

**NATIONAL ENGINEERING RESEARCH AND DEVELOPMENT CENTRE
OF SRI LANKA**

ACKNOWLEDGEMENT

The Management expresses and places on record its appreciation to the Ministry of Science, Technology & Research, foreign governments and funding agencies for providing facilities for training and for the financial assistance provided for the research activities. 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. Shavindranath Fernando
Chairman
NERD CENTRE OF SRI LANKA

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01. Acts, Legislation & 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

Dr. T A G Gunasekera - M Eng(SL), M Sc(Hon) (Ire), PhD(Ire), MIE(SL), FIIE(SL), C Eng. I Eng.

MEMBERS OF THE BOARD

Mr. Gunasinghe Chandasiri B Com Degree	-	<i>From March 2015</i>
Mr. Abdul Hameed Mohamed G.T.O. Examination (Dept. of Building)	-	<i>From March 2015</i>
Mrs. D G N Kumari Master of Business Studies, CBA	-	<i>From March 2015</i>
Mr. Rohan De Silva	-	<i>From April 2015</i>
Eng. E A S K Eidirisinghe C.Eng., MIET	-	<i>From November 2015</i>
Mr. A S R Waidyasekera MBA(PIM-USJ), Chartered Marketer	-	<i>From November 2015</i>

DIRECTOR GENERAL/ SECRETARY TO THE BOARD

Eng. D D A Namal - M Eng(Energy Technology), B Sc Eng(Hons), C.Eng., MIE(SL)

OFFICE ADDRESS

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

POSTAL CODE

11380

CONTACT INFORMATION

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BANKERS

↗ Bank of Ceylon, Ja-Ela
↗ Bank of Ceylon,
Corporate Branch
↗ People's Bank, Ja-Ela

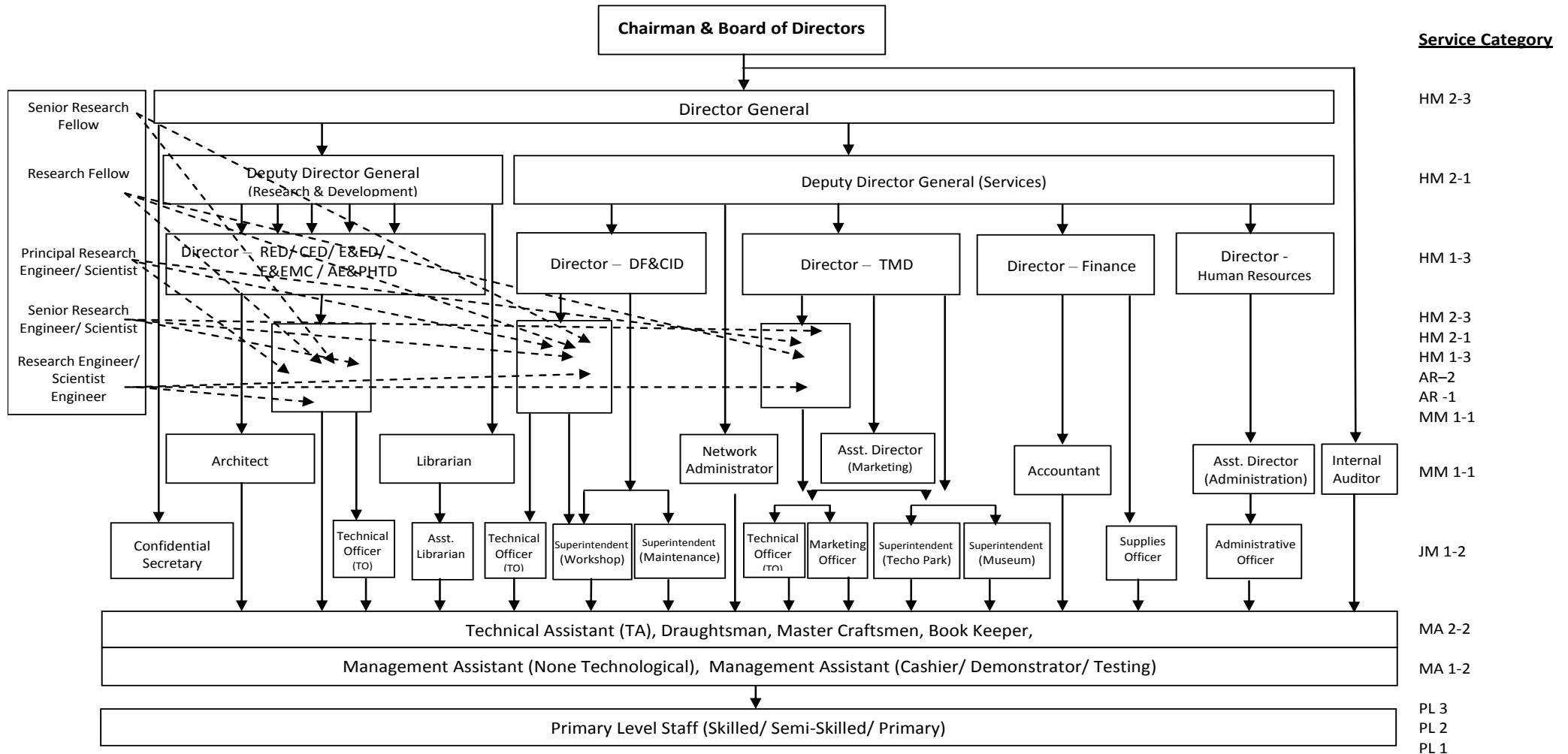
AUDITOR



Auditor General
Auditor General's Department

NATIONAL ENGINEERING RESEARCH & DEVELOPMENT CENTRE OF SRI LANKA

Organization Structure as per the Scheme of Recruitment (SOR) approved



- RED - Renewable Energy Department
- CED - Civil Engineering Department
- E&EMC - Energy & Environment Management Centre
- EED - Electrical & Electronic Engineering Department
- AE&PHT - Agriculture Engineering & Post Harvest Technology Department
- DF&CID - Design Fabrication & Consultancy Service for Industries Department
- TMD - Techno Marketing Department

- HM - Senior Manager
- AR - Academic/ Research
- MM - Manager
- JM - Junior Manager
- MA - Management Assistant
- PL - Primary Level

02. Chairman's Message

National Engineering Research and Development Centre of Sri Lanka (NERDC) has continued to serve the nation as a premier Engineering Research and Development Organization in the year 2015. The Centre has excelled in performance in a range of activities including engineering research and development, pilot projects, consultancy services for industries, construction activities, popularization, awareness and training programmes to achieve NERDC goals and objectives. The outputs and outcomes of these activities have either directly or indirectly contributed towards the sustainable economic and social development of the country by providing self-employment opportunities based on new technologies, improving productivity and efficiency of industries, saving resources, providing opportunities to improve the invention capacity of inventors and improving science and technology knowledge of school children and general community.



The NERDC has carried out several research and development projects in order to introduce new products and technological processes for the development of national economy in a variety of key areas such as energy, construction, agricultural and post-harvest technology, environment management and development of small and medium level industries.

Considering the field of energy; The equipment to identify the surface moisture content of tea leaves was developed based on the request of Sri Lanka Tea Board. This development is believed to have a direct control over the cost of production of tea since the surface moisture content of tea leaves is directly proportional to the energy requirement of the tea production process.

In Research and Development activities of agricultural and farming industries of year 2015, performance evaluation of NERDC developed Cinnamon Processing Unit, Machinery development for making compressed solid feed blocks for cattle and development of Milking Machine stands significant. These inventions are expected to have a positive impact on the respective industries; especially in small and medium scale industries. Further, a machine was developed to remove aquatic weeds in drainage canals used for floodwater control. The machine has been improved to address its needs better and currently awaits field trials.

NERDC cost effective building technologies have always been significant among NERDC Research and Development activities. Cost optimization of pre-stressed concrete beams for NERDC Slab, identification of specifications for Slip-form Wall, development of an economical and non-toxic water proofing paint for walls made of soil blocks, research on cost effective timber framework and use of bottom ash from coal power plants for construction work have been the key research projects in the year 2015 in the field of housing and construction. In addition, NERDC has involved in a number of construction projects in 2015 around the Island.

The Centre has involved in consultancy work in all aspects of main engineering disciplines such as civil, electrical and electronic, renewable energy, environment and energy management, agriculture and post-harvest engineering in order to cater the demand from industries. Consultancy services and different technical services have been rendered for both large and small scale industries on many issues related to waste water treatment, boiler efficiency, energy losses, cleaner production, sound pollution, air pollutions, construction, etc. Special training programs have also been conducted for groups of people in industries in different areas such as efficient use of pumps, industrial emission control, automation, etc.

Technology transferring is another main activity of NERDC and 17 technology transfers and 53 license renewals have been successfully done in the year 2015. A large number of awareness programmes on NERDC developed technologies have also been conducted throughout the country to raise awareness and to promote technology transfers. Introduction of self-employment opportunities for LTTE rehabilitants, outbound training programme for Sustainable Development Authority and stakeholder's meeting for introduction of Automated Hopper Making Machine were some key awareness programmes in the 2015 NERDC calendar.

NERDC carried out several popularization programmes to raise awareness on NERDC developed technologies in the year 2015. The Open Day event was one such main activity where demonstrations on different technologies were carried out for the general public. The NERDC Research Symposium – 2015 was also ceremonially held to coincide with the National Science Week. Eleven technical papers on NERDC developed technologies were published during the symposium and best three paper presentations were awarded. In addition, NERDC arranged a number of media programmes in 2015 for technology popularization.

The NERDC's mission of contributing towards nation's economic and social development has not always been easy. Recruiting and retaining capable Research Engineers within the Centre has been difficult with the less attractive remuneration schemes offered for Engineering staff. However, the Centre has provided more capacity building and skill development programmes for its staff in both local and overseas contexts as a strategy to motivate and retain its staff to meet the future challenges. Yet it is time that the policy makers take a serious note in adopting a policy to remunerate engineers of government research institutions with an attractive remuneration, so as to upgrade the R & D activities at these institutions which is the key to the envisaged knowledge economy.

In the process of execution of all the above functions and in developing the institution to be the Premier Engineering Research and Development Organization of the country, the leadership given by Eng. D.D.Ananda Namal, Director General of the Centre, is most commendable. It has been a pleasure working with him for enhancing services of the Centre. I also wish to take this opportunity to thank the Higher Management, the Directors/Heads of Departments/Divisions, Research Engineers/Scientist, Technologist, Technician and the Support Staff for the services rendered by them to achieve the objectives of the Centre in the year 2015.



DR. T.A.G. GUNASEKARA
CHAIRMAN

04. Top Management and Executive Staff

CHAIRMAN

Dr. T A G Gunasekera - M Eng(SL), M Sc(Hon) (Ire), PhD(Ire), MIE(SL), FIIE(SL), C Eng. I Eng.

DIRECTOR GENERAL

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

DEPUTY DIRECTOR GENERAL (RESEARCH & DEVELOPMENT)

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

DEPUTY DIRECTOR GENERAL (SERVICES)

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

EXECUTIVE STAFF IN DEPARTMENT WISE

Energy & Environmental Management Centre (E&EMC)

Research Fellow (Acting Administrative HoD)

Eng. K T Jayasinghe

M Eng, BSc Eng, C Eng, MIE(SL)

Research Engineer

Eng. Ms. N P T Perera
Eng. M D Sahardeen
Eng. Mr. K P D D Jayasekera
Mr. T K Geeganage

MSc, BSc Eng (Hons.), AMIE(SL)
BSc Eng
BSc Eng (Hons), AMIE(SL)
BSc Eng.

