2023

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ஆண்டறிக்கை
Annual Report



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தேசிய விஞ்ஞான மன்றம்
National Science Foundation

National Science Foundation (NSF); The Centre of Excellence in Science and Technology

Keeping with its mandate and aligning with the National Policies and the Sustainable Development Goals (SDGs), the NSF progressed successfully in 2023 with continuous encouragement and guidance from the Chairman, Director General and the Board of Management.

As a competent and capable Institute, with a Team leading the way in exploring and adopting new technological tools, techniques, and practices, NSF is dedicated to promote Science, Technology and Innovation for the economic and social prosperity of Sri Lanka. The NSF Team operates across many areas, with a focus on providing thorough leadership and direction, by establishing and promoting best practices in research and development to provide appropriate recommendations and supporting science education in specific focus areas that are considered critical. For the success of the overall organization, the NSF is supported through a popular management philosophy "knowledge-creating company", of which the sole business is continuous innovation.

The staff was committed in delivering productive output, as set out in the Action Plan for the year, which are captured in this year's Annual Report, together with achievements and success stories.

All relevant information that would enable interested parties to form a judgment on the performance, future prospects and constraints of the institute is contained in this report with 71 graphical presentations, 14 tables, 154 pictures and 07 annexes.

The entire Annual Report contains 228 pages together with the Audit Report and the NSF feedback on the Audit Report. The report is prepared following the guidelines for preparation of Annual Reports published by the Department of Public Enterprises.

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Oraganizational Overview



About

The National Science Foundation functions under the purview of the Ministry of Education. The organization was initially established as the National Science Council (NSC) in 1968 (Act No. 09 of 1968). NSC was reorganized as the Natural Resources, Energy and Science Authority (NARESA) in 1982 (Act No. 78 of 1981). After 16 years of service, NARESA was renamed as the National Science Foundation (NSF) in 1998 by Act No. 11 of 1994.

Functions as mandated by the Act

NSF is mandated to function in accordance with the provisions of the Science and Technology Development Act No. 11 of 1994 as follows:

(a) to initiate, facilitate and support basic and applied scientific research by universities, science and technology institutions and scientists, with a view-

  (i) of strengthening scientific research potential, including research in the social sciences, and science education programmes;

  (ii) of developing natural resources of Sri Lanka;

  (iii) of promoting the welfare of people of Sri Lanka; and

  (iv) of training research personnel in science and technology

(b) to foster the interchange of scientific information among scientists in Sri Lanka and foreign countries;

(c) to award scholarships and fellowships for scientific study or scientific work at science and technology institutions;

(d) to maintain a current register of scientific and technical personnel, and in other ways to provide a central clearing house for the collection, interpretation and analysis of data, on the availability of and the current and projected need for, scientific and technical resources in Sri Lanka, and to provide a source of information for policy formulation on science, technology and other fields;

(e) to popularize science amongst the people by funding programmes for that purpose.

Vision

Be the nation's premier driving force in promoting Science, Technology and Innovation for economic and social prosperity of Sri Lanka

Mission

Promote Science, Technology and Innovation for economic and social prosperity of Sri Lanka by:

- Initiating, facilitating and supporting research, development, innovation and technology transfer;
- Enabling and funding for knowledge creation, dissemination, capacity building, partnerships, popularizing science and promoting STEM education; and
- Conducting policy research and supporting policy development;

Goal

To contribute actively and effectively to the rapid development of the nation by implementing programmes under priorities of the National Policy Framework (NPF).

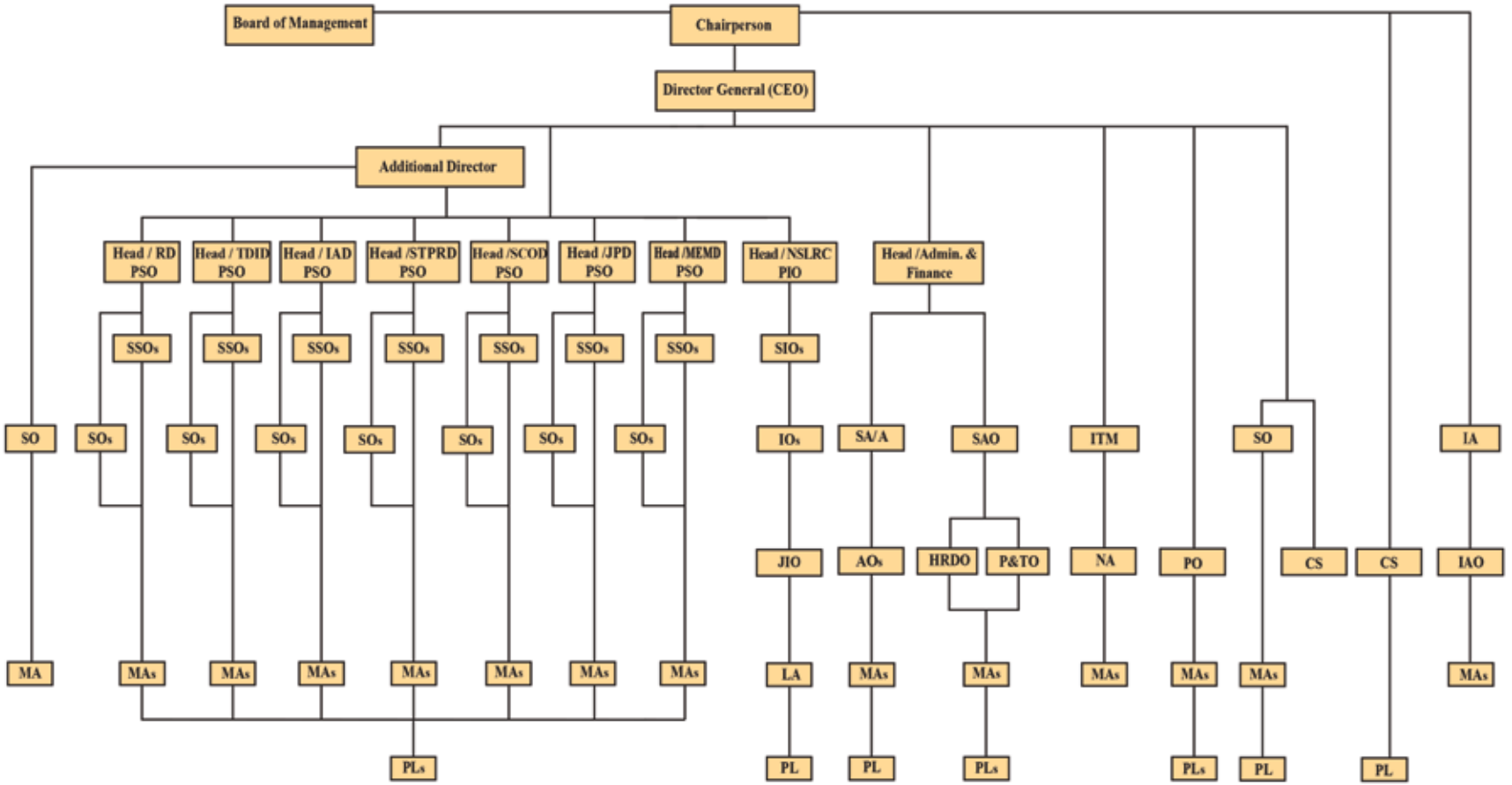
Objectives

1. Conduct research, development, and innovation to create a knowledge economy by building public-private, institution-industry partnerships.
2. Facilitate required capacity building, infrastructure development, technology transfer, knowledge creation and sharing in all fields of S&T to improve the quality of life of our people.
3. Conduct policy studies & surveys, data collection and evidence-based reporting to help developing S&T indicators promoting decision making by the policy makers.
4. Outreach to public and other sectors of the society through science communication and increase the science literacy and engagement in science by the public.
5. Nurture a competent work force in a conducive work environment which is performance-driven and results-oriented.



Governance Framework

Organizational Structure



AO - Accounting Officers
CS - Confidential Secretary
HRDO - Human Resource Development Officer
IA - Internal Auditor
IAO - Internal Audit Officer
IAD - International Affairs Division
IO - Information Officer
ITM - IT Manager

JIO - Junior Information Officer
JPD - Journal Publication Division
LA - Library Assistant
MA - Management Assistant
MEMD - Media & Event Management Division
NA - Network Administrator
NSLRC - National Science Library and Resource Centre
P & TO - Procurement and Transport Officer

PIO - Principal Information Officer
PL - Primary Level
PM - Printing Manager
PO - Printing Officer
PSO - Principal Scientific Officer
RD - Research Division
SA/ A - Senior Accountant / Accountant
SAO - Senior Admin. Officer

SIO - Senior Information Officer
SO - Scientific Officer
SCOD - Science Communication and Outreach Division
SSO - Senior Scientific Officer
STPRD - Science and Technology Policy Research Division
TDID - Technology Development and Innovation Division
* - Personal to the holder

Brief Profile of the Board of Management

NSF is governed by a Board of Management, which consists of the Chairperson, the Director General, a Member, each representing the University Grants Commission (UGC), the Sri Lanka Association for the Advancement of Science (SLAAS), the Institution of Engineers Sri Lanka (IESL), the National Institute of Education (NIE), and the Ministry of Finance, and four other members appointed by the Honorable Minister of Education.



Emeritus Prof. Ranjith Senaratne
Chairman



Dr Sepalika Sudasinghe
Director General



Prof. Chandana P. Udawatte
(UGC Representative)
Vice Chairman
University Grants Commission (UGC)
(w.e.f. 11th August 2023)



Prof. Prasad Sethunga
(NIE Representative)
Director General
National Institute of Education
(w.e.f. 19th September 2023)



Mrs. M. K. Sithara Jayasena
(Treasury Representative)
Additional Director General
Department of Management Services
Ministry of Finance
(w.e.f. 01st March 2023)



Prof. Ranjith Dissanayake
(IESL Representative)
President
Institute of Engineers Sri Lanka
(w.e.f. 16th November 2023)



Dr Vinya Ariyaratne
President
Sarvodaya Shramadana Movement
(w.e.f. 30th January 2023)



Prof. M N Kaumal
(SLAAS Representative)
Professor in Chemistry
Director UBL
CEO, Colombo Science & Technology Cell
Faculty of Science, University of Colombo
(w.e.f. 20th March 2023)



Prof. Sampath Punchihewa
Dean
Faculty of Law
University of Colombo
(w.e.f. 30th January 2023)



Mr Thushara Vajira Perera
S&T Advisor to the President &
Chief Executive Officer
Sri Lanka Institute of Nanotechnology (SLINTEC)
(w.e.f. 30th January 2023)



Mr Denzil Indrajith Perera
Chairman
Lanka Salusala
(w.e.f. 30th January 2023)



Prof. Ananda Jayawardane
(UGC Representative)
Professor
Department of Civil Engineering
University of Moratuwa
(from 03rd July 2020 to 03rd July 2023)



Eng. (Dr) Kamal Laksiri
(IESL Representative)
President
Institute of Engineers Sri Lanka
(from 09th May 2022 to 09th May 2023)



Dr Sunil Jayantha Nawaratne
(NIE Representative)
Director General
National Institute of Education
(from 02nd March 2020 to 2nd March 2023)



Ms. A. Y. Harshani Anuruddha
(Treasury Representative)
Deputy Director (Health)
Department of National Planning
Ministry of Finance
(from 09th May 2022 to 28th February 2023)

Staff Strength

The NSF performed in 2023 with 106 staff members despite staff shortage from its proposed cadre of 144. A comparison of the staff occupation in different employee categories in year 2022 and 2023 is given in *Table 01*

Table 01: Comparison of staff occupation in different employee categories in year 2022 and 2023

Category	Year					
	As at 31.12.2022			As at 31.12.2023		
	Approved	Existing	Vacant	Approved	Existing	Vacant
HM	10	9	1	10	8	2
AR2	6	5	1	6	5	1
AR1	26	16	10	26	14	12
MM	11	9	2	11	7	4
JM	10	4	6	10	6	4
MA	56	46	10	56	43	13
PL	25	17	8	25	15	10
Total	**144**	**106**	**38**	**144**	**98**	**46**

NSF consists of both Scientific and non-Scientific Sectors. Support from the Administrative, Finance, IT, Printing, Internal Audit and Procurement sector staff play a major role in smooth functioning of the activities of the Institute. *Figure 01* shows existing and vacant % against the approved Staff in different categories in 2023.

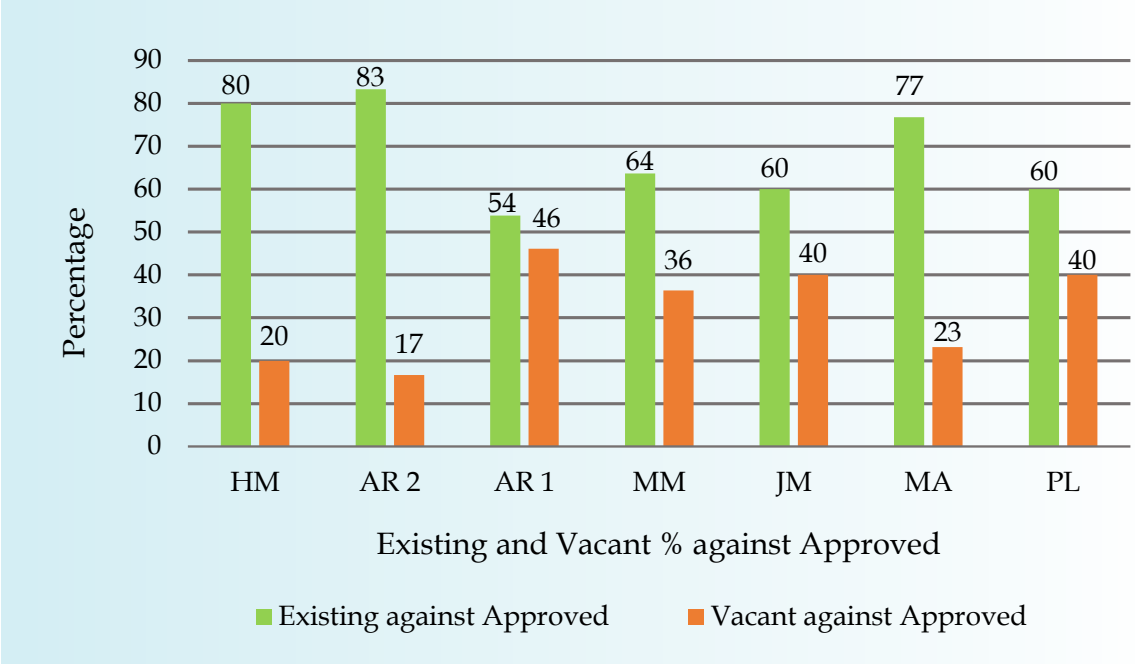


Figure 01: Existing and vacant % against the approved Staff in different categories in 2023

NSF External Resource Pool

To help in the process of carrying out NSF's mandate and to support the regular NSF activities, the following Committees, Editorial Boards and Working Groups were established and/or continued in year 2023.

1. Editorial Board of the JNSF (Journal of the National Science Foundation)
2. Editorial Board of SLJSS (Sri Lanka Journal of Social Science)
3. Working Committee on Science & Technology Policy
4. Working Committee on Science Popularization
5. Working Group on Quality Control and Quality Assurance of Herbal Products Entering the Market
6. Working Group on Food Safety and Potential Health Risks from Food
7. Working Group on Quality Assurance (QA)
8. Working Group on National Innovation Ecosystem Development with the Stakeholders
9. Working Group on Compiling an Instrument Database
10. Working Group on Collaboration with University Business Link Cells
11. Working Group on Industry Sector Development
12. National Committee on Man and Biosphere
13. Technical Evaluation Panel of the Research Division
14. NSF Working Committee on Media
15. Research Arm of the NSF
16. Technology Development and Innovation Arm of the NSF

Chairman's Review



It is with great pleasure that I send this message to the Annual Report of 2023 of the National Science Foundation, the premier national institution mandated to promote science, technology and innovation for socio-economic development of the country.

Our country, through appropriate interventions, has been able combat the unprecedented economic and social crises and has placed its economy on an upward trajectory so as to become a developed nation by 2050. In this connection, the general public is increasingly turning to and looking to scientists, technologists and professionals to usher in a better and secure tomorrow. Therefore, the obligation of scientific institutions such as NSF to the community and the nation is much greater now than ever before.

The challenges such as climate change, food and nutrition insecurity, poverty alleviation, rural development and natural hazards are complex, multi-faceted and multi-dimensional; they demand a transdisciplinary and transnational approach where cooperation, regardless of territorial boundaries, between specialists with diverse backgrounds in both the natural and social sciences is essential. Besides, there is growing recognition that new approaches and different types of expertise are needed to renew science. Therefore, the NSF is promoting interdisciplinary and transdisciplinary studies to address real-life issues more effectively.

In order to respond effectively to the high-priority needs, the NSF, while consolidating the previous interventions, has embarked upon several novel initiatives. Use of science diplomacy as a powerful tool for national unity and friendship among nations, promotion of public-private partnerships (PPPs) and science literacy in society, strengthening of the National Instrument Database to rationalize the use of high-end analytical and research instruments in academia, R&D institutions and industry and renewed emphasis on hydrogen as a source of renewable energy merit special mention.

The NSF, in keeping with its mandate and national needs, will sustain its unremitting efforts to advance the cause of S&T for the common good and national development.

Emeritus Professor Ranjith Senaratne
Chairman

Director General's Report



As in previous years, NSF has performed exceptionally well, in year 2023, under the five mandated tasks, empowered by the Science & Technology Development Act No. 11 of 1994. Activities carried out included regular as well as new programmes, such as the National Programme to introduce STEAM education to the education system of Sri Lanka. NSF has had a clear vision and focus in carrying forward its mission aligned with the SDGs and NPF priorities.

The NSF Annual Report 2023 begins with Highlights of Physical and Financial Performance and continues onto details of the progress, against the action plan set for the year. As aimed, NSF has been able to achieve and deliver outstanding outputs and outcomes, by means of Key Performance Indicators (KPIs) identified in the Action Plan.

In future NSF looks forward to increasing its performance by; facilitating more research and development, targeting application and commercialization, capacity building through strengthened collaborative activities and popularizing research outputs amongst key stakeholders and general public of the country through improved methodologies and processes.

Continuous reviewing of existing schemes and programmes, will be done as in previous years, for adaptation and smooth functioning of activities.

I express my sincere appreciation to the Chairman and the Board of Management of the NSF for their invaluable guidance provided throughout, in carrying out the many activities. I am much obliged to the NSF Team, the greatest strength of the institution, for their dedication and commitment in attending to their assigned work diligently, to the best of their ability, even amidst constrained resources.

