



2017

வாரீகை வாரீகை வருடாந்த அறிகுை ANNUAL REPORT



தலீத தாகீகை கீகீகை அாதர் கீ கீலாக் அாதததத.

நவீன ததாழில்நுட்பவியலுக்கான ஆர்தர் கி.
கிளார்க் நிறுவகம்.

Arthur C. Clarke Institute for Modern Technologies.

Content

1.0	General Information	01
2.0	Executive Summary	03
3.0	Divisions of the Institute	05
4.0	Projects of National Interest	06
5.0	Research Programmes and Technological Services	09
5.1	Industry-Initiated Research & Development Activities in Engineering/IT	09
5.2	In-house Research and Development Projects in Engineering/IT	10
5.3	Research projects in Astronomy	14
5.4	Research in Space Technology Applications	15
5.5	Patents and Publications	17
5.6	Test and Measurements, Hardware Recovery and Consultancy Services	17
6.0	Training, Educational Programmes and Information Dissemination	20
7.1	Continuing Professional Development (CPD) Training Programmes for professionals	20
7.2	Basic and Intermediate Level Technical Training	21
7.3	Science & Technology Popularization and Information Dissemination	21
7.0	Human Capacity Development	24
8.0	Final Statements of Year 2017	25
8.1	Statement of Financial Position	26
8.2	Statement of Financial Performance	27
8.3	Detailed Financial Performance	28
8.4	Statement of Cash Flows	30
8.5	Notes to the financial statements - Significant Accounting Policies	31
9.0	Summary of short and medium activities planned	45
10.0	Auditor General Report 2017	46
11.0	Answers to the Auditor General Report	55

Arthur C Clarke Institute for Modern Technologies
Katubedda,
Moratuwa.
2019.05.23

Hon. Minister of Science, Technology & Research
Ministry of Science, Technology & Research,
3rd Floor, Sethsiripaya Stage 1,
Battaramulla.

Hon. Minister,

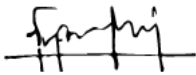
**Annual Report of the Arthur C Clarke Institute for Modern Technologies for the period
from 1st January to 31st December 2017.**

In terms of section 40 of part VII of the Science & Technology Development Act. No. 11 of 1994,
amended by Act No.32 of 2013. I have honour to submit herewith the Annual Report of the Arthur C
Clarke Institute for Modern Technologies for the year 2017 along with,

- (a) A copy of the Audited Statement of Financial Performance
- (b) A copy of the Audited Statement of Financial Position and
- (c) Auditor General's Report and the Observations of the Institute on the same,

for being submitted for the approval of the Cabinet of Ministers.

Yours faithfully,



.....
Director General & CEO
Arthur C Clarke Institute for Modern Technologies

1.0 General Information



Governing Legislation

The Arthur C Clarke Institute for Modern Technologies (ACCIMT) is a statutory corporation operating within the purview of the Ministry of Science, Technology, Research, Skills Development & Vocational Training and Kandyan Heritage. The ACCIMT was established on April 1, 1998 by the Science and Technology Development Act. No. 11 of 1994, amended by Act No.32 of 2013 of the Parliament of Sri Lanka, as successor to the Arthur C Clarke Centre for Modern Technologies (ACCMT) established by the Act No. 30 of 1984.

The functions of the Arthur C Clarke Institute for Modern Technologies as specified in the Act are as follows:

(a) *to accelerate the introduction of modern technologies to Sri Lanka by*

- (i) initiating, promoting and conducting research and development in the application of modern technologies
- (ii) providing research and development support to the Government and private sector undertakings in the application of modern technologies
- (iii) training of personnel in modern technologies to meet the needs of the Government and private sector undertakings

(b) *to promote future studies*

The areas of modern technologies include Communication and related Sciences, Information Technology, Electronics, Micro-electronics, Space Technologies, Robotics, Photonics and New Materials.

Vision

To be a leading Innovation Centre for Modern Technologies in the region.

Mission

To develop, foster and facilitate the domestic base of modern technological capabilities through innovation, R & D, training, industrial services and international collaboration.

Governing Ministry

Ministry of Science, Technology, Research, Skill Development & Vocational training & Kandyan Heritage.

Members of Board of Governors

1.	Prof. Kemal Deen	Chairman (Jan 2017 to October 2017)
2.	Prof. D A Tantrigoda	Chairman (w.e.f - November 2017)
3.	Eng. Sanath Panawennage	Member Board of Governors & Director General/CEO
4.	Prof. A K W Jayawardena	Member, Board of Governors (till Oct 2017)
5.	Prof. K K C K Perrera	Member, Board of Governors (w.e.f Dec. 2017)
6.	Mrs. S A C Kulathilaka	Member B oard of Governors (till June 2017)
7.	Prof. (Mrs). Dileeka Dias	Member, Board of Governors
8.	Prof. Chandana Jayaratne	Member Board of Governors
9.	Mr. Ashley De Vos	Member Board of Governors
10.	Mr. K M C Fernando	Member Board of Governors
11.	Prof. P S M Gunerathne	Member Board of Governors
12.	Prof. Gamini Senanayake	Member Board of Governors
13.	Mr. M A S Weerasinghe	Member Board of Governors (w.e.f Nov. 2017)
14.	Mrs. Wasantha Perera	Member Board of Governors (w.e.f Nov. 2017)

List of Board meetings held during 2017

Meeting No.	Date of Meeting
2017/01	19/1/2017
2017/02	16/2/2017
2017/03	16/3/2017
2017/04	27/4/2017
2017/05	18/5/2017
2017/06	15/6/2017
2017/07	20/7/2017
2017/08	17/8/2017
2017/09	21/9/2017
2017/10	19/10/2017
2017/11	16/11/2017
2017/12	21/12/2017

2.0 Executive Summary



During the year under review, the institute made substantial progress in its overall performance in the areas of research and development, technological services, training and consultancy services as well as actively contributing to overall national technological capacity development in its domains of specialization. This was achieved whilst the performance of the institution was being continually affected by the two longstanding constraints, namely difficulties in recruiting and retaining the core research and technical staff due to low remuneration, and the administrative and financial restrictions affecting the efficiency of operations.

The most significant achievement of the year was the initiative made by the institution to commence development of a Nanosatellite in technology collaboration with the Kyushu Institute of Technology (Kyutech), Japan. The project, which is undertaken under the ACCIMT's programme for Acquisition and Development of Sri Lanka's National Capacity in Space Technologies, is envisaged to result in the development and launch of the first ever satellite to be developed by Sri Lankan Engineers.

The programme for Space Technology Capacity Development also made substantial progress in relation to its collaborative initiatives with the Russian Federation. The Chairman and the Director General ACCIMT signed two Memoranda of Understanding with the State Space Corporation of the Russian Federation (ROSCOSMOS) and Sumara State Aerospace University (SSAU) during the visit made to the Russian Federation in March 2017 by a delegation comprising the Hon. Minister of Science, Technology and Research and the Chairman and the Director General of ACCIMT. This was soon followed by a specialized training programme on Nano Satellite Development conducted at SSAU for a Group of 17 Engineers of the ACCIMT's Nano Satellite Development Team.



The continuing project for establishment of a National Hub for Receiving and Distribution of Earth Observation Satellite Data made significant progress in the Year 2017. To commence with a 15 acre block of land has been allocated at Horagala, Homagama within the premises of "Tech City", established under the Western Megapolis Master Plan by Urban Development Authority.

The institute was able to successfully deliver a number of customer specified technology solutions during the year under review. The technology solutions include launching of breast cancer Mobile App in collaboration with Mobitel (Pvt.) Ltd. and Faculty of Medicine, University of Kelaniya, development of a system to collect rainfall data through SMS for Department of Agrarian Development, development of CCTV security surveillance system for National Water Supply and Drainage Board and vehicle tracking and fuel level monitoring system for fleet management for Sri Jayawardenapura General Hospital. Apart from that number of in-house research, design and development projects have either initiated or successfully continued during the year. The projects falling into this category were design and development of high performance surge protector suitable for equatorial belt countries, tea colour grading system, library process automation using RFID, fixed wing UAVs, all terrain rover platform, drones for various applications, automated irrigation system and Ethernet based display system to display time synchronized with network.

During the year under review, three astronomy related major research projects were undertaken and a research paper titled “Light curve analysis of CC Andromeda” was published at Postgraduate Research Symposium-2017 of University of Colombo. In addition, the scientists attached to the division supervised final year projects of three Physics Special Degree students of Rajarata, Colombo and Sri Jayawardenapura universities.

Further three research projects were undertaken in the area of space technology applications namely, potential of use of integrated hyper-spectral and multi-temporal multispectral satellite imagery data for small scale land use and land cover mapping in Sri Lanka, Geographic Information Systems for niche modeling of infectious diseases using remotely sensed environmental factors and boosted regression trees and mapping mangrove species using hyper-spectral remote sensing.

There was substantial demand for industrial services including electrical and electronic test and measurement equipment calibration, performance testing of various types of electronic equipment, accessories and modules, lead acid batteries and surge protective devices, testing and measurement services provided for communication, power and broadcasting sectors and other consultancy services offered by the institute to the industry. For the year 2017 about 370 performance test reports were issued and about 125 instrument calibration jobs were performed. Apart from that a significant number of consultancies, measurements and advanced hardware recovery assignments were undertaken by the institute.

Further the institute conducted four Continuing Professional Development (CPD) programmes namely, Programmable Logic Controllers, Embedded Control Systems, Workshop on Electronics, Communications and Radio Frequency Systems and Earth Science Systems primarily targeting engineers, technologists and other professionals from public and private sector organizations. The institute also conducted two training programmes in astronomy and electronics targeting school children and enthusiasts. These training programmes continued to enjoy substantial demand from targeted audience and about 138 professionals and 120 school children and enthusiasts attend for CPD and other training programmes respectively.

Eng. Sanath Panawennage

Director General and CEO.

3.0 Divisions of the Institute



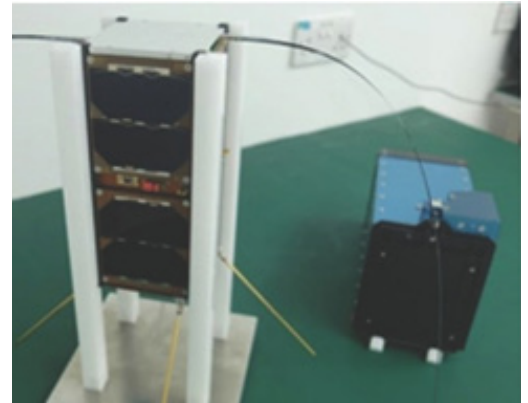
- **Electronics and Microelectronics Division**
- **Communications Division / Robotics Division**
- **Industrial Services Division**
- **Space Technology Application Division / Space Technology Division / Astronomy Division**
- **Information Technology Division**
- **Administration, Finance and Human Resources Division**

4.0 Projects of National Interest

Nanosatellite Project

Coinciding with Sri Lanka's space programme and with some successful initiations to design and develop a 3U Nanosatellite with the help of Russia, several achievements were completed during the year 2017.

Considering the necessity of effective collaborations with national institutions of countries with advanced technological capabilities in space, for the development of Sri Lanka's national capabilities in said field, the Arthur C Clarke Institute for Modern Technologies (ACCIMT), as the state institution with mandate for developing national capabilities in Space Technologies, has initiated collaborative efforts with the Russian State Space Corporation (ROSCOSMOS) and Samara National Research University (SNRU) of the Russian Federation.



A visit was made by a delegation comprising the Chairman and the Director General of ACCIMT, the Hon. Minister of Science Technology and Research ACCIMT to ROSCOSMOS and SNRU, during March 26 – 29, of 2017, immediately following the State Visit of the HE the President to Russia. As a result, major progress was achieved toward stronger and closer cooperation in Space Technology capacity development with the above two national institutions of Russia.

Given below are the key outcomes of the negotiations held during the above visit.

- Nano satellite development, consultancy, testing facility usage and collaborations with the Samara National Research University (SNRU)
- ROSCOSMOS launching facilities for the launch of the Nano Satellite being developed by the ACCIMT.

Project progress made during the Year 2017 can be summarized as below.

As a continuation of the capacity development programme initiated in 2016 by conducting the “Kick off workshop on Nanosatellite technology”, it was decided to develop basic competences in designing, testing and launching of Nano satellites as the 2nd

stage of the project. As a result, a senior and a junior team visited SNRU, Russia, for two weeks and one month respectively. The junior members of the project technical team were given a comprehensive specialized training “Nano satellite design basics” while the senior members who were driving the technical activities of the project, given adequate exposure to the related areas of specialized satellite related technology.