Civil Engineering Department (CED)

Director (Technical)

Eng. J A C Chrishanthi

BSc Eng, C Eng, MIE(SL)

Principal Research Engineer

Eng. W W P K Perera
Mr. W P R D Weerasinghe

M Eng (Struct), BSc Eng (Hons), C Eng MIE (SL)
NDT, CEI Part I, IESL Part I

Engineer

Mrs. D M A K Digala
Mrs. K S S Weerasinghe

NDES (Civil Eng), CEI (UK) Part I
Special Apprentice (Civil Eng.), IESL (Part I)

Research Engineer

Eng. I P Batuwita
Eng. A N S Amaradasa
Mr. M A Y Rasmy – Up to 06.08.2015

B Sc Eng, AMIE(SL)
B Sc Eng, AMIE(SL)
B Sc Eng

Architect

Ms. B A P H Manorima - up to 16.01.2015
Ms. B D R Chamika - from 08.06.2015

MSc, B Sc
MSc, B Sc

Renewable Energy Department (RED)	
Research Fellow (Administrative HoD) Eng. J A A D Jayasuriya	M Eng, BSc Eng, MIE(SL)
Research Fellow Eng. W K R Peiris Eng. N K Edirisinghe	MPhil, MA (Buddhist Studies), BSc Eng, C.Eng. MIE(SL) MPhil, BSc Eng., MIE(SL)
Principal Research Engineer Dr. A S K Warahena – Since 21.05.2015 Engineer Mr. W A L S Karunawardana	PhD, M Eng, B Sc Eng HNDE
Research Engineer Mr. E B U C Kumara Ms. E Nadeeshani Eng. G S R Costa	BSc Eng (Hons) BSc Eng (Hons) BSc Eng, AMIE(SL)
Agriculture Engineering & Post-Harvest Technology Department (AE & PHT)	
Director (Technical) Eng. K Y H D Shantha	MSc Eng., BSc Eng., AMIE (SL)
Principal Research Engineer Mrs. Y M M K Ranathunga	NDT
Research Engineer Eng. P M Y S Pathiraja Eng. Mr. S A P Shalinda Silva Eng. M A N Sugandi	BSc Eng, AMIE (SL) BSc Eng, AMIE (SL) B Tech, AMIE (SL)
Engineer Mr. P A U W K Paranagampola Mr. A N M C N Abesiri - From 06.07.2015	NDES B Sc Eng
Electrical & Electronics Engineering Department (EED)	
Research Fellow (Head of the Department) Eng. (Mrs) N G D Wijesiriwardane	M Eng, C Eng, MIE (SL)
Senior Research Engineer Eng. S Vidyarthne – Up to 11.10.2015 Research Engineer Eng. D R S K Wimalaratne Ms. Y M A G S P K Kularathne - From 23.06.2015 Mr. G U De Silva – Up to 19.01.2015	M.Sc., B Sc Eng. AMIE(SL) B Tech Hons, AMIE (SL) B Sc Eng
Engineer Ms. H D C Hettiarachchi	NDT

Design Fabrication & Consultancy for Industry Department (DF & CI)	
Director (Technical) Eng. Mr A A S P Jayasinghe	BSc Eng (Hons), MIE(SL)
Principal Research Engineer Eng H M L U Herath Eng A R C Salgado	BSc Eng., AMIE(SL) BSc Eng., AMIE(SL)
Research Engineer Eng S P Perera	EC (UK) Part I & II, NDT, AMIE(SL)
Engineer Mr. N A D D J Prasanne	NDT
Superintendent – Workshop Mr. W H S Ramal Silva	NDES
Techno Marketing Department (TMD)	
Director (Technical) Eng. M A M Fernando	PG Dip (Energy) IESL Part I & II , CEng, MIE (SL)
Principal Research Engineer Mr. D V Wimalasena	NDT, Dip in Marketing(SL)
Marketing Officer Mr. S Wijesooriya	Master of Business Studies (MBS), BSc (Agriculture) Sp.
Superintendent - Museum Mr. A A N S Adikari	BSc
Superintendent - Museum Mrs. B D P S Ranaweera	BSc
Mechatronic Division	
Principal Research Engineer (Officer In-charge) Eng. D M Punchibanda	BSc Eng
Senior Research Engineer Eng. H P H Kumara – From 20.05.2015	MSc Eng, EC(UK) PART I & II, AMIE(SL)
Research Engineer Mr. H P H Kumara - Up to 19.05.2015 Ms. L N Apsara Perera Eng.. S M S S Senaratne – From 20.08.2015	MSc Eng, EC(UK) PART I & II BSc Eng. (Hons) B Tech, AMIE(SL)
Library	
Librarian Mrs. D M T P K Devagiri	B A (Library Science) Sp. MSSc
IT Section	
Network Administrator Mr. B P Wickramasuriya	BSc (Computing & Information Systems)

Human Resources Department	
Director (Human Resources) Ms. D A M Munasinghe – From 01.08.2015	BSc (HRM), MBA (HRM)
Assistant Director (Administration) Mr. Rukman Gamage	B A (Social Science) Sp. M A in Sociology
Finance Department	
Director (Finance) Mrs. D V S Perera – From 17.06.2015	ICMA Professional Part II, IPFA, ICEA
Finance Manager Mrs. D V S Perera – up to 16.06.2015	ICMA Professional Part II, IPFA, ICEA
Accountant Mr. J M R S Jayasinghe	BBA (Busi. Admin) Special , MBA ICASL - Professional Part I
Internal Audit Division	
Internal Auditor Mr. B P Susantha Kumara	HNDA
Supplies Division	
Supplies Officer Mr. R H A Jeewananda	BSc (Physical Science)

05. Human Resources

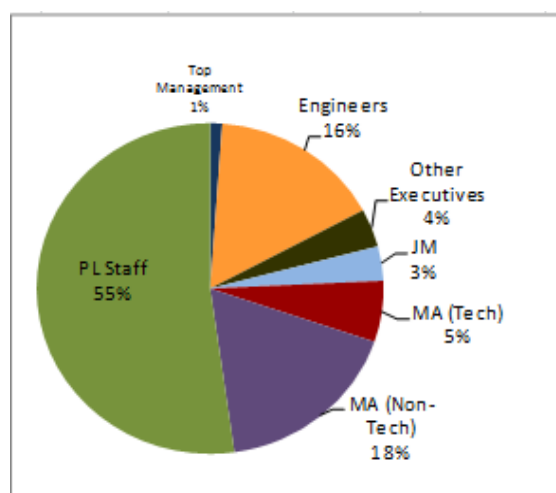
Human resource is the key asset of Research & Development organizations in accomplishing its goals and objective through performance excellence. It is Human Resource that make things happen while all the other resources make things possible. In NERDC, the management makes much effort to direct, utilize and develop its human resources in the most effective and efficient manner.

However, the major problem identified in Human Resource Management (HRM) within the Centre is the recruitment and retaining of competent Engineering researchers. This is identified as a very common issue in most of the research organizations in Sri Lankan State sector. A comprehensive integrated strategy is thus required to address this issue, such as national policy on Engineering /scientists researchers programming, research application for national development and recruitment, incentives, rewards, recognitions, capacity development of researchers/scientists, etc. specially in Engineering field.

Despite the difficulties of recruiting and retaining capable Engineers within the Centre due to the repeatedly mentioned issues in remuneration schemes, NERDC has taken all its measures to recruit and retain Engineering staff through offering attractive capacity development opportunities as a strategy. NERDC provides a wide range of capacity development opportunities for its Engineers/ Scientists within the capacity and limitations of the Centre and Higher studies, training and development, international exposures, creating facilitating environment, assisting carrier development, etc. are some of such strategies undertaken by NERDC.

Summary Information on Staff Strength

Staff Category	Nos
Top Management	3
Engineers	43
Other Executives	10
Junior Managers (JM)	9
Management Assistants (Tech)	16
Management Assistants (Non-Tech)	47
Primary Level (PL) Staff	140
Total	268



Following new recruitments have been made externally at the Centre during the year 2015.

	Name	Designation	Department	Date of Recruitment
01	Ms. J D Janani Wasana	Management Assistant (Non Tech)	Techno Park	20/05/2015
02	Ms. N P U De Silva	Management Assistant (Demonstrator)	Techno Park	20/05/2015
03	Ms. T A N D Karunaratne	Management Assistant (Demonstrator)	Techno Park	20/05/2015
04	Mr. H P H Kumara	Principal Research Engineer	Mechatronics	20/05/2015
05	Dr. A S K Warahena	Principal Research Engineer	RED	21/05/2015
06	Mrs. B R D Chamika	Architect	Civil	08/06/2015
07	Mrs. D V S Perera	Director (Finance)	Finance	17/06/2015
08	Mr. R P U J Edirisinghe	Technical Assistant (Mechanical)	AE - E&EMC	23/06/2015
09	Ms. Y M A G S P K Kularatne	Research Engineer	E&E	23/06/2015
10	Mrs. S G W Silva	Management Assistant (Non Tech)	HR	25/06/2015
11	Ms. W M N L U Chandrasena	Technical Assistant (Mechanical)	RED	02/07/2015
12	Ms. K R T Ishara	Technical Assistant (Electrical)	E&E	02/07/2015
13	Ms. N P A Gamage	Technical Assistant (Chemical)	E&EMC	02/07/2015
14	Mr. S H A C Dayarathne	Technical Assistant (Civil)	Civil	02/07/2015
15	Mr. A N M C N Abesiri	Research Engineer	AE&PHT	06/07/2015
16	Ms. H D Maduwanthi	TA (Mechanical)	AE&PHT	13/07/2015
17	Ms. S M Ediriweera	TA (Electro.& Telecom)	Mechatronic	20/07/2015
18	Ms. D A M Munasinghe	Director (HR)	HR	01/08/2015
19	Mr. S M S S Senaratne	Research Engineer	RED	06/07/2015

Following Staff Members have retired from their service at NERDC Centre in the year 2015.

No	Name	Designation	Department	Date of Retirement
01	Mr. A A D P Anthony	Fitter	HR	02/03/2015
02	Mr. P A R A Perera	Welder/Fitter	RED	30/07/2015
03	Mr. A L Chandraratne	Electrician	Electrical & Electronic	07/08/2015
04	Mr. H W S R Jayasundara	Fabricator	RED	07/08/2015
05	Mr. E Sunny De Sivla	Labourer	Civil Engineering	31/08/2015
06	Mr. M G Dharmasinghe	Welder/Fitter	AE&PHT	07/10/2015

Following Staff Members have resigned from the Centre in the year 2015.