Dr Sepalika Sudasinghe
CEO/Director General

Action Plan 2023 with KPIs

Ministry of Education														
ACTION PLAN - 2023														
Skills Development, Vocational Education, Research and Innovation														
Research and Innovation Sector														
Institute/ Division :-	**National Science Foundation**													
Key Functions of the Ministry	**Objectives of the Ministry**	**Relevancy to SDG goals & Target**	**Programme - Research Projects**		**Allocation (RS.Mn.)**	**Target**								**KPI**	**Expected Output**	**Expected outcome**
						Financial (Rs.Mn)				**Cumulative Phycical Target in Words**						
						Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**			
facilitate research institutions to collaborate with international research institutions Formulate an efficient mechanism to utilize innovations and outcomes of research Take steps to expand scientific, industrial, social and economic research and development activities Motivate and direct communities towards innovation.	Establishing and networking dynamic organizational structures to assist in the process of vesting the public with science, technology and research-based knowledge. Directing institutions to impart scientific principles and technological concepts essential for the efficacy and efficiency of products to benefit the society. Strengthening the human resources base and organizational structure for the promotion of research, inventions and innovations. Identifying the concept-based applications of researchers and inventors, encouraging competencies leading to their practical application. Facilitating and increasing opportunities for the commercialization of innovations. Facilitating the increase of local and foreign investments being made in the research and development field. Establishing continual and wider discussions and joint approaches among all the stakeholders encompassing S & T communities, entrepreneurs and policy makers. Introducing modern technology and promoting its applications. Value addition to products utilizing modern technology. Promoting high end tech inventions and innovations to be on par with the competitiveness of foreign markets.	*Goals* 2, 3, 7, 9, 13, 14, 15, 17 *Targets* 2.3 – 2.5 3.b 7.a 9.5, 9.b & c 13.3 14.a 15.1 & 2 17.6	**NSF mandate a) Promoting R&D**												
			Implementing R&D projects	Creating new knowledge/ technologies/products & processes & innovations through award of grants including scholarships and monitoring the progress of R&D projects under different schemes (Priority will be given to bridge the technological gaps in sectors earning foreign exchange using local raw material)	35.7	2.7	17	12	4	Identify national priority areas. Call for EoIs/grant applications from Industry/Scientists, process and award relevant R&D and scholarship grants. Monitoring of progress of R&D projects & scholarships via progress review seminars and conductng field visits.				Support strengthening the research base of Sri Lanka by 10% in terms of grants awarded, institutions benefitted, scientists benefitted, Mphil/PhD produced, Scientist recognized. (BP= 58) Enhance new knowledge creation and technology development by 10% in terms of Journal publications, patents granted/filled, Grants successfully completed, Technology transfers. (BP=40)	No. of grants awarded- 15 No. of institutes benefitted- 8 No. of research equipments purchased through research grants - 5 No. of PIs & CoIs benefitted from the research grants - 25 No. of Scientists recognized through SUSRED awards and NSF research awards - 20 No. of Scholarship Awarded - 5 No. of MPhil, PhD produced - 11 No. of Research Students and Technical assistants trained - 20 No. of publications generated from research grants - 25, No. of patents produced-2, No. of webinars held-6, No. of new knowledge created-15, No. of grants with technology potential-5, No. of follow up action taken-5, No. of success stories developed-5)	Research solutions provided to the SME sector and industry. Knowledge and technology advancements. Technologies trasfered to industry. Capacity building of R&D personnel and Industry personnel. Increased forex income.
										Contact relevant organizations to identify research needs/technological gaps for support Award grants selected from grant call 2022	Conduct proposal writing workshops Appoint a review committee compmprising relavant experts to evaluate projects	Award grants	Monitoring and evaluation of projects grants			
				Conduct outreach programmes						Organize 04 webinars/workshops/seminars for gap identification and disclose of R&D outputs/issues						
			Providing recognition for S & T excellence	Conduct SUSRED Awards Conduct NSF Research Awards						Call for applixcations Processing of applications/eigible final reports of R&D projects	Processing of applications and preparatory work		Conduct the awards ceremony		No of awards made	Recognition to sceintists

Key Functions of the Ministry	Objectives of the Ministry	Relevancy to SDG goals & Target	Programme - Research Projects		Allocation (RS.Mn.)	Target								KPI	Expected Output	Expected outcome
						Financial (Rs.Mn)				Cumulative Phycical Target in Words						
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
			NSF mandate b) S&T information dissemination													
			Publication of scientific research	i. Publication of Journal of National Science Foundation (JNSF)	2.676	0.639	0.699	0.639	0.699	Publish Vol 51; Issue 1	Publish Vol 51; Issue 2	Publish Vol 51; Issue 3	Publish Vol 51; Issue 4	Increased number of articles published in NSF journals by 40% (BP 60) Increase availability of S&T information by 5% compared to 2022 Increased usage of S&T information by 5% compared to 2022	No. of JNSF issues published No. of high-end research findings published	Dissemination of local and foreign research findings to local and global scientific community. Knowledge creation
				ii.Publication of Sri Lanka Journal of Social Sciences (SLJSS)							Publish Vol 46; Issue 01		Publish Vol 46; Issue 02		No. of SLJSS issues published 02 No. of articles published - 20	
				iii. Support one Professional S&T body (SLASS) to publish proceedings of the annual sessions	0.5				0.5				Support one publication		One publication supported	SLJSS Indexed in the Social Science Citation Index of Clarivate Analytics
				iv) Provide an online platform for local peer-reviewed journals (SLJOL)	4.000	1.8	1.950	0.125	0.125	In each quarter: 1. Publish 355 research manuscripts. 2. Add hyperlinked CC licenses, DOIs and ORCID IDs for 350 articles. 3. Make 45 web/Twitter announcements. 4. Make 25 web updates complying with publishing standards. 5. Attend 20 troubleshooting sessions and 05 demonstration sessions to editors of SLJOL. 6. Introduce 01 or 02 new journals to SLJOL.					No. of research articles uploaded No. of journal issues uploaded No. of DOIs registered	S&T information dissemination locally and internationally
			Providing access to S&T databases	Implementation of National Digitization Project and other databases/platformsand digital repositories						Add 3000 full texts to digital repositories in each quarter.					No of projects undertaken/completed to digitze S&T information and. No of full text S&T articles/records added. Amount of income generated (Rs. Mn). No of S&T records updated in the databases. Fully implemented KOHA in the NSF library.	
										Making subscription payments for foreign databases and SLJOL	Making payments for local publications					
										Initiate and complete KOHA project at NSLRC						
										Initiate and complete the DL project at the Presidential Secretariate		–	–			
										Initiate the KOHA Project at Maris Stella School						
				Developing digital platforms facilitating R&D and policy making	0.9 (for STMIS)		0.200		0.700	Expand and upgrade National Instument Database (NID), Organize demonstration sessions, Addition of module for tech-staff Expand and upgrade the Science and Technology Management Information System (STMIS) Introduce a Data Sharing Policy for STMIS Expand and upgrade the Global Digital Platform of Expatriates (GDP)		Expand and upgrade NID , STMIS & GDP	Expand and upgrade NID , STMIS & GDP Conduct an annual review of NID		Increased no. of institutes registered up to 80 Increased no. of instrument records up to 1500 Increased no. of product categories up to 250 Total number of registrants/ new registrations Number of circulations/information disseminations of events Data provisions	Availability of updated NID for its stakeholders, 750 users Increased networking among Sri Lankan scientific community
			NSF mandate c) S&T capacity Building													
			Capacity building in emerging fields addressing national high priority concerns	Matchmaking needs of universities, R&D institutions and industry with offers from institutions abroad and establish partnerships/R&D collaborations	0.590	0.035	0.235	0.210	0.110	Train two researchers	Realize one match-making Train three researchers	Train four researchers	Realize one match-making Train two researchers	Increase number of trained personnel in the STI sector by 15% (BP 50) Increase in the number of international partnerships established by 30%. (BP 5)	No. of expatriates registered in the digital platform. No.of fruitful partnerships established No. of trained researchers No. of new initiatives taken by the trained researchers to implement new know-how acquired at training No. of grants obtained No. of short-tern training fellowships secured No. of SMEs benefitted No. of R&D activities conducted	A comprehensive expatriate base with diverse range of expertise. Advancement of local innovation ecosystem benefitted through global opportunities. Enhanced global prominence of Sri Lanka's STI landscape. Increased knowledge sharing. Benefits reaped in terms of funding and capacity development Linkages established with international scientists Enhanced innovation capacity of SMEs
				Harness foreign funding opportunitis for enhancing innovation capacity						–	Facilitate submission of five proposals	–	Facilitatae submission of three proposals			
				Tapping the expatriate talent pool in leading industries abroad.						–	Conduct one knowledge transfer programme	Facilitate one capacity building programme	Establish one collaborative partnership between SME and foreign university.			
			Facilitate vocational training and skills development in demanding technological fields such as a Science, IoT, AI etc.	Conduct activities partnering with TVETs	0.050		0.030	0.020		Conduct first meeting with relevant TVETs and need assessment	Exploring potential expatriates and consensus building	Establish partnership between TVETs and relevant expatriate expert groups	Conduct first capacity building programme for Instructors		No. of programmes newly introduced in emerging fields	
				Facilitate cross boader transfer of cutting-edge knowledge for the benefit of researchers						Conduct one knwoeldge transfer programme	Conduct one knwoeldge transfer programme	Conduct one knwoeldge transfer programme	Conduct one knwoeldge transfer programme		No. researchers imparted with cutting-edge knowledge	
			Strengthening and expanding networks with International STI organizations	Conduct S&T activities partnering with ICGEB, ISC, GRC, GRA & AASSREC	1.750		1.500	0.250		–	Make the ICGEB membership payment Timely endorsement of applications from Sri Lankan researchers to the ICGEB under CRP.	AASSREC membership fee payment Present the country paper at the 25th Biennial General Conference of the AASSREC	–		No. of grants obtained No. of short-tern training fellowships secured No. of R&D activities conducted	
				Capacity building of library professionals						Conduct one trainng workshop on "KOHA"	Conduct one trainng workshop on "JISIS"	Conduct one trainng workshop on "DSpace"			No of trainng sessions/workshops conducted	Increased knowledge sharing and capacity development

Key Functions of the Ministry	Objectives of the Ministry	Relevancy to SDG goals & Target	Programme - Research Projects		Allocation (RS.Mn.)	Target								KPI	Expected Output	Expected outcome
						Financial (Rs.Mn)				Cumulative Phycical Target in Words						
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
			NSF mandate d) S&T policy research													
			Policy Studies	National R&D Survey a) Complete the R&D Survey-2022 b) Publish the R&D Survey Statistical Handbook 2022	2.900	0.1	0.500	2.200	0.100	Preliminary arrangements to the survey Data submission to UIS	Data collection of the R&D Survey 2022	Complete the Government, NGO, Business Enterprises and Higher Education sectors of the R&D Survey 2022.	Analysis of data Preparation of Statistical handbook - 50%	75% completion of the national R&D survey 2022 by end of the year Produce at least five (5) policy related documents for the year	Completion of the R&D Survey 2022- 75% Completion of the R&D Statistical Handbook 2022- 50% Increased usage of R&D Statistical Handbook by 2% compared to the BPs.	Availability of internationally comparable R&D statistics to Sri Lankan and global community
				Review and identify gaps/ updates in the current Biotechnology Policy	0.900	0.125	0.225	0.425	0.125	Stakeholders meeting to obtain viewpoints/ feedback on the current biotechnology policy. A brief report on the outputs of the stakeholder meeting related to reviewing the Policy.	Prepare recommendations on gaps/ updates for the current Policy Submit the recommendations to the NASTEC Awareness programs if any				Report/ document with recommendations	Availability of recommendations submitted to NASETC to revise and update the existing National Biotechnology Policy Availability of a brief report to the NSF Management
				Increase awareness and usage of applications related to Fourth Industrial Revolution in Sri Lankan context						Initiate work for sensitization workshop on 'Implications of the technological advances of the 4th Industrial Revolution'	Finalizing the formulation of a set of guidelines for Grants related to AI applications Consultative meeting/s to idea generation for formulating guidelines for the NSF Research/ Technology Grant schemes to support Research Grants related to AI applications	Create awareness among stakeholders/ general public on the Implications of the technological advances of the 4IR Conduct the sensitization workshop on 'Implications of the technological advances of the 4IR	A brief report on the implications of the technological advances of the 4IR		Awareness programme/s the implications of technological advances of 4IR A set of guidelines for the NSF Grant schemes Supported research grants related to AI application A document/ report with outputs/ recommendations of the Workshop	Increase the awareness among the public on the implications of technological advances of 4IR Increase the number and quality of research proposals received for the NSF Grant schemes related to AI applications
				Conduct/prepare other relevant policy studies/surveys/policy briefs						Conduct brainstorming sessions to identify topics. Meeting with experts to obtain inputs to develop the contents of PB. Designs and layouts for PBs. Conduct the study/ies	Meeting with experts to obtain inputs to develop the contents of PB. Designs and layouts for PBs. Conduct the study/ies	Conduct the study/ies	Finalizing the publication/s		Two Policy Briefs	Make available relevant policy recommendations to the relevant policy formulating bodies
			NSF mandate e) Science popularization													
			Developing community Science networks	Manitain/upgrade and expansion of science society network to include; - Schools - Universities - "Vidatha" Centres/farmer associations and other community groups.						Maintaing, updating and expansion of the SS	Maintaing, updating and expansion of the SS	Maintaing, updating and expansion of the SS	Maintaing, updating and expansion of the SS	Increase readership of the Vidurava science magazine by 5% (BP 2500) Increase number of student engagement for science popularization activities by 10% (BP=3000) 16 Science Magazine programmes telecast via an identified TV channel (new programme) Get 125 schools engaged in STEAM programmes (new programme)	10% increase of registrations (BP=1,165)	Reaching different segments of community to popularize science and improve community engagement in S&T activties
			Conduct interactive educational programmes promoting science education	Conduct competitions promoting science education and science popularization 1. Science Research Project Competition (SRPC) 2. Science Society Competition (SSC) 3.Kid Naturalist Programme (KNP)	2.500	0.5	0.500	1.000	0.500	Conducting competition 2022/23 STEP I &II ; Calling applications for SRPC 2023 , for SSC and Conducting teacher awareness on KNP	Evaluation of SRPC project proposals 2023 ; Evaluaton of SSC; Calling applications for KNP	Inititation of SRPC 2023; Evaluation of competions SSC and (n=3) and screening KNP applications received	Progress review and competitions STEP I &II for SRPC		20 % increase of students participation	Enhanced research culture in school system and producce nature loving school communinty
			Improving civic science literarcy and socio-economic welbeing of people via science populairzation	Science Communication & popularization via printed and digital media	0.500	0	0.250	0.250	0.000	Publication of "Vidurava" Issue 4 (2022)	Publication of "Vidurava" Issue 1	Publication of "Vidurava" Issue 2	Publication of "Vidurava" Issue 3 Award 01 publication grant		Published "Vidurava" for community science education	creation of scientifically literate society
					2.85	0.55	0.875	0.875	0.55	Airing 04 TV Science Magazines/02 discussions via Charana TV. Produce 02 video clips on short science messages. Publish 02 articles	Airing 04 TV Science Magazines/02 discussions via Charana TV. Produce 03 video clips on short science messages. Arrange 01 Subharathi programme with SLBC. Publish 02 articles	Airing 04 TV Science Magazines/02 discussions via Charana TV. Produce 03 video clips on short science messages. Arrange 01 Subharathi programme with SLBC. Publish 02 articles	Airing 04 TV Science Magazines/02 discussions via Charana TV. Produce 02 video clips on short science messages. Publish 02 articles		programmes on timely important theme	Public awreness on scientific aspects of emerging global and national issues and increasing locally originated scientific reading materials.

Key Functions of the Ministry	Objectives of the Ministry	Relevancy to SDG goals & Target	Programme - Research Projects		Allocation (RS.Mn.)	Target								KPI	Expected Output	Expected outcome
						Financial (Rs.Mn)				Cumulative Phycical Target in Words						
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
				Celebrate the World Science Day and NSF Award Ceromony for Science Popularization	2.000		1.500	0.250	0.250	Prearrangment activties	Award ceromoney of Science Popularization	Pre arrangmnet activties for WSD	celebrating the WOSD		1. Award ceromony of NSF Sceince popularization 2. World Science Day	Recognition and motivaton for students
				Conduct outreach programmes for science popularization, programmes promoting STEAM education, and programmes for scientific information dissemination and NSF services (SID)	4.034	1	1.500	1.000	0.534	One (01) outreach programme for different segments of community Make 10 visits promoting STEAM in 10 districts	One outreach (01) programme for different segments of community Make 15 visits promoting STEAM in 15 districts	One outreach programme for different segments of community Monitoring of progress of STEAM implementation (as of 1st & 2nd Q)	One outreach programme for different segments of community Implementation of the STEAM programme based on the progress/ work of 1st 2nd & 3rd Qs		100 trained community (BP=0)	Improved community wellbeing
					0.350	0.1	0.1	0.1	0.050	Three SIDs	Three SIDs	Three SIDs	Three SIDs		Increased awarenss on R&D outputs by 10%	
			Facilitate and promote STEM education	Conduct the special project for 5 selected under-performing schools at O/L science	1.000	0.25	0.250	0.250	0.250	trainingn programmes 03	initiation of piolot study	Monitoring progress and conntinuing with the progrmmes	monitoring progress and conntinuing with the progrmmes		Improved facilities in schools (BP=1)	develop students to persue science realted paths
				Conduct training programes for; teachers & students	1.000	0.5		0.5		1. Conduct 01 training programme for teachers	pre- and post activties of the programmes	Conduct 01 training programme for teachers	pre- and post activties of the programmes		Trained 500 teachers (BP 250) in	upgrade teachers knowledge
				SEPP & OSEP Grant Scheme	0.500	0.250	0.000	0.250	0.000	Facilitating 01 school/ field station	Progress monitoring	Faciliating 01 school	Monitoring progress.		Improved lab facilities in schools	promoteing STEM Education
			Acquisition of capital assets, maintenance and system administration													
			Implementation of staff development programmes	Provide training for work performance enhancement	2.800	0.500	0.860	1.280	0.160	Provide short term training (Technical) programmes to 10 staff members Conduct 03 trainings programmes on soft skills Arrange 02 training programmes on Efficiency Bar and conduct the exam	Provide postgraduate training programmes to 02 staff members Provide short term training programmes to 20 staff members Provide training to 45 executives, 45 non-executive and 15 primary level staff members	Provide short term training (Technical) programmes to 15 staff members Provide training on soft skills to 60 staff members (MA - 45, PL - 15) Conduct a team building activity for all staff	Provide short term training (Technical) programmes to 10 staff members Provide 100 hrs training programmes to 60 staff members of MA and PL categories	Increased staff happiness index compared to 2022	No of staff members trained	Inhanced motivation and work output
			Maintaining the IT infostructure	Improving multimedia facilities in the Auditorium	2.500	2.5				Upgrading multimedia facilities in the auditorium to conduct hybrid meetings/ webinars	_	_	_	Reduced trouble shootings compared to 2022	Established hybird multimedia facility in the auditorium	Improved facilities for conducting hybrid events
			Total		**70.00**	**11.549**	**28.174**	**21.624**	**8.653**							

Performance Highlights

Physical Performance Highlights – 2023

• NSF wins the Gold Award at the Best Annual Reports & Accounts Awards Ceremony 2023

NSF won the Gold Award for its annual report 2022 under the category of 'Research Institutions' at the Seventh Best Annual Reports Awards Ceremony 2023 organized by the Association of Public Finance Accountants, Sri Lanka (APFASL), the Public Sector Wing of Charted Accountants of Sri Lanka. This is the 5th consecutive year that NSF has been honored with an Award at this Competition. The NSF Annual Report of 2022 reflected on the financial and physical performance, comprehensively, in summary format as well as in detail and graphical format including pictures. The exceptional work carried out by committed staff of NSF, supported by the continued guidance from all stakeholders and the meticulous accuracy of the final accounts, even amidst of a turbulent economy and other challenges, played a significant role in winning the top Award.