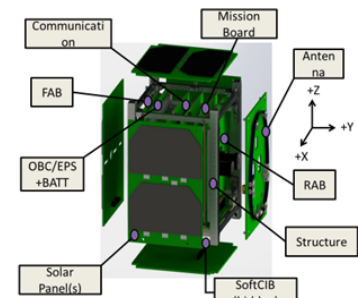


Design, Development and Launching of the first cube satellite of Sri Lanka (BIRDS-3) RAVANA-1

The institution commenced this nano-satellite development project as part of its programme on space technology capacity development, in technology collaboration with Kyushu Institute of Technology (Kyutech), Japan. The 1 Unit (1 U) nano-satellite developed under the project is planned to be launched by, mid 2019 with the launching support from JAXA. The specific tasks of the development stage are On Board Computer (OBC) sub system, Communication and Antennas sub system (CommAnt), integration of a magnetic radiation sensor, data Store and Forward (S&F) payload generating from remote ground stations and imaging device. By the end of year 2017, the Mission Definition Review (MDR) was completed.



BIRDS -3 satellite overview (Ravana-1)



Establishment of a national hub for receiving and distribution of earth observation satellite data

The use of Earth Observation and Remote Sensing (RS) data as an effective resource planning and management tool for the country's development activities is hindered due to problems such as, unavailability of RS data at affordable costs and lack of coordination of the use of data and applications amongst relevant organizations. In the long-run, it is a hindrance to the development of country's overall capabilities in the area of space technologies.



The objective of this project is to make the Remote Sensing data available to other organizations at affordable costs and thereby promote the use of space technology for the development of the country and eliminates the above deficiency in our overall national technological capabilities and to enable optimal use of space derived data and tools in country's development efforts. The initial proposal submitted in this regard by the Arthur C Clarke Institute for Modern Technologies (ACCIMT) was approved by the National Planning Department in 2013. Subsequently in September 2016, a 15-acre block of land has been allocated for the purpose at Horagala, Homagama within the premises of 'Tech City' that is being established under the 'Western Megapolis', by the Urban Development Authority (UDA).

Wireless Secured Data Logger

In 2015 the true RMS voltage recorder with enhanced memory was developed for Public Utilities Commission of Sri Lanka and in 2016 a logger with remote monitoring capabilities was developed incorporating more advanced features.

The current project is aimed at transferring the data in a more secure manner by adding another layer of security and to provide two way communications between the user and the logger. This facility will allow the user to vary the recording parameters as per his/her own requirements. Additionally the feature to store data in case of link failure between the logger and the server and re transmit once the link is established is also included.



Establishment of SAARC satellite receiving facilities

The SAARC satellite (Geostationary) was launched and currently in operation for the benefit of the SAARC countries and the ACCIMT is entrusted to handle the services providing to Sri Lanka. As part of this initiative, a demonstrable system with basic facilities is installed at ACCIMT. Further systems are to be purchased in future to provide full range of benefits to government institutes, educational establishments and to the society by providing remote connectivity from a central location, Eg. Tele-education, Remote Internet, Remote data link.



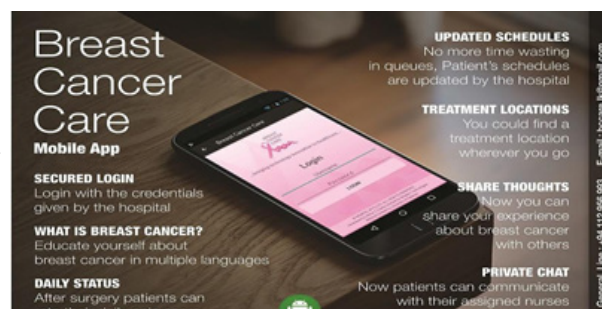
5.0 Research Programmes and Technology Services



5.1 Industry-Initiated Research & Development Activities in Engineering /IT

Development of “Brest Cancer Care” Mobile App

“Breast Cancer Care” mobile app is the first comprehensive app in its kind and the ACCIMT developed this mobile app in collaboration with Mobitel (Pvt) Ltd., and Faculty of Medicine, University of Kelaniya. This app helps to increase patient’s awareness of the disease, reduce the number of patient’s visits to hospital as well as clinics, keep track of treatments/ history, collect data for research, etc. This Mobile App fully was launched in October, 2017.



Development of a System to Collect Rainfall Data through SMS

This system was developed for the Department of Agrarian Development and the new system collects data through SMS and automatically feed the same to a database. An authorized person can view the information by accessing the database via internet. The system enables to produce reports as per specific user requirements. The new system is going to replace prevailing inefficient paper-based process.

Daily Rainfall Data Collecting Network at Agrarian Center (ASC) Level by the Department of Agrarian Development

Home

Data

Report

Info

Map

Logout (admin)

Home > Rainfall Data > Rainfall to Spreadsheet

Center Wise

District Wise

Manage Rainfall Data

You may optionally enter a comparison operator (<, <=, >, >=, < or >) at the beginning of each of your search values to specify how the comparison should be done.

Advanced Search

Operations

List Rainfall Data

Add Rainfall Data

Displaying 1-10 of 3832 result(s)

Division	Center Name	Center ID	Module No	Send Date	Date (yyyy-mm-dd)	Rainfall	
Tincomalee	WUTUR	1513	94779708457	2018-02-26	2018-03-04	0.00	 
Tincomalee	WUTUR	1513	94779708457	2018-02-26	2018-03-04	23.00	 
Compaha	WIKUNWAGODA	26	94765488863	2018-03-05	2018-03-05	0.00	 
Makara	Wadhapodagama	81	94714887420	2018-03-05	2018-03-05	8.00	 
Alpura	DAMANA	159	94775383249	2018-03-05	2018-03-05	0.00	 

Development of CCTV security surveillance systems for National Water Supply and Drainage Board (NWSDB)

This project was to design, develop and install security surveillance systems at four NWSDB sites namely Ambatale, Biyagama, Thelawala and Ratmalana. The installation work at above four sites was completed. This project was undertaken by the Communication Division of the institute.

Vehicle tracking and fuel level monitoring system for fleet management

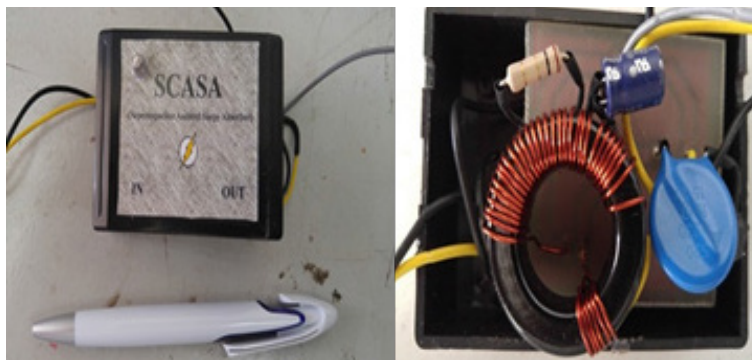
This product uses GSM/GPRS technologies for real time positioning and tracking of vehicles. The system also equipped with facilities to monitor the fuel level of the vehicle using existing fuel sensor. In-house version and the system for Sri Jayewardanepura General Hospital were completed and both systems are in operational status.



5.2 In-house Research and Development Projects in Engineering /IT

Design of High Performance Surge Protector Suitable for Equatorial Belt Countries

This project is to design and develop a high performance surge protector which can protect electronic systems against external transient surges and the product is specially suitable for equatorial belt countries like Sri Lanka. The Prototypes was developed and laboratory tested for the differential mode.



Further design work is currently underway for common mode and proof of concept and laboratory testing of initial prototype is in progress.

Power over Ethernet

This project is to develop an Ethernet based display system to show the time synchronized with the network.



Automated Irrigation System

This system monitors the soil moisture and controls the flow of water as per the required set levels. By using automated irrigation systems, vegetations can be maintained with less labor. Further a properly designed irrigation system help farmers to use water efficiently with minimal loses mainly due to runoff, deep percolation, or evaporation.

Design and development of Drone for various applications

Using the know how acquired previous year on the drone technology, during year 2017 progress was made developing advanced flight control algorithms for applications in imaging, advertising and video surveillance. Design, development and initial flight testing with payloads were undertaken for two drones, which includes hexa copter design for 5kg payload.

New developments will be carried out next year for applications such as photogrammetry, digital elevation modeling, etc.



Xilinx FPGA based Tea Color Grading System

With the successful completion of the phase 1 (proof of concept), phase 2, development of the Xilinx FPGA based image processing and decision making implementation on the version-1 of the mechanical system is in progress. Electronic system developments are in final stage, whereas mechanical developments related to tea particle flow guides yet to be completed.

According to tea samples processed, the system is capable of sorting the samples to an acceptable level compared to machines available in the market.



Library Process Automation using RF-ID

The RF-ID technology based tagging for both books and users are used for automating the library functions, incorporating necessary tag reading devices and development of software for a dedicated Management Information System (MIS) for library operations. The system was completed at pilot testing level and currently installed at the library of the ACCIMT, and system data feeding is in progress.



Design and Development of Fixed Wing UAV

This project was started to design and develop UAVs at affordable cost for various applications in agriculture, surveying, forestry, disaster management, etc. with relevant payloads which can be used for photogrammetry and 3D modeling. In Sri Lanka use of UAV's are restricted due to high cost and special skill requirements. The aim of this project is to promote local UAV usage in par with international level. Different low cost UAV types are also developed to address areas such as piloting skills development.

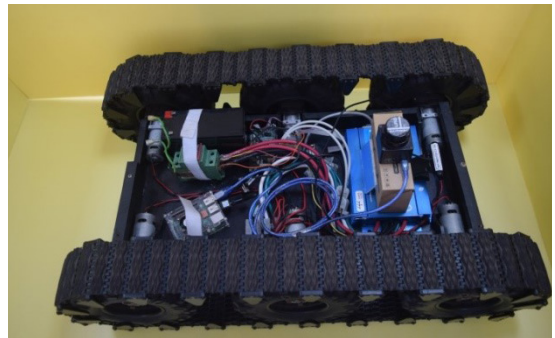
The UAV version-1 was completed and plans to be used for demonstration purposes. The current UAV developments focus on building machines, which facilitate auto pilot as well as manual controlling and ability to carry imaging payloads with GPS data tagged images at selected durations.



Design and Development of All terrain Rover Platform (6X6)

The requirement is to develop a high powered all terrain rover (water proof), capable of navigating through extreme gradients and hard terrains while all vital internal parameters be monitored remotely.

The system incorporates 2D Simultaneous Localization and Mapping (SLAM) implemented using Laser Ranger Finder (LRF) for autonomous navigation where the system is implemented using Robot



Operating System (ROS).

Currently the system prototype is completed and exploring for applications of unmanned ground requirements in jungles, mine clearing, etc.

RF Radiation measurement survey and preparation of the report

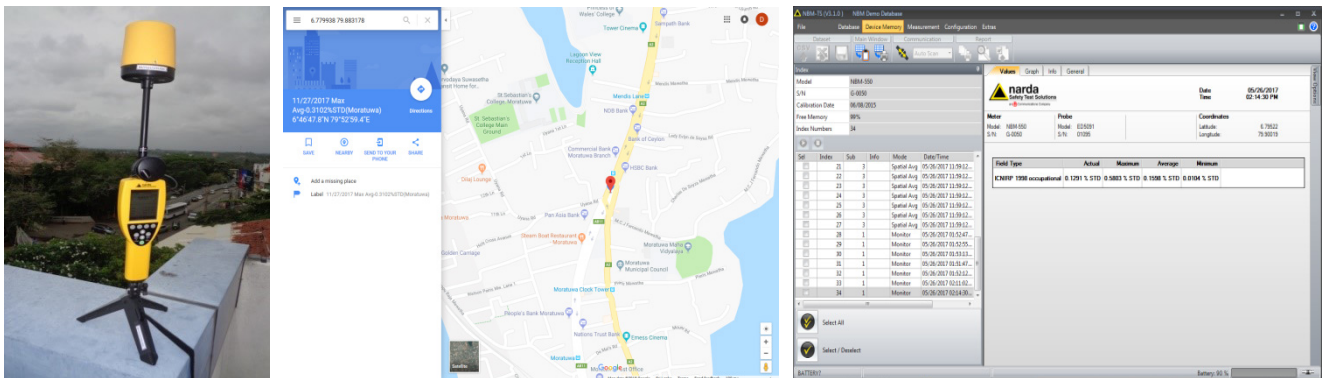
ACCIMT is presently engaged in a survey on studying RF Exposure on general public, at the country level following the standards of International Commission on Non-Ionizing Radiation Protection. For the proposed study the ACCIMT plans to collaborate with;

Central Environmental Authority (CEA)

Telecommunication Regulatory Commission (TRC)

World Health Organization (WHO)

The survey will be carried out in 154 major cities covering all 25 districts in Sri Lanka. Currently the project is in progress with sample data collection.



Information Systems Development Projects

Integrated Management Information System for ACCIMT

The following software systems were further developed and modified in 2017 to enhance the efficiency of internal administration process of the institute.

- Procurement Management System
- Calibration Management System
- Project Registration System
- Equipment Maintenance System
- Payroll System
- Leave and Attendance System
- Accounts System
- Vehicle Movement and Maintenance System
- Invoice System
- Personal Information and Board Meeting Information.

Improvements to Power Electronics Measurement Laboratory

Commenced cycling testing of batteries as per SLS1126

Cycling test represents the ability of a battery to perform repeated discharge / recharge cycles and long rest periods on open circuits. This ability of a battery is being tested by a series of cycles and rest periods under specified conditions after which the cold cranking or the capacity performances are determined.