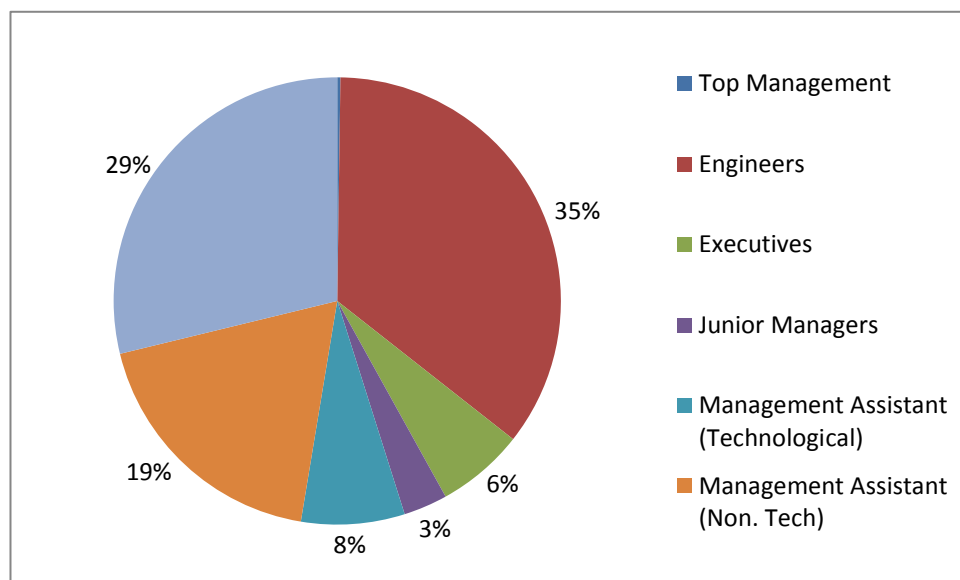
No	Name	Designation	Dept./ Divi.	Resigning Date
01	Mr. G U De Silva	Research Engineer	Electrical & Electronic	19/01/2015
02	Mrs. B A P H Manorima	Architect	Civil Engineering	16/01/2015
03	Mr. K A K T Rupasinghe	Technical Assistant	AE&PHT	03/03/2015
04	Mr. S M Azam	Technical Assistant	Civil Engineering	05/05/2015
05	Ms. E A S Priyanwada	Management Assistant (Testing)	E&EMC	10/05/2015
06	Mr. M D Devaraja	Management Assistant	Electrical & Electronic	02/07/2015
07	Mr. M A Y Rasmy	Research Engineer	Civil Engineering	06/08/2015
08	Ms. N P U De Silva	Management Assistant (Demonstrator)	Technology Park	15/09/2015
09	Mr. S Vidyaratne	Senior Research Engineer	Electrical & Electronic	10/10/2016
10	Mr. M G Aruna	Driver	HR-Transport	30/11/2015
11	Mr. R P U J Edirisinghe	Technical Assistant	E&EMC	02/12/2015

5.1 Staff Training and Development

Since the Key role of the NERDC is engineering research and development, constant concern is tendered in human resources development by the management. Accordingly all steps are taken 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.

5.1.1 Capacity building and skills development training opportunities provided in 2015 are as follows.

Service Category	Nos. of Training Facilities Provided
Top Management	1
Engineers	156
Executives	28
Junior Managers	14
Management Assistant (Technological)	33
Management Assistant (Non. Tech)	82
Primarily Level	127
Total	440



- ◆ This includes the facilities and provisions for providing National Vocational Qualification (NVQ) level 3/ 4 for ten (10) no. of employees in primary level categories.

5.1.2 Outbound Training Programs

Two (02) days Residential Outbound Training Program was conducted at Technology Park for newly recruited employees above Management Assistant Category on 13th and 14th August 2015. 38 staff members participated at the above programme.

5.2 Participation of Foreign Scholarships/ Seminars/ Workshops/ Training-Programmes

	NAME & DESIGNATION	NAME OF THE PROGRAMME	PERIOD	COUNTRY
1	W A L S Karunawardana Engineer	International AD Operating and Engineering Course	13-23 April 2015	Germany
2	Mr. D M Punchibanda Principal Research Engineer	“Asia Pacific Regional Workshop on Biomass Energy Resource Assessment” and “Biomass Open Research Forum: Biomass Resource Assessment for ASEAN Countries”	06-10 July 2015	Thailand
3	Dr.(Eng.) T A G Gunasekera Chairman	- 11 th Session of the Governing Council - 11 th of the Technical Committee of Asian and Pacific Centre of Technology (APCTT) - Seminar on Technology Facilitation for SDG's in Asia Pacific	17-18 Dec. 2015	India

5.3 Other Corporate Social Responsibilities – 2015

5.3.1 Industrial Training facilities for trainees

NERDC provided in plant training opportunities for a period of 6 months/ 3 months for 33 nos. of trainees who were directed by National Universities and Training Institutions in the year 2015.

5.3.2 Outbound Training Program for children of NERDC Staff

Two (02) days Residential Outbound Training Program arranged for children of NERDC Staff members' at Technology Park on 29th and 30th December 2015 in order to enhance science and engineering knowledge and to improve softs skills like communication, teamwork, analytical thinking, etc. 30 nos. of children participated at the above event.

06. Performance highlights of the year 2015

During the year 2015, the National Engineering Research and Development Centre has performed excellent services to the people of Sri Lanka in the field of engineering such as research and development activities in various engineering disciplines, pilot projects, consulting services, construction activities, conducting training and awareness programmes etc. to align with the NERDC goals and objectives.

Output and outcome of these has contributed to improve the socio-economic situation of the country by providing self-employment opportunities based on the new technologies introduced by the Centre, improving productivity and efficiency of the industries specially in the rural areas, saving resources in the construction industry, providing opportunities to improve the creativeness of the inventors, and improving science and technology knowledge among students and general public. Some of these activities have direct impact to improve and develop socio-economic conditions of people, while output of some of these activities have made indirect impact to upgrade the living standards of the people.

6.1 Highlight of major events during the year – 2015

Important events carried out by the NERDC during the year 2015 in order to provide contribution to develop National Economy in line with our goals and objectives are as follows.

Introduction of Self-employment for Rehabilitants



Residential Training Programmes conducted for the Rehabilitants

Residential training programmes were conducted for rehabilitants under patronage of the Bureau of the Commissioner General of Rehabilitation on the NERDC developed technologies.

07 days training programmes had been conducted for rehabilitants (ex-combatants of LTTE) from war affected areas in order to introduce self-employment based on the NERDC developed technologies such as NERDC cost effective building construction technologies, post harvesting technologies, and renewable energy technologies, etc.

Outbound Training Programmes conducted under the patronage of Sustainable Energy Authority



Out-Bound Training (OBT) Programmes for the Science Teachers and the School Children on Energy Efficiency and the Renewable Energy were carried out with the funds from the Sustainable Energy Authority.

Basically, the programmes covered the hands on experience activities, which are much related to the renewable energy and energy efficiency. Seven programmes had been conducted during the year 2015 for 300 participants approximately.

Open Day at NERDC Technology Park parallel to the National Science Week-2015



Open Day for the General Public on 14th November 2015

An Open Day exhibition was organized to the general public at the NERDC Technology Park and the Engineering Museum on 14th November 2015. On this day, Engineering Technology Exhibition had been organized, which was ceremonially opened by Hon. Minister of Science, Technology and Research, Mr. Susil Prema Jayantha. Building clinic and the displaying demonstration activities had been organized for the general public. More than 3000 people had participated on this day.

Meeting for the Stakeholders' were Organized for Launching of Automated Hopper Making Machine



Stakeholders' meeting for introducing of the Automated Hopper Making Machine was held on 10.12.2015 at the NERDC with the assistance of University of Ruhuna for which 50 Nos. of Stakeholders participated. Automated Hopper Making Machine was developed by both University of Ruhuna and the NERDC. The demonstration on making hoppers using the Automated Machine was very successful and interested most stakeholders.

6.2. Highlighted Research and Development Activities

The NERDC has carried out several research and development projects in order to introduce new products and technologies for the development of national economy of the country. Details of few important projects are given below.

Development of an Equipment to Identify Surface Moisture of Tea Leaves

The surface moisture content in tea leaves directly effects the energy requirement of the tea production processes and ultimately it will directly control the cost of production. The Sri Lanka Tea Board requested to develop an apparatus to measure the surface moisture on the tea leaves at the buying stage from the tea growers in order to reduce the cost of energy in tea drying process. The machine has presently been developed and field trials are in progress



Development of Milking Machine

The other potential project was the development of milking machine for the small scale livestock farmers. In order to improve the productivity and efficiency of the milking process, the machine consists with a vacuum tank few suction plugs and a flexible hose. One machine was developed and manufacturing of another 10 machines are presently in progress.



Cost Optimization for Pre-stressed Concrete Beam for the NERDC – Slab

Presently, the NERDC pre-stressed concrete beams used for slab require 03 of 5mm high tensile wires subjected to 20 kN. of load. Research is focused to reduce number of wires and increased load applied to each wire. Research is completed and as per the results, wires could be reduced to two. Field applications would be carried out in future.



Research on Cost Effective Timber Framework for Cost Effective Buildings



Timber Framework

Considering the price of timber, the NERDC has commenced a research on the cost effective timber roof framework for both tiles and asbestos roof framework.

Objective of the research is to reduce the cost of roof framework by 30% with compared to the cost of conventional roof framework.

Expected timber roof framework is to reduce 40% of cost compared with the cost of conventional roof framework.

We have tested two types of cost effective roof frameworks and the test are in progress.

Development of an Economical Non-toxic Water Proofing Paints for Wall made with Soil Blocks

Paints available in the local market for painting of wall made with soil blocks are not economical due to high percentage of absorption causing nature of surface texture of soil blocks. Presently, few types of paints have been developed and testing is in progress.



Performance Improvement and Field Evaluation of the NERDC Developed Cinnamon Processing Unit

Conventional method used for cinnamon oil distillation requires large space with considerable wastage. The NERDC has developed distillation unit with an evaporating system and the field trials have been carried out in the Cinnamon Research Station at Pollpitiya, Matara. Some modifications have been done and the Cinnamon Research Institute accepted the performance of the new system developed. Fabrication of new system is in progress.



Machinery Development for Making Compressed Solid Feed Blocks for Cattles

In order to improve the dairy industry in Sri Lanka, the NERDC is developing a machine to produce solid feed blocks for cattle and buffalos. Use of food blocks having required mineral and vitamins will provide solution for the shortage of pasture land and it will improve the milk production in Sri Lanka.

Research is in progress and most of the project activities are completed.



Use of Bottom Ash from Coal Power Plant for Construction Work

Bottom ash, which is a waste material in the Coal Power Plant, is a problem to the Ceylon Electricity Board and they requested us to study whether the bottom ash could be used for any other purposes.

The NERDC made few wall blocks with the bottom ash, which seems to be successful. The NERDC has started a research project to develop wall blocks with cement, sand, bottom ash and the project is presently in progress.



Development of Aquatic Weeder

The Department of Irrigation requested to develop a machine to remove aquatic weeds in the drainage canals used for floodwater control especially in Southern area. The Irrigation Department spends considerable amount of money annually to remove the aquatic weeds in the drainage canals for labour.



The NERDC had commenced the R&D project on developing a machine to remove the weeds in drainage canals to reduce the labour cost. The basic machine is presently completed. However, few field trials need to be carried out.

Identification of Specifications for Wall (Slip-form Wall) without Plaster

Main objective of the project is to identify the basic standards and specifications for the slip-form wall construction such as, particle size distribution of quarry dust, water, cement ratio, and percentage of compaction. 75% of the project is presently completed.



6.3 Construction of the Building with the Cost Effective Construction Technologies

Few buildings have been constructed with the cost effective technologies in Sandilipai, Kahawatta, Ratmalana, Sainthamarudhu and Nallur. The total cost of the buildings are Rs.32.3m and the total floor area is 600m².



Building at Sainthamarudhu



Building at Kahawatta



Vidatha Building at Sandilipai



Vidatha Building at Nallur



Building at Ratmalana

Consultancy Services for the Construction of Buildings with the Cost Effective Building Technologies

Consultancy services have been provided for the construction of buildings and water tanks for rain water harvesting tanks using cost effective building construction techniques.