• NSF wins "Best Performance Award"

NSF was recognized through receiving the "Best Performance Award" from amongst the Science and Technology Institutions in Sri Lanka. This recognition, evaluated by the National Science Technology Commission (NASTEC) is a testament to the commitment of NSF in strengthening the Science and Technology sectors in Sri Lanka. The award was received from Dr Susil Premajayantha, Honorable Minister of Education at the 9th Biennial Conference on Science and Technology (BICOST-IX) held from 23-24 March 2023. Chairman, Prof Ranjith Senaratne and Director General, Dr Sepalika Sudasinghe of NSF received the award at the felicitation ceremony.

• Two Grants had reached the commercialization level-

- RG/GAPF/2021/EB/02 - Prof. Pathmalal Manage of the University of Sri Jayewardenepura as the PI of the research project, developed a domestic water filter for removal of Geosmin, 2-MIB, cyanotoxins, and antibiotics in drinking water, had achieved scaling up and commercializing residential water filters. It uses photocatalytic degradation and adsorption technologies to remove odour and taste compounds, cyanotoxins, pesticides, heavy metals, and antibiotics from various water sources. The research team successfully developed the water filter with an industrial design.

- Ongoing Grant RG/GAPF/2021/EB/01, titled, 'Purification of Graphite of Sri Lanka as High Value addition', has resulted three purification methods namely; Physical method, Acid method and Alkali-Acid method. An apparatus has been developed under the project to convert low-grade graphite below 40% to 98-99% carbon in mass scale.

• A total of forty-nine (49) research projects were monitored during the year and eight (08) new grants were awarded by the end of the year under several NSF schemes in 2023. One hundred ninety-nine (199) researchers (PIs and Co-Is) in thirty-one (31) institutions benefitted from all of these research grants.

• A special event was organized to disseminate findings of research carried out under NSF-NSFC (Natural Science Foundation in China) 1st Joint Research Programme.

• With a view of promoting international collaborative research, links with International Center for Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy and Natural Science Foundation of China (NSFC) were strengthened.

• NSF supported developing a Good Manufacturing Practices (GMP) Guideline to enhance the quality of Sri Lankan Batik sector jointly with the National design Centre (NDC), Sri Lanka Standard Institute (SLSI) and National Crafts Council (NCC) with the purpose of uplifting the Sri Lankan

batik sector through improvement of the production process, sustainability and development of the quality of batik products, contributing to the national economy.

• NSF, being the premier hub institution in the S&T sector of the country has developed the National Instrument Database - a state-of-the-art digital database of instruments available in institutions. Besides ensuring rationalization and avoiding unnecessary duplication of high-end equipment, it will provide a user-friendly, cost-effective, analytical and testing service and research support for academia, R&D institutions and industry including MSME, particularly those which lack the requisite laboratory facilities and technical competencies. As at end of the year, 61 universities/institutes and 397 users have registered, 253 product categories, 487 laboratories and 1120 records on instruments have been entered.

• NSF Support Scheme for Supervision of Research Degrees (SUSRED) is aimed at motivating, supporting and recognizing scientists/engineers engaged in supervising students conducting research in all areas of Science and Technology leading to postgraduate degrees. This year 42 supervisory teams consisting of 93 researchers *(Figure 22)* were successful in being eligible for the awards.

• NSF funded project on 'Purification of Graphite of Sri Lanka as a high value addition' was accoladed with DASIS Award for the apparatus and method to convert low-grade graphite below 40% to 98-99% carbon in mass scale at the National Inventors Day celebrations 2023. This is a significant milestone in terms of value addition to natural resources.

• Under the initiative of "Evidence based decision making programme: Research into practice", findings of the research carried out addressing dengue research were presented to relevant officials of the Ministry of Health. The NSF "Lab to Market" model was introduced at this meeting.

•NSF in collaboration with the Ministry of Education organized the second symposium on Indo-Sri Lanka joint research programme on 20th January 2023 at Sankathani, Sri Lanka Institute of Development Administration (SLIDA).

• The Journal of the National Science Foundation of Sri Lanka (JNSF) the only journal in Sri Lanka indexed in SCIE published its 51st volume in four issues in March, June, September, and December with 54 articles (52 Research Articles, 01 Review Article and 01 Research Communication).

• Sri Lanka Journal Online Platform (SLJOL) was launched in March 2023 which is a remarkable achievement and a significant contribution to the scientific community in Sri Lanka where open access is provided to over 20,000 research articles from 131 scholarly journals enhancing global visibility for research.

• The R&D Statistical Handbook was published based on the national R&D survey conducted for the fiscal year 2020. This statistical handbook reflects the performance of Research and Development activities of the country for the four sectors viz. Higher Education Sector, Government R&D Sector, Business Enterprise Sector and Private Nonprofit Sector.

• Science and Technology Management Information System (STMIS) is a computerized information system developed and maintained by the NSF since 2004. By the end of 2023, STMIS recorded 7300 registrants in the database, of which 163 were new registrants during the year.

• NSF Global Digital Platform was expanded with 90 expatriate registrations newly and nine partnerships for cross-border research collaboration and technical cooperation were established.

• In strengthening TVET sector addressing 4IR, NSF partnered with the National Apprentice and Training Authority (NAITA) to enhance the performance of technical and vocational education and training with an emphasis of emerging fields such as data science addressing emerging opportunities

in the global labour market. Accordingly, a comprehensive curriculum for a National Diploma course in Data Science was developed and submitted to NAITA as per their request.

• A capacity building programme on IoT was in progress aimed at ICT lecturers of the UNIVOTEC.

• NSF Facilitated harnessing ten million rupees from the International Center for Genetic Engineering and Biotechnology (ICGEB) under its 'Meeting and Courses programme and Arturo Falaschi Fellowship for the benefit of researchers.

• Five programmes were conducted to facilitate cross-boarder transfer of cutting-edge knowledge addressing fields having strategic advantage for the benefit of research community.

• New know-how was transferred to rubber plantation sector on sustainable bark management to ensure harnessing of full economic lifespan of rubber plants thereby to improve productivity.

• Facilitation of R&D was done towards the development of an effective fertilizer combination with Eppawala Rock Phosphate (ERP) through fungal bacterial biofilm action to enhance vegetable crop productivity in place of imported Triple Super Phosphate (TSP).

• Facilitated technical cooperation from Brazilian Cooperation Agency (ABC Institute to improve Sugarcane and Dairy sectors of Sri Lanka.

• A team of students (10) and teachers (03) participated at the Belt and Road Teenager Maker Camp & Teacher Workshop organized by the China Association for Science and Technology (CAST) and Ministry of Science and Technology of China jointly with World Organization of Science Literacy (WOSL). They have won places in the categories of 'Best Team', 'Best Presentation' and 'Best Maker' for the activities they carried out at the Camp.

• By the end of 2023, the NSF had registered 1,163 School Science Societies (SSS) and 55 University Science Societies (USS). The initiative has also been taken to establish community-based science societies at village level.

• The NSF has initiated a project to promote science education through STEAM approach in 50 selected schools. The project has been implemented jointly with the Science Branch of the Ministry of Education (MoE) and Corporate Social Responsibility Trust of Commercial Bank of Ceylon PLC.

• The national programme to introduce STEAM education to the education system of Sri Lanka was held at the 'Nawarangahala' of the Royal College, Colombo 07, on 31st March which was jointly organized by the Ministry of Education (MoE) and National Institute of Education (NIE).

• A programme on Objective Science Reporting was initiated to disseminate accurate facts and authentic information relevant to scientific findings / innovation / or any other scientific development with special attention to general public.

• To combat COVID 19 and to mitigate its consequences in Sri Lanka, as per the national priorities, NSF initiated a special grant scheme on competitive basis under "COVID 19 grants". Seven (07) out of eight (08) grants were summed up in 2023.

• Three (03) grants awarded by Technology Development and Innovation Division were completed successfully while one grant commercialized its products at national level.

NSF overall performance

In the year 2023, NSF introduced a Performance Dashboard to evaluate the organizational performance. Performance dashboards are a powerful tool that can help organizations drive towards their targets by setting key performance indicators, ensuring all employees and administrators are working towards the same goals, and having the ability to check and see if progress is being made. Following depicts the NSF Organizational Performance against set KPIs as at 31st November 2023.

Divisionwise performance

Division	Physical progress
Research Division	85.61%
Technology Development and Innovation Division	77.78%
International Affairs Division	100%
Science Communication and Outreach Division	100%
Science and Technology Policy Research Division	71.86%
Journal Publication Division	76.11%
National Science Library and Resource Centre	100%
Administration Division	80%
Media and Event Management Division	95.69%
NSF	**89.81% (90%)**

Outstanding (over 90%)
Excellent (75% - 89%)
Very Good (60% - 74%)
Good (50% - 59%)
Satisfactory (40% - 49%)
Poor (Below 39%)

Overall organizational performance: 90%

Action Plan 2023 – Key Performance Indicators (KPIs)

1. The Extent that the research base of Sri Lanka strengthened (in terms of grants awarded, institutions benefitted, scientists benefitted, MPhil/PhD produced, Scientist recognized).
2. The amount of new knowledge creation and technology development (in terms of Journal publications, patents granted/filled, Grants successfully completed, Technology transfers).
3. Extent of S&T information availability and usage.
4. Extent of international partnerships facilitated in leveraging STI performance (in terms of trained R&D personnel, TVET sector personnel, cross boarder cutting edge knowledge transfer and international collaborative research).
5. Extent of STI indicators generated/updated in strengthening policy formulation.
6. Enhanced level of promotion of STEAM education with special attention to school community.
7. Enhanced level of employee engagement.
8. Reduced trouble shootings of IT equipment compared to 2022.

Financial Performance Highlights – 2023

Figure 02 depicts the allocations and expenditure (in Rs. Millions) for each of the six mandated areas at NSF in 2023. Accordingly, NSF Mandate 01 has the highest allocation and the expenditure and NSF Mandate 03 has the lowest allocation and Mandate 06 has the lowest expenditure.

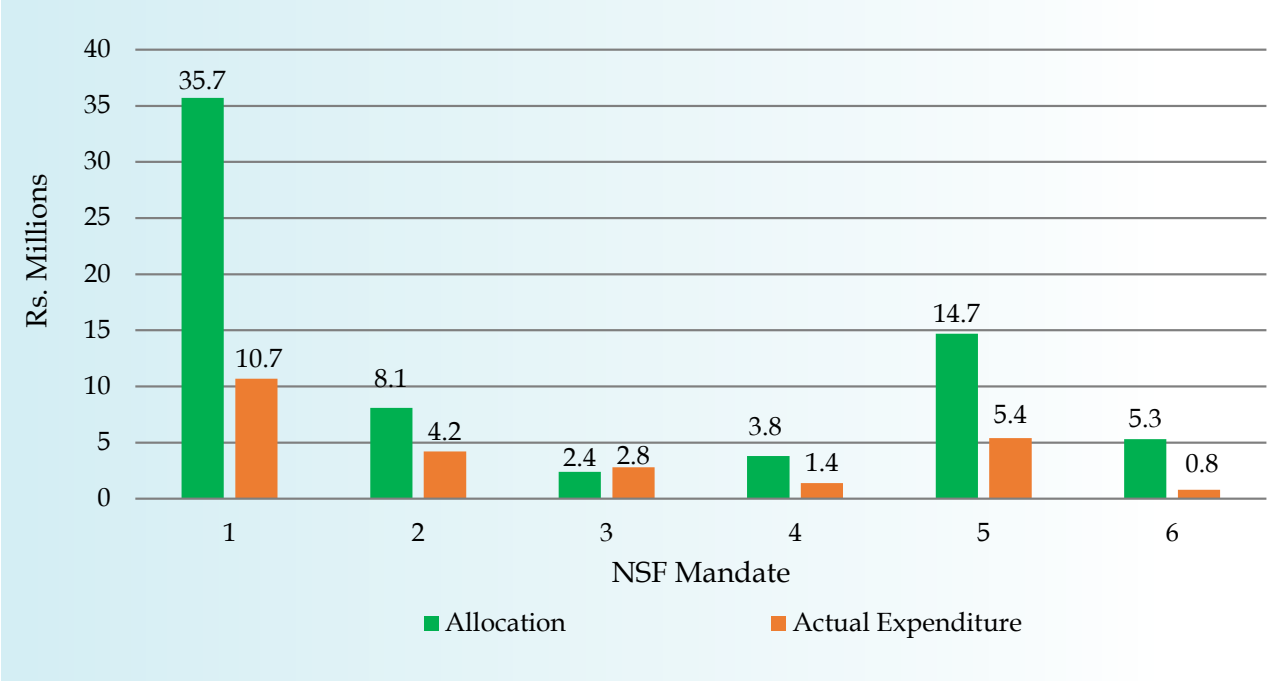


Figure 02: Allocation and Actual Expenditure for each Mandated Area in 2023 (in Rs. Millions)

NSF has generated an income of Rs. 2,537,790.74 in 2023 and their avenues are as in F*igure 03.*

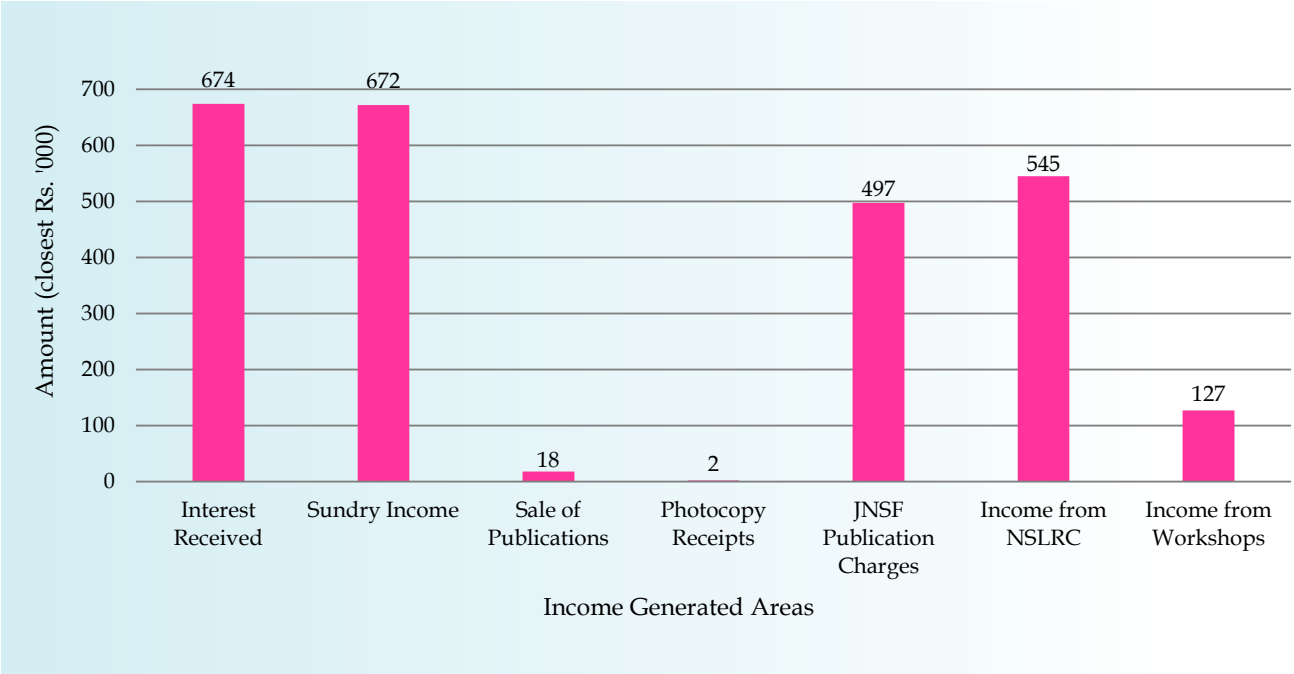


Figure 03: Income Generated by NSF in 2023

Mapping NSF Functions with Sustainable Development Goals (SDGs) and the National Policy Framework (NPF)

The NSF Mandated areas have been mapped to be in line with the United Nations Sustainable Development Goals (SDGs) and the National Policy Framework of Sri Lanka as in *Figure 04*. Accordingly, all activities of NSF are in par with the SDGs and the NPF.