Designed a lift table for lifting up heavy objects

This is an automated table to lift heavy objects with up down movements..

5.3 Research Projects in Astronomy

Mode Identification of Oscillations of Delta Scuti type stars using multicolor photometry and high resolution spectroscopy

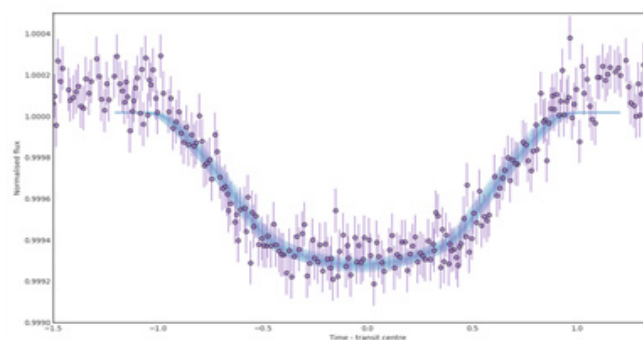
The data taken from Mount Abu Observatory for two Delta Scuti type variable stars namely SZ Lyn and CC And were analyzed. The analysis of photometry data of CC And was completed. Research paper for Monthly Notice of Royal Astronomical Journal was finalized and circulated among co-authors for comments. The results of the frequency analysis of CC And, was published in Postgraduate Research Symposium-2017, University of Colombo. The data of SZ Lyn taken from SUPER WASP and AAVSO are also analyzed.

Study the relationship between super hump and orbital period of SU-UMA type dwarf nova

Raw photometry data of four SU UMA was obtained from Unan observatory in China. Analysis of star SDSS0932 was completed and found eclipsing feature. However no evidences for the bursts were found during the period of the observation. The other stars J0711, J0426 and LY UMA, data were also analyzed. Data analysis script “Aper.cl” developed by a project team member at Unan Observatory (Prof. Zhibin Dai) was tested for the stars LYUMA and J0426, and this script gives 0.5 magnitude increment than the standard IRAF PHOT. During the data analysis of the star LY UMA super-hump was detected. As we expected the period of super-hump and orbital period of star LY UMA were correlated. The Project is continued for 2018 to observe and analyze more SUUMA type stars to examine their internal characteristics.

A search for extrasolar planets around M-type dwarf stars using the NASA Kepler K2 Data

The primary source of data for this project is from the Kepler/K2 mission, which is a spacecraft in an orbit trailing Earth. The images collected by the K2 mission are sent down to Earth, and this archival data is analyzed in an attempt to find signals from planetary transits around other stars. A series of tools have been designed to extract signals from time series data obtained from the K2 science archives. These tools are Python based, along with Python based wrappers for FORTRAN code, and consist of a series of methods that follow the cleaning, extraction and analysis procedures described in literature related to exoplanetary astronomy.



MCMC fitted lightcurve for K2-100. The blue dotted curve is the theoretically derived curve while the scatter points are the observed data points.

5.4 Research in Space Technology Applications

The potential of use of integrated Hyperspectral and Multitemporal Multispectral satellite imagery data for small scale land use and land cover mapping in Sri Lanka

Atmospheric correction, Terrain correction & map projection, Format conversion, None calibrated bands & bad line removal, Geometric correction are done for 2016 and 2017 using landsat data. Cloud masking and missing data interpolation completed for 2016 and 2017 using time series data processing with the aid of in-house developed software. Time series signature processing and Hyperspectral data bad line removal have been performed.

Geographic Information Systems for niche modeling of infectious diseases using remotely sensed environmental factors and boosted regression trees

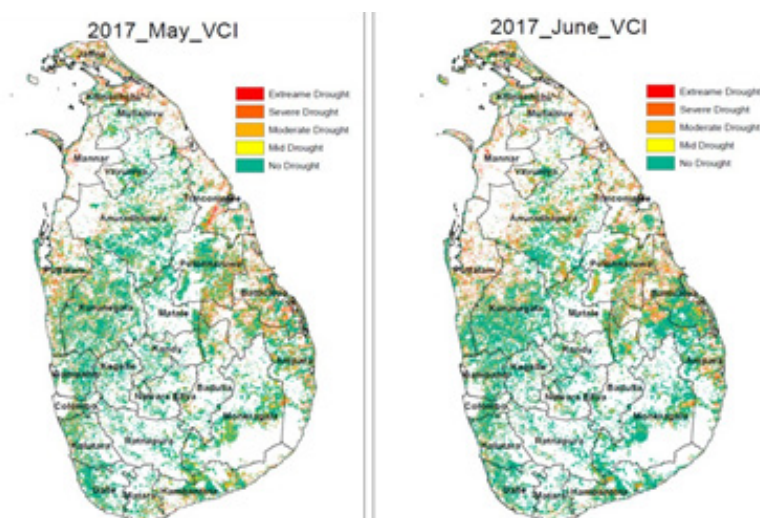
Acquired remote sensing data from National Aeronautics and Space Administration (NASA) at various resolutions are used for this study. Tropical Rainfall Measuring Mission (TRMM) 3B42, 10 day products were processed from 2015 to August 2017. 8 day temperature maps and NDVI maps were retrieved from January 2015 to July 2017 using MODIS products. Landuse and landcover classification for Western province was completed and downscale the MODIS temperature and NDVI from 1000m to 30m. publication including the reveals from the study.

Mapping Mangrove Species Using Hyperspectral Remote Sensing

Spectral signatures of six different mangrove species (namely; *Sonneratia caseolaris*, *Bruggaria sexangular*, *Bruggaria gimnorisa*, *Lumnitzera racemosa*, *Rhizophora* and *Acanthus*) were collected and analysis was completed. Relevant indexes were calculated (BGI, BRI, GI, GVI, LIC, LRI, MCAR, MVSR, NPCI, PRI and SR4). Acquired images were processed. The project was completed with a publication including the reveals from the study.

Mapping Mangrove Species Using Hyperspectral Remote Sensing

Drought Severity map generation for the year January 2017 to November 2017 was completed and circulated to Stakeholder Agencies. 265 sample agricultural areas representing every DS division of the country was selected for the field data collection and procedure was developed for field data collection to validate the generated drought severity maps.



5.5 Patents & Publications

Patent was granted by National Intellectual Property office of Sri Lanka for “True Root Mean Square Voltage Recorder with Enhanced Memory”.



A paper on “Adaptation of scasa technique for surge protective devices for equatorial belt countries” was published and presented at the Annual Transactions of IESL, 2017 by J P D S Athuraliya, N L Rathnayake, N A A N Dilrukshi, P Mahadevan, R Gihara, T M S Dias, S R J S Bandara, H Wijesooriya, Nihal Kularatna

6.6 Test and Measurements, Hardware Recovery and Consultancy Services

Test and Measurement Services of Power Electronics Measurement Laboratory- Electronics and Microelectronics Division

During the year, the division issued 232 performance test reports mainly for testing of Batteries, Surge Protective Devices (SPDs), Residual Current Circuit Breakers (RCCBs), Miniatures Circuit Breakers (MCBs), Plugs, Socket outlets, Switches and Inverters. Further division carried out safety testing and power quality measurement of electrical/ electronic products apart from the power quality measurements undertaken at customer locations.

Key customers include Orel Corporation, Douglas and Sons, Kevilton Electrical Products, David Pieris Motor Co.Ltd , Epic Research & Innovations (Pvt.) Ltd, Richard Pieris Tyre Company Limited, Micro Power Engineering, Sri Lanka Standards Institution, Sri Lanka Telecom, Hayleys Consumer , Polycrome Electrical Industries, Associated Battery Manufactures, etc.

Troubleshooting/Repair Services and Consultancy Assignments Carried Out by Electronics and Microelectronics Division

During the year under review 21 consultancy and hardware recovery assignments were undertaken by the Electronics and Microelectronics division.

Key hardware recovery assignments undertaken include repairing of an oscilloscope to Technical College Rathmalana, repairing of 03 nos of Function Generators and 02 nos of Oscilloscope to University of Ruhuna and repairing of an Oven to Sri Lanka Standards Institution.

Warranty Maintenance and Contractual Services by Electronics and Microelectronics Division

The 05 numbers of Enhanced True RMS Voltage Recorder units delivered to Public Utilities Commission were maintained for successful operation during the year under review.

01 number of Remote Voltage Data Logger delivered to Public Utilities Commission was maintained for successful operation during the year under review.

Test, Measurement and Hardware Recovery and Consultancy Services by Communication Division

Consultancy to the industry, compliance testing of coaxial cables with specifications and test and measurement services in the Radio Frequency applications are covered as activities under this category.

Consultancy

Six consultancy jobs were performed to Police Department (Communications Division) in procurement of mobile transceivers, hand-sets, antennas for specification testing, practical measurements in samples and report preparation on recommendations.

Radio frequency applications related consultancy work carried out to following companies.

- MBC Networks Pvt. Ltd
- Sri Lanka Institute of Information Technology (Malabe Campus)

Coaxial cable testing

Three cable testing jobs were undertaken for following companies.

- Orel Corporation Pvt. Ltd.
- Cable Solutions Pvt. Ltd.



Test and Measurement

Radio frequency measurement related activities were carried out to following companies on specific requirements.

- Solusys Consulting Pvt. Ltd.
- Prime Engineering Pvt. Ltd.
- Tecgate International
- Ace International
- Cable Solutions Pvt. Ltd.

Instrument Calibration Service / Performance test services by Industrial Services Division

Instrument calibration service mainly on Electronic and Electrical test instruments were performed during the year and 128 calibration reports were issued for various types of test instruments based on industrial requests. The instruments that were calibrated include Digital / Analogue multimeters, Oscilloscopes, AC/DC Clamp meters, High voltage testers, Hipot tester, Process meter, Power & Harmonic Analyzer, Watt meters, Volt meters, Power Quality Analyzers, Portable appliance testers, Insulation continuity testers, Earth testers, RCCB testers and Loop testers. Our key customers were SGS Lanka, LTL transformers, Kohoku Lanka, Sri Lanka Navy, Venora International and David Peiris.

Light Measurement Service offered by the LMS Laboratory of Industrial Services Division

Light measurement service was carried to test CFL and LED bulbs throughout the year and 131 reports were issued with the collaboration of SLSI. Our key customers were Kevilton, Orel Corporation and Philips Lighting Lanka.

Contractual Services by Information Technology Division

The Information Technology Division of the institute has been developing information system solutions for the public and the private sector organizations on various organization-specific applications.

Contractual maintenance services were carried out for following Databases and other Information Systems

- Accounts System – University of Moratuwa
- Accounts System – University of Sri Jayewardenepura
- Payroll System – Development Lotteries Board
- Accounts System – Buddhist and Pali University

6.0 Training, Education and Information Dissemination

During the year 2017, the institute conducted a variety of training programmes ranging from Continuing Professional Development (CPD) programmes, conducted on several subject areas for practicing engineers, technicians and other professionals in the industry, to the basic and intermediate level technical training programmes on electronics, computer hardware, astronomy, etc. to general public and students.

6.1 Continuing Professional Development (CPD) Training Programmes for professionals

Programmable Logic Controller

5 day CPD Course on S7-200 PLC was conducted in two batches for 81 technical personals consisting of Technical Managers, Engineers, Technical officers and undergraduate students. The participants represented institutions such as Ceylon Electricity Board, Air Port & Aviation, Sri Lanka Rupavahini Corporation, Ceylon Petroleum Corporation, NERD Center, Silvermill Natural Beverages, Elastomeric Engineering Ltd, etc.

Embedded Control Systems

One CPD programme conducted for 25 participants mainly from the industry generating income of Rs. 625,000.00. The participants were given exposure on performing their own microcontroller based system developments using Microchip based controllers. Main focus was to give the participants practical exposure to carry out their own industry projects on return.

Workshop on Electronics, Communications and Radio Frequency Systems

One CPD programme was conducted to 10 officers from the Communications Section of Special Task Force. The participants were given exposure and practical knowledge on the topic of how to maintain their systems in day to day operations. Main focus was to give the participants practical knowhow by involving them in practical experiments. The programme was generated an income of Rs. 100,000.00 apart from being a very vital CSR activity.

Earth Science Systems

CPD course on “Earth Science Systems” was conducted for 22 persons.



6.2 Basic and Intermediate Level Technical Training Programmes

Practical Electronic Course

A 24 day (weekends) training programme was conducted to all sectors of community interested on learning electronics through practicing starting from basic concepts. The number of participants was amounted to 80 while generating an income of Rs. 825,000.00. The program covered the areas of analog electronics digital electronics, basic instruments and microcontrollers.

Workshop on introduction to Practical Astronomy

An astronomy workshop and night sky observations was conducted using 45cm telescope at ACCIMT. 41 students participated for the workshop.

6.3 Science and Technology Popularization and Information Dissemination

ACCIMT Library

ACCIMT Library, one of the highly rated technical library in the country on few dedicated fields of technology consists a fair collection of books, periodicals and other educational materials in the fields of Communications, Information Technology, Electronics, Photonics, Robotics and Space Technology.