Cost – Rs.130m



Building at Dodangoda – Ministry of Housing

Cost – Rs.7.3m,

Cost – Rs.23m, Floor area – 491.74Sq.Ft.



Vidatha Building at Musali



Clinical Building at Ratmalana

Construction of 16 Nos. of 5m³ Rainwater Harvesting Tank at Kuttivila, Dompe

Cost of the project – Rs.465,000/=

Kuttivila, rural village located in Dompe, Divisional Secretary Division has been selected by the Divisional Secretary for the construction of 5m³ rainwater harvesting tank with the NERDC cost effective technologies. 16 Nos. of tanks have been completed.



Ferro-cement 5m³ Tank for Rainwater Harvesting in Kuttivila

6.4 Services to Industries

Six energy audits have been done with a value of Rs.1.6m for number of Institutions, such as Open University – Nawala, Institute of Indigenous Medicine, National Apprentice & Industrial Authority, etc.

Boiler Performance Tests and Flue Gas Analysis

Boiler performance and flue gas analysis of 118 installation were done at a value of Rs.3.3m.

Industrial Processes Monitoring and Consultancy

Consultancy services and monitoring services related to different industrial issues had been carried out and the value of the services completed are Rs.600,000.00.

Providing Environmental Monitoring and Services

The environmental monitoring services were carried out as per the ISO standards and the value of the services are Rs.4.8m. Providing solutions to control environmental issues in the industry are Rs.60,900/=.

Consultancy Services related to Environmental Issues

Consultancy services had been provided as solutions to control environmental issues in the industries and the value of the job is Rs.0.75m.

Laboratory Tests

In order to fulfill the requirement of industries, the NERDC has carried out laboratory tests in the areas of wastewater, water, lamps, and batteries and in the civil engineering field.

Details of the Tests and their Income are given below

	<u>No. of Tests</u>	<u>Income</u>
Environmental Laboratory Testing Water and Wastewater	873	Rs.1m
Lamp Testing	2	Rs.0.05m
Equipment calibrations	24	Rs.1.51m
Civil Engineering Laboratory Testing	125	Rs.0.7m

6.5 Training Programmes/ Awareness Programmes/ Workshops /Seminars and Exhibitions conducted on NERDC Developed Technologies

Training programmes, workshops, seminars have been carried out in the following areas.

- Training Programme on NERDC Developed Technologies.
- Training Programme on the Special Subjects, to help improve the knowledge of people, involved in the Industries, such as Engineers and Technical Assistants.

Training Programme on NERDC Developed Technologies

Nine Training Programmes have been conducted during the year 2015 under the following topics, and 175 participants attended.

- Food Technologies
- Cost Effective Building Construction Technologies
- Manufacturing of Compressed Cement Stabilized Soil Blocks

Training Programme on the Special Subjects, which help to improve the knowledge of people, involved in the Industries, such as Engineers and the Technical Assistants

Four (04) workshops have been conducted to upgrade the knowledge of people in the industry and the 75 participants were present. They are;

- One Day Workshop on the Efficient Use of Pumps in the Industries
- One Day Workshop on Industrial Emission Control



Workshop on the Efficient Use of Pumps in the Industries

Twenty four training programme on the different subjects in mechatronic had been conducted for 300 participants over the year generating Rs.1.5m under the following subjects.

- Training Programme on Programmable logic controller
- Training Programme on Pneumatic usage for industrial automation



Mechatronics Training Program for Industrial Participants

Awareness Programmes

Awareness programmes on the following NERDC developed technologies had been conducted throughout the country.

Number of Awareness Programmes conducted on the following technologies and the equipment – 25 Nos

- Fertilizer Applicator
- NERDC Developed Agriculture Equipment
- Cost Effective Building Technologies
- Palmyra Juice Extractor
- NERDC Developed Herbal Equipment

Exhibitions Participated

The NERDC had participated in the exhibitions organized by different organizations, focusing on popularization of NERDC developed technologies during the year 2015. We have participated in 20 exhibitions all National Level and Provincial Level.

6.6 Technology Transfer Activities

Following NERDC developed technologies have been transferred to the new entrepreneurs in order to create new employment opportunities to provide benefits from NERDC developed technologies.

	<u>Nos. of Licensees</u>
• Virgin Coconut Oil Extraction -	03
• Cost Effective Building Technologies-	03
• Cement Stabilized Compressed Soil Blocks-	04
• Fertilizer Applicator-	02
• Manufacturing Concrete Door & Window Frames	01
• Water Heater	01
• Construction of Footbridges	01
• Manufacturing of Pre-stressed Concrete Beams for Footbridges	01
• Biomass Rice Cooker	01

License Renewals

Generally, the NERDC license issued for each technology should be renewed annually by the licensees as a key tool for maintaining quality of the products and services. During the year 53 licenses had renewed their respective technologies.

Technology Licensees

Virgin Coconut Oil Machine	- 1 No.
Cost Effective Building Technologies	- 37 Nos.

Popularization through the Media

In order to popularize the technologies, the NERDC had arranged media programmes through newspaper articles, special programmes via. TV and the radio programmes.

Ten (10) newspaper articles had been published in the National Newspapers including Chamber Magazines, Dinamina, Lankadeepaya, Silumina, etc. 05 TV Programmes on the NERDC activities and technologies had been conducted in the ITN, Rupawahini, Derana, and the Swarnawahini, TV channels.

Technology Park and the Engineering Museum

During the year 2015, about 6000 people visited the Technology Park and the Engineering Museum and majority of them were Teachers along with the School Children and the Students from the Higher Education Institutes.

Research Symposium – 2015

The NERDC Research Symposium was ceremonially held on 13/11/2015 in parallel to the National Science Week at the “Kulasinghe” Auditorium. 11 NERDC developed technology papers had been published and the first three places of the presentations were rewarded.



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 2015 are as follows;

7.1 Welfare Society

Following activities have been undertaken by the welfare society of the NERDC during the year 2015

1. Blood Donation Campaign in commemoration of the late Vidyajyothi Dr. A N S Kulasinghe, former Chairman of the NERDC was held on 26th October 2015.
2. Ceremony was organized on 14th November 2015 to appreciate the Children of NERDC Staff who had passed Grade 5 Scholarship Examination in 2015
3. Organized a Get-together for all Employees and their family members at Kulasinghe Auditorium at NERDC on 30th December 2015.

7.2 Religious Society

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 2015.

7.2.1 Buddhist society

1. In order to mark commencement of Centre activities of the year 2015, a pirith chanting ceremony was conducted on 01.01.2015.
2. A Pirith Chanting Ceremony and an alms giving was organized on 13.02.2015 in parallel with reopening of Kulasinghe Auditorium after completion of its renovation.
3. Conducted four Dharmadeshana (sermon) at the NERDC during the year 2015 as follows;
 - (i) Ven. Kimbulapitiya Wimalananda Thero, Wijayaramadhipathi, Kudahakapola North on 29.04.2015.
 - (ii) Ven. Pujjapada Udithadeera Thero at Biyagama Kottunna Dhammadassi Buddhist Centre on 29.05.2015
 - (iii) Rajakeeya Pannditha Ven. Dhammanisansi Thero at Ekala Damma Buddhist Centre on 02.10.2015
 - (iv) Ven. Embilipitiya Ananda Thero, Athurugiriya "Samama Samadhi" Meditation Centre on 16.12.2015.
4. A pilgrimage was organized to the ancient religious temples in Kurunegale area on 05.09.2015.
5. An alms giving programme was held for the children in Jayawardena children's, Home, Ja Ela on 25.10.2015.

7.2.2 Catholic Society

Conducted annual Christmas Mass on 21.12.2015 at the NERDC by Rev. Father Anton Jayamanna.

08. Accounting Policies

1. General Information

National Engineering Research and Development Centre of Sri Lanka (NERDC) in accordance with the provision of State Industrial Corporation Act No 49 of 1957 functioned under the preview of the Ministry of Technology and Research for the period of 1st January 2015 to 22nd January 2015. Then under the Housing & Samurdhi for the period of 23rd January 2015 to 20th September 2015 and presently under the Ministry of Science, Technology & Research. Its registered office is at 2P/17B, Industrial Estate, Ekala, Ja-ela.

Principle Activities and Nature of Operations

To provide for an institutional mechanism needed for the progressive development of indigenous technology by encouraging, recognizing and developing innovative and creative talent in Sri Lanka.

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.

To ensure by adoption and adaptation the choice of technologies that would be consistent with the country's resource endowments and national planning objectives.

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.

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.

To design, manufacture, and test prototype machinery, pilot plants as demanded by Industrial, commercial and other end users in an economical manner.

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.

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.

To make provision for purpose connected with engineering, research and development related to matters aforesaid.

2. Basis of Preparation

Financial Statements, which comprise the Statement of Financial Position, Statements 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 2015 to 31st December 2015.

These financial statements are for the year ended 31 December 2015.

2.2 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 are going concerns and on a historical cost basis.

2.3 Functional and Presentation 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 functional and presentation currency unless stated otherwise.

2.4 Comparative Information

The Financial Statements for the comparative periods comprises results for the twelve month periods from 1 January 2014 to 31 December 2014. 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.

2.5 Significant Accounting Judgments, Estimates and Assumptions

The preparation of Financial Statements in conformity with Sri Lanka Public Sector Accounting Standards requires Management to make judgments, estimates and assumption 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 result in outcomes that require material adjustment to the carrying amounts of the assets or liabilities affected in future periods. The Center 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.

3.0 Property, Plant and Equipment

3.1 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 within other income/other expenses in profit or loss. When revalued assets are sold, any related amount included in the revaluation reserve is transferred to retained earnings.

3.2 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 is usually determined from market-based evidence by appraisal. The fair value of items of plant and equipment is usually their market value determined 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 qualification. 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 be offset against one another within that class but must not be offset in respect of assets in different classes.

3.3 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	331/3

3.4 De-Recognition

The carrying amount of an item of property, plant and equipment is de-recognized 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 recognized net within 'other income' in the performance statement as Other income.

3.5 Intangible Assets

Intangible assets that are acquired by the Centre and have finite useful lives are measured at cost less accumulated amortization 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. Amortization is based on the cost of an asset less its residual value. Amortization is recognized 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 and comparative years are as follows:

- Software 33 1/3 years Amortization methods, useful lives and residual values are reviewed at each

4. Inventories

Inventories are measured at the lower of cost and net realizable 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 .

5. Trade Receivables

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

6. 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.

7. 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.

8. 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.

9. 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 $\frac{1}{2}$ x Completed Number of Years.

10. Provisions

A provision is recognized if, as a result of a past event, the Centre have 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.

11. 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.

12. 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 Develop 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 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 Value Added , 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 based on accrual concept

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.

13. 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.

14. 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 to income in calculating the surplus/ (deficit) for the period.

15. 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 direct cost considered.

Awards to Winning Research Engineers

The Members of BoDs. approved to reimburse some of the funds received through awards to the NERDC, among the applicable Research Engineers, as per the following .

- a) Reimbursement of 60% of the award money among the Researchers involved in award winning Research Projects. Researchers would be identified as those, who were responsible for the submission of the applications for the awards.
- b) Allocated amount is distributed among the team members proportional to the salary as at the date of application closing date.
- c) This will apply to past awards and future awards.
- d) For the past awards, reimbursement will be done only to the Researchers, who are at service of NERDC at present (but for calculation, all the team members will be considered).
- e) The amount identified for Researchers, who are not presently not employed would be retained along with the 40% of the award money for future activities of NERDC in promoting the research culture.