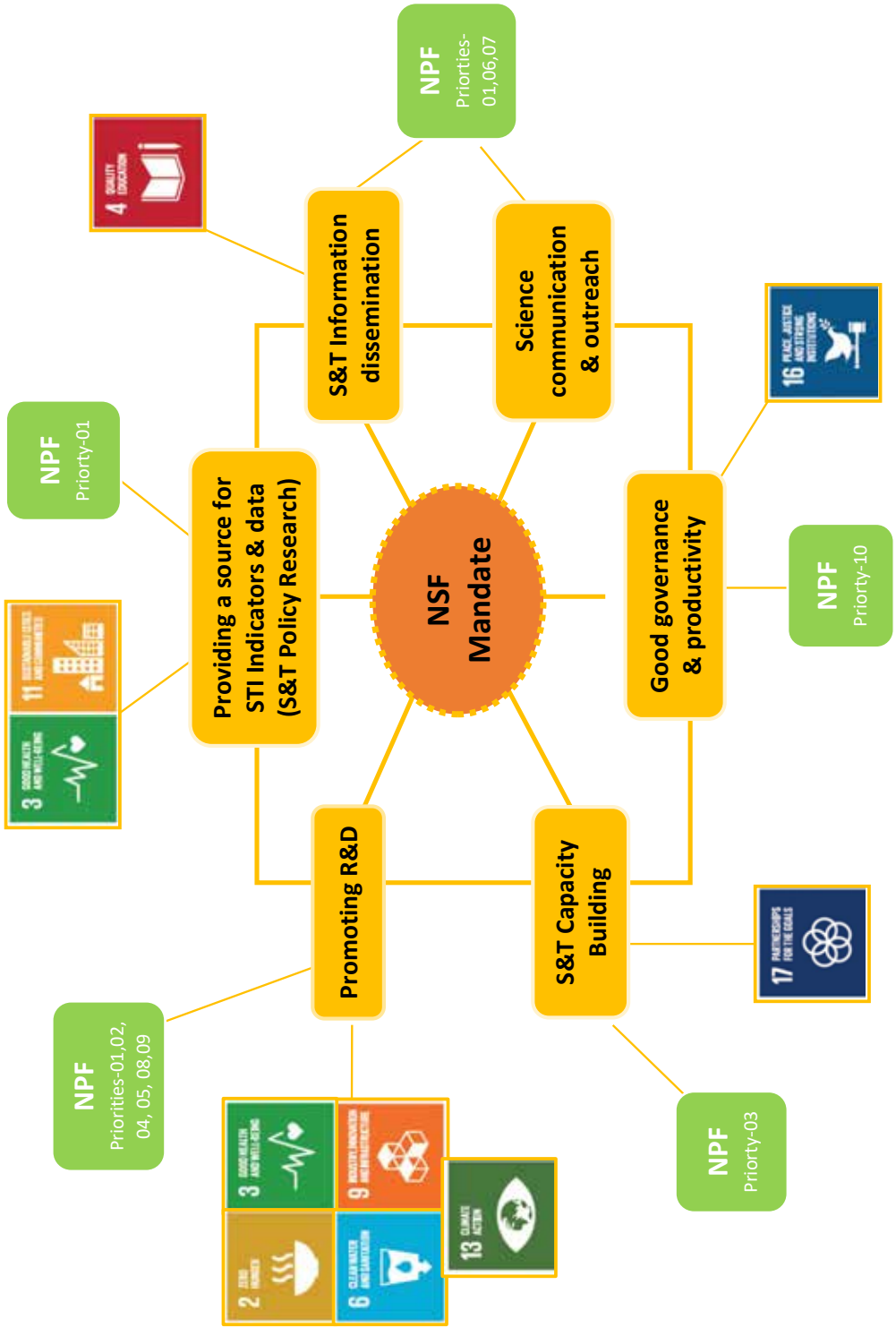


Figure 04: NSF Mandate Aligned with the NPF and the SDGs

Achievements Against the Action Plan 2023

NSF Mandate a) Promoting Research & Development

Programme: Implementing Research & Technology Development Projects

The Research Division (RD) fulfilled this objective by awarding and monitoring research grants under the following schemes. However, grant activities were severely affected by the economic situation in the country.

- Competitive Research Grants scheme (CRG)
- International Collaborative Research Projects (ICRP)
- Gap-filling Research Grants (GapF)
- Research Programme on Health Sciences (RPHS)
- National Thematic Research Programme (NTRP)

A total of forty-nine (49) research projects were monitored during the year and eight (08) new grants were awarded by the end of the year under the above schemes in 2023. One hundred ninety-nine (199) researchers (PIs and Co-Is) in thirty-one (31) institutions benefitted from all of these research grants. The distribution of research grants and the grantees are given in *Figures 05* and *06.*

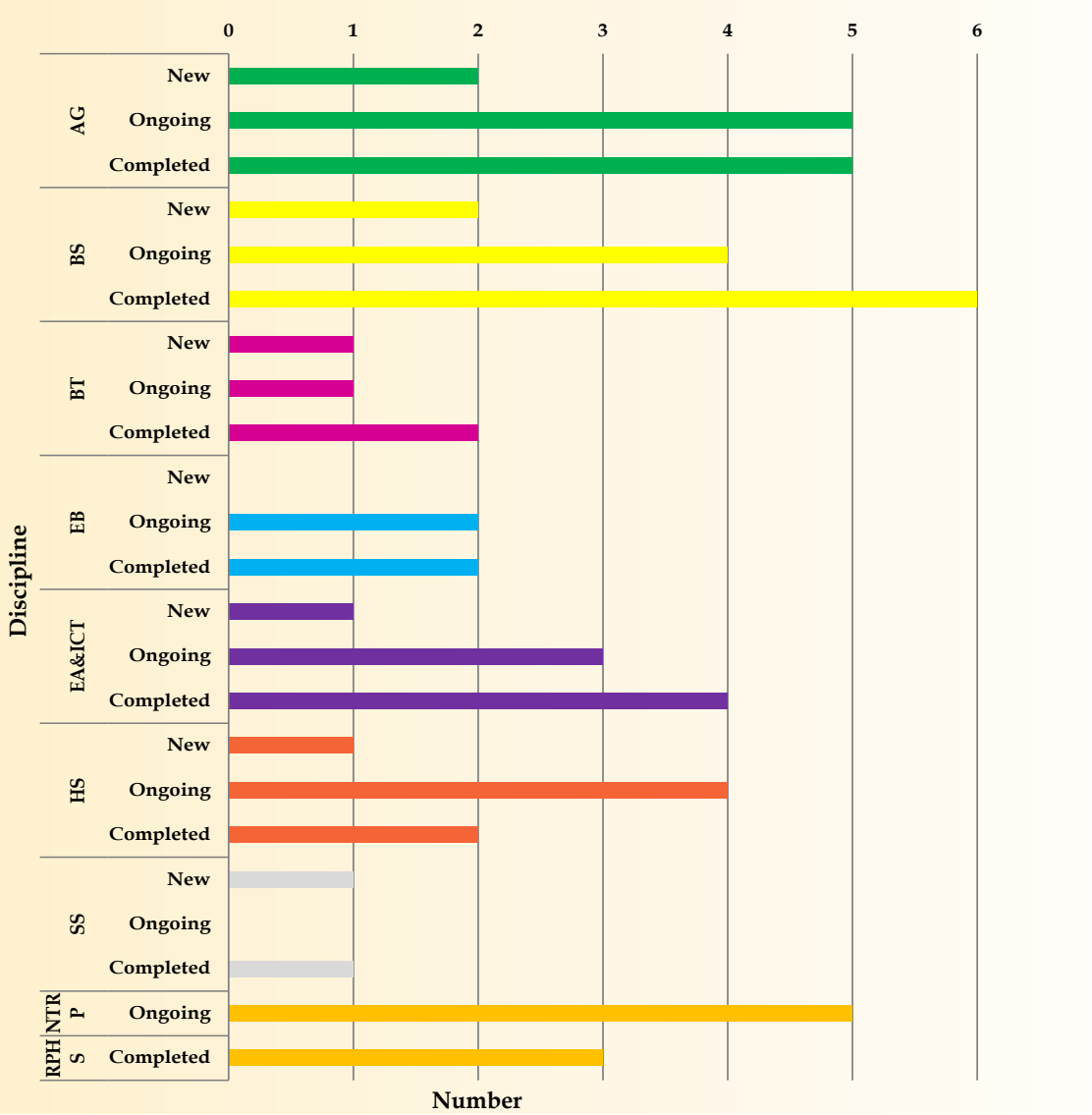


Figure 05: Number of research grants under different disciplines 2023

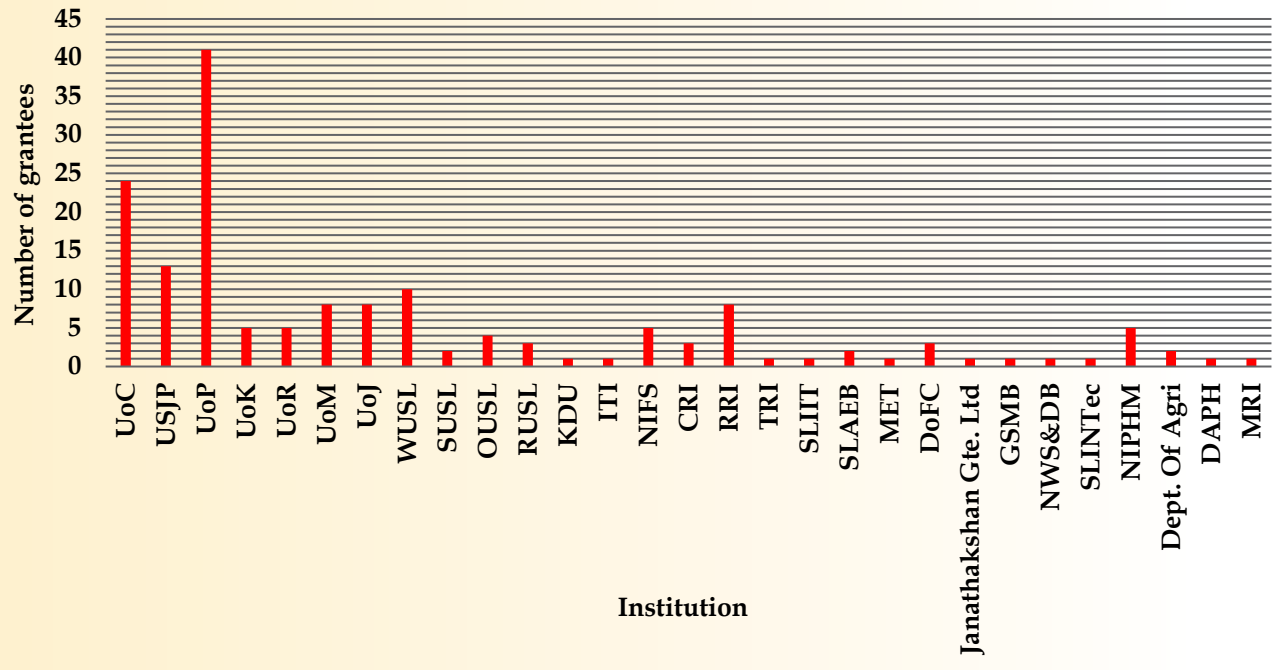


Figure 06: Distribution of grantees among institutions

The investigation teams of all the new, ongoing and completed grants consisted of either multidisciplinary teams (34 grants), teams of investigators from the same department (12 grants) or only single investigator (11 grants; *Figure 07*). In majority of the grants, the researchers worked in partnership with collaborators. The 57 grants included seventy-four (74) collaborators, both local (40) and foreign (34), including nine (09) private sector collaborators *(Figure 08)*.

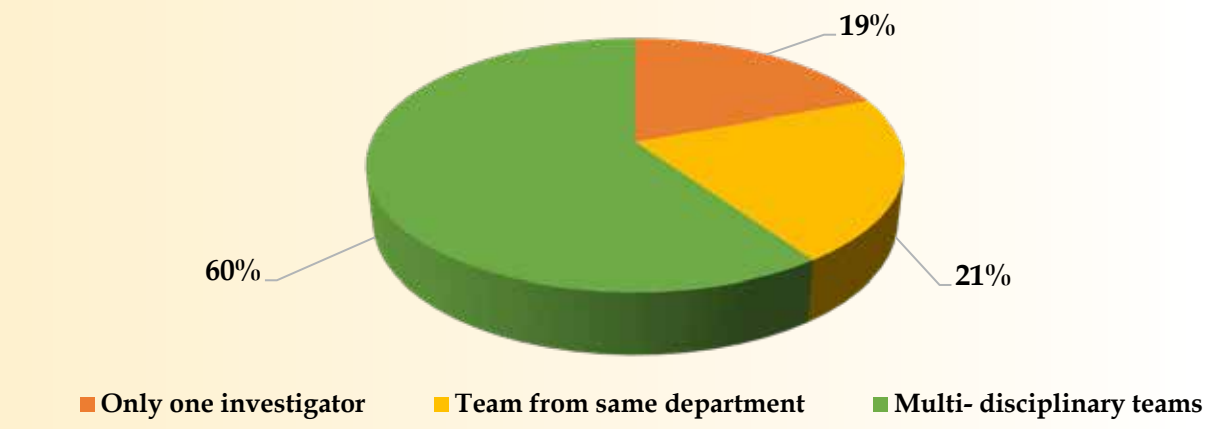


Figure 07: Distribution of Team members

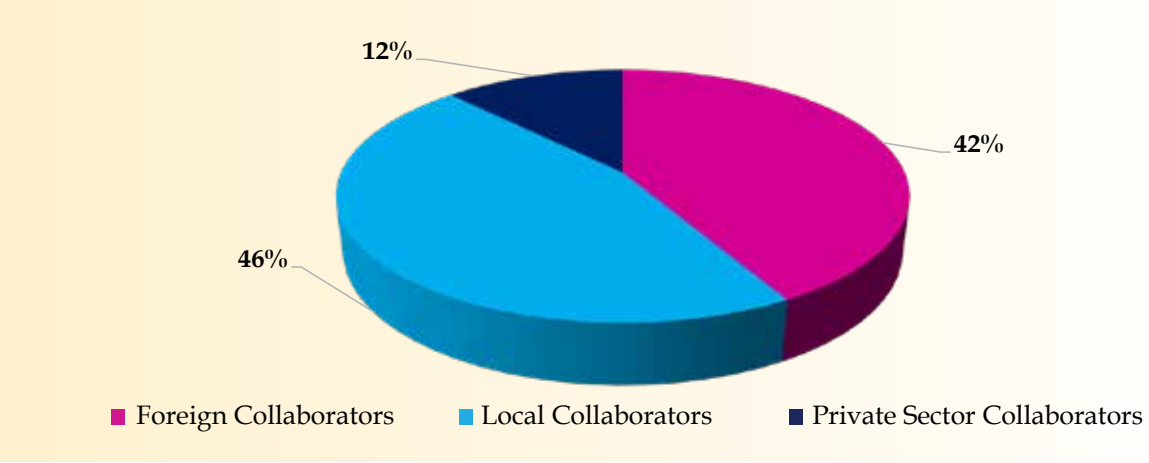


Figure 08: Distribution of Collaborators

The output of research grants included publications, patents and postgraduate degrees *(Figure 09)*. A total of seventy-two (72) publications have resulted from all research grants in 2023, including twenty-one (21) SCIE indexed publications, seven (07) refereed journal publications and forty-four (44) communications. In addition, three (03) patents were obtained in the fields of Environment & Biodiversity and Health Sciences, and five (05) other patents were filed in 2023 from grants awarded in the fields of Basic Sciences, Environment & Biodiversity and Health Sciences. Five (05) PhD degrees and twenty (20) MPhil degrees were also completed during the year.

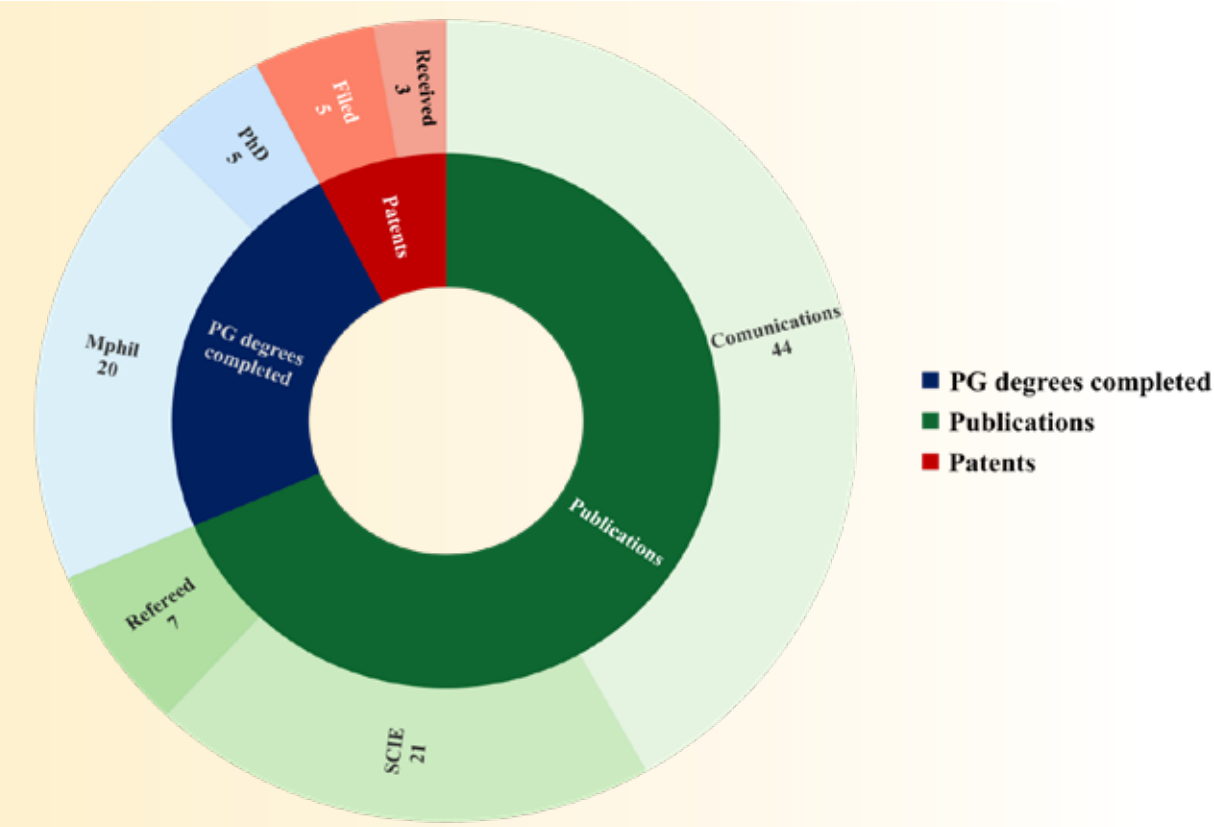


Figure 09: Distribution of output of research grants

1.1 NSF Competitive Research Grants Scheme

The NSF Competitive Research Grants (CRG) Scheme provides assistance to supplement the financial, physical and manpower resources available in S&T Institutions in Sri Lanka for scientific research. It facilitates to harness independent, individual and intellectual capacity of scientists and encourages them to carry out research of high standard, directed towards socio-economic development of the country. Competitive Research Grants are awarded in all fields of Science & Technology including social sciences.

