The Centre is taking the measures to take back the sum of Rs. 359,498.39 which is due from the Ministry of Science Technology and Research.

Eng. C M Delpachithra
Chairman

Eng. D D Ananda Namal
Director General