The aims and objectives of the library are to facilitate and provide information to professionals and personnel engaged in Research and Development, graduates, postgraduates, students, etc.

Library Collection

The Library has a fair collection of very expensive specialized reports and publications with frequent updates obtained from reliable and independent organization both in and out of the country. The Library consist of handbooks, data libraries, user surveys, product guidelines, application notes, design-oriented text books, state-of-art reviews, encyclopedias, dictionaries, directories, VHS, VCDs, DVDs, CD-ROM data bases, standards etc. and also specific magazines dedicated to Communication, Information Technology, Space Technologies, Electronics are available in the periodical section.

Total collection:-

Books	- 8947
CD-ROMs	- 745
Video Tapes	- 368
Audio Tapes	- 94
VCDs	- 130
DVDs	- 87

New Acquisitions:-

Books	- 67
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Library Services

- (a) Lending & Reference Facilities:- ACCIMT staff and trainees
- (b) Reference Facilities: - Visiting lectures and instructors, graduate and Postgraduate students engage in projects, Continuing Professional Development (CPD) course participants, and Personal and Institutional membership.
- (c) Reader Services:- Photocopying service, Scanning facility, Internet facility, Electronic library facility, Inter library loan, Current awareness services, Information and document supply service, and Online catalogue.
- (d) Service to Community:- Membership offers for the professionals in the public and private sector organizations, Information & document supply service for professionals and scholars (a. Industrialists b. University academics & Researchers. c. General public with a special interest in related technologies), Providing display items for exhibitions and Astronomy promotion programmes.

Open Public Access Catalogue (OPAC) via Internet (<http://www.accimt.ac.lk>).

Information about the collection can be accessed through the ACCIMT Library on-line catalogue from internet (www.accimt.ac.lk). Computer facilities are also provided to search and access the library collection via our LAN.

Astronomy and Space Science and other Popularization Programmes

Astronomy teacher training programme

Astronomy teacher training programme was conducted at Gurudeniya Training Center at Kandy. About 80 teachers participated for this programme.

World Asteroid day- Awareness Programme

Scientists around the world have already taken some initiatives to discover, monitor and track the Near Earth Asteroids. Having identified the importance of this issue and to obtain the support of governments for these programmes and to educate the public on this UN has declared 30th of June as World Asteroid Day in commemoration of the asteroid detonated in the air above Tunguska in Siberia on 30th June 1908. To mark this event, annually, awareness programmes are organized all over the world and the Arthur C Clarke Institute for Modern Technologies also conducted an awareness programme.

Water rocket educational workshop and competition and Poster competition

The annual water rocket making workshop and competition was conducted and 6 students were selected for the APRSAF international water rocket competition, which was held from 10th to 13th of November 2017 in Bangaloru , India.

The poster competition was also conducted and 3 posters were selected to represent the APRSAF poster completion, held in Bagaloru in India during the same period.



Educational visits to ACCIMT facilities

Total no. of 2177 persons was participated for lectures and telescope demonstrations at the ACCIMT.

Exhibitions

The ACCIMT participated for Techno 2017, the key National Engineering and Technology exhibition organized by the Institute of Engineers Sri Lanka, held from 13th to 15th of October 2017 at the BMICH. Apart from that the institute participated for several other exhibitions including one organized by the University of Kelaniya.

The institute participated to the walk organized by the Ministry of Science, Technology and Research to commemorate the National Science Day on November 11, 2017.



7.0 Human Capacity Development

Human Resources Development

Staff Position

Number of cadre positions approved by the Department of Management Services for the ACCIMT was 177. Out of that by the end of 2017, 102 positions were filled and 75 positions remained vacant. Majority of vacancies are in technical fields where prospective employee requires basic qualifications such as an engineering degree or equivalent professional qualifications.

Eighteen (18) new appointments were made during the year 2017. They were eight (8) Research Engineers, two (2) Computer Programmers, seven (7) Engineering Assistants and a Driver.

Six (6) employees resigned during the year. They were Deputy Director General (Admin & Finance), one Research Scientist, Works Superintendent, two (2) Engineering Assistants and one Driver. Further one Office Aid was retired.

During this year three promotions were made. They were Computer Programmer, Administrative Officer and Assistant Engineer.

Numbers of staff Grade employees were 62 as at 31st December 2017.

One workshop and twenty one local training opportunities were given to the staff of ACCIMT.

8.0 Financial Statements of Year 2017



8.1 State of Financial Position

	NOTE	2017 Rs.'000 s	2016 Rs.'000 s
ASSETS			
Current Assets			
Cash and Cash Equivalents	2	81,371	58,896
Short Term Investments	2a	35,640	20,417
Trade and Other Receivables	3a&b	29,341	32,178
Less			
Provision for Bad Debts		(3,648)	(2,480)
Inventories / Stocks	4	9,257	9,357
Prepayments	5	4,006	3,128
		<u>155,967</u>	<u>121,496</u>
Non - Current Assets			
Investments			
Staff Loan	3 a.a.	8,103	7,955
Property , Plant and Equipment	6	<u>244,570</u>	<u>231,911</u>
		<u>252,673</u>	<u>239,866</u>
Work - in - Progress-Construction	7	<u>4,197</u>	<u>18,502</u>
Total Assets		<u>412,837</u>	<u>379,864</u>
LIABILITIES			
Current Liabilities			
Payables	8	17,711	9,930
Accrued Expenses	9	<u>6,362</u>	<u>4,933</u>
		<u>24,073</u>	<u>14,863</u>
Non - Current Liabilities			
Deferred Income	10	3,195	10,206
Retirement Benefit Liability	11	<u>30,185</u>	<u>29,795</u>
		<u>33,380</u>	<u>40,001</u>
Total Liabilities		<u>57,453</u>	<u>54,864</u>
Net Assets		<u><u>355,384</u></u>	<u><u>325,000</u></u>
NET ASSETS / EQUITY			
	12		
Capital contributed by Govt		397,565	371,627
Reserves		74,407	73,550
Accumulated Surplus/(Deficit)		<u>(116,588)</u>	<u>(120,177)</u>
Total Net Assets / Equity		<u><u>355,384</u></u>	<u><u>325,000</u></u>

The Accounting policies on pages 7 to 13 and Notes on pages 14 to 38 form an integral part of these financial Statements. The Board of Directors responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf.

Chairman

Director General

Senior Deputy Director (Finance)

8.2 Statement of Financial Performance for the Year Ended

	2017 Rs.'000	2016 Rs.'000
Revenue		
Recurrent Grant	129,293	92,878
Govt. Grant - Capacity Building	18,314	
Other Revenue	22,562	17,029
Amortization	30,597	29,772
Total Revenue	200,766	139,679
Expenses		
Personal Emoluments	83,075	75,811
Travelling Expenses	4,970	4,437
Supplies & Requisites	12,367	11,575
Depreciation	30,597	29,772
Repairs & Maintenance	6,940	7,638
Transportation, Communication Utility & Other Services	21,890	17,144
Project Expenses	10,373	7,555
Research & Development Expenses	18,314	
Other Operating Expenses	2,074	1,034
Total Expenses	190,602	154,966
Surplus / (Deficit) for the period	10,164	(15,287)
Income & Expenditure Appropriation Account for the Year Ended 31.12.2017		
Surplus / (Deficit) for the period	10,164	(15,287)
Transfer of surplus out of generated funds (Note 13) from PC a/c	(6,280)	(6,027)
Net Surplus/(Deficit) for the period	3,884	(21,314)



8.3 Detailed Financial Performance

2016 Rs.		2017 Rs.	
	<u>Revenue</u>		
92,878,000.00	Govt. Grant - Recurrent		129,293,000.00
	Govt. Grant - Capacity Building		18,314,075.79
4,489,057.14	Course Fees	3,101,226.49	
9,033,554.16	Project Income / Consultancy Income	14,689,407.73	
574,072.80	Interest Income on Treasury Bills	758,831.48	
319,206.41	Interest Income	364,430.42	
	Interest Income on Fixed Deposits	102,041.08	
100,000.00	Tender Deposits	126,000.00	
1,694,639.56	Sundry Income	3,419,599.21	
	Grant Income	400.00	
735,925.64	Sponsorship Income	-	
82,617.93	Income from Disposal of Fixed Assets	-	
29,772,155.52	Amortization	30,596,703.21	53,158,639.62
139,679,229.16	Total Revenue		200,765,715.41
	<u>Expenses</u>		
	Personnel Emoluments		
55,742,480.60	Salaries & Wages	63,043,117.80	
1,462,785.43	Overtime & Holiday Pay	1,388,432.42	
324,000.00	Allowance to Board Members	396,000.00	
5,736,929.00	Other Allowances	6,376,612.00	
8,091,172.09	E.P.F.	9,109,054.88	
1,618,234.80	E.T.F.	1,821,811.04	
2,835,497.91	Gratuity	940,133.29	83,075,161.43
75,811,099.83			
	Travelling Expenses		
379,514.75	Travelling - Local	898,556.64	
4,057,355.88	Travelling - Overseas	4,071,859.21	4,970,415.85
4,436,870.63			
2016 Rs.		2017 Rs.	
	Supplies & Requisites		
1,710,169.65	Stationery & Office Requisites	1,033,209.93	
8,409,432.07	Fuel	9,966,880.55	
114,360.90	Mech & Elect Goods / Lab Components	85,459.67	
218,024.00	Uniforms	106,515.00	
768.00	Periodicals	2,390.00	
736,964.27	Welfare Items	832,741.00	
105,747.50	Exhibitions & Seminars	340,253.80	
280,239.42	Loss of Stocks		12,367,449.95
11,575,705.81			

Repairs & Maintenance		
3,218,997.60	Buildings	3,725,362.00
1,468,349.35	Equipment	1,951,597.18
2,950,802.83	Motor Vehicles	1,263,245.79
<u>29,772,155.52</u>	Depreciation	<u>30,596,703.21</u>
37,410,305.30		37,536,908.18
Transportation, Communication Utility & Other Services		
4,982,983.06	Telephone	5,727,529.51
99,850.00	Postage	110,930.89
65,730.00	Bank Charges	66,295.50
4,206,473.38	Insurance	3,599,188.77
1,399,658.40	Advertisement	2,099,090.00
98,317.88	Hospitality & Entertainment	154,853.05
1,853,606.86	Security	1,823,489.70
1,522,402.79	Other Expenses	1,239,211.90
5,173,403.86	Electricity	5,464,358.08
280,451.77	Water	437,774.84
<u>(2,539,175.25)</u>	Bad Debts	<u>1,167,705.35</u>
17,143,702.75		21,890,427.59
Project Expenses		
<u>7,554,709.48</u>	Courses/Projects	<u>10,372,836.73</u>
7,554,709.48		10,372,836.73
2016	2017	
Rs.	Rs.	
Research & Development Expenses		
	Research & Development Expenses	<u>18,314,075.79</u>
		18,314,075.79
Other Operating Expenses		
149,159.57	Membership Fees	174,599.81
<u>884,706.42</u>	Staff Training	<u>1,899,782.14</u>
1,033,865.99		2,074,381.95
154,966,259.79	Total Expenses	190,601,657.47
<u>(15,287,030.63)</u>	Surplus / (Deficit) for the period	<u>10,164,057.94</u>



8.4 Statement of Cash Flows

	2017 Rs. 000	2016 Rs. 000
Cash Flows From Operating Activities		
Surplus/(deficit) for the period	9,869	(15,287)
Non-cash movements		
Depreciation	30,956	29,772
Amortisation	(30,956)	
Provision for Bad Debts	1,168	(2,539)
Provision for Defined Benefit Plans	940	2,835
Interest Income - Fixed Deposits	(102)	
Interest Income - Treasury Bills	(759)	
Government Grant - Capital Grant	(18,314)	
Operating Profit/(Loss) before Working Capital Changes	(7,198)	14,781
(Increase)/ Decrease in Trade and Other Receivables	3,027	(335)
(Increase)/ Decrease in Inventories	100	35
(Increase)/ Decrease in Prepayment	(878)	(632)
Increase/ (Decrease) in Payables	1,501	(918)
Increase/ (Decrease) in Accrued Expenses	1,429	895
Cash Generated from Operations	(2,019)	13,826
Defined Benefit Plan Costs paid	(550)	(201)
Profit on Sale of Motor Vehicle	-	
Interest Income Received - Fixed Deposits	6	
Interest Income Received - Treasury Bills	665	
Profit/Loss on Disposal of Assets	-	(83)
Deferred Revenue	(7,011)	(505)
Net Cash From/(Used in) Operating Activities	(6,890)	13,037
Cash Flows from / (Used in) Investing Activities		
Acquisition of Property, Plant & Equipment	(42,919)	(57,522)
Short Term Investments	(15,223)	(1,266)
Staff Loans	(148)	
Interest and other		286
Interest and Other Received		
Proceed from Disposal of PP&E		167
Capital Work in Progress	14,305	(20,406)
Net Cash Flows from/(Used in) Investing Activities	(43,985)	(78,741)
Cash Flows from (Used in) Financing Activities		
Proceeds From Capital Grant	74,520	85,433
Capital Grant Utilization		(34,692)
Reserves	849	
Net Cash Flows from/(Used in) Financing Activities	75,369	50,741
Net Increase/(Decrease) in Cash and Cash Equivalents	22,475	(14,963)
Cash and Cash Equivalents at the beginning of the year	58,896	73,859
Cash and Cash Equivalents at the end of the year	81,371	58,896

8.5 Notes to the Financial Statements

General Policies

Reporting Entity

Arthur C Clarke Institute for Modern Technologies (hereafter referred to as the “Institute”) was incorporated by the Science and Technology Development Act No.11 of 1994, and is situated at BandaranayakeMawatha, Katubedda, Moratuwa.