Nine (09) new grants were awarded in 2023 (*Annex 03).* However, eight (08) of those grants were awarded at the end of the year and therefore project work of those grants were not initiated. Forty-one (41) CRG grants were monitored during the year, and funds were released based on good progress and financial needs while twenty-two (22) grants were completed by the end of 2023. A total of one hundred thirty-three (133) researchers (PIs and Co-Is) benefitted from the CRG grants. Details are given in *Annex 02* and *04.* During the year, 11 Research Students and 03 Technical Assistants have been appointed. A summary of the status of research grants as at 31.12.2023 is given in *Annex 05*.

1.2 Progress monitoring of research grants

Progress of ongoing grants were monitored through evaluation of bi-annual progress reports, progress review seminars and field visits.

1.2.1 Field visit to SL Atomic Energy Board

A field visit was conducted on 23rd October 2023 to the Sri Lanka Atomic Energy Board to monitor the progress of the ongoing research grant, RG/2021/BS/01, titled, 'Applying Isotopic Fingerprinting to Authenticate Sri Lankan Coconut Kernel Products to Protect and Promote in International Market'.

This grant was monitored with the support of the working committee on Basic Sciences. The Chairman of the working committee, the reviewer and NSF officials joined this field visit. The objective of the grant is to authenticate Sri Lankan coconut kernel products to protect and promote in the international market using isotopic fingerprinting. 50% of physical progress and 66% of financial progress had been achieved by the time of the evaluation. Suggestions were provided to the grantees for improvement.

1.2.2 Progress review meeting of the grant awarded to Industrial Technology Institute

A progress review meeting of the grant RG/GAPF/2021/EB/01, titled, 'Purification of Graphite of Sri Lanka as High Value addition' was held on 02nd November 2023 at the NSF Board Room. The research team presented the progress of the project with the milestones achieved in detail. Under the project three purification methods namely; Physical method, Acid method and Alkali-Acid method had been tested. Results obtained together with milestones achieved under each purification method are given in the table below;

Purification method	Results/Achievements
Physical method	Purity level: purity up to 99% at industrial level Commercialization process started
Acid method	Purity level: purity up to 99.8 % at industrial level. Technological knowhow transferred to industry
Alkalai-acid method	Purity level: purity up to 99.97% at Lab level. Lab trials are still in progress



Figure 10: Apparatus developed under the project to convert low-grade graphite below 40% to 98-99% carbon in mass scale

Highlights of Completed Grants

Grant Number : RG/2017/BS/03
Principal Investigator : Prof. R. M. G. Rajapakse, Department of Chemistry, Faculty of Science, University of Peradeniya
Project Title : In-vitro evaluation of biocompatibility and antimicrobial properties of hydroxyapatite nanoparticles and their composites derived from naturally occurring Sri Lankan minerals for biomedical and water purification applications

This research aimed for the cost-effective synthesis of biocompatible hydroxyapatite (HA) nanoparticles and composites using natural Sri Lankan minerals. Biomedical applications, like prosthetics, benefit from HA nanoparticles. Through this study, low-cost HA nanoparticles and composites with antimicrobial and biocompatible properties were investigated which can be used for biomedical applications and purifying polluted water. For these cost-effective methods, naturally occurring local minerals were used and nano composite with enhanced efficiency in removing toxins and heavy metals from contaminated water were produced. Biocompatible HA nanoparticles and antimicrobial HA nanomaterials effectively tackle drinking water problems. The utilization of Sri Lankan minerals adds value to the country's mineral resources and presents an opportunity for establishing a new industry in Sri Lanka contributing to the economy. This work resulted in 01 SCIE publication, 01 book chapter, 11 communications and 01 MPhil degree.

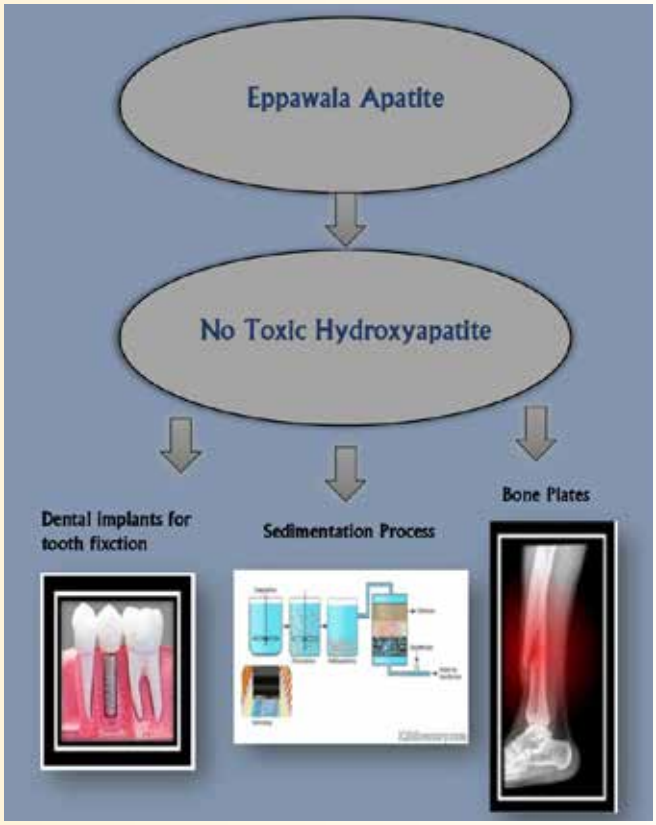


Figure 11: Application of the nontoxic synthesized nano particles and composites

Grant Number : RG/2018/BS/02
Principal Investigator : Prof. R. Senthilnithy, Department of Chemistry, Faculty of Natural Sciences, Open University of Sri Lanka
Project Title : Computational studies on inhibition of epigenetic modifications of cancer codes

Both genetic and epigenetic modifications of DNA can lead to cancers. Acetyl and methyl histone modifications and DNA methylation are the most studied epigenetic modifications recognized as common hallmarks of human tumors. In this work, the research team attempted to develop

computational methods (molecular docking and molecular dynamics) to investigate the drug binding site's atomic/molecular level description and the relative binding strength of the drug molecules with DNA and protein. Currently, several anti cancer drugs are in various stages of clinical trials. However, it is not confirmed whether the drug is effective or not. Through this study the inhibition efficacies of the inhibitor compounds against HDLP enzyme and DNMT enzyme were found. According to the findings, it is possible to suggest LBH589, PCI24781 and zebularine for further clinical research and clinical tests.

This work resulted in 02 SCIE publications, 02 non SCIE publications, 10 communications and 01 MPhil degree.

Grant Number : RG/2018/BS/03
Principal Investigator : Prof. G.R.A. Kumara, National Institute of Fundamental Studies
Project Title : Development of highly efficient and environmentally stable perovskite solar cells and perovskite solar panels by industrially viable methods for power generation

Perovskite solar cell (PSC) is a type of solar cell which includes a perovskite structured compound, most commonly a hybrid organic, inorganic, lead or tin halide based material, as the light harvesting active layer in place of dyes used in dye sensitized solar cells. In PSCs, Spiro-OMETAD is used as hole transporting material and gold (Au) is used as back contact. Those materials are very expensive. In this study, low cost alternatives for those materials were used.

Expanded Graphite (EG) was synthesized using graphite attached small rocks which were being discarded by graphite mines. In this study, Au was replaced with EG and expensive polymers were replaced with activated coconut shell charcoal (ACSC) and rice husk charcoal (ARHC), which were activated using low cost and simple methods and a novel powder pressing method. Solar cells made using ACSC powder activated at 950 °C showed the highest efficiency of 4.94% under AM 1.5 simulated sunlight under ambient conditions.

Further investigations are being done to improve fabrication and synthesis methods to increase the powder conversion efficiency and long term stability of the device.

Grant Number : RG/2019/BS/01
Principal Investigator : Dr Gayan Bowatte, Department of Basic Sciences, Faculty of Allied Health Sciences, University of Peradeniya
Project Title : Building a 3D air pollution model for the city of Kandy: a platform to evaluate health outcomes

Ambient air pollution in Sri Lanka is an under-investigated topic. Standard air pollution monitoring is expensive, and Sri Lanka has a handful of such monitoring stations. Proper calibration and maintenance of low cost sensor networks can provide some solutions to fill the gaps in air pollution monitoring.

In this project, a small sensor network was used to measure particulate matter <2.5 µm (PM2.5) in the Kandy municipality area and built a high resolution land use regression (LUR) model to estimate PM2.5. Principal Investigator was successful in obtaining an international grant worth of Rs. 36 million based on the collaborations made through this research project to extend the research to cover the whole of Sri Lanka. The research results can be used to control air pollution in Kandy city through the identification of air pollution hotspots. Also, this project can be used to monitor the success of future measures to reduce air pollution. The developed land use regression map can be used to get information related to air pollution about the whole of Kandy, which extends over 26 km^2. The LUR model can be used to assess personal level air pollution exposure using geographical coordinates of the address and relate with health outcomes.

Grant Number : RG/2019/BS/02
Principal Investigator : Dr W. M. D. G. B. Wijayaratne, Department of Microbiology, Faculty of Medicine, University of Ruhuna
Project Title : Characteristics of *Candida* species isolated from oral flora of cancer patients and the in-vitro anti-candida activity of selected medicinal plants in Sri Lanka

In this study, clinical factors and demographic factors associated with candidiasis were determined. Antifungal susceptibility/resistance of all *Candida* isolates to fluconazole, voriconazole, and amphotericin B was investigated. Identification of all *Candida* isolates was completed up to the species level. Anti-candida activity of all selected plant extracts was evaluated. Potential plant extracts were selected for the formulation of the mouthwash. Antifungal resistance and susceptibility data of clinical and community isolates of *Candida* would help clinicians and researchers understand treatment strategies and determine novel therapeutic approaches. This work resulted in 04 communications and lead to 01 MPhil degree.

Grant Number : ICRP/NSF-NSFC/2019/BS/03
Principal Investigator : Prof. K. B. S. N. Jinadasa, Department of Civil Engineering, University of Peradeniya
Project Title : Membrane Fouling Mechanism and Control of High-Pressure Membrane Processes (NF/RO) and Electrodialysis (ED) Purifying Groundwater with DOM and High Hardness in CKDu Affected Areas of Sri Lanka

Chronic Kidney Disease of unknown etiology (CKDu) is a national health hazard in Sri Lanka; however, the definitive cause for the disease is unknown to date. Since most external factors which trigger CKDu are associated with drinking water, the provision of safe drinking water is utmost important for such areas. This work investigated the purification of the groundwater of CKDu areas of Sri Lanka using membrane technologies such as nanofiltration (NF) and electrodialysis reversal (EDR). Most groundwater sources in the CKDu areas are enriched with hardness, fluoride, iron and dissolved organic carbon (DOC). The elevated DOC with observed bivariate and multivariate correlations indicated the potential of formation of DOC-Ca, DOC-Mg, DOC-Al and DOC-Fe complexes which can act as membrane foulants. Since one of the major limitations associated with membrane filtration is membrane fouling, the present study focused on the elucidation of membrane fouling mechanisms in the presence of DOC and hardness (calcium). Fouling studies were conducted using lab scale NF and EDR set ups. Sri Lankan humic acid (SLHA) and fulvic acid (SLFA) were extracted from groundwater obtained from a CKDu endemic area and utilized to study fouling mechanisms alongside with commercial humic acid in the presence of calcium. The presence of calcium has significantly contributed towards irreversible fouling by forming ternary complexes with membrane functional groups. Membrane desorption experiments were carried out using various cleaning agents to probe variations among fouling mechanisms. Fouling mechanisms were significantly varied for SLHA and SLFA due to their structural variations. Additionally, the longterm stable operation of drinking water treatment technologies was examined by investigating the current field reverse osmosis and NF units and by analysing the performance of a selected NF unit for its continuous operation. The findings revealed that NF would be an effective technology to treat groundwater in the CKDu endemic areas. This work resulted in 04 SCIE publications, 05 communications and 02 MPhil degrees.

Grant Number : RG/2019/BT/01
Principal Investigator : Prof. Rupika Rajakaruna, Department of Zoology, Faculty of Science University of Peradeniya
Project Title : Tick-borne spotted fever group rickettsioses in the Central Province: types of pathogens, vertebrate reservoir host community composition and tick species involved in circulation and maintenance of pathogens

Tick-borne infections (TBI) are rising globally, causing severe illness and death in humans and domestic animals. Human TBIs are emerging infections because of increasing contact with wildlife especially

when domestic animals encounter wild animals due to the overlap of their habitats, introducing ticks and TBIs to humans. This study was designed to investigate tick-borne rickettsial infections in vertebrate reservoirs and the role of tick species in the circulation and maintenance of rickettsial pathogens in the Central Province. A total of 3,087 ticks from domestic (n=657) and wild animals (n=18) and humans (n=28); and 920 blood samples from domestic and wild animals were collected. Six skin biopsies of rickettsial suspected patients were collected. Ticks were pooled and the blood meal was analysed for rickettsial infections. Blood samples collected from animals were analysed using Giemsastained slides followed by molecular tools. The extracted DNA was subjected to PCR to check the presence of Rickettsial infections. None of the samples were positive for rickettsial DNA. Therefore, the objectives were broadened to investigate all TBIs in the samples. The research reported the presence of many haemoparasites such as Babesia, Leishmania, *Anaplasma*, Hepatazoons, *filaria* and *Ehrlichia* in the animal samples collected through Geimsastained smears and molecular analysis. Although they harboured many parasites, most animals especially free roaming mongrels among dogs were asymptomatic but also go undetected if only smears are used for diagnosis. Although not detecting rickettsial DNA in the blood samples cannot rule out the absence of the infection, the research intend to analyse using revised protocols and analyse a large pooled sample. It could also be that the infection maybe seasonal and the researchers may have missed the peak time during sample collection.

Grant Number : RG/2019/BT/02
Principal Investigator : Dr Thusitha Wickramasinghe, Department of Biochemistry & Clinical Chemistry, Faculty of Medicine, University of Kelaniya
Project Title : Optimization of bead-based SELEX for selection of aptamers and evaluation of a novel real time PCR based approach for monitoring SELEX

Despite the usefulness of antibodies, their production, particularly at the commercial level, is a costly process, making antibodies a costly molecular reagent. "Aptamers" are synthetic molecules that have received recent attention for their ability to replace conventional antibodies as detector molecules. Aptamers have the convenience of being produced completely through synthetic approaches, making their production quite cost effective. Also, these molecules claim to have a longer shelf-life, resistance to temperature variations, and the ability to be chemically modified, making them an ideal substitute for conventional antibodies. Aptamers have become a multimillion dollar business used in various diagnostic platforms ranging from clinical diagnostics to environmental contaminant detection. Many countries are involved in this field of research, and it has produced remarkable progress. Despite the availability of technology in Sri Lanka, aptamer research has remained an untapped field. In this project, initial attempts were made to establish an aptamer developing platform for the first time in Sri Lanka. The process requires stringent monitoring of every step, and the researchers have also proposed a novel combination of monitoring methods in conducting aptamer development. Finally, the researchers identified an albumin binding aptamer with comparable affinities based on computer aided calculations. The project's next step aims to do rigorous laboratory based binding methods to ensure that the selected aptamer will be useful in real-world applications. In summary, the project has successfully established a basic aptamer development platform in Sri Lanka for the first time. It looks forward to further improving and using it for the commercial development of aptamers, reducing the need to import costly antibodies.

Grant Number : RG/GAPF/2021/EB/02
Principal Investigator : Prof. Pathmalal Manage, University of Sri Jayewardenepura
Project Title : Scale-up of the developed domestic water filter for removal of Geosmin, 2-MIB, cyanotoxins, and antibiotics in drinking water

Water agencies constantly struggle to supply the world's growing population with clean, clear drinking water. Although the primary focus should be on the health benefits associated with water, people often assess water quality based on its aesthetic appeal. One persistent issue is the presence of compounds that give drinking water an earthy musty taste and odour (T&O), notably Geosmin and 2-Methylisoborneol (2-MIB), which are byproducts of aquatic microorganisms like cyanobacteria and

actinomycetes. Cyanobacteria produce cyanotoxins, cylindrospermopsin (CYN), and Microcystin-LR (MC-LR), posing a substantial risk to human health. Even when heated to 100°C, these compounds cannot be destroyed despite being designated hepatotoxins and cytotoxins. Therefore, the World Health Organisation (WHO) established a recommended limit for MC-LR (1.0 g/L) and CYN (2.0 g/L) in drinking water. However, conventional water treatment techniques being practiced do not eliminate dissolved extracellular Geosmin, 2-MIB, cyanotoxin and other pollutants; pesticides, heavy metals, antibiotics etc. in raw water. In the Sri Lanka scenario, based on literature and ongoing research have shown that Geosmin, 2-MIB, cyanotoxin and other organic and inorganic pollutants are in surface and groundwater drinking sources. Thus, this study aimed to scale up and commercialize residential water filters that use photocatalytic degradation and adsorption technologies to remove odour and taste compounds, cyanotoxins, pesticides, heavy metals, and antibiotics from various water sources. The research team successfully scaled up the developed water filter with an industrial design for the filter.