09. Statement of Financial Position

Statement of Financial Position as at 31.12.2015

Figures in Rs.

Assets	2015	2014
Current Assets		
Cash & Cash Equivalent	105,890,568.07	93,752,281.81
Trade Receivables	16,412,233.43	10,450,539.37
Inventories	8,375,586.28	9,474,331.60
Pre Payments	615,504.27	573,050.55
Other Current Assets	63,238,917.52	50,551,715.85
	<u>194,532,809.57</u>	<u>164,801,919.18</u>
Non –Current Assets		
Property Plant & Equipment	608,849,356.58	401,576,660.87
Other Intangible Assets	274,480.45	216,400.45
Other non-current Assets	25,041,481.58	27,193,891.32
	<u>634,138,318.61</u>	<u>428,986,952.64</u>
Total Assets	<u>828,671,128.18</u>	<u>593,788,871.82</u>
Liabilities		
Current Liabilities		
Trade & Other Payables	<u>37,630,462.00</u>	<u>28,709,328.80</u>
Total Current Liabilities	<u>37,630,462.00</u>	<u>28,709,328.80</u>
Non Current Liabilities		
Provision for Gratuity	102,885,191.25	83,742,063.75
	<u>102,885,191.25</u>	<u>83,742,063.75</u>
Total Liabilities	<u>140,515,653.25</u>	<u>112,451,392.55</u>
Total Net Assets	<u>688,155,474.93</u>	<u>481,337,479.27</u>
Net Assets/Equity		
Capital contributed by the government entities	260,921,077.64	225,713,890.26
Deferred Income	120,285,393.23	122,461,854.77
Revaluation Reserve	535,275,831.83	354,564,874.91
Accumulated surpluses/(deficits)	(228,326,827.77)	(221,403,140.67)
Total Net assets/Equity	<u>688,155,474.93</u>	<u>481,337,479.27</u>



Eng. Shavindranath Fernando
Chairman



Eng. D D Ananda Namal
Director General



D V S Perera
Director (Finance)

10. Statement of Financial Performances

Statement of Financial Performances for the Year Ended 31.12.2015

Figures in Rs.

	2015	Restated 2014
Revenue		
Transfers from the government entities	206,035,956.00	170,708,721.00
Deferred Income	39,230,133.16	53,806,701.25
Other Income	29,635,546.86	24,113,187.79
Total Revenue	274,901,636.02	248,628,610.04
Expenditure		
Administrative Cost	231,581,116.84	192,670,366.69
Other Expenses	10,308,676.36	6,789,858.18
Depreciation	39,889,214.21	66,097,563.14
Financial Cost	46,315.71	87,002.52
Total Expenditure	281,825,323.12	265,644,790.53
Surplus /(Deficit)for the period	<u>(6,923,687.10)</u>	<u>(17,016,180.49)</u>

11. Statement of Change in Equity

Statement of Change in Equity as at 31.12.2015

01.Note

Figures in Rs.

	Capital Introduced	Contributed Capital	Non Cash Grants from Treasury	Deferred Income	Capital from other sources	Revaluation surplus	Accumulated Surplus/(deficit)	Total Net Assets/equity	Re Stated Balance as at 31.12.2014
Balance as at 01/01/2014	1,000,000.00	59,188,572.09	33,850,000.00	135,432,307.32	119,985,089.87	355,653,347.74	(204,386,960.18)	500,722,356.84	537,852,355.37
Changes in equity for 2014									
Capital Grant received		43,026,477.00						43,026,477.00	50,701,292.66
Vehicle Grant			9,500,000.00					9,500,000.00	
Net of capital purchase less recoverable depreciation to Deferred Income		(40,836,248.70)		(12,970,452.55)				(53,806,701.25)	(60,555,653.84)
Surplus/Deficit for the period							(17,016,180.49)	(17,016,180.49)	(28,123,214.78)
Increase in revaluation reserve						(1,088,472.83)		(1,088,472.83)	847,577.43
Balance as at 31/12/2014	1,000,000.00	61,378,800.39	43,350,000.00	122,461,854.77	119,985,089.87	354,564,874.91	(221,403,140.67)	481,337,479.27	500,722,356.84
Changes in equity for 2015									
Capital Grant received		35,717,314.00						35,717,314.00	43,026,477.00
Vehicle Grant			7,975,000.00					7,975,000.00	9,500,000.00
Net of capital purchase less recoverable depreciation to Deferred Income		(37,053,671.62)		(2,176,461.54)				(39,230,133.16)	(53,806,701.25)
Capital Reserved from other sources					28,568,545.00			28,568,545.00	
Surplus/Deficit for the period							(6,923,687.10)	(6,923,687.10)	(17,016,180.49)
Increase in revaluation reserve						180,710,956.92		180,710,956.92	(1,088,472.83)
Balance as at 31/12/2015	1,000,000.00	60,042,442.77	51,325,000.00	120,285,393.23	148,553,634.87	535,275,831.83	(228,326,828.77)	688,155,474.93	481,337,479.27

12. Cash Flow Statement

Cash Flow Statement For The Year Ended 31st December 2015

Figures in Rs.

	2015	Restated 2014
Net cash flows from operating activities		
Surplus/(deficit) from ordinary activities	(6,923,687.10)	(17,016,180.49)
Non-cash movements		
Depreciation	39,889,214.21	66,097,563.14
Increase in provision for bad debts	(52,387.81)	(3,662,072.96)
Increase /(decrease) in deferred Income	(39,230,133.16)	(53,806,701.25)
Increase /(decrease) in payables	8,921,133.20	1,158,330.72
Increase /(decrease) in relating to employees costs	19,143,127.50	10,953,339.62
(Gains)/losses on sale of property, plant and equipment	10,205.65	261,256.62
(Increase) /decrease in other current assets	(9,478,500.33)	(1,326,294.70)
(Increase) /decrease in receivables	(5,909,306.25)	3,610,759.21
Net cash flows from operating activities	6,369,665.91	6,269,999.91
Cash Flow from Investment Activities		
Purchase of Assets	(29,950,900.85)	(36,813,534.90)
Proceeds from sales of equipment	2,207.20	9,937.65
Net cash flows from investment activities	(29,948,693.65)	(36,803,597.25)
Cash Flow From Financing Activities		
Capital Grant	35,717,314.00	43,026,477.00
Net cash flow from financing activities	35,717,314.00	43,026,477.00
Net increase/(decrease) in cash & cash equivalents	12,138,286.26	12,492,879.66
Cash & cash equivalent at beginning of the period	93,752,281.81	81,259,402.15
Cash & cash equivalent at end of the period	105,890,568.07	93,752,281.81

13. Notes to the accounts

Notes to the accounts as at 31st December 2015

1. Previous Year Adjustments

Ref	Description	Effect to the Performance		Figure's in Rs.
		2014	Before 2014	Effect to the Financial Position
1.1	Over provision in Staff Transport .	63,583.52		Accrued Expenses are reduced.
1.2	Over provision in Telephone bills.	349.08		Accrued Expenses are reduced.
1.3	Project No APH/COM/3/79/2014 has been understate by Rs 100,000.00 Before After Income:3,505,829.50 3,505,829.50 Cost :2,706,830.96 2,806,830.96	(100,000.00)		Current Liabilities will increase.
1.4	Maintenance of Motor vehicle account has been over debited by Rs 1,720.00 instead of settling the supplier Colour House.	1,720.00		Liability is reduced.
1.5	Excess high tensile wires return from SEC is taken as sundry income now reverse as they supply next consignment less that the excess supply.	(103,84.50)		Liability will increase.
1.6	Under provision of Audit Fees for the period 2012.		16,710.00	Liability will increase.
1.7	Salary arrears for S G J U Samarasinghe, M S Y V Perera, M Narayana, M C Silva.		(81,916.61)	Liability will increase
1.8	Over provision of Incentive in 2014.	1,791,407.52		Provision will be reduced
1.9	14IN0916invoice is issued to Income of RED/Com/61/2014 instead of taking as an advance paid for the Project No RED/COM/139/2014 .	(23,000.00)		Customer advance is understated
1.20	Over provision of expenditure CVL/COM/2/97/14 - 75,000.00 CVL/Pilot/81/13 - 50,000.00 RED/com/2/126/14 - 9,198.00 RED/com/2/139/14 - 14,131.01	(148,329.01)		Provision is Overstated.
1.21	Under provision of expenditure in CVL/COM/63/13.	1,524.25		Provision is understated
1.22	Advance received is taken as a income in CVL/COM/42/14.	(49,000.00)		Customer advance is understated
1.23	Nonmoving stock provision is reduced. The stocks which have declared as nonmoving is treated as slow moving stocks.	56,377.02		Non moving stock provision is overstated.
1.24	Over Provision of 2014 Research Incentive.	519,064.57		Liability will decrease.
1.25	Depreciation adjustment due to change of category.	30,354.38	202,241.15	Asset W D V will be decreased.

2. Deposits kept as securities for Guarantee Bonds

Guarantee is issued to	Bond No/Date	Certificates Pledge as securities	Amount Rs	Bank	Amount Rs
Toyota Lanka (Pvt) Ltd	Bank Guarantee- 15/2008-18/12/2014	C/33734579-507908	100,000.00	Boc-Ja-ela	75,000.00
Teaching Hospital Ragama	Bank Guarantee -8/2014-19/12/2015-18/12/2016	928952-76205517	1,000,000.00	Boc-Ja-ela	800,045.71
Department of National Zoological Garden	Bank Guarantee -9/2014-24/12/2014	928953-76205545 928954-76205556 928966-76222092 928967-76222223 928968-76222254 928969-76222265 These guarantee were released on 19/1/2016	1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00 1,000,000.00	Boc-Ja-ela	5,057,142.85

3. Temporary Deposits

Funds received as bond Income from NERDC employees who has left the services before completion of the bond is invested in State Institutions Temporary Surplus Trust Fund maintained at Bank of Ceylon on 30 the July 2012 Rs.8,994,089.90 and with dividends & interest it has increase to Rs. 11,467,716.93

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.

4. Re Valuation of Plant & Machinery ,Tools , Motor Vehicles, Office Equipment & Computer

NERDC asset values represent from year 1974 up to 31/12/2015.

Director General has appointed following members to do a proper identification and a revaluation of the above assets in revaluation of Plant & Machinery, Tools, Motor Vehicles, Office Equipment & Computer.

Professional Team appointed for Revaluation of Assets.