Principal Activities and Nature of Operations

The Principal activities of the Institute are:

- a. To accelerate the introduction of modern technologies to Sri Lanka by
 - i. Initiating, promoting and conducting research and development in the application of modern technologies.
 - ii. Providing research and development support to the government and private sector undertakings in the application of modern technologies, and
 - iii. Training of personnel in modern technologies to meet the needs of the government and private sector undertakings, and
- b. To promote future studies
The areas of modern technologies include communication and related sciences, information and technology, electronics, telecommunications, microelectronics, space technologies, robotics, photonics and new materials.

The number of employees

The number of permanent employees as at the end of the reporting period was 90.

Basis of preparation

a) Statement of compliance

The financial statements comprise the Statement of financial Position, Statement of Financial Performance, Statement of Changes in Net Assets/Equity, Cash Flow Statement and notes to the financial statements. These statements have been prepared in accordance with the Sri Lanka Public Sector Accounting Standards (SLPSAS) issued by the Institute of Chartered Accountants of Sri Lanka.



b) Basis of measurement

The financial statements have been prepared on historical cost basis except where the appropriate disclosures are made with regard to fair value under the relevant notes.

c) Comparative Information

Comparative information including quantitative, narrative and descriptive is disclosed in respect of the previous period for all amounts reported in the financial statements in order to enhance the understanding of the financial statements of the current period and to improve inter-period comparability.

The accounting policies set out below have been applied consistently to all periods presented in these financial statements, unless otherwise indicated.

d) Functional and presentation currency

The financial statements are presented in Sri Lankan Rupees, which is the functional and presentation currency of the institute.

All financial information presented in Sri Lankan Rupees has been rounded to the nearest thousand, unless stated otherwise.

e) Use of estimates and Judgments

The preparation and presentation of financial statements in conformity with SLPSAS requires management to make judgments, estimates and assumptions that effect the application of accounting policies and reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates and judgments used.

Estimates and underlying assumptions are reviewed on an on-going basis. Revisions to accounting estimates are recognized in the period in which the estimates is revised if the revision effect only that period or in the period of the revision and future periods if the revision effect both current and future periods.

Information about significant areas of estimates, uncertainty and critical judgments in applying accounting policies that have the most significant effects on the amounts recognized in the financial statements is included in the notes to the financial statements.

Assets and the bases of their valuation

Property, plant and equipment

a) Recognition and measurement

Items of property, plant and equipment are stated at cost or at fair value less accumulated depreciation.

All items of property, plant and equipment are initially recorded at cost less accumulated depreciation. Significant components of an asset are identified and depreciated separately. When significant parts of property, plant and equipment are required to be replaced at intervals, the entity derecognizes the replaced part, and recognizes the new part with its associated useful life and depreciation. All other repair and maintenance costs are recognized in the income statement as incurred.

b) Cost

The cost of property, plant and equipment is the cost of acquisition or construction together with any incidental expenses thereon.

The cost of property, plant and equipment comprises its purchase price and any directly attributable cost of bringing the asset to working condition for its intended use.

Subsequent expenditure incurred for the purpose of acquiring, extending or improving assets of a permanent nature in order to carry on or increase the earning capacity of the assets has been treated as capital expenditure.

Expenditure incurred to replace a component of an item of property, plant and equipment that is accounted for separately, including major inspection overhaul expenditure, is capitalized. Other subsequent expenditure is capitalized only if it is probable that the future economic benefits embodied within the part will flow to the institute and its cost can be measured reliably.

The land value is not stated in the financial statements since land is a property of Ministry of Higher Education and transferred to Ministry of Science and Technology to carry out the activities of the Institute. If Institute operations will not be continued the land should be handed over to the University of Moratuwa as per the MOU signed between University of Moratuwa and the Institute.

c) Depreciation

Depreciation is not charged on freehold land and construction in progress. Depreciation is charged on all other Property, Plant & Equipment on the



straight-line basis over the estimated useful lives by equal installments as follows.

<u>Asset Category</u>	<u>% per Annum</u>
Building	5
Computers & Peripherals	20
Satellite Antenna, Lab Equipment	10
Office Equipment, Furniture & Fittings	10
Motor Vehicles	20
Library Books	15

Depreciation of an asset acquired begins when it is available for use whereas depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale and the date that the asset is derecognized.

Inventories

Inventories consist of Stationery Stock Items, Electronic Components, Accessories and Tools etc.

Inventories are stated at the lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business less the estimated cost of completion and selling expenses.

Trade and Other Receivables

Trade receivables are stated at the amounts they are estimated to realize net of allowances for bad and doubtful receivables.

Other receivables and dues from Related Parties are recognized at cost less allowances for bad and doubtful receivables.

General Bad Debt Provision is determined as follows:

Overdue Period	Provision Required
1 – 2 years	50%
2 – 3 years	75%
More than 3 years	100%

Investments

Investments in Treasury Bills have been stated at cost. Income from such investments has been accounted on accrual basis.

Cash and Cash Equivalents

Cash and cash equivalents are cash in hand, demand deposits and short- term highly liquid investments, readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

For the purpose of cash flow statement, cash and cash equivalents consist of cash in hand and deposits in banks net of outstanding bank overdrafts. Investments with short maturities i.e. three months or less from the date of acquisition are also treated as cash equivalents.

Liabilities and provisions

Liabilities classified as current liabilities on the Statement of Financial Position are those which fall due for payment on demand or within one year from the reporting date. Non-current liabilities are those balances that fall due for payment after one year from the reporting date.

All known liabilities have been accounted for in preparing these financial statements. Provisions and liabilities are recognized when the Institute has a legal or constructive obligation as a result of a past event and it is probable that an outflow of economic benefits will be required to settle the obligation.

Employee Benefits

a) Defined Benefit Plans

Gratuity is a defined benefit plan. In order to meet this liability, a provision is carried forward in the statement of Financial Position. The provision is calculated based on a formula method considering the future salary increment rates, discount rates and the expected staff turnover rate (these assumptions are shown in the Note 11.1 to the financial statements) The resulting difference between the brought forward provision at the beginning of the year and the carried forward provision at the end of the year is dealt within the statement of comprehensive income. However, as per the payment of Gratuity Act No. 12 of 1983, Gratuity liability is not externally funded. This liability is grouped under non- current liabilities in the statement of Financial Position.

b) Employees' Provident Fund

The Institute and employees, contribute 15% and 10% respectively, on the salary of each employee to the approved provident fund.



c) Employees' Trust Fund

The Institute contributes 3% on the salary of each employee to the Employee's Trust Fund.

Trade and other payables

Trade and other payables are stated at cost.

Taxation

The Institute is exempt from Income Tax under Section 7 (b) (ii) of the Inland Revenue Act. No. 10 of 2006. The Institute is registered for Value Added Tax (VAT). The income received from projects and other earnings are liable to VAT payments except income generated from courses.

Capital commitments and contingent liabilities

Contingent liabilities are possible obligations whose existence will be confirmed only by uncertain future events or present obligations where the transfer of economic benefits is not probable or cannot be reliably measured. Capital commitments and contingent liabilities of the Institute are disclosed in the respective notes to the financial statements.

Accounting for Grants

Grants that compensate the Institute for expenses incurred are recognized as revenue in the Statement of Financial Performance in the same period in which the expenses are recognized. Grants that compensate the Institute for the cost of an asset are recognized in the income statement on a systematic basis over the useful life of the related asset.

Revenue Recognition

Revenue is recognized to the extent that it is probable that the economic benefits will flow to Institute and that it can be reliably measured.

- a) Course fees from students are recognized as revenue on accrual basis.
- b) Project income, consultancy income are recognized as revenue on accrual basis
- c) Interest income is recognized on accrual basis.

- d) Grants related income is recognized when control of the contribution or right to receive the contribution is confirmed.
- e) Other income is recognized on accrual basis.

Disbursement of surplus income of projects

The surplus of income on projects undertaken over and above of the normal quantum of activities in the annual action plan has been disbursed in accordance with the Public Finance Circular No.380 applicable for universities and research institutions.

Expenditure

- a) Expenses are recognized in the Statement of Financial Performance on the basis of direct association between the cost incurred and the earning of specific items of income. All expenditure incurred in the running of the Institute and in maintaining the capital assets in a state of efficiency has been charged against revenue in arriving at the surplus for the year.
- b) Expenditure on courses, projects, consultancy works and other activities are recognized in the Statement of Financial Performance on accrual basis.

Cash Flow Statement

The cash flow statements have been prepared in accordance with SLPSAS 2.

Events after the reporting date

The materiality of events occurring after the reporting date has been considered and appropriate adjustments, wherever necessary, have been made in the accounts.



(2) Cash & Cash Equivalents

	Rs.
Bank of Ceylon - C/A 7054733	75,783,193.82
Bank of Ceylon - C/A 307144	4,736,031.65
FINDS Bank A/c - S/A 326764	111,845.52
NASDA Bank A/c - S/A 328391	6,914.97
Directors Fund Bank A/c - C/A 307399	26,221.76
Revolving Fund Bank A/c- C/A 2479737	1,964.10
Peoples Bank -CA 313-1-001-9-0012847	678,804.83
Commercial bank-CA 1114029211	26,500.00
	81,371,476.65

(2a) Short Term Investments

Invest. of surplus funds in Treas.Bills - Projects/Courses F	8,285,256.38
Invest. of surplus funds in Treas.Bills - Directors Fund	1,207,454.39
Invest. of surplus funds in Treas.Bills - Revolving Fund	2,370,257.31
Invest. of surplus funds in Treas.Bills - FINDS Grant	6,197,254.96
Fixed Deposit 01(76387182)-Revo.Fund	590,266.39
Fixed Deposit 02(76387290)-Revo.Fund	590,266.39
Fixed Deposit 03(76387299)-Revo.Fund	590,266.39
Fixed Deposit 04(76387310)-Revo.Fund	590,266.39
Fixed Deposit 05(76387322)-Revo.Fund	590,266.39
Fixed Deposit 06(76387328)-Revo.Fund	590,266.39
Fixed Deposit 07(76387343)-Revo.Fund	590,266.39
Fixed Deposit 25(81820199)-Dir.Fund	23,000.00
Fixed Deposit 08(81819773) -Proj.Fund(1 year)	5,000,000.00
Fixed Deposit 09(81819900) - Proj Fund(6 Month)	500,000.00
Fixed Deposit 10(81819988) - Proj.Fund (6 month)	500,000.00
Fixed Deposit 11(81820008) Proj.Fund(6 Month)	500,000.00
Fixed Deposit 12(81820127) - Proj. Fund(6 Month)	500,000.00
Fixed Deposit 13(81820031) - Proj.Fund (3 Month)	500,000.00
Fixed Deposit 14(81820049) - Proj.Fund (3 Month)	500,000.00
Fixed Deposit 15(81820073) - Proj.Fund(1 Month)	502,741.09
Fixed Deposit 16 (81820087) Revo. Fund(1 month)	502,741.09
Fixed Deposit 17 (81820099) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 18 (81820155) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 19 (81820136) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 20 (81820174) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 21 (81820186) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 22 (81820244) - Revol Fund(1 Month)	502,741.09
Fixed Deposit 23 (81820190) - Revol Fund(6 Month)	500,000.00
Fixed Deposit 24 (81820194) - Revol Fund(6 Month)	400,000.00
Fixed deposit 26(81820180) - Proj Fund(1 Month)	502,741.09
	35,639,757.58

(3a) Trade and Other Receivables

	Rs.	Rs.
Staff Debtor - TG		2,787.00
Insurance Corporation Debtor		9,700.00
Accounts Receivable - TG		731,730.72
Accounts Receivable - P/C		6,182,775.87
Debtor - Mr P T Fernando		4,000.00
Debtor - Mr.Jayathu Fernando		106,894.72
Debtor - Mr B R P Perera		39,699.66
Debtor - Mr N D J Sankalpa		12,324.03
Debtor - P P K Rodrigo		261,983.30
Debtor - S R J S Bandara		26,092.20
Debtor - NERD Center		47,197.20
Debtor - ITI		47,197.20
Debtor - G R H N Bandara		26,822.00
Debtor - Depart. Of Building		72,281.82
Other Deposits		155,315.00
R.S.Debtor		14,434.91
Elections Dept		8,159.60
Ministry Debtor - Dish TV Package		33,381.50
Festival Advance		52,500.00
Staff Loans		
Distress Loan	8,107,772.00	
Motor Cycle Loan	321,918.00	
Motor Vehicle Loan	2,824,148.00	
Flood relief Loan	304,606.00	
	11,558,444.00	
Staff loans receivable after one year	(8,102,990.00)	
Staff loans receivable within one year		3,455,454.00
LC Margin Control A/c		4,321,376.00
Guarantee A/c		101,000.00
PC Control		602,173.87
		16,315,280.60

3.a.a

Staff loan receivable within One year	3,455,454.00
Staff loan receivable after One year	8,102,990.00
	11,558,444.00



b) Trade and Other Receivables
Work-In-Progress

Rs.