Figure 12: Water filter developed

Grant Number : RG/2017/EB/03
Principal Investigator : Prof. M. D. Amarasinghe, Department of Botany, University of Kelaniya
Project Title : Studies on ecology of *Typha angustifolia,* its current and potential uses to develop a community-based management strategy to control its invasion in the Man & Biosphere (MAB) wetland reserve at Bundala

Embilikala and Malala lagoons in Bundala wetland reserve have evidently changed from seasonal saline wetlands to permanent freshwater wetlands during the recent past where distribution of *Typha angustifolia*, (Hambu Pan S) a brackish water aquatic plant, apparently has reached invasive proportions, affecting wintering grounds of migratory birds, reducing extent of open water areas available to lay fishing nets/traps, thus affecting their major livelihood, and also affecting respiratory health, especially of children due to wind-blown flowers/seeds. Its control therefore is considered a priority to sustain the life-supporting processes and functions of the wetland. This study aimed to identify drivers of hydrological change, their impact on occurrence of aquatic macrophytes, especially of *T. angustifolia* (Typha) that is considered to be invasive in these wetlands with a view to developing a pragmatic strategy to control its distribution. The relatively high invasive potential of Typha was revealed by the findings of research on reproductive biology and life cycle, including floral, individual, and population level phenology, pollen and seed biology, breeding system and its adaptation to environmental changes. Analysis of rainfall pattern of Bundala area with temporal data from 1988 to 2019 (30 yrs.) revealed that the cause of altered hydrology is not due to increasing rainfall but due to release of agricultural drainage from irrigation works operational since mid-80's in the immediate catchment of Bundala wetlands. High resolution satellite images of the wetlands from 2005-2019 were analyzed to trace the spread of *T. angustifolia* in and around the lagoons which revealed the distribution of freshwater aquatic macrophytes has reduced the open water areas of the wetlands progressively and the extent occupied by *Nymphea stellata* exceeds that of *T. angustifolia.* Findings of this study corroborated that nutrient influx into Malala-Embilikala lagoons through irrigation drainage is a major driver responsible for abundance and distribution of aquatic macrophytes in

these wetlands. Findings on diversity and abundance of fish in the lagoons revealed that presence of *T. angustifolia* contributes to provide feeding, breeding and nursery habitats for fish and reptiles (crocodiles). The contribution of Typha to reduce eutrophication and to sequester carbon in soils is noteworthy. Although Typha is not used in any form currently by the rural communities, its' potential to be used as food and raw material was researched and found that it could provide raw material to initiate new livelihoods, such as production of health food items, hand-made paper, weaved utility and ornamental items and liquid organic fertilizer. A community-based management strategy is proposed to control its distribution through systematic utilization of *T. angustifolia* in these wetlands that could serve as a paradigm for application of MAB concept, i.e. environmental conservation through human welfare. Findings of the present study also highlights that changed hydrology due to irrigation practices has created new habitats conducive for *T. angustifolia*, nevertheless, it has not out-competed other aquatic macrophytes that have colonized these wetlands subjected to hydrological changes. *T. angustifolia* therefore could be more realistically classified as a superior colonizer of littoral areas of freshwater/ brackish water wetlands than an invasive plant. This work had led to 12 communications.

Grant Number : NSF-PSF/ICRP/2017/EA & ICT/01
Principal Investigator : Prof. K. Vignarooban, Department of Physics, Faculty of Engineering University of Jaffna
Project Title : Novel Materials for Secondary Sodium-Ion Batteries and Proton Exchange Membrane Fuel Cells

This project is on the development of novel materials for sodium-ion batteries (SIBs) and proton exchange membrane fuel cells (PEMFCs). Due to the abundance of sodium, SIBs are emerging as an alternative battery chemistry to expensive lithium-ion batteries. However, developing electrolytes with reasonably good ambient temperature ionic conductivities is a major challenge due to the larger size of Na^+ ions compared to that of Li^+ ions. In this project, the research team synthesized and characterized polymer electrolytes for SIBs. PEMFCs are highly popular due to several advantages, but the main barrier for widespread applications is the high cost of platinum-based catalysts. Oxygen reduction reaction (ORR) and oxygen evolution reaction (OER) are the most important reactions for PEMFCs. In this project, N-doped carbon nanotube (CNT) frameworks derived from Zeolitic Imidazolate Frameworks (ZIFs) were synthesized and characterized as electrocatalysts. This work resulted in 03 SCIE publications and lead to 01 MPhil and 01 MSc degree.

Grant Number : NSF-PSF/ICRP/2017/EA & ICT/03
Principal Investigator : Dr N. Gunawardhana, Department of Physics, Faculty of Science, University of Peradeniya
Project Title : Novel nanoparticle/graphene-based materials for lithium-ion batteries and solar cells

In this research, Sri Lankan Natural Graphite was successfully used for the synthesis of different varieties of Reduced Graphene Oxides (RGOs) by controlling oxidation process and synthesized TiO_2/graphene composite material successfully used as an anode material of Lithium-Ion Batteries (LIBs). LIBs are highly advanced rechargeable batteries with superior energy density values. To enhance LIB performance, synthesized graphene was tested with various metal oxides to create nano-metal oxide/graphene-based electrodes. The project also intended to optimize CdS/CdTe thin-film solar cells by introducing a novel back contact structure involving Cu-nanostructures-doped graphene. This work resulted in 04 SCIE publications, several communications and lead to 02 MPhil degrees.

Grant Number : RG/Covid2020/HS/01
Principal Investigator : Prof. P. B. R. Dissanayake, Faculty of Engineering, University of Peradeniya
Project Title : Development of innovative shelter hospital buildings for infectious diseases

The COVID-19 pandemic heightened the fact that adequate shelter hospitals have a significant

impact on human survival in the initial stages of a disaster. Such health-care facilities can be used to isolate patients with mild to moderate symptoms of an infectious disease from their families and communities, while providing medical care, disease monitoring, food, shelter, and social activities. The main objective of this project was to research and develop innovative solutions for semi-permanent buildings to meet health sector needs in order to offer a decent habitat both at short notice and in the long run after a disaster. The modular shelter hospital buildings are built considering climatic conditions, locally available materials, cost constraints and streamlining logistic requirements to set them up in different parts of Sri Lanka with minimal setup time. One prototype was fabricated, and other designs were based on numerical models and analysis. The work was continued with the expectation that the proposed shelter hospital module can be a useful product for any disaster emergency situation.

Grant Number : RG/Covid2020/HS/02
Principal Investigator : Dr Murugathas Thanihaichelvan, Department of Physics, Faculty of Science, University of Jaffna
Project Title : Development of an electronic detection system for rapid diagnosis of COVID-19 caused by SARS-CoV-2

Rapid detection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in patients was imperative to the control of the spread of infection. In this project, a carbon nanotube (CNT) field-effect transistor (FET) based biosensor for selective detection of SARS-CoV-2 was developed. CNT FETs were fabricated on a flexible Kapton substrate and the sensor was fabricated by immobilizing the reverse sequence of the RNA-dependent RNA polymerase gene of SARS-CoV-2 onto the CNT channel. The biosensors were tested for the synthetic positive and control target sequences. The promising results from the study suggest that the CNT FET based biosensors can be used as a diagnostic tool for the detection of SARS-CoV-2. It was also attempted to fabricate the same biosensor using Sri Lankan vein graphite collected form the Kahatagaha mines. This project developed a proof-of-concept biosensor for rapid detection of SARS-CoV-2. This technology can be further modified for rapid detection of other viruses such as dengue.

NSF Technology Grants

Grant Title : Upgrading the already developed IoT based protected house automation system for cultivating up-country vegetables in low-country areas in "medium scale poly-tunnels" and home gardening units
Grant Number : TD/2020/COVID/AG/01
Grantee : Dr K. K. L. B. Adikaram, Computer Unit, Faculty of Agriculture, University of Ruhuna

In Sri Lanka, modified arch (dome/barrel shaped) protected houses are used in many areas. Heated air is circulated inside the tunnel due to fullyclosed polythene film. This project aimed at upgrading the already developed IoT based protected house automation system for cultivating up-country vegetables in low-country areas in "medium scale poly-tunnels" and home gardening units. Solution for vegetable supply chain by cultivating up-country vegetables in low-country areas under controlled environment (E.g. salad cucumber, cabbage, bell pepper, and cauliflower) and reduction of post harvesting lost have been recognized as major outputs of the project.

Grant Title : Biofertilizers for vegetable production through eco-friendly agriculture
Grant Number : TD/2020/COVID/AG/02
Grantee : Prof. Ananda Kulasooriya, National Institute of Fundamental Studies

NIFS has fabricated two bioreactors locally for less than half the cost of importing them, one at NIFS (30L) capacity and the other at Sara Bhumi (300L) capacity as major outputs. These bioreactors increased the capacity of biofertilizer production at both institutes significantly. Higher productions have enabled the supply of inoculants for legume vegetables such as soybean, mung bean, vegetable bean and groundnut by the NIFS and multi-microbial inoculants to rice, maize and several non-legume vegetables and bio-control agents against pests and pathogens by Sara Bhumi Lanka PLC.

Grant Title : Low cost particle filter analyzer
Grant Number : TD/2020/COVID/HS/01
Grantee : Prof. Gamini Rajapaksha, Department of Chemistry, Faculty of Science, University of Peradeniya

This project aims at developing a low-cost particle filter analyzer in order to measure the filtration capacity of face mask and filter materials and to identify the mask types which can safely be used to overcome the Covid-19 pandemic. An automated instrument was developed to measure particle filtration through face masks. Using monodispersed colloidal particles of required size, the filtration can be accurately measured.

National Thematic Research Programme on Climate Change & Natural Disasters (NTRP on CC&ND)

The National Thematic Research Programme (NTRP) was conceptualized as a mission oriented, multidisciplinary collaborative research programme with a view for addressing national needs and to drive the national research system to produce well defined research outputs that could be harnessed and applied for national development. Accordingly, in 2010, NSF took steps to initiate this new research programme named the NTRP, where the themes were decided according to national priorities. The NSF identified Food Security, Climate Change & Natural Disasters, Water Security, Energy Security and Ocean and Marine Resources. Based on the experience and based on the success of the completed Food Security Programme, the Climate Change & Natural Disasters Programme was initiated in 2018, with the award of 05 research grants, covering both mitigation and adaptation initiatives. Climate change impacts will be far reaching, affecting many sectors of the Sri Lankan economy and touching every segment of its population. These five projects are investigating the effect of Climate Change on the elder population, plantation sector, home gardening, natural resources and future climate of Sri Lanka and generating potential policy-level research findings for the extent of vulnerability, risk and mitigation and/or adaptation measurements which need to be identified. Scientists and institutes which benefited through this programme are shown below.

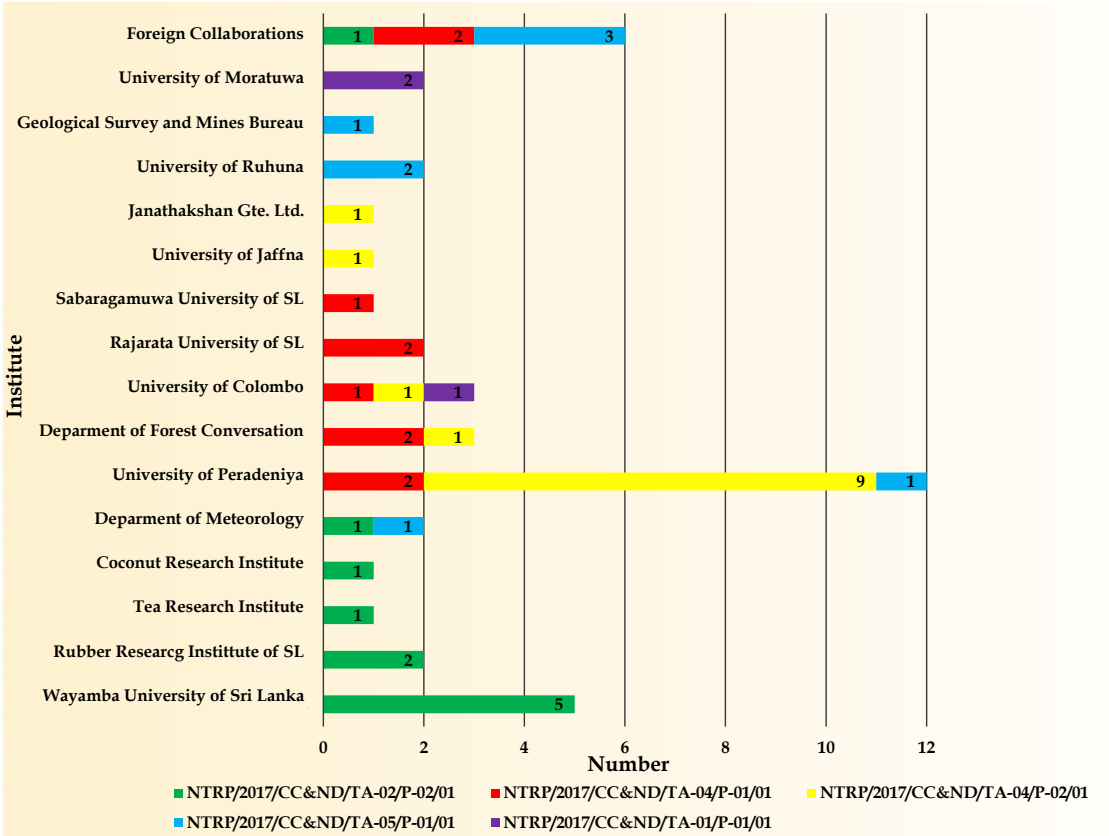


Figure 13: Scientists and institutes benefited through NTRP

So far, 12 peer reviewed publications and 39 communications have been generated, and 18 bachelor's degree holders carried out their research components through these ongoing grants. In addition, 09 Postgraduate degrees (02 PhDs & 07 MPhils) are being completed through these projects. Other major findings/contributions of the projects achieved so far are;

Project Title:

Quantification of the response of tropical rainforests of Sri Lanka to varying atmospheric temperature for prediction of the future climate change on their carbon balance and biodiversity.

Outputs/ Outcomes:

- Established a series of permanent sampling plots and automated weather stations which will continuously monitor the climatic and soil conditions in these tropical rainforest plots. These will enable a comprehensive characterization of the climate of the tropical rainforests of Sri Lanka and monitor its future variations.

- Generated a comprehensive data set on environmental and vegetation characteristics of the tropical rainforests of Sri Lanka. This will ultimately be developed into a database, which may be used by other researchers and policy makers upon approval and prior permission from the Principal Investigator of the project.

- The findings of this project will enable formulation of strategies for conservation and restoration of the remaining tropical rainforests of Sri Lanka in the face of future climate change. The rainforests of Sri Lanka act as the rainfall catchments for the origins of major rivers and thereby plays a vital role in sustaining the national agriculture and food security, along with major contributions to energy and water securities. Therefore, by contributing to ensure the sustenance of this vital ecosystem, the findings of this project will benefit a wide range of sectors of Sri Lanka.

Project Title:

Comparative Analysis of Climate-Resilient Biodiversity of Home Garden Ecosystems in Different Agro-ecological Regions of Sri Lanka.

Outputs/ Outcomes:

- Completed comparative analysis of climate resilient biodiversity and resilience indicators of home garden ecosystems in different agro-ecological regions in Sri Lanka.

- Developed an open access database which consists of all the important survey data and findings of the research project on model (sustainable and resilient) home garden systems. Fellow researchers, academics and undergraduate students will have the opportunity to access and utilize these data for their research and study purposes.

- Generated policy level project findings for home garden development programmes in Sri Lanka.

Project Title:

Assessment of Spatial Impacts of Climate Change (Geographic Economic and Social Vulnerability) on the Plantation Sector in Sri Lanka.

Outputs/ Outcomes:

- Investigated the intricate relationship between climate change and critical performance indicators in the tea and coconut plantations of Sri Lanka, employing a thorough analysis of total factor productivity change (TFPC), technical efficiency, yield, and profitability.

- The findings provide valuable insights into the potential impacts of climate change on the tea industry, specifically in the context of minimum and maximum temperature anomalies, as well as rainfall anomalies.
- In the tea sector, the analysis reveals that maximum temperature and rainfall anomalies play pivotal roles in influencing TFPC negatively.
- In the coconut sector, the research found an overall negative impact of climate change on TFP, with minimum temperature and rainfall anomalies contributing significantly.

Project Title:

Understanding the long-term influence of the Indian Ocean Warm Pool and Indian Ocean Dipole on the monsoon variability of Sri Lanka.

Outputs/ Outcomes:

- Reconstructed sea surface temperature (SST) changes in the Indian Ocean during the last 100,000 years.
- Identified the Indian Ocean warm pool (IWOP) and Indian Ocean Dipole (IOD) variability throughout this period.
- Reconstructed the precipitation variability over the last 80,000 years in southwestern Sri Lanka.
- Identified the relationship between rainfall variability and the SST variability in the Indian Ocean.
- Predicted the potential future precipitation variability based on the past variability.
- Generated data sets which can be used as base data for future climate and ocean modelling.
- The outcome of this study provides a strong base for future research in the country and the region, which will eventually help minimize the influence of anthropogenic global warming on the large population in the South Asian region.
- Initiated micropaleontology and coral-based paleoceanography research in Sri Lanka.
- Developed a Marine Geology research lab at the Department of Oceanography and Marine Geology, University of Ruhuna.

Project Title:

Heat Stress, quality of life and well-being of elders living in urban areas: An experimental investigation on ageing in-place in a low-income settlement in Colombo Metropolitan region.

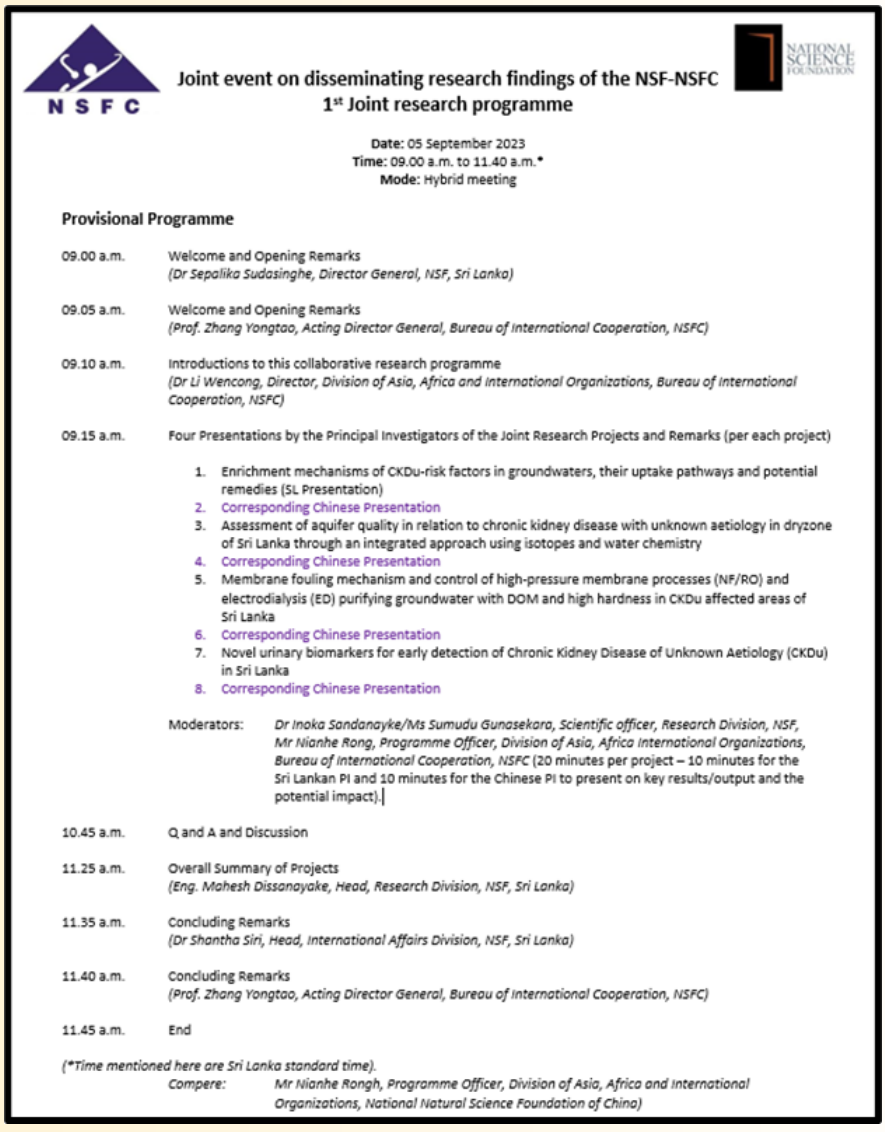
Outputs/ Outcomes:

- Formulated the study sample profile, proportionate to the young elders (60-74 years) population (GN and DS divisions Colombo district).
- Completed two on-site experimental investigations (pilot study and survey) of 220 elderly respondents living in Mattakkuliya GN division of Colombo DS division via structured personal exposure survey.
- Developed a database to assess ageing-in-place characteristics and quality-of-life of young elders in Mattakuliya GN division (represents the highest number of elders) and comprehensive analysis of societal challenges, thermal comfort and skin profile temperature among young elders.