Department	Item Revalued	Name of the Member	Designation
APH	Plant & Equipment Lab Equipment tools	Eng.KYHD Shantha Mrs.PMYS Pathiraja Mr. SAP Salinda Silva Mr. Roshan Jayasinghe Mr.BR Karunarathna	Director APHT Research Eng: Research Eng: Accountant MA (Non Tech)
RED	Plant & Equipment Lab Equipment tools	Mr JAAD Jayasuriya Eng. NK Edirisinghe Mr BUC Kumara Mr. Roshan Jayasinghe Mr.BR Karunarathna	HOD/RED Research Fellow Research Eng: Accountant MA (Non Tech)
CIVIL	Plant & Equipment Lab Equipment tools	Eng. JAC Chrishanthi Eng. WWPK Perera Eng. WPRD Weerasinghe Mr. Roshan Jayasinghe Mr.BR Karunarathna	Director Civil Principal Re:Eng: Principal Re:Eng: Accountant MA (Non Tech)
Electrical & Electronic	Plant & Equipment Lab Equipment tools	Eng. N Wijesiriwardana Mr S Vidyarathne Mrs DRSK Wimalarathna Mr. Roshan Jayasinghe Mr.BR Karunarathna	HoD / E&E Senior Re: Eng. Research Eng: Accountant MA (Non Tech)
TMD Technology Park Museum	Plant & Equipment Lab Equipment tools	Eng. MAM Fernando Mr DV Wimalasena Mr AANS Adikari Mr. Roshan Jayasinghe Mr.BR Karunarathna	Director /TMD Principal Re:Eng: Superintendent – TP Accountant MA (Non Tech)
Machatronic Division	Plant & Equipment Lab Equipment tools	Mr DM Punchibanda Mr HPH Kumara MS Nadeera Sugandi Mr. Roshan Jayasinghe Mr.BR Karunarathna	OIC Machatronics Research Eng: Research Eng: Accountant MA (Non Tech)
Vehicle Maintenance	Plant & Equipment Lab Equipment tools	Mr AASP Jayasinghe Mr HMLU Herath Mr NADD Prasanna Mr. Roshan Jayasinghe Mr.BR Karunarathna	Director DF&CI Principal Re:Eng: Engineer Accountant MA (Non Tech)
E&EMC	Plant & Equipment Lab Equipment tools	Eng. KT Jayasinghe Mr TK Geeganage Mr KPDD Jayasekara Mr. Roshan Jayasinghe Mr.BR Karunarathna	Research Fellow Research Eng: Research Eng: Accountant MA (Non Tech)
CME & Work Shop	Plant & Equipment Lab Equipment tools	Mr AASP Jayasinghe Mr HMLU Herath Mr WHS Ramal Silva Mr. Roshan Jayasinghe Mr.BR Karunarathna	Director DF&CI Principal Re:Eng Superintendent -W/S Accountant MA (Non Tech)
APHT	Furniture Fittings Office Equipment	Eng.KYHD Shantha Mrs YMMK Ranathunga Mr PAU Wasantha Kumara Mrs Nandani Anhettigama Mr BR Karunarathna	Director APHT Principal Re:Eng: Engineer Accountant Assist: MA (Non Tech)
RED	Furniture Fittings Office Equipment	Mr JAAD Jayasuriya Mrs GSR Costa Mr BUC Kumara Mrs Nandani Anhettigama Mr BR Karunarathna	HoD / RED Research Eng: Research Eng: Accountant Assist: MA (Non Tech)

Department	Item Revalued	Name of the Member	Designation
CIVIL	Furniture Fittings Office Equipment	Eng. JAC Chrisanthi Mrs KKS Weerasinghe Mrs DMAK Digala Mrs Nandani Anhettigama Mr BR Karunarathna	Director Civil Engineer Engineer Accountant Assist: MA (Non Tech)
E&EMC	Furniture Fittings Office Equipment	Eng. KT Jayasinghe Ms NPT Perera Mr MD Ssahardeen Mrs Nandani Anhettigama Mr BR Karunarathna	Research Fellow Research Eng: Research Eng: Accountant Assist: MA (Non Tech)
TMD Technology park Museum	Furniture Fittings Office Equipment	Eng MAM Fernando Mr S Wijesuriya Mr AANS Adikari Mrs Nandani Anhettigama Mr BR Karunarathna	Director TMD Marketing Officer Superintendent – TP Accountant Assist: MA (Non Tech)
DFCI	Furniture Fittings Office Equipment	Mr AASP Jayasinghe Mr HMLU Herath Mr WHS Ramal Silva Mrs Nandani Anhettigama Mr BR Karunarathna	Director DF&CI Principal Re:Eng Superintendent -W/S Accountant Assist: MA (Non Tech)
Electrical Electronic	Furniture Fittings Office Equipment	Eng. N Wijesiriwardana Mr S Vidyarathne Mrs DRSK Wimalarathna Mrs Nandani Anhettigama Mr BR Karunarathna	HoD / E&E Senior Re: Eng. Research Eng: Accountant Assist: MA (Non Tech)
Machatronic Division	Furniture Fittings Office Equipment	Mr DM Puchibanda Mr HPH Kumara MS Nadeera Sugandi Mrs Nandani Anhettigama Mr BR Karunarathna	OIC Machatronics Research Eng: Research Eng: Accountant Assist: MA (Non Tech)
Vehicle Maintenance	Furniture Fittings Office Equipment	Mr.AASP Jayasinghe Mr.NADD Prasanna Mrs.Nandani Anhettigama Mr BR Karunarathna	Director DF&CI Engineer Accountant Assist: MA (Non Tech)
Administration, Accounts, Audit, Supply, Stores, Library	Furniture Fittings Office Equipment	Ms.DAM Munasinghe Mr.R Gamage Ms.RK Waidyasekera Mrs.Nandani Anhettigama Mr BR Karunarathna	M (HR) Asst.HR (Admin) Administrative Officer Accountant Assist: MA (Non Tech)
Vehicle Maintenance	Vehicle	Mr.KYHD Shantha Mr.HPH Kumara Mr.JMRS Jayasinghe	Director APHT Research Eng: Accountant
	computer	Mr.ARC Salgado Mr.B Wickramasooriya Mr.JMRS Jayasinghe	Principal Re:Eng Network Administrator Accountant
	Demonstration Items & Computer Software	Mr.ARC Salgado Mr.B Wickramasooriya Mrs.Nandani Anhettigama	Principal Re:Eng Network Administrator Accountant Assist:

In the process of re-valuation following criteria's are considered

Working condition of the asset.

1. Applicability of the technology or software in the asset.
2. Usefulness to the NERDC.
3. Market condition of the asset.

With reference to the Committee on Re-Valuation of assets “Revaluation committees have individually inspected and ascertained the present conditions of the items and placed the value evaluating the diversified criteria such as technological factors, inflation and present values, market factors ,cost and benefits, economical and diseconomies inherited to items. Therefore establish the values which were worked out applying best possible judgment.”

Asset Category	Cost	Accumulative Depreciation	Written Down Value	Revaluation	Figures in Rs.
					Revaluation Reserve
Demonstration Items	6,400,381.47	2,945,407.74	3,454,973.73	5,493,000.00	2,038,026.27
Software	9,125,415.30	6,494,360.29	2,631,055.01	5,907,043.71	3,275,988.70
Vehicles	70,716,472.21	38,407,442.44	32,309,029.77	61,450,000.00	29,140,970.23
Furniture Fittings & Office Equipm	79,379,614.49	62,838,529.91	16,541,084.58	37,287,523.59	20,746,439.01
Furniture and Fittings	14,995,892.88	9,148,790.02	5,847,102.86	11,996,092.07	6,148,989.21
Office Equipment	32,096,405.54	24,187,822.39	7,908,583.15	12,658,206.05	4,749,622.90
Computers	32,287,316.07	29,501,917.50	2,785,398.57	12,633,225.47	9,847,826.90
Plant & Machinery & Other Equipm	352,189,690.00	294,475,310.70	57,714,379.30	184,159,861.24	126,445,481.94
Plant Machinery	252,864,083.57	211,299,172.65	41,564,910.92	95,169,969.20	53,605,058.28
Equipments	68,273,785.18	55,673,258.95	12,600,526.23	84,682,173.00	72,081,646.77
Tools	31,051,821.25	27,502,879.10	3,548,942.15	4,307,719.04	758,776.89
Total	517,811,573.47	405,161,051.08	112,650,522.39	294,297,428.54	181,646,906.15

5. Provision for bad debts

Bad debt provision has been given on the assumption of discounted rate at 6.5%

Debtor	Amount Rs.	%	Reason	Bad debts provision Rs.
Hiriyala Economic Centre	637,056.40	100	Chairman, Member of the director board and high level officer had a meeting with BOI-as a results they said they will obtain an instruction from the department of Inland Revenue before settling to NERDC	637,056.40
Lakliya Kantha Govi Sanvidanaya	60,171.42	100		60,171.42
Industrial Technology Institute	316,342.86	100	Several correspondence were took place .It has been decided to inform through the Ministry .	316,342.86
Ministry of Science & Technology	277,909.94		100% provision has been made for bills outstanding before year 2014 and 31/12/2015 invoice has been discounted	115,500.00
A E Predeep	7,200.00	100	Several reminders were given but no response	7,200.00
Pradeshya Saba Katana	3,000.00		Discounted	183.10
Teaching Hospital Anuradhapura	317,369.39		Discounted	19,369.96
Total				1,155,823.74

6. Receivables

Mr. S M Azam in his letter dated 7/1/2016 has agreed to pay Rs.42,048.83

7. Vehicle Accident 2015

National Engineering Research & Development Centre of Sri Lanka

Vehicle Accident during the year

Vehicle Accident Report 2015

Vehicle No	Date of Accident	Estimated Cost of Damage (Rs.)	Insurance Agent	Claim Received Date	Claim Value Recoverd (Rs.)	Uncovered Amount (Rs.)	Un Recoverd Amount Settled by
PD - 8992	07.07.2015	480,578.66	SLIC	28.10.2015	480,578.66	-	-
KX - 7908	09.12.2015	10,000.00	SLIC	Pending	Pending	Pending	Pending
NB - 3275	23.01.2015	115,234.65	SLIC	29.07.2015	105,085.08	10,149.57	Management has decided to absorb the excess amount as the accident is not due to drivers fault.

.....
 Prepared by
 Management Assistant
 Transport Unit

.....
 Checked by
 Engineer (Maintenance)

.....
 Certified by
 Director (Human Resources)

Cash Flow Note For The Year Ended 31st December 2015

Figures in Rs.

	2015	2014
01. Cash Flow Operating Activities		
Receipts	62,345,244.16	96,537,014.99
Recurrent & Research Grants	206,035,956.00	170,708,721.00
Interest Received	3,975,587.71	2,927,839.99
Other Receipts	1,073,498.79	(349,264.00)
Payments		
Employee Cost	(188,632,559.28)	(3,175,918.37)
Superannuation cost	(3,824,382.00)	(72,788,724.13)
Supplies	(55,112,653.29)	(22,338,691.35)
Other Payments	(19,107,981.27)	(6,501,294.60)
Net Cash flow from Operating Activities	6,752,710.82	165,019,683.53
Cash Flow From Investment Activities		
Purchase of Assets	(29,950,900.85)	(36,813,534.90)
Proceeds from sales of equipment	2,207.20	9,937.65
Net cash flows from Investment Activities	(29,948,693.65)	(36,803,597.25)
Cash Flow from Financing Activities		
Capital grant	35,717,314.00	43,026,477.00
	35,717,314.00	43,026,477.00
Net increase/(decrease) in cash & cash equivalents	12,138,286.26	12,492,879.66
Cash & cash equivalent at beginning of the period	93,752,281.81	81,259,402.15
Cash & cash equivalent at end of the period	105,890,568.07	93,752,281.81

Notes to the Cash Flow Notes for The Year Ended 31st December 2015

2. Non cash Transactions	Figures Rs.	
	<u>2015</u>	<u>2014</u>
Vehicles received from Treasury	7,975,000.00	9,500,000.00
Refrigeration Laboratory	<u>28,568,545.00</u>	
	<u>36,543,545.00</u>	<u>9,500,000.00</u>
3. Cash & cash equivalent		
	<u>2015</u>	<u>2014</u>
Bank of Ceylon Ja-ela Branch A/C No.404949	392,345.92	381,331.98
Bank of Ceylon Ja-ela Branch A/C No.405005	159,300.51	36,075.60
Bank of Ceylon Ja-ela Branch A/C No.404956	904,924.84	2,441,123.13
Bank of Ceylon Corporate Branch A/C No.1667	2,140,477.33	2,758,470.42
Cash in Hand	1,055,802.54	1,470.00
Temporary Call Deposits-Ja-ela Branch	55,770,000.00	56,000,000.00
Temporary Call Deposits-Corporate Branch	34,000,000.00	21,000,000.00
State Institutional Temporary Surplus Fund	<u>11,467,716.93</u>	<u>11,133,810.68</u>
	<u>105,890,568.07</u>	<u>93,752,281.81</u>

14. Report of the Auditor General on the Financial Statement



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கணக்காய்வாளர் தலைமை அபிபதி திணைக்களம்
AUDITOR GENERAL'S DEPARTMENT



මගේ අංකය
எனது இல.
My No.