Projects

Tea Colour Separator Project (Comm Div)	6,211,747.23
SDRONE Project 2017(Com Div)	98,385.00
ANCOIC Project 2017 (Com)	2,540.00
Robotics Laboratory Project - Inhouse (Comm Div)	9,883.99
RFID Library Automation - ACCIMT (Comm Div)	93,486.36
Hardware Recovery of Jingle Boxes HRJB	55,790.19
Project 2012/ 2013 - SS - CCTV - NWSDB	6,278,461.84
Sri Jayawardenapura Gen Hospital Project 2015	138,677.59
Vehicle Tracking System	14,250.00
AC Powerd LED Lamp Proj(Elec)	1,053.00
High perfo Surge Absorber Common 2017(Elec)	41,385.46
Low Cost UAV Education Purpose Proj 2017(Com Div)	11,977.13
Wireless Security Data Logger Pub Utili(WSDLPV) Proj E	68,503.24
	<u>13,026,141.03</u>

Total (3a+3b)

29,341,421.63

(4) Inventories/Stocks

Electronic Components	3,780,187.81
Stationery	1,115,494.81
Others	60,491.04
Electrical & Mechanical	196,839.42
Welfare	12,764.00
Accessories -TG	199,218.03
Inventory Items - TG	518,035.98
Inventory Items - Projects (P/C)	1,990,140.32
Tools - TG	1,383,466.69
	<u>9,256,638.10</u>

(5) Prepayments

Rs.

Pay-in Adv - TG	3,909,361.51
Pay-in Adv - PC	66,410.00
Stamp Imprest	30,140.00
	<u>4,005,911.51</u>

(6) PROPERTY, PLANT & EQUIPMENT

	Cost as at 01.01.17	Additions during the year	Disposals during the year	Adjustments	Total as at 31.12.17	Cum Dep as at 01.01.17
Buildings	141,564,797.08	25,028,374.19			166,593,171.27	36,034,105.31
Satellite Antenna	2,959,797.83				2,959,797.83	2,959,778.83
Computers	52,527,458.04	8,362,595.75		(2,500.00)	60,887,553.79	28,836,733.77
Lab Equipment	190,797,290.30	8,428,776.67			199,226,066.97	109,562,171.41
Office Equipment	27,275,118.97	662,583.12			27,937,702.09	17,291,354.03
Furniture & Fittings	14,311,362.18	405,126.70		(7,650.00)	14,708,838.88	8,648,491.60
Motor Vehicles	28,458,489.00				28,458,489.00	23,213,435.95
Library Books	23,836,635.90	462,277.84			24,298,913.74	23,273,466.24
	-				-	
	481,730,949.30	43,349,734.27	-	(10,150.00)	525,070,533.57	249,819,537.14

Depreciation has been provided on original cost or valuation on a straight line basis consistent with the asset over their estimated useful lives. Rates at which the depreciation provided are as follows

Buildings	5%
Satellite Antenna, Lab Equipment	10%
Office Equipment, Furniture & Fittings	10%
Library Books	15%
Computers, Motor Vehicles	20%



Depn during the year	Disposals during the year	Adjustments	Cum Dep as at 31.12.17	Rs.
				W D V as at 31.12.17
7,493,105.26			43,527,210.57	123,065,960.70
			2,959,778.83	19.00
6,131,943.85		(131.51)	34,968,546.11	25,919,007.68
12,746,516.98			122,308,688.39	76,917,378.58
1,793,309.80		91,637.00	19,176,300.83	8,761,401.26
922,206.57		(7,647.00)	9,563,051.17	5,145,787.71
1,278,000.00			24,491,435.95	3,967,053.05
231,620.75			23,505,086.99	793,826.75
30,596,703.21	-	83,858.49	280,500,098.84	244,570,434.73

that of previous year, and is calculated to write off

i.

(7) Work In Progress - Construction

	Rs.
WIP - Furniture & Fitting(Lunch Room)	110,264.00
WIP Building - Roof ('C" Building)	500,000.00
WIP Buil - Demarcation & Protection(Pitipana)	3,545,744.40
WIP Consul Audio Visual Facility(Main Auditorium)	41,250.00
	4,197,258.40

(8) Payables

	Rs.
Accounts Payable -TG	6,239,561.47
Accounts Payable -PC	92,301.93
E.P.F.Control	1,260,128.34
E.T.F.Control	151,215.40
Welfare Society Control	250.00
Creditor - General Treasury	1,582,100.19
Refundable Deposit	85,000.00
VAT Payable on receipts - P/C	657,803.37
VAT Payable on receipts - T/G	67,844.16
NBT Payable - TG	7,093.13
NBT Payable - P/C	61,682.25
Stamp Duty Payable - TG	10,200.00
Paye Tax Payable - TG	117,093.68
Disbursement Control	4,653,587.61
Buildings Dept Creditor	984,403.00
Arpico Interiors - Creditor	14,377.61
TG Control	602,173.87
Retention	1,110,961.23
Creditor - M Wickramasinghe	7,355.58
Creditor - Mrs Jayasekara	5,831.50
	17,710,964.32

(9) Accrued Expenses

	Rs.
Treasury Fund	4,947,353.56
Projects/Courses	1,414,943.71
	6,362,297.27

(10) Deferred Revenue

Rs.
3,195,695.48

(11) Retirement Benefit Liability

As at 1 January	29,795,634.55
Recognition of Transition Liability	-
Charge for the year	940,133.29
Payments made during the year	(551,152.00)
As at 31 December	30,184,615.84

(11.1) Assumptions

	2017
Discount Rate	6.50%
Salary Increment	8%
Staff Turnover	8.93%
Retirement Age	60 Years



(12) Net Assets / Equity

	2017 Rs.	2016 Rs.
Government Capital Grant		
Opening Balance	366,382,299.02	322,031,396.20
Grants received	74,520,000.00	79,043,000.00
Adjustments		
Capacity Building programme	(18,314,075.79)	(9,234,889.61)
Amortization	(28,989,740.60)	(25,457,207.57)
	393,598,482.63	366,382,299.02

Non Monetary Government Capital Grant **

Opening Balance	5,245,052.05	3,170,000.00
Grants received		6,390,000.00
Amortization	(1,278,000.00)	(4,314,947.95)
	3,967,052.05	5,245,052.05

Reserves

	2017 Rs.	2016 Rs.
General Reserve	272,721.64	272,721.64
Celltel Donation	213,333.34	213,333.34
Research & Consultancy Fund	1,341,446.90	1,341,446.90
Foreign Grant	3,464,295.25	3,464,295.25
Re - valuation Surplus	26,682,504.54	26,682,504.54

Research Pool

Opening Balance	182,953.96	182,953.96
Receipts	87,440.88	
Adjustments	55,179.84	
Expenses	(109,772.34)	
	215,802.34	182,953.96

Other Grants & Donations

Opening Balance	23,954,156.59	24,483,547.98
Fixed Assets received		47,040.00
Adjustments		
Depreciation	(328,962.61)	(576,431.39)
	23,625,193.98	23,954,156.59

Revolving Fund

Opening Balance	10,477,576.20	8,929,686.66
Receipts		1,156,980.85
Adjustments	(40,979.57)	
Interest Income	524,702.49	390,908.69
Expenses		
	10,961,299.12	10,477,576.20

Directors Fund

Opening Balance	1,155,601.02	1,074,744.75
Interest Income	100,800.22	80,856.27
Expenses		
	<u>1,256,401.24</u>	<u>1,155,601.02</u>

FINDS Grant

Opening Balance	5,799,019.52	5,423,835.41
Interest Income	568,351.62	375,184.11
Expenses		
	<u>6,367,371.14</u>	<u>5,799,019.52</u>

NASDA Grant

Opening Balance	6,644.33	6,383.61
Adjustments		
Interest Income	270.64	260.72
Expenses		-
	<u>6,914.97</u>	<u>6,644.33</u>
	<u>74,407,284.46</u>	<u>73,550,253.29</u>

2017
Rs.

2016
Rs.

Accumulated Surplus/(Deficit)

Opening Balance -TG	(145,897,429.30)	(121,151,928.51)
Opening Balance - P/C	25,719,625.44	22,288,520.39
Adjustments - TG	(312,310.99)	
Adjustments - PC	17,415.27	
Excess of income over expenditure	<u>3,884,341.96</u>	<u>(21,314,395.74)</u>
	<u>(116,588,357.62)</u>	<u>(120,177,803.86)</u>

TOTAL NET ASSETS / EQUITY

<u>355,384,461.52</u>	<u>324,999,800.50</u>
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* Capital grant received has been amortized according to the Sri Lanka Accounting Standard No.24.

**** Depreciation on items received on donations/grants**

Depreciation on item received under donations/grants have been adjusted to the donations/grants accounts as per the instructions given by the Treasury.

9.0 Summary of short and medium activities planned



Summary of Short and Medium Term Activities Planned

- **National Hub for Receiving and Distribution of Earth Observation satellite data** - Establishment of 03 Nos. of Ground Stations for receiving data from civilian earth observation satellites. Mainly involves development of a Ground Station Complex for receiving earth observation satellite data from Civilian Earth Observation Satellites and associated infrastructure facilities for technical control, data processing and distribution. In the phase I of the project, it is planned to obtain the funds/ equipment/ technical support from one leading space faring nation, to establish one no. Ground Station at the National Hub.
- **Acquisition & Development of National Capacity in Basic Space Technologies–**
 - Furtherance of collaborative initiatives with foreign national agencies including State Space Corporation and Samara National Research University (SNRU) of the Russian Federation for the development of a nano-satellites
 - Development of a Sri Lanka's first cube-satellite to the space in 2019, in collaboration with Kyushu Institute of Technology (Kyutech), Japan
- **Development of Aerospace Design and Manufacturing Capabilities in Sri Lanka** - Development of Fixed Wing UAVs and Quad-rotor/ Hexa-rotor Copter technologies with improved versions of stability, controllability, structure suitable for different applications
- **Development of Mechatronics & Robotics Capabilities in Sri Lanka** – Development of a Mobile robot platform for Autonomous application, industrial applications.
- **Human Resource capacity development in Aerospace Technologies, Space Technologies and Applications, Robotics and Bio-medical Engineering** by way of specialized short term training, Post-graduate training, expert missions and other associated measures.
- **Remote Sensing & Geographic Information Systems (RS/ GIS) activities** - Projects using Earth Observation (EO) satellite imagery and air borne platform (UAV) imagery in the fields of application including agriculture, environment, urban developments, natural resource management etc. Expansion of Spectral Signature Bank and Research in the area of Spectroradiometry.
- Establishment of a National Center for Lightning Protection at ACCIMT
- Establishing a Predictive Maintenance Unit at ACCIMT
- Electronics, Microelectronics & Communications Projects [for development of electronic products and industrial solutions].
- Continuing Professional Development (CPD) programmes in the fields of Electronics, Communications, robotics, Information Technology and Remote Sensing/ GIS]
- Astronomy research projects and Astronomy popularization activities
- Performance Testing/Certification and Calibration related activities
- Hardware Recovery of sophisticated electronic systems (eg. Master Control Units of Locomotives), measuring instruments, medical instrument

10.0 Report of the Auditor General



ජාතික විගණන කාර්යාලය தேசிய கணக்காய்வு அலுவலகம் NATIONAL AUDIT OFFICE



මගේ අංකය
எனது இல.
My No. }

TEC/B/ACCIMT/1/17/48
මගේ අංකය
உமது இல.
Your No. }

දිනය
திகதி
Date } 31 October 2018

The Chairman,
Arthur C Clarke Institute for Modern Technologies

Report of the Auditor General on the Financial Statements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2017 in terms of Section 14(2) (c) of the Finance Act, No. 38 of 1971.

The audit of financial statements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2017 comprising the statement of financial position as at 31 December 2017 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 Section 40(3) of the Science and Technology Development Act No.11 of 1994. My comments and observations which I consider should be published with the annual report of the Institute in terms of Section 14(2)(c) of the Finance Act, appear in this report.

1.2 Management's Responsibility for the Financial Statements

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.

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 risks assessments, the auditor considers internal control relevant to the Institute'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 Institute'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 the Arthur C Clarke Institute for Modern Technologies as at 31 December 2017 and its **financial** performance and cash flow 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

Action in terms of Paragraph 47 of the Sri Lanka Public **Sector** Accounting Standard 03 had not been taken in connection with a sum of Rs.363,646 out of the research expenditure of Rs.4,209,066 incurred by the Institute in respect of the **research** project called Manufacture of a



machine for Tea Quality Grading and Colour Separating System Project, during the period from 2012 to 2016.