- So far investigated that Elders are living in overheated houses with indoor mean air temperature of 38°C with thermally uncomfortable interiors, Skin temperatures of the elderly people are above the acceptable range of 33°C to 36.9°C, the houses they age are heat stress environments and thus, Elders experience a low level of Quality of Life.

Joint event on concluding research findings: NSF-NSFC (Natural Science Foundation in China) 1st Joint Research Programme

Under the above collaborative programme, initially 05 grants with Chinese collaboration were awarded in 2019. The research part conducted in Sri Lanka was funded by NSF and the research part which was conducted in China was funded by NSFC, China for each research grant. For the purpose of concluding this collaborative research programme, a joint event was organized by IAD and RD in collaboration with NSFC, China on 5th September 2023 in hybrid mode. The agenda of the programme was as follows (*Figure 14).*



NSFC

NATIONAL SCIENCE FOUNDATION

Joint event on disseminating research findings of the NSF-NSFC 1st Joint research programme

Date: 05 September 2023
Time: 09.00 a.m. to 11.40 a.m.*
Mode: Hybrid meeting

Provisional Programme

09.00 a.m. Welcome and Opening Remarks
(Dr Sepalika Sudasinghe, Director General, NSF, Sri Lanka)

09.05 a.m. Welcome and Opening Remarks
(Prof. Zhang Yongtao, Acting Director General, Bureau of International Cooperation, NSFC)

09.10 a.m. Introductions to this collaborative research programme
(Dr Li Wencong, Director, Division of Asia, Africa and International Organizations, Bureau of International Cooperation, NSFC)

09.15 a.m. Four Presentations by the Principal Investigators of the Joint Research Projects and Remarks (per each project)

1. Enrichment mechanisms of CKDu-risk factors in groundwaters, their uptake pathways and potential remedies (SL Presentation)
2. Corresponding Chinese Presentation
3. Assessment of aquifer quality in relation to chronic kidney disease with unknown aetiology in dryzone of Sri Lanka through an integrated approach using isotopes and water chemistry
4. Corresponding Chinese Presentation
5. Membrane fouling mechanism and control of high-pressure membrane processes (NF/RO) and electrodialysis (ED) purifying groundwater with DOM and high hardness in CKDu affected areas of Sri Lanka
6. Corresponding Chinese Presentation
7. Novel urinary biomarkers for early detection of Chronic Kidney Disease of Unknown Aetiology (CKDu) in Sri Lanka
8. Corresponding Chinese Presentation

Moderators: *Dr Inoka Sandanayke/Ms Sumudu Gunasekara, Scientific officer, Research Division, NSF, Mr Nianhe Rong, Programme Officer, Division of Asia, Africa International Organizations, Bureau of International Cooperation, NSFC* (20 minutes per project – 10 minutes for the Sri Lankan PI and 10 minutes for the Chinese PI to present on key results/output and the potential impact).

10.45 a.m. Q and A and Discussion

11.25 a.m. Overall Summary of Projects
(Eng. Mahesh Dissanayake, Head, Research Division, NSF, Sri Lanka)

11.35 a.m. Concluding Remarks
(Dr Shantha Siri, Head, International Affairs Division, NSF, Sri Lanka)

11.40 a.m. Concluding Remarks
(Prof. Zhang Yongtao, Acting Director General, Bureau of International Cooperation, NSFC)

11.45 a.m. End

*(*Time mentioned here are Sri Lanka standard time).*
Compere: Mr Nianhe Rongh, Programme Officer, Division of Asia, Africa and International Organizations, National Natural Science Foundation of China)

Figure 14: Agenda of the concluding session of 1st joint event of NSF-NSFC collaborative Programme

This collaborative programme resulted in 1 PhD, 7 MPhils, 15 SCIE publications, 4 non-SCIE publications, 3 book chapters and 17 communications. One patent was also filed from one of the grants.



Figure 15: Director General of NSF, Dr Sepalika Sudasinghe addressing the event



Figure 16: Chinese research teams and officials of NSFC

Strengthening International Cooperation between National Natural Science Foundation of China (NSFC) and NSF

On the invitation received from National Natural Science Foundation of the Peoples Republic of China (NSFC) to continue bilateral cooperation, NSF organized several activities with potential stakeholders.

The first bilateral call under the MoU between NSFC and NSF was successfully concluded in September 2023. NSFC invited NSF to continue bilateral cooperation in a new dimension addressing the SDGs. Hence, NSF in collaboration with NSFC is in the process of developing a new physical and financial model for the second bilateral call.

NSF had initial discussions with the Board of Investment (BoI) Sri Lanka, National Water Supply and Drainage Board, industry partners, and experts from China in December 2022 and June 2023 to identify potential partners for the new initiative.

Prof. Yuansong Wei and Prof. Tian Binghui from the Chinese Academy of Sciences (CAS) shared their expertise on development of Eco Industry Park in China.

After the initial discussions, a Sri Lankan delegation visited several industrial parks in China in September 2023. This visit helped the delegation to get exposure on real-time operations of industrial parks and their developments. Afterwards, Chinese experts visited to selected BoI zones in the Western and Central provinces in December 2023.



Figure 17: First discussions held with Chinese Officials



Figure 18: Second visit of Chinese delegation



Figure 19: NSF officials visiting Beijing e-town, China



Figure 20: Field visit to BoI zones

NSF Partnership Programme

The "NSF Partnership Programme" was initiated in 2021, addressing nationally important issues in line with the National Research and Development Framework, in collaboration with public and private sector organizations.

Enhancing the quality of Sri Lankan Batik

NSF supported to develop a Good Manufacturing Guideline (GMP) to enhance the quality of Sri Lankan Batik sector in collaboration with the National Design Centre (NDC), Sri Lanka Standards Institution (SLSI) and National Crafts Council (NCC) with the purpose of uplifting the Sri Lankan batik sector through improvement of the production process, sustainability and development of the quality of batik products, finally contributing to the national economy. The GMP guideline has been published as SLS 1770:2023. This will help to enhance the export market of Sri Lankan batik while minimizing the environmental issues and improving occupational health of the people who engage in the batik manufacturing industry.

Under this project, the following tasks were conducted.

- Brain storming session with NDC (At this session SLSI, NCC and consumer products analysis laboratories and batik manufacturers were identified as stakeholders).
- Questionnaire survey for selected batik manufacturers in Western Province at different scales of production.
- Analysis of the data gathered.
- Two awareness seminars on "Chemical safety in Batik Industry" to batik manufactures.
- Four stakeholder meetings with state and non-state sector organizations (NDC, NCC, SLSI and companies (two pioneer private industries)) regarding developing certification system for batik products.
- Collection of information on imported types of dyes and wax commonly used in batik sector.
- Three field visits were made to the batik industry to identify different processing stages at household, medium and large scale.


SRI LANKA STANDARD 1770: 2023

GUIDELINES ON GOOD MANUFACTURING PRACTICES (GMP) FOR THE BATIK INDUSTRY

SRI LANKA STANDARDS INSTITUTION

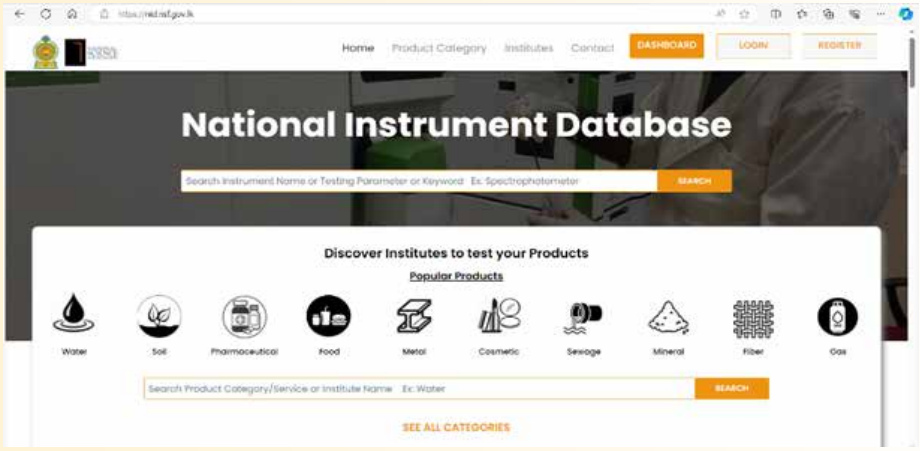
- Formation of "Working Group on new Sri Lanka Standard; Good Manufacturing Practices (GMP) for Batik industry" by SLSI for the purpose of developing the guideline for GMP for Batik sector both in English and Sinhala version simultaneously.



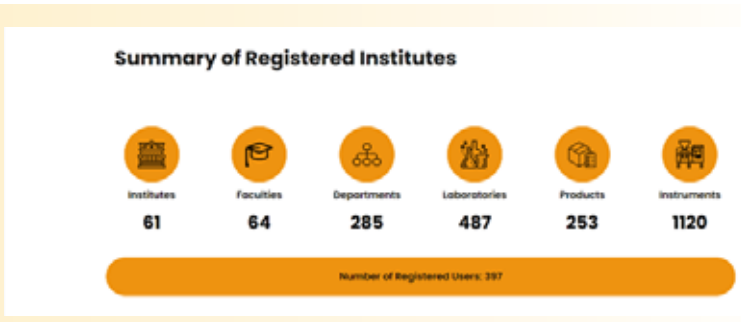
Figure 21: Different stages of the batik manufacturing process observed during field visits

National Instrument Database (NID)

https://nid.nsf.gov.lk

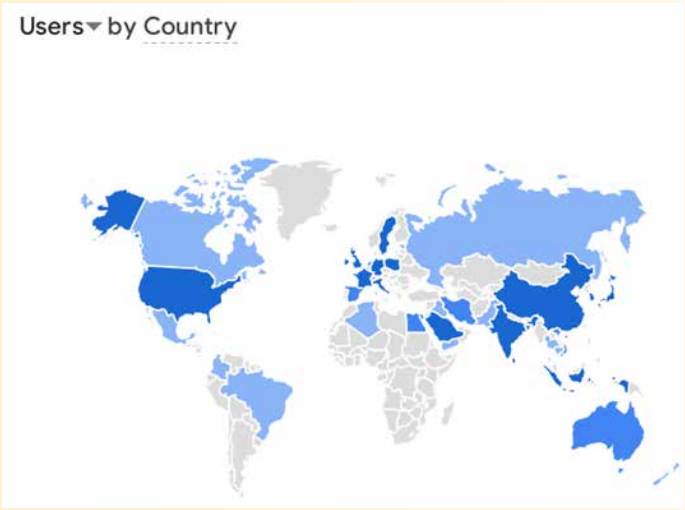


NSF, being the premier hub institution in the S&T sector of the country, has leveraged its island-wide network with universities, and R&D and public sector institutions and has developed a state-of-the-art digital database of instruments available in those institutions. Besides ensuring rationalization and avoiding unnecessary duplication of high-end equipment, it will provide a user-friendly, cost-effective, analytical and testing service and research support for academia, R&D institutions and industry including MSME, particularly those which lack the requisite laboratory facilities and technical competencies.



The NSF coordinates with institutional representatives from universities and R&D institutes including private sector laboratories to liaise with the NID and strengthen the database which is in progress. Up to now, 61 universities/institutes and 397 users have registered, 253 product categories, 487 laboratories and 1120 records on instruments have been entered.

While nationally recognizing this initiative, the Office for Overseas Sri Lankan Affairs intervened to issue a letter by the Presidential Secretariat to several ministries in September 2023, asking them to share information on the instruments available in the respective ministries with the NSF. This strategic intervention will be important to obtain the requisite information from institutions to strengthen the NID of the NSF. Further, according to the user statistic reports of the NID, people from nine countries have accessed the database in 2023. Updating and upgrading the information of the NID is continuing successfully.



Country	Users
Sri Lanka	807
China	74
United States	61
India	17
Singapore	17
Germany	11
United Kingdom	11
Indonesia	8
Japan	8

Programme : Providing recognition for S&T excellence

Support Scheme for Supervision of Research Degrees (SUSRED)

The National Science Foundation implemented the Support Scheme for Supervision of Research Degrees (SUSRED) in 2011 with the expectation of strengthening the National Research System with an increased number of trained/ qualified research personnel within a vibrant and dynamic research culture. This will be achieved by motivating, supporting and recognizing scientists/engineers engaged in supervising students conducting research in all areas of Science and Technology leading to postgraduate degrees (MPhils and PhDs).

Objectives of the scheme are:

- Motivation of senior researchers to supervise postgraduate research degrees.
- Encourage universities and research institutions to promote and facilitate postgraduate research training.
- Encourage supervisors to complete the postgraduate research degrees within the stipulated time period without compromising quality.

This year 42 supervisory teams consisting of 93 researchers *(Figure 22)* were successful in being eligible for the awards (PhD - 20 awards, MPhil – 22 awards) under this scheme. The details of the award winners are given in *Annex 06.* However, although the processing of award applications was completed, the awards ceremony was not held this year.

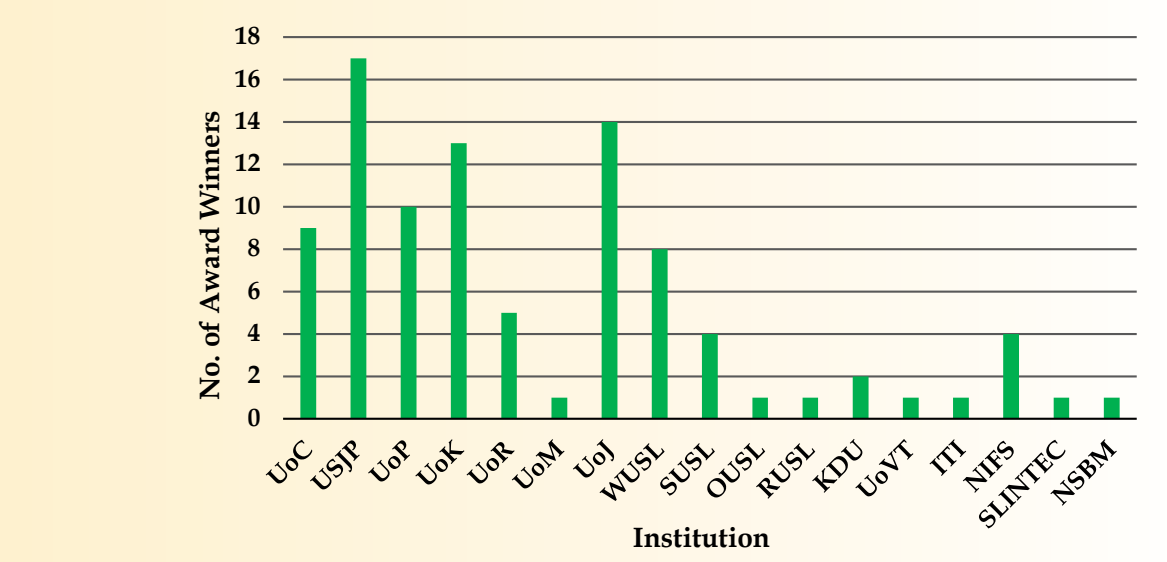


Figure 22: Distribution of SUSRED awardees among different institutions

Research Scholarships

The NSF Research Scholarship Scheme provides financial support to Sri Lankan graduates to conduct full-time research (within Sri Lanka) leading to MPhil and PhD degrees. In 2023 November, applications were called for this scheme and 63 applications were received which are currently being processed.

Five (05) ongoing Research Scholarships were monitored *(Annex 02)* out of which three (03) scholarships were completed in 2023 *(Annex 04)*, resulting in two MPhil degrees and one PhD degree. A total of twenty-two (22) publications (17 communications and 05 full papers) resulted from the three completed Research Scholarships.

Gap Filling Research Grants (GapF) - New Scheme of Research Grants

Grant Number : RG/GAPF/2021/EB/01
Principal Investigator : Dr I R M Kottegoda, Industrial Technology Institute
Project Title : Purification of Graphite of Sri Lanka as a high value addition

The project aimed at upscaling the technology of purifying graphite above 99.9% to commercial scale considering economic feasibility and transferring the knowhow of graphite purification technology to local industry.The project was initiated in 2022 January. During the first 6 months of the project, the project team enabled upscaling the method of purifying low-grade graphite up to well above 99% using a physical method. An apparatus was also constructed to purify low grade graphite and the method was patented. During the second 6 months, the apparatus was further modified and the innovation was also patented.

The research team received following awards at the "National Inventors Day" celebrations 2023 and Sahasak Nimavum 2023;

- DASIS Award for the apparatus and method to convert low-grade graphite below 40% to 98-99% carbon in mass scale - National Inventors Day celebrations 2023
- A Gold medal for the above invention- Sahasak Nimavum 2023
- A Gold medal for the apparatus and method of preparation of graphene and reduced graphene oxide on mass scale in few minutes - Sahasak Nimavum 2023
- Silver medal for purification method of natural graphite up to 99.99% for high-end applications as a value addition



Figure 23: The research team winning the DASIS award at the National Inventors Day celebrations 2023

Outreach Programmes

Symposium on Indo Sri Lanka Collaborative Research Programme

National Science Foundation (NSF) in collaboration with the Ministry of Education organized the second symposium on Indo-Sri Lanka joint research programme on 20th January 2023 at Sankathani, Sri Lanka Institute of Development Administration (SLIDA). Mr M. N. Ranasinghe, Secretary, Ministry of Education and Mr Vivek Gupta, First Secretary (Education), High Commission of India to Sri Lanka graced the event. Dr Sepalika Sudasinghe, Director General of NSF welcomed the gathering which consisted of Heads of Institutes, Ministry Officials, Researchers, and NSF staff and gave a brief note on the background of the Indo-Sri Lanka programme.