TEC/B/NERDC/1/15/33

ඔබේ අංකය
உமது இல.
Your No.

දිනය
திகதி
Date

07 November 2016

The Chairman

National Engineering Research and Development Centre of Sri Lanka

Report of the Auditor General on the Financial Statements of the National Engineering Research and Development Centre of Sri Lanka for the year ended 31 December 2015 in terms of Section 14(2) (c) of the Finance Act, No. 38 of 1971

The audit of financial statements of the National Engineering Research and Development Centre of Sri Lanka for the year ended 31 December 2015 comprising the statement of financial position as at 31 December 2015 and the statement of financial performance, statement of changes in equity and cash flow statement for the year then ended and a summary of significant accounting policies and other explanatory information was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with Section 13 (1) of the Finance Act, No. 38 of 1971 and Sub-section 2 of Section 29 of the State Industrial Corporations Act, No. 49 of 1957. My comments and observations which I consider should be published with the Annual Report of the Centre in terms of Section 14 (2) (c) of the Finance Act appear in this report. A detailed Report in terms of Section 13(7) (a) of the Finance Act will be issued to the Chairman of the Centre in due course.

1.2 Management's Responsibility for the Financial Statements

The management is responsible for the preparation and fair presentation of these financial statements in accordance with Sri Lanka Public Sector Accounting Standards and for such internal control 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.

අංක 306/72, පොල්දල පාර, බත්තරමුල්ල, ශ්‍රී ලංකාව. - இல. 306/72, பொல்துவ வ வீதி, பத்தரமுல்லை, இலங்கை. - No. 306/72, Polduwa Road, Battaramulla, Sri Lanka

+94-11-2887028-34

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oaggov@slt.net.lk

www.auditorgeneral.gov.lk



1.3 Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards consistent with International Auditing Standards of Supreme Audit Institutions (ISSAI 1000-1810). Those Standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Centre's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Centre's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of financial statements. Sub-sections (3) and (4) of Section 13 of the Finance Act, No. 38 of 1971 give discretionary powers to the Auditor General to determine the scope and extent of the audit.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

1.4 Basis for Qualified Opinion

My opinion is qualified based on the matters described in paragraph 2.2 of this report.



1.3 Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards consistent with International Auditing Standards of Supreme Audit Institutions (ISSAI 1000-1810). Those Standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Centre's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Centre's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of financial statements. Sub-sections (3) and (4) of Section 13 of the Finance Act, No. 38 of 1971 give discretionary powers to the Auditor General to determine the scope and extent of the audit.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

1.4 Basis for Qualified Opinion

My opinion is qualified based on the matters described in paragraph 2.2 of this report.



2. Financial Statements

2.1 Qualified Opinion

In my opinion, except of the matters described in paragraph 2.2 of this report, the financial statements give a true and fair view of the financial position of National Engineering Research and Development Centre of Sri Lanka as at 31 December 2015 and its financial performance and cash flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards.

2.2 Comments on Financial Statements

2.2.1 Sri Lanka Public Sector Accounting Standards

In terms of Sri Lanka Public Sector Accounting Standard 01, balances settled within 12 months after the date of reporting, should be shown as current liabilities. Nevertheless, provision for gratuity amounting to Rs. 3,027,915 payable to 05 officers to be retired within a period of 12 months had been shown as non-current liabilities.

2.2.2 Accounting Deficiencies

The expenditure of Rs.6,234,580 incurred on the repairs to the CNC Milling machine during the preceding years and the year under review had been brought to account as recurrent expenditure while the machine had been revalued at Rs.10,000,000 during the



year under review. As the capital expenditure had not been correctly identified, the revaluation surplus amounting to Rs.6,234,580 had been overstated while the effect on profits of preceding years had not been adjusted retrospectively.

2.3 Accounts Receivable and Payable

The following observations are made.

- (a) The balance 15 trade debtor accounts as at the end of the year under review amounting to Rs.8,506,214 included debtors balances amounting to Rs.637,056 older than 05 years.
- (b) Action had not been taken to recover the Value Added Tax amounting to Rs. 29,063,703 and Withholding Tax amounting to Rs. 239,092 recoverable from the Department of Inland Revenue for the period from the year 2005 to the year 2015.

3. Financial Review

3.1 Financial Results

According to the financial statements presented, the financial result of the Centre for the year ended 31 December of the year under review had been a deficit of Rs.6,923,687 as compared with the corresponding deficit of Rs.17,016,180 for the preceding year, thus the deficit of the year under review had decreased by Rs.10,092,493 as compared with the preceding year. Despite the increase in the administrative expenses and other expenditure by Rs.42,429,568, increase in the Government grants for recurrent expenditure and other income by Rs.35,327,235 and Rs.5,522,359 respectively and the



decrease in adjustment of amortization by Rs.14,576,568 and the decrease in depreciation by Rs.26,208,349 in the year under review had mainly attributed to the decrease in the deficit.

In analyzing the financial results of the year under review and 04 preceding years, the deficit amounting to Rs.26,169,768 of the year 2011 had further increased up to Rs.28,114,860 by the year 2013 while it had decreased to Rs.6,923,687 by the year 2015. Nevertheless, in considering the employees remuneration and the depreciation on non-current assets, the contribution of Rs.167,403,814 in the year 2011 had increased continuously up to Rs.238,575,440 by the year 2015.

4. Operating Review

4.1 Performance

In terms of the Notification published in the Gazette Extraordinary No.124/6 of 14 August 1974, the main objectives of operating the Centre are as follows.

- To make provision for the formulation of institutional systems for the development of technology science
- To facilitate the combination of technology, engineering and research skills of various industries and institutions of public and private sector, undertaking research, development of training activities, and to offer continuous consultancy services.
- To ensure the adaptation and use of mechanism of technology in compliance with the resources of the country and objectives of national planning
- To examine direct and indirect mechanism of technology transfer and offer counsel to appropriate government and private institutions, and to promote the optimal exploitation of the country's human and material resources, particularly labour and raw material resources by promoting the growth of suitable technology



- To design, manufacture and test prototype machinery, pilot plants as demanded by industrial, commercial and other end users in an economical manner
- To make arrangements to monitor technical data and documentation on engineering designs and researches

The following observations were made in the examination carried out with regard to the achievement of above objectives.

- (a) Action had not been taken to provide technology transfers in a manner to benefit the general public from the results of 16 out of the 24 new technologies and technological instruments introduced since the year 2010 up to the year under review.
- (b) According to the Action Plan, although it had been planned by the Designing and Consultancy Services Division to earn an income of Rs. 6,500,000 by completing 120 orders for the supply various dye and mould designing services, a sum of Rs. 1,686,000 had been earned by supplying only 50 services. The Centre had informed that the targets could not be achieved as the CNC Milling machine had become inoperative, thus that machine had been repaired at a cost of Rs.6,234,580 during the years 2013 and 2014 and in the year under review. Nevertheless, the expected targets could not be achieved.
- (c) Even though earning an income of Rs.4,500,000 had been targeted from the "Flap Gates" Project, only a sum of Rs.192,000 had been earned during the year under review and the targets had not been achieved.
- (d) Even though 100 per cent progress was expected as at 31 December from 02 projects implemented in the year under review, the progress achieved had been 70 per cent and 52 per cent respectively.
- (e) Even though 11 per cent progress was expected in the year under review in respect of the Development of Biomass Fuelled Temperature controllable Bakery Oven Project commenced in the preceding year, no activity whatsoever of the Project had been carried out in the year under review.
- (f) Even though the 08 projects commenced in the preceding years were planned to be completed from the provision of Rs.5,938,000 during the year under review, the progress



- of completion by the end of the year under review had ranged from 3 per cent to 55 per cent.
- (g) Even though 85 per cent physical progress had been expected to be achieved from the Design and Fabrication a Hyperbaric Oxygen Chamber for Hyperbaric Oxygen Therapy Project for which a provision of Rs.2,100,000 was made in the year under review, the actual progress achieved as at 31 December of the year under review had been only 32 per cent.
- (h) Even though sums aggregating Rs.630,667 had been spent for 02 Research Projects up to the year 2014, the research had not been completed within the relevant period and those 02 Projects had become inactive by the year under review.

4.2 Contract Administration

 The following observations are made.

- (a) Establishment of Biogas Unit – Teaching Hospital, Kurunegala

 The following observations are made.

- (i) Even though the Project for the Establishment of a Biogas Unit at the Teaching Hospital, Kurunegala was commenced in November 2014 at a cost of Rs.3,076,525(excluding tax) and expected to be completed by July 2015, the Project had been completed only in June 2016.
- (ii) As the locations proposed to set up biogas digesters were changed, additional machinery and labour had to be used , thus resulting in an additional expenditure of Rs.175,800. As such, the total expenditure of the project amounted to Rs.4,826,832 causing a loss of Rs.1,750,307 from the project.
- (b) As an agreement had not been reached with regard to the unit prices of the Project for the construction of Nurses Quarters Building of the Polonnaruwa Hospital as a project to be completed in the year 2013, a sum of Rs.7,185,063 shown as debtors since the year 2013 could not be recovered even by the end of the year under review. Further, sums totalling



Rs.810,254 spent on the adjustment of construction deficiencies during the year 2014 and in the year under review could not be recovered causing a loss to the Centre.

4.3 Staff Administration

The following observations are made.

- (a) Twenty six posts in the Executive Level had been vacant throughout the year under review and the Chairman informed that “the difficulty in retaining the officers was the main reason for these vacancies”.
- (b) It was observed in audit that the vacancies existing in 89 posts out of 357 posts of the total approved cadre had affected the delay in completion of projects planned by the Centre.

5. Systems and Controls

Deficiencies in systems and controls observed during the course of audit were brought to the notice of the Chairman of the Centre from time to time. Special attention is needed in respect of entering into agreements between the two parties before the commencement of commercial projects and the taking decisions on projects with a clear consensus between Project Implementation Division and the Finance Division.

H.M. Gamini Wijesinghe
Auditor General

15. Observation of the Members of Board of Directors with regard to the Report of the Auditor General on the Financial Statements of the National Engineering Research and Development Centre of Sri Lanka for the year ended 31st December 2015 in terms of Section 14(2)(c) of the Finance Act, No. 38 of 1971.

2.2. Comments on Financial Statements

2.2.1 Sri Lanka Public Sector Accounting Standards

Agreed and this will be corrected in year 2016.