2.2.2 Accounting Deficiencies

The following observations are made.

- (a) The rent income amounting to Rs.466,043 receivable from the Telecommunication Regulatory Commission for the year under review relating to the services supplied by the Institute had not been brought to account.
- (b) A sum of Rs.3,545,744 receivable from the Urban Development Authority had been shown as work-in-progress constructions in the financial statements of the year under review instead of being accounted as receivables.

2.3 Balances Receivable and Payable

The following observations are made.

- (a) The rent income of Rs. amounting to Rs.729,296 receivable relating to the from November 2014 to July 2015 in terms of the agreement entered into for the supply of services to the Telecommunication Regulatory Commission had not been recovered even by August 2018.
- (b) The total value of trade and other receivables older than 03 years amounted to Rs.1,926,039 and action had not been taken to recover that amount.

3. Financial Review

3.1 Financial Results

According to the financial statements presented, the financial results of the Institute for the year ended 31 December of the year under review had resulted in a surplus of Rs.10,164,058 as against the deficit of Rs. 15,287,030 of the previous year, thus showing an improvement in financial results of the year under review by Rs.25,451,088 as compared with the previous year. Even though expenditure for the projects had increased by Rs.2,818,000 and employees' remuneration had increased by Rs.7,264,000, increase in the receipt of recurrent grants by Rs.36,415,000 during the year under review had mainly attributed to the above improvement in financial results.

An analysis of the financial results of the year under review and 04 prior years shows that the surplus of Rs.5,957,641 in the year 2013 had increased up to Rs.9,511,887 by the year 2015 and it had turned out to be a deficit of Rs.15,287,030 in 2016. Nevertheless, it had increased up to a surplus of Rs.10,164,058 again in the year 2017. However, the contributions of Rs.71,098,467 of the Institute in 2013 had improved up to Rs.123,835,922 in the year 2017 while readjusting the remuneration of employees and the depreciation for fixed assets to the financial results.

4. Operating Review

4.1 Performance

4.1.1 Functionality and Review

The following observations are made on the examination carried out relating to the performance of the Institute.

- (a) For a project for manufacture of a machine for tea quality grading and colour separation with minimum cost commenced in the year 2012, an expenditure of Rs. 4,209,066 had been incurred by 31 December 2016. However, due to weaknesses existed in the process implemented in that connection, an agreement had been entered into with a private institute in the year 2016 for the manufacture of this machine at a cost of Rs.8,000,000. Even though manufacturing of the machine should have been completed by August 2017 and technical assignments should have been obtained thereon in terms of the agreement of this project which consisted of 4 phases, works of the second phase were in progress even by August 2018.
- (b) Due to the reasons such as lack of resource persons, lack of demand for the courses and not revising the course contents relating to 06 courses planned to be conducted by 03 Divisions of the Institute, those courses had not been conducted during the year under review. Although there is a media unit in the Institute, an adequate programme had not been implemented for the promotion of those courses involved in the modern technology.
- (c) The Media Division had commenced a RFID Library Automation System Project in the year 2013 in collaboration with the Information Technology Division and expenditure of Rs.93,486 had been incurred by 31 December of the year under review. Nevertheless, it had not been completed even by August 2018.



data for this purpose. Nevertheless, the Institute had spent a sum of Rs.875,725 in respect of conducting awareness programmes for the agricultural institutions.

- (d) The Institute supplies services of installing high technology security camera systems and only one order had been received therefor during the period from 2012 to 2017. An income of Rs.8 million had been earned therefrom and the Institute had not showed interest in taking necessary steps for increasing opportunities for further supply of those services to the other clients.

4.3 Operating Activities

Stocks costing Rs.4,091,099 had been lying idle since 2012. However, action had not been taken to identify the stocks which could not be used and the stocks that were slow moving and dispose of such stocks or take another appropriate measures.

4.4 Idle Assets

For the purpose of taking photographs at the archeological research and excavation sites and for the necessities of the other Government institutions, a drone camera had been purchased at a cost of Rs.10,564,677 in the year 2016. Nevertheless, it had not been used for any purpose even by August 2018.

4.5 Staff Administration

The following observations are made.

- (a) The approved cadre as at 31 December of the year under review was 177 and the actual cadre was 102, thus resulting in vacancies in 75 posts.
- (b) Although the vacancies existed in 27 posts as at 01 January of the year under review were 85, newspaper advertisements had been published for filling vacancies in 8 posts only and 18 vacancies in 04 of the above posts only had been filled during the year.
- (c) Existence of vacancies for more than 50 per cent of the posts directly involved in the research and development activities from several years and difficulties find in the retention of employees of those posts may adversely affect in reaching the expected objectives of the Institute. Nevertheless, action had not been taken to review the issues existing thereon and solve the such issues.

- (d) Even though development of combined management information system for the Institute had been carrying out from several years, it had not been completed up to August 2018. A sum of Rs.75,000 had been spent therefor by 31 December of the year under review.
- (e) Although acceleration of the introduction of modern technology to Sri Lanka is the main objective of the Institute, provisions amounting to Rs.3,700,000 made for the capacity development of the staff engaged in the research and development activities of the Institute had not been utilized. Further, a Human Resources Plan had not been prepared for the year under review.
- (f) Although it had been expected to commercialize three modern technology projects introduced by the Institute in the year under review, any technology had not been commercialized.

4.2 Management Activities

The following observations are made.

- (a) For a project for the establishment of a National Centre to obtain and distribute Global Observation Data, the Institute had entered into a memorandum of understanding with a China Agency and there was no any plan relating to that project. Further, without carrying out a feasibility study, a land for which the Institute did not have legal right had been selected for the project. However, the Chinese Agency which made an observation tour subsequently had stated that the land was not suitable for the project and as such action should be taken to select a land elsewhere. Nevertheless, action had not been taken to commence the project by properly taking over of a suitable land even by August 2018.
- (b) Due to lack of a binocular which is an essential equipment for the National Astronomy Observation Project implemented from the year 2015, activities of that project had not been carried out during the years 2016 and 2017. Although a binocular worth Rs.3,284,150 had been purchased in February 2018, quality assurance thereon had not been done up to August 2018 and as such the above project had been further delayed.
- (c) The Institute had initiated a project for creation of Agricultural Drought Monitoring and Early Warning System. This project was in the stage of examining whether the recognition of dryness of the plots through this system and the naked eye was equal. Although the process of obtaining data by naked eye observations had been entrusted to 07 institutions in the agricultural field, those institutions had not provided the necessary



- (d) According to Section 13.3 of Chapter II of the Establishments Code of the Democratic Socialist Republic of Sri Lanka, acting appointments could only be made as a temporary measure till such time a permanent appointment is made and a permanent appointment should be made without delay provided the services of a full time officer is needed. But, necessary action had not been taken during the period of 5 years from 2013 to 2018 to fill the vacancies in 3 posts of Senior Deputy Directors and one post of Director for which acting appointments had been made from the years 2013 and 2015.

5. Sustainable Development Goals

5.1 Achivement of Sustainable Development Goals

Every State institution shall take steps in compliance with the Agenda 2030 of the United Nations Sustainable Development Goals. Nevertheless, Arthur C Clarke Institute for Modern Technologies had not taken steps to identify the sustainable development goals and targets involved in the functions coming under the purview of the the Institue, milestones to be reached and the indicators to evaluate the progress of reaching those targets. Further, requirement of financial provisions, skilled employees and physical facilities needed for the development of correct data base for measuring the progress of reaching those targets, too, had not been recognized.

6. Accountability and Good Governance

6.1 Procurement Plan

The following observations are made.

- (a) In terms of Guideline 8.9.1 (b) of the Government Procurement Guidelines, a formal agreement should be entered into for the goods or services contracts which exceed Rs.500,000. Nevrttheless, agreements had not been entered into for 11 procurements valued at Rs.17,968,823.
- (b) Installation of Audio Visual and Lightning System for the Auditorium

A contract worth Rs.6,222,011 (Inclusive of tax) for the supply, installation, testing and activating of an Audio Visual and Lightning System for the Auditorium had been awarded to a contractor.

- (i) Although the necessity of a system as indicated above had been pointed out by the Administration Division on 22 July 2016, a period of more than one year up to November 2017 had been taken for the award of the contract.
- (ii) An advance of Rs.1,127,872 had been paid to the contractor and certain amount of goods had been supplied. Nevertheless, due to the matters such as not preparing the floor of the Controller Room in keeping with the requirements, not supplying the necessary furniture and due to water leakage in the Auditorium, it had not been possible to complete the contract by installing other articles even by August 2018. Nevertheless, the performance bond obtained in this regard had expired on 22 August 2018.

7. Systems and Controls

Deficiencies observed during the course of audit were brought to the notice of the Chairman of the Institute from time to time. Special attention is needed in respect of the following areas of systems and controls.

Systems and Controls

Observations

(a) Procurement Process

- (i) Although it had been stated that bids invitations were sent by registered post, there were no evidence letters in the files in support of that.
- (ii) The Procurement Progress Report had not been prepared in a manner able to compare with the Procurement Plan.
- (iii) Delays had occurred in obtaining performance securities.



(iv) Incase of failure in the supply of goods or service before the prescribed date in terms of conditions stiputaed in the purchasing order when purchasing goods and services, the period for the supply had been extended instead of recovering charges for delays.

(v) Occuring delays in the issue of Goods Receiving Notes and existence of unissued goods.

(b) Preperation of Progress Reports

(i) Physical progress had not been shown in percentages in the Progress Reports.

(ii) Financial progress of each activity included in the Action Plan had not been stated separately in the progress reports.

Sgd./ H.M. GAMINI WIJESINGHE
Auditor General

H.M. Gamini Wijesinghe

Auditor General

11.0 Answers to the Auditor General Report



Answers to the Report of the Auditor General, on the Financial Statements of the Arthur C Clarke Institute for Modern Technologies for the year ended 31 December 2017, in terms of Section 14(2)(C) of the Finance Act No. 38 of 1971.

2.2 Comments on Financial Statements

2.2.1 Non Compliances to Sri Lanka Public Sector Accounting Standards

Actions will be taken to account on approval of the Board of Directors, obtaining the recommendations of the Audit and Management Committee of the Institute for the adjustment mentioned in the audit observation.

2.2.2 Accounting Deficiencies

- (a) As per the agreement between the Arthur C Clarke Institute for Modern Technologies (ACCIMT) and the Telecommunication Regulatory Commission of Sri Lanka (TRC), payments should have to be settled during months of December 2014 and January 2015. The TRC has in writing informed their refusal to make the payment as the office building they are used have not constructed up to the recommended standards. However actions will be taken to recover this amount negotiating with the TRC.

From year 2015 enter into a new agreement with Telecommunication Regulatory Commission of Sri Lanka (TRC) and the ACCIMT for a period of 02 years with concurrence of both parties and in terms of this agreement revised amount of lease should be received to our institute from August 2015. Since maintenance works of the office were carried out from 01 January to 31 July 2015 this period was not covered by the agreement.

- (b) As mentioned in the Audit Observation an amount of Rs. 3,545,744/- Mn. has been paid to the Urban Development Authority for construction of fence around the premises already received and this fence has not been constructed yet. After receiving a suitable land, UDA will take actions to construct the fence. As this is not an amount receivable it has been accounted as work in progress.

2.3 Balances Payable and Receivable

The followings are observed.

- (c) As per the agreement between the Arthur C Clarke Institute for Modern Technologies (ACCIMT) and the Telecommunication Regulatory Commission of Sri Lanka (TRC), payments should have to be settled during months of December 2014 and January 2015. The TRC has in writing informed their refusal to make the payment as the office building they are used have not constructed up to the recommended standards. However actions will be taken to recover this amount negotiating with the TRC.

From year 2015 enter into a new agreement with Telecommunication Regulatory Commission of Sri Lanka (TRC) and the ACCIMT for a period of 02 years with concurrence of both parties and in terms of this agreement revised amount of lease should be received to our institute from August 2015. Since maintenance works of the office were carried out from 01 January to 31 July 2015 this period was not covered by the agreement.

As maintenance works were carried out from 01st January 2015 to 31st July 2015 in compliance with the new agreement (2015) payments for the relevant invoices are not covered by the new agreement. It is expected to seek the approval for cancellation of this invoice in future.

(b)

Insurance Corporation Debtor	- Rs. 9,700.00
Account Receivable - TG	- Rs.182,234.00
Account Receivable - PC	- Rs.1,530,444.27
Debtor - P.T.Fernando	- Rs.4,000.00
Debtor - Jayathu Fernando	- Rs.106,894.72
R.S - Debtor	- Rs.14,434.91
Ministry Debtor	- Rs.33,381.50
Debtor - B.R.P.Perera	- Rs.39,699.66
Election Dep. Debtor	- <u>Rs. 8,159.60</u>
	- <u>Rs.1,929,038.66</u>

The amount shown in the audit observation includes the total of the above amounts. Further actions will be taken to recover these balances.

3. Financial Review

3.1 Financial Result

4. Operating Review

4.1 Performance

4.1.1 Functions and Review

- (a) Enter into an agreement with E-Net Institute for Xilinx FPGA high tech electronic sub system of this project. As per this agreement mechanical developments to be done by the ACCIMT and the deliverables by the E-Net institution to the ACCIMT have been stated. More time has to be spent to complete mechanical appliances to be provided by our institute under phase 2 of the agreement. Workshops with facilities to manufacture such specific sophisticated mechanical appliances are very few. Also manufacturing time period is very long. Therefore more time taken to complete the Phase 2 (up to August 2018). With



the concurrence of both parties, agreement will be signed to implement Phase 3 and Phase 4 simultaneously. Already planned to deploy in a tea factory for testing in early 2019.

- (b) In each year syllabus of any course is revised to meet the timely requirement. All the arrangements for conducting a course are done by the division that conducts the course. The same division should be responsible for finding applicants for the course. Applicants from government, semi-government and private sectors are participated for these courses. It has been known that budget estimate for training has been cut off for many institutions in year 2017. Due to failure to get minimum number of applicants for the courses and due to refurbishment works that were being carried out in the main auditorium, the target of the courses could not be achieved.
- (c) The testing level of the project was completed in year 2017 and certain faults of the library security gate module were identified at this level. Therefore specifications were prepared for the sub system of this module and procurement was done. This is specific item procurement which should be compatible with the system that has already been built. The procurement for this sub part was completed in September 2018. The entire system including this part is in testing stage. The system is to be deployed for demonstration in year 2018.
- (d) The Information Communication Division has designed several software required to facilitate certain functions of the institute and these are being utilized for several years. There are certain differences in the tools used to develop this software. Therefore initiated to develop a single information system assembling all the software and it is scheduled to be completed on 31 December 2017. However delayed in completion of software due to adding new items to the existing software, inclusion of several new modules like Fixed Assets Register, Service Agreement and Maintenance System. Actions are being taken to complete this information System including new modules.
- (e) Provisions have been made for the capacity building of the staff engaged in research and development of the institution within the capital allocations of the large projects and division wise for the other projects and approximately Rs.16 Mn has been used in year 2017 on capacity building of the staff engaged in research and development.
- (f) Products of 3 projects have been presented for commercialization in year 2017 and two of these are equipment for quality testing of apparatus such as electrical switches, sockets and plugs and these are applicable only for manufacturers of electrical appliances and testing institutes like Sri Lanka Standards Institutions (SLSI). Made the above institutions aware of these inventions, but positive response has not been received from any of them.

However, it is expected to obtain assistance to commercialize these technologies in future.

It has been observed that commercialization of the “Vehicle Tracking and Fuel Monitoring” project is not possible despite the several attempts of commercialization due to availability of similar and more advanced technical solutions in the market.

In addition, further actions for the commercialization of this project is not practical due to the problem of providing after sales service to the client of the system that was commercialized in year 2016.

Status of marketing of ACCIMT development technologies/ products in 2017

Products Received for Technology Transfer in 2017	Product Usage	Action Taken
Endurance Tester	For testing of Electrical Switches, Socket Outlets and Plugs in compliance with SLS 734:1996 SLS 948:1991	Baths are very specific products developed in-house to be used in our testing facilities. Since proven successful initiations were taken to introduce them to electrical switchgear manufacturers for their in-house product testing as well as to Sri Lanka Standards Institution for its testing laboratory. There was not any positive response from any of the parties concerned.
Tumbling Barrel	For testing of 5A, 13A, 15A plugs for mechanical strength as per SLS 734 and SLS 948	
Vehicle Tracking and Fuel Monitoring System	Provide vehicle location information of individual vehicles along with the fuel level data for effective vehicle fleet management	Initially developed for ACCIMT use and later introduced to Sri Jayawardanapura Hospital in 2016/2017 period. Tried but difficult to promote due to availability of similar products in the market and implementation issues of the client side

This issue affects all the technologies developed in the relevant year (2017).

The above table shows the details of technologies ready for the commercialization in year 2017 and the relevant issues.

4.2. Management Activities

- (a) A feasibility study was conducted on lands allocated for “National Hub for receiving and distribution of Earth Observation data” at Homagama, Pitipana, Mahenawatta areas by the Ministry of Megapolis and Western Development and the Urban Development Authority and more suitable land situated in an elevated place was selected. The Urban Development Authority (UDA) was informed by prescribing the maximum height of the buildings to be



constructed in future (after studying longitudes and latitudes of the land) around this land. A communication tower was situated near the selected land and it had to be located in another place considering its significance. However the group of Engineers who visited the location from the China National Institute on Satellite data (RADI), the other stakeholder of the project, was inquired about the ability of obtaining another land on these grounds. Accordingly, a land situated at Techno City project at Horagala, Padukka was again selected and Chinese Engineers have given their concurrence. The UDA confirmed transfer of this land to our institute by their letter dated 16 August 2018. Accordingly, payment made to the UDA for the construction of fence is to be set off for the construction of a fence around the new land or any other work. Since this is a construction work it has been included in accounts as work in progress.

- (b) The 14" telescope was purchased from the Rotex private Ltd in December 2017 for astronomy research and it was locally produced successfully adding modifications required for use in Sri Lanka (latitude). Subsequently quality testing were carried out for all the parts of the telescope and planned to use in studies in relevant to variable stars and comets in next month at a suitable place in a dry zone.
- (c) 90% works of the Agricultural Drought Monitoring and Early Warning system was completed and the final stage of the project was delayed due to poor contribution of the other public institutions that are connected to it. However comparison of satellite data with the agricultural data was carried out using technical tools (Google Drive) with the assistance of the Science and Technology Officers in the "Vidatha" centers.
- (d) With the successful implementation of the above project, the Communication Division of the ACCIMT received several experiences. These include calculation of man hours and days for the project, logistic services to be received in proper times, procurements to be carried out in certain period of time etc. It is difficult to provide any technology developed as a research and development institute to the government or private sector under the prevailing facilities. A separate in house mechanism should be maintained with the required human resources and support services (Technology transfer and application). Specially, this is important in maintenance stage. Projects for supply of services were not implemented and quotations have been already called for the requirement of new divisions of the National Water Supply and Drainage Board. In addition training requirements in relevant fields is at the discussion level with the institutes like Department of Railways.

4.3 Operating Activities

Observation in audit in relevant to maintaining idle assets is correct and as an institute engaged in research and development it is required to maintain stock of electronic appliances to a certain extent. It is difficult to purchase this specific equipment from the market immediately at the initiation of the project and for repairs of the ongoing projects. Due to this reason stocks have to be maintained.

4.4 Idle Assets

A long period of time has been taken to obtain the documents required for flying testing (under the prevailing security laws and civil aviation law) of UAV drone and as a result of discussions had with the Civil Aviation Authority draft for entering into a MOU for reserving a suitable area for flying testing and co-operation of this institution has been sent to this institute.

4.5 Staff Administration

(a)/(b)/(c)

Advertisements were published in newspapers in year 2016 and 2017 to fill the following vacancies.

Post	Date of the advertisement
Deputy Director General (Administration and Finance)	06/05/2016
Director (Space Technology and Applications) Director (Equipment arrangement) Director (Information Technology)	01/07/2016
Engineering Assistant	11/08/2016
Senior Research Engineer Research Engineer AR 2	
Computer Graphic Designer	11/08/2016
Director (Space Technology and Application) Director (Equipment arrangement) Director (Information Technology)	08/01/2017
Senior Systems Analyst	
Senior Deputy Director (Human Resources Administration)	09/05/2017
Engineering Assistant	
Deputy Director General (Administration and Finance)	06/12/2017

The vacant post of the Deputy Director General was filled on 01.08.2016 as per the paper advertisement published on 06/05/2016 and this post has been vacant on 31/05/2017 upon the resignation of this officer.

Newspaper advertisements were published in both years 2016 and 2017 for the post of Director (Information Technology) and qualified applicants have not applied for it.

Newspaper advertisements were published for the post of Director (Space Technology and Application), Senior Research Engineer, Research Engineer AR2 and qualified applicants have not applied for these 03 posts.

One applicant who has fulfilled the basic qualifications has applied for the post of Director (Space Technology and Application) in response to the newspaper advertisement published in year 2017, but the appointment was not done as the application was rejected at the interview.



As per the paper advertisement published on 08/01/2017, appointments are made for one internal candidate and two external candidates with effect from 01/03/2017 to the post of Computer Graphic Designer.

Appointment was made with effect from 15/02/2018 to the internal applicant applied as per the advertisement published on 09/05/2017 for the post of Senior Systems Analyst.

As per the paper advertisement published on 09/05/2017, one applicant has applied for the post of Senior Deputy Director (Administration and Human Resources) and delayed to make the appointment due to several issues arisen at the interview. Therefore the relevant appointment was made on the acting basis.

At present actions have been taken to conduct the interview for the post of Engineering Assistant and recruitments will be done in near future.

Only one qualified applicant has applied for the post of Deputy Director General in response to newspaper advertisement published on 06/12/2017 and this applicant selected at the interview with his consent later rejected to accept the appointment due to personal matters.

An internal applicant has applied for the post of Director (Equipment arrangement) and appointment was made on 15/02/2018.

Actions were taken to fill the vacancies at institutional level. However the problem of appointment and retention of qualified candidates adopting public sector salary scale is still prevailing.

- (d) Advertisements were published to fill the acting basis posts on permanent basis and appointments were made on acting basis as a temporary alternative to carry out the functions of the institute without hindrance as qualified candidates were not applied for these posts.

In both years 2016 and 2017 newspaper advertisements were published for the post of Director (Space Technology and Application) HM 1-3 and only one qualified applicant who has applied in year 2017 was rejected at the interview.

In year 2016, the designation of Director (Industrial Services) was changed as Director (Equipment Services). Newspaper advertisements were published in years 2016 and 2017 and actions were taken to promote the internal applicant qualified for this post with effect from 15/02/2018.

In year 2016, the designation of Senior Deputy Director (Information Technology) was changed as Director (Information Technology) and qualified applicants have not applied for newspaper advertisements published in years 2016 and 2017.

The post of Deputy Director General (Administration and Finance) was vacant upon the retirement of the officer who held this post.

Some of his duties were assigned to the Deputy Director (Administration and Human Resources) on the necessity of continuous functioning of the institute and appointment was made on acting basis on the approval of the Board of Directors also covering the duties of the vacant post of Senior Deputy Director (Administration and Human Resources).

The vacant post of Deputy Director General (Administration and Finance) was filled on 01/08/2016 and this post was again fallen vacant within a short period of time as the appointed officer was resigned on 31/05/2017.

5 Sustainable Development

5.1 Achieving Sustainable Development Goals

Since the institute is not directly responsible for the anticipated functions as per the UN agenda 2030 on Sustainable Development Goals, financial provisions, trained staff and physical resources were not allocated for target identification, measuring, and creating a data base and indirectly contributed for achieving sustainable development goals through projects in our plan of action and other activities. The specimen form including the details of our institute has been forwarded to the Sustainable Development Goals Evaluation Unit of the Auditor Generals Department on 01.08.2018.

6 Accountability and Good Governance

6.1 Procurement

- (a) Followed all the guidelines in accordance with the 8.9.1 (b) of the Government Procurement Procedure and we observe that the protection has been provided for the institution against the supplier risks (late charges, bond security etc) by the relevant agreements at institutional level as relevant documents have been prepared and files have been updated properly.

- (b) Establishment of Audio Visual and Lightning System for the Auditorium

- (i) External consultancy services have to be obtained for this procurement. The institutions that provide the consultancy services outsource the works such as preparation of specifications and tender documents. Also more time has to be spent to prepare the proper specifications for the institute and delays shown in the audit is due to engage in functions like utilization of existing modern technical equipment correctly identifying technical modifications, preparation of exact specifications required to achieve the objective of the institution by purchasing such equipment as this process is mainly based on technical matters.
 - (ii) The ground works of the control room has to be completed by the Buildings Department as shown in the audit observation. As per the request made by the institute that engages in the installment of the audio visual system, a carpet has to be laid to prevent accidents to be caused by electricity without interruption to the sound system. We would like to inform that this has not directly affected in performing their overall functions.

The problem of water leakage as mentioned in the audit observation was addressed at the same day and this has not affected the functions to be delivered by the supplier.



The Purchase Order for procurement of furniture for the Auditorium has already been sent to the Supplier. There is no delay in proceeding this procurement.

The Performance Bond has been expired as per the audit observation and most of the relevant works has been already completed by now and the supplier has taken considerable time even necessary equipment have been provided by the institution. The institute will charge late charges after completion of the work.

Accordingly, it can be shown that prompt actions were already taken to solve the issues pointed out in the observation.

7 Systems and Control

It is noted to take necessary actions to avoid the defects shown in the audit observation in relevant to systems and control.

Sgd/Prof.K.K.C.K. Perera
Acting Chairman

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