2.2.2 Accounting Deficiencies

The expenditure of Rs.6,234,580 incurred to bring the CNC milling machine to working condition is a recurrent expenditure. Therefore in the revaluation we have not identified as an excess. Thereby retrospective adjustment is not done.

2.3 Accounts receivables & payables

(a) As at now creditors balance of Rs.8,506,214 is settled.

(b) Although we have been requesting the claim from Dept. of Inland Revenue continuously still we have not received the money.

3. Financial Review

3.1 Financial Results

Agreed.

4. Operational Review

4.1 Performance

(a) It is true that NERD Centre had introduced 24 technologies and technological products during the period between year 2010 and year 2015 and transferred 08 technologies to the interested parties. Before transferring the technologies to the interested parties, field testing and introducing product to the test market have to be done. Now we are in the process of the above activities for the rest of the technologies and technology transfer will be done in due course.

(b) This machine has been repaired during the years of 2014 and 2015, and it was reinstated in March 2015. But, it was commissioned and started manufacturing operations during the year 2015 May.

Hence the annual target forecasted for the year 2015 could not be achieved.

(c) We did not receive the requests from outside as we expected and no further efforts were taken to get more requests (orders) because the departmental workers and Technical Assistants had to be allocated for other departmental projects.

(d) Clarifications of these two projects are given below.

1. Development of Automated Tablet Envelop Production Technology

Though this project was planned to complete within the year, it was able to complete only 52% due to the priority was given for 3 other important projects.

The main reason for less progress of this project was due to not achieving the expected results in some steps of the activity plan: not achieving the expected results is a common nature of R & D projects; but necessary steps are being taken to rectify this.

2. Product Development and Commercialization of Automated Hopper Machine

We have achieved a considerable progress of 70%. Some special electronic components needed for this automated hopper machine were designed by us and imported from abroad in order to assemble the machine.

The main reason affected for the progress was unavailability of some components in the local market as expected.

(e) The one of major remaining activities to be completed was to conduct a field trials at an outside bakery. It was very difficult to find a bakery owner who wished to support this trial. In addition, we had to rectify an unexpected fault in control system. Finally, we were able to find a suitable bakery owner to start the field trials.

(f) Under this category there are eight numbers of projects in the audit report and clarifications are given below.

(i) Development of Automated Water Regulating Method with Flap Gates

The progress of the project is 36%. The project is conducted in collaboration with Department of Agrarian Service. Agrarian Services Department should provide the location to fix the fabricated flap gate. But, they were not able to provide the location within the expected time period. Even though, they provided the location, later, the prevailed bad weather did not allow us to install the gate at the location. After that Irrigation Department had provided traditional lifting type gate for urgency requirement at the same location. Now, Agrarian Service Department is in the view to provide another location for installation of the flap gate. The balance part of the project can be completed only after installation of the gate at the new location identified.

(ii) Development of Flue Gas Cleaning System

This project is done with Kurunegala Pradeshiya Sabha. The burner system has now been completed and it has to be installed in the crematorium once the construction of crematorium is completed by Pradeshiya Sabha. Pradeshiya Sabha has not completed the crematorium though the building has now been completed. Therefore expected progress could not be achieved during the expected time period.

(iii) Development of Aquatic Weeder

The progress of this project is 13%. It was required for frequent modifications to the initial design and this caused the slow progress. The tractor engine was needed to be coupled with the weeding machine and it took a longer period to find a suitable engine in the market and to purchase it.

(iv) Smart Parking Monitoring System and the Mechanization of Slip-form Wall Construction

We were not able to proceed both these projects according to work plan because several failures were identified in the design when implementing.

Therefore, we have to proceed the said projects by redesigning several stages. Due to this reason expected progress were not obtained according to the work plan.

(v) Study and Development of Image Processing Solution for Wound Treatment

This is a complicated project which is related to medical field and require expertise knowledge in the field. Therefore the progress was not achieved as we expected.

(v) Implementation of Fuel Wood Chips Feeding System in Tea Industry

NERDC developed a technology to feed fuel wood chips to the tea drying furnace in tea factories. Purpose of this technology to promote application of fuel wood chips in the form of chips in place of using as wood logs which is the problems associated with tea drying.

New Hopewell tea factory at Balangoda was selected through the formal procedure to implement this new technology in order to make this technology popular in the tea industry of Sri Lanka. An agreement was signed with New Hopewell tea factory for this purpose. According to the agreement, the tea factory owner had to do the following activities.

1. Provide facilities to install the technology in the tea factory
2. To use this newly developed “fuel wood chips feeding system” with Glidiciria fuel wood in generating heat in the drying.

Accordingly this “fuel wood chips feeding system’ was installed in the tea factory and tea drying was conducted using this technology with Glidiciria as fuel wood for few days. But the tea factory owner was unable to find and purchase Glidiciria fuel wood for this purpose per the agreement. Therefore, NERDC purchased fuel wood and conducted the testing and demonstration of the new machine.

However, NERDC Engineers had to stop conducting of testing and demonstration of this new technology because it was difficult to allocate days from the tea factory to conduct it. As a result we had a meeting with the owner of the factory and discussed the issues and finally proposed to find a new factory to conduct the testing and demonstrations. Meeting had with the tea factory owner and discussed the issue and a new tea factory was proposed to conduct the testing and demonstration.

After inspection of the new location the research team had requested a period of two months’ time to make required modifications to the machine before installation.

Then the research engineers were requested to forward their recommendations to take a decision on this project. They had suggested to find a new client as the New Hopewell seems to be not interested in this project.

(vii) Re – Engineering of Small Scale Milking Machine

The target for the year 2015 was 70% (about 30% had been completed during year 2014.) The progress achieved in 2015 is 55%. We had to import some components required for this machine from India and due to this reason, we could not achieve the expected progress during the year 2015.

(viii) Design and Fabricate a Hyperbaric Oxygen Chamber

This is a novel medical instrument to be used for Sri Lankan patients under treatment of Hyperbaric Oxygen Therapy. Having understood the importance of this special treatment, information were collected from medical doctors including specialists in the field in order to overcome the technological and other issues. Accordingly the instrument was designed as per the accepted standards and codes. With these information time taken for the design to complete was much more greater than that of expected and it was able to complete by end of December 2016.

Therefore, there was no major expenses as expected since the fabrication has not been started during the year.

- (g) This is a medical instrument used to provide Hyperbaric Oxygen Therapy for patients, recommended and accepted by doctors who practice western medical system. Design of the machine has already been completed and fabrication process is now in progress. Few monitoring devices with some material have been ordered from overseas in order to avoid further delays. Substantial amount of money have been allocated to be spent for purchasing of the monitoring devices.

But, there is an unavoidable and unexpected delay in selecting the right item and this has affected to the expected progress.

(h) Clarification for these two projects are :

1. Wood Gas stove

This project is further development of the Wood Gas Stove which has been introduced by Centre and being used in the country. Based on the feedbacks from users, this project was started in 2014 to improve the technology further.

Based on the requests from majority of end users; aim of starting this project was to improve with facility of automating the feeding of wood chips to the stove. Though, we have tried several times to achieve this requirement, it was failed technically. Therefore, it was decided to stop this project as it was in vain to the resource and time.

2. Implementation of fuel wood chips

NERDC has developed a technology to feed fuel wood chips to the tea drier furnace in tea factories. Purpose of this technology to promote application of fuel wood chips in place of using as wood logs which has been the conventional problems.

New Hopewell tea factory at Balangoda was selected through the formal procedure to implement this new technology in order to make this technology popular in the tea industry of Sri Lanka. An agreement was signed with New Hopewell tea factory for this purpose. According to the agreement, the tea factory owner was to do the following activities.

1. Provide facilities to install the technology in the tea factory
2. To use this newly developed “fuel wood chips feeding system” with Glidiciria fuel wood in generating heat in the drying.

Accordingly the “fuel wood chips feeding system” was installed in the tea factory and tea drying was conducted using this technology with Glidiciria as fuel wood for few days. But the tea factory owner was unable to find and purchase Glidiciria fuel wood for this purpose as per the agreement. Therefore, NERDC had to purchase fuel wood with great difficulty and conducted the testing and demonstrations of the new machine for few days.

The other issue was allocation of days for testing and demonstration of the new technology, in this technology factor without interruption to their tea production.

As a result of the discussion held to address these issues tea factory owner agreed to give another tea factory to conduct this testing and demonstration. The team of researchers inspected this alternative location and requested another two months period to modify the machine to suit the new location.

Accordingly a decision is to be taken on continuation of this project.

4.2 Contract Administration

- (a) Establishment of Biogas Unit – Teaching Hospital, Kurunegala
 - (i) It was intended to use a backhoe machine for excavation. However as the Hospital authorities changed the location to inaccessible places the excavation had to be done manually. Heavy rain and falling of side of digester walls had aggravated the situation and taken a longer period of time which had consuming more labour.

Transporting of raw material to the site also had the same issue. Therefore project could not be completed within the expected period.
 - (ii) Above delays and consuming more labour than expected were caused to increase expenditure beyond estimated value.
- (b) Approval for the unit rates for extra work items for Construction of Nurses Quarters Building at Polonnaruwa area was granted on 07.07.2016 by the Standing Technical Evaluation Committee of Ministry of Housing and Construction.

Accordingly the Final Bill, amounting Rs. 26,484,090.30 (Including Taxes) was submitted to the Ministry of Health, Nutrition and Indigenous Medicine on July 29, 2016.

While the Bill Checking was proceeding, Ministry Officers requested for Measurement Sheets for extra works and the same was submitted on 21.11.2016 to the Ministry of Health, Nutrition and Indigenous Medicine.

The amount spent for rectifying the defects noted within the defects liability period amounting Rs. 810,254.00 can be settled by the retention money withheld by the Ministry of Health, Nutrition and Indigenous Medicine which is due to us. Once the retention money is received we have no loss due to maintenance expenditure.

4.3 Staff Administration

- (a) Vacancies of the executive level were in the positions of engineering services. Filling of these vacancies is a very big issue due to less salaries and remuneration for engineering staff of the Centre compared with private sector and fully government sector.
- (b) Approved cadre of the Centre by the Department of Management Services on 28.12.2015 is 357 in which 47 cadre have been approved as personal to the present holder of these positions as per the restructuring based on Scheme of Recruitment in line with the Circular DMS 30. These 47 cadre positions will be abolished as a result of resignation/ retirement or promotion (to another post) of the holders of these posts.

Accordingly approved cadre positions which has to be filled vacancies are only 310 and cadre as at 31.12.2015 was 268. Then the 89 Nos. of difference, mentioned above could not be reckoned as vacancies.

At the several times in the year 2016, several vacancies were filled and the total No. of cadre by now (to the date of 20.12.2016) is 291. Further there are 05 Nos. to be registered as new appointments in January 2017.

Vacancies occur always in Engineering positions in the categories of Senior Manager (HM), Senior Academic/ Research (AR 2), Academic/ Research (AR 1) and post of Technical Assistant in Management Assistant (Technological) category. By now, there are 18 Nos. of vacancies in said positions.

The Centre confronts the issue of filling vacancies in the above positions continuously due to present salary scales allocated for these positions and high rate of turnover of these positions.

In addition to the above, the vacancies exist is 12 Nos. and it is noted that the recruitment for filling these vacancies will be done as per the service requirements of the Centre.

5. Systems and Control

Looking forward to take appropriate actions in the future.



Eng. D D Ananda Namal
Director General



Eng. Shavindranath Fernando
Chairman