Indo-Sri Lanka joint research programme was initiated in 2008, when the Government of the Republic of India and the Government of the Democratic Socialist Republic of Sri Lanka entered into an agreement to encourage scientific cooperation between India and Sri Lanka.

This symposium is the result of the Programme of Cooperation (PoC) signed in 2017, where research teams from India and Sri Lanka collaborated in nationally important research areas such as Food Technology, Plant-based Medicine, Metrology, Space Research and applications, Robotics and Automation, Industrial Electronics, and Waste Management. In this research cycle, 17 projects were successfully completed with 28 journal publications, 211 conference papers and 21 abstracts and the scientists and researchers of both countries benefited through sharing knowledge and research experience.

The symposium created a platform to share the new knowledge created with the stakeholders and scientific community. Fifteen scientists presented their research findings at this symposium and the way forward of the projects was discussed with a three-member panel chaired by Prof. Ajith De Alwis and Prof. Dhammika Tantrigoda and Dr A. M. Mubarak as the other members. Follow-up action are in progress.



Figure 24: Dr Sepalika Sudasinghe, DG, NSF welcoming the participants



Figure 25: Mr M. N. Ranasinghe, Secretary, Ministry of Education addressing the gathering



Figure 26: Mr Vivek Gupta, First Secretary (Education), High Commission of India distributing certificates to grantees



Figure 27: Participants of the Symposium with the Guests and organizing committee

Sector Specific Meetings for Value Chain Analysis in the Industrial Sector of Sri Lanka

Four separate Sector Specific meetings were held in 2023, with representatives from the Plastic Products Manufacturing Industry, the Ceramics and Porcelain Industry, the Food Industry and the Textile Industry.

This was a continuation of an activity of the Working Group on Industry Sector Development, under the Technology Development and Innovation Arm (TDIA) of NSF. The Working Group had identified several sectors of industries that have major contribution to the GDP of the country (based on the central bank report of 2021 and some other sources) and analyzed their value chains to identify any gaps or issues that prevail which could be resolved through Science and Technology (S&T) and Research and Development (R&D), in order to add value, which in turn would benefit the national economy. The NSF will support and collaborate in terms of R&D facilitation for the advancement of S&T.

Sector specific meetings were held to discuss and analyze issues in their specific value chains and to find solutions. The value chain analysis process included the following activities:

1) Analysis of contribution to the economy & society
2) Analysis of each sub-sector value chain
3) Brainstorming of the findings and generalizing
4) Holding meetings to obtain expert opinion for each sector
5) Conducting stakeholder seminars
6) Follow-up meetings with experts (when required)

As the final step, a report is being formulated from the outcome of these meetings and other sectoral meetings held in the previous year.

Evidence based decision making program: Research into practice

The NSF having identified that dissemination is vital in taking research to the practioners, initiated a programme, "Evidence based decision making programme: Research into practice" in 2023. As the first session of this programme, some completed projects from the Research Programme on Health Science (RPHS) was selected. Five research projects completed under the RPHS addressing dengue research were discussed at the first meeting which was held on 12th September 2023. Researchers

presented their key research findings to the health ministry officials, especially the Dengue Control Unit staff. Ministry of Education officials also participated in this meeting giving their inputs as to how these findings should be taken forward.

The second meeting of this evidence-based decision-making programme was held on 12th December 2023 at the NSF Auditorium with the Dengue Control unit to discuss the possibility of using the "Proactive Dengue Managment System" which was developed by one of the grantees of the RPHS Programme. The response of the MoH was not positive, but the NSF suggested them to rethink about using this very thorough system for forecasting and modeling of Dengue outbreaks and many other features that are available in that system useful for vector control and dengue management.



Figure 28: The first meeting on 12th September- Audience listening to presentations



Figure 29: Cover page of the booklet



Figure 30: Participants at the second meeting on 12th December 2023

Discussion with the Ministries of Industry and Plantation Industries

Research Division made a presentation to the Hon. Minister, Ministry Officials and Heads of Institutions under the Ministries of Industry and Plantation Industries on Science, Technology and Innovation interventions for industrial development on 25th September 2023 at the Ministry of Plantation Industries. It was discussed how to connect NSF and institutions under the ministry towards catering industry research needs and commercialization of research outputs. Hon. Minister, Dr Ramesh Pathirana emphasized that STI intervention is required for development of value-added products from plantation crops, specially Ceylon Tea, to secure more international market opportunities. Eng. Mahesh Dissanayake, Head of Research Division and Mr Manuja Karunarathne attended this meeting representing NSF.

Awareness programme to officials of the Centre for Defence Research and Development (CDRD) on research grant management

As a response to a communication from NSF to all Ministries and State-Owned Enterprises offering an opportunity to work with the NSF in Research and Development, the Centre for Defence Research and Development (CDRD) invited the NSF for a meeting at their premises in Pitipana, Homagama. This meeting was held on 3rd October 2023 and Eng. Mahesh Dissanayake (Head/ Research Division (RD)), Ms Christine Dasanayake (SSO/RD) and Dr Inoka Sandanayake (SO/RD) attended from NSF. A presentation was made by the CDRD on the Center and the activities done, their success stories and what was expected from NSF. Two presentations were made by NSF, one about the NSF and its activities by Ms Dasanayake and the other on grant management, review and evaluation processes by Dr Sandanayake. The Director General of CDRD, Major General R. Elvitigala, Chief Controller Gp. Capt. A. S. Elegoda, First Staff Officer, Lt. Col. A. L. R. P. Amarasinghe and many other officials attended the meeting.

After the discussion session, it was agreed to share grant management knowledge and relevant documents with the CDRD and to make arrangements to sign a MoU between NSF and CDRD for future collaborations.



Figure 31: Presentation done by Official from CDRD



Figure 32: Some Officials of CDRD participating at the meeting



Figure 33: During the Discussion with DG, CDRD



Figure 34: Visiting the training center

Awareness programme on "How to be successful in obtaining research grants"

Scientific Officer of Research Division, Dr Inoka Sandanayake participated as a resource person on the invitation of the Research Council of Gampaha Wickramarachchi University of Indigenous Medicine for a residential programme tailored specifically for the permanent academic staff of the university on developing quality proposals to obtain external/ internal research grants. This programme was held on 12th October 2023 at the Hector Kobbekaduwa Agrarian Research and Training Institute, Colombo 07.

Initial steps to connect NSF with University Business Linkage Units (UBLs)

Eng. Mahesh Dissanayake and Dr Mahesha Nadugala of Research Division joined the Standing Committee meeting of UBLs convened by University Grants Commission (UGC) in November 2023 to identify the possibilities to join the UBLs network. NSF shared information on grant schemes with a brief introduction about the institute with the participants. During discussions common areas of interest were identified.

Awareness seminar at Faculty of Technology, Rajarata University of SL

An awareness program on NSF research and technology grants to undergraduates and academia at University of Rajarata, Faculty of Technology was held on 18th and 19th December 2023.

Staff members of NSF covered the following topics.

- Introduction to NSF: Strengthening the National RDI ecosystem by Eng. Mahesh Dissanayake, Head, Research Division
- How to write a winning research proposal: NSF Competitive Research Grants, Gap-F Grants, Research Scholarships by Dr Inoka Sandanayake, Scientific Officer, Research Division
- How to write a winning technology proposal: NSF Technology Grants – Tech-D and Startup by Ms Sarani Meneripitiya, Scientific Officer, Research Division
- Research Commercialization (lab to market), TRL, Innovation/Enterprise by Eng. Mahesh Dissanayake, Head, Research Division
- Facilities and services available for researchers at NSF by Dr Inoka Sandanayake, Scientific Officer, Research Division





Ensuring Food Safety in Sri Lanka

A report on "Ensuring Food Safety in Sri Lanka: Dietary Exposure and Related Risks", the recommendations of the Working Group on Food Safety under the Technology Development and Innovations Arm (TDIA) was published on the NSF website, covering the following topics.

- Food safety and the Sri Lankan scenario
- Issues and concerns
- Recommendations

Focusing on Fourth Industrial Revolution (4IR)

The fourth industrial revolution is mainly driven by its advanced technologies. It is these technologies which characterize the 4IR that cause the transformation of lives of people. Therefore, a 'Webinar on AI: Opportunities in the developing world' was organized by the NSF to aware the public of the applicability of these advanced technologies to the Sri Lankan context. The resource person was Prof. Saman Halgamuge, Department of Mechanical Engineering, School of Electrical Mechanical and Infrastructure Engineering, The University of Melbourne. This was conducted successfully, exceeding the number of participants over 180.



Webinar on AI: Opportunities in the developing world

NSF Mandate b) Science & Technology Information Dissemination

Publication of Scientific Research

During year 2023, the Journal Publication Division has continued its mandated function of information dissemination through publication of five journal issues (04 JNSF issues & one SLJSS issue) and supporting one professional organization to publish the theme seminar booklet & proceedings of the Annual Session.

Journal of the National Science Foundation (JNSF)

In year 2023, the Journal of the National Science Foundation of Sri Lanka (JNSF) published its 51st volume in four issues in March, June, September, and December with 54 articles (52 Research Articles, 01 Review Article and 01 Research Communication). The articles in these issues were of multidisciplinary nature, covering all aspects of Science and Technology.

The journal is now indexed in the Clarivate Analytics Science Citation Index Expanded (SCIE), Chemical & Biological Abstracts, BIOSIS Previews, Zoological Records, SCOPUS, TEEAL, Ulrich's, AGRICOLA, EBSCOhost, including four new databases, Directory of Open Access Journals (DOAJ), EBSCO Applied Science & Technology Source Ultimate, Journal TOCs and SafetyLit.

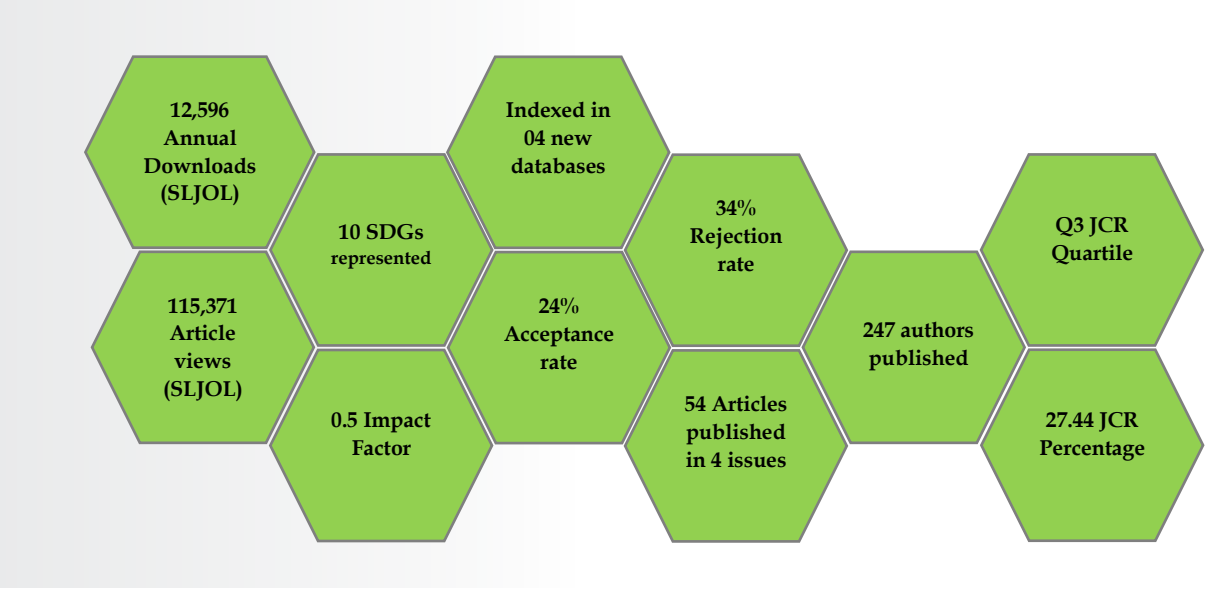


Figure 35: JNSF highlights for 2023

Editorial Process Overview

In order to cover the cost of the editorial process, the publication fee has been increased to 250 USD inclusive of 20 USD Article Processing Charge (APC) from foreign authors. During the year 2023, a 22% decrease in total submissions was observed with significant reduction of foreign submissions which has affected the total submissions. This may be due to the introduction of an article processing fee and the increase in publication fee to USD 250. It is noted that the percentage of foreign submissions eligible for peer-review after screening remained the same for 2022 and 2023 (as 81 & 82% respectively), the submission of substandard manuscripts has reduced in 2023 due to introduction of APC and increase in page charges.

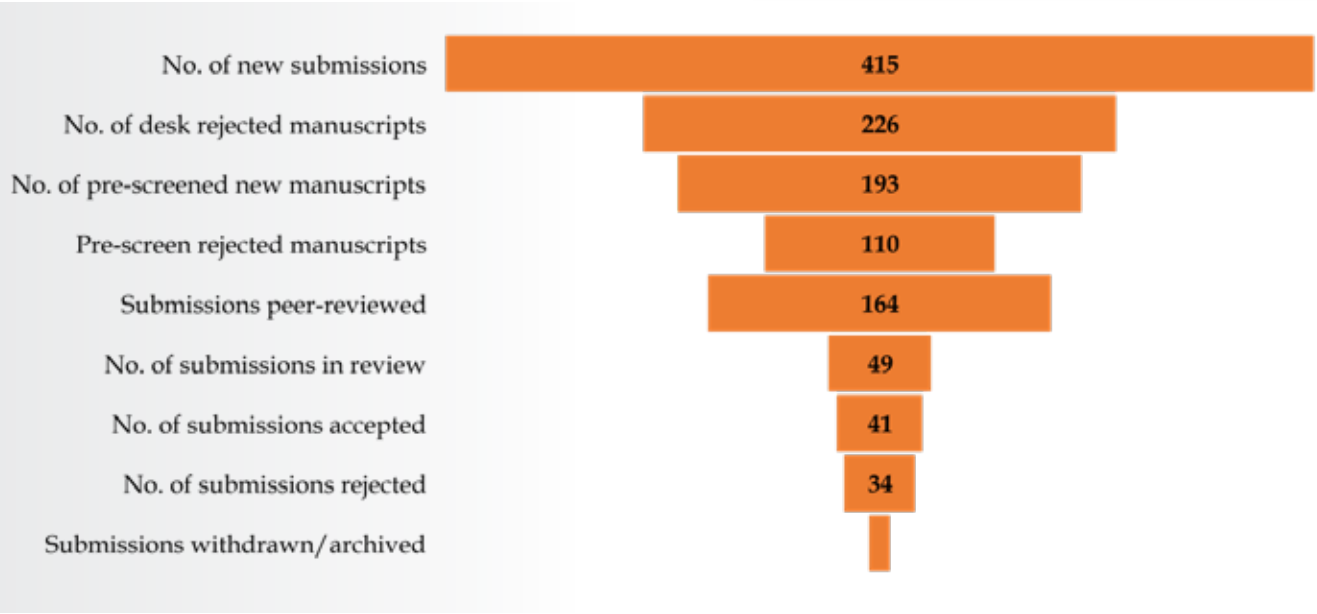


Figure 36: Details of manuscripts submitted to JNSF in 2023

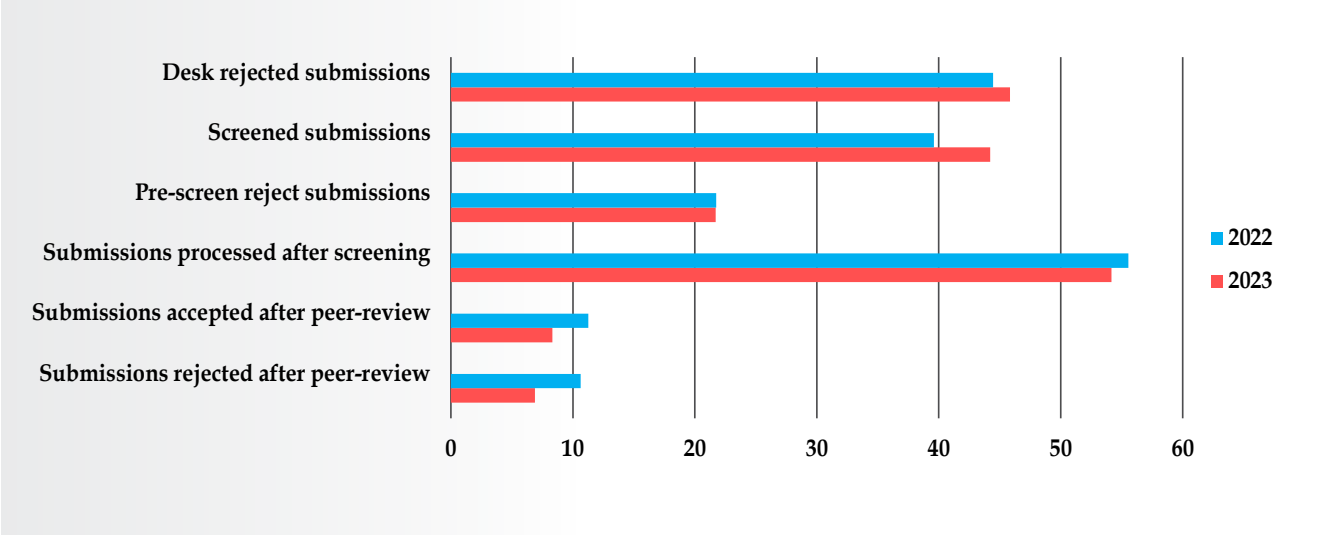


Figure 37: Comparison of submissions to JNSF in 2022 & 2023



Figure 38: Four issues of volume 51 of JNSF

Author distribution

Among the 247 authors published with the JNSF in 2023, 184 were Sri Lankan authors (74%) from 30 local universities/ research institutions/ government departments. Remaining 26% were foreign authors of which the majority (23%) were from the Asian continent with Indian authors (11%) dominating amongst the foreign authors. The foreign authors were affiliated to a similar number of universities and research institutions (30), while the highest number of contributing institutions were from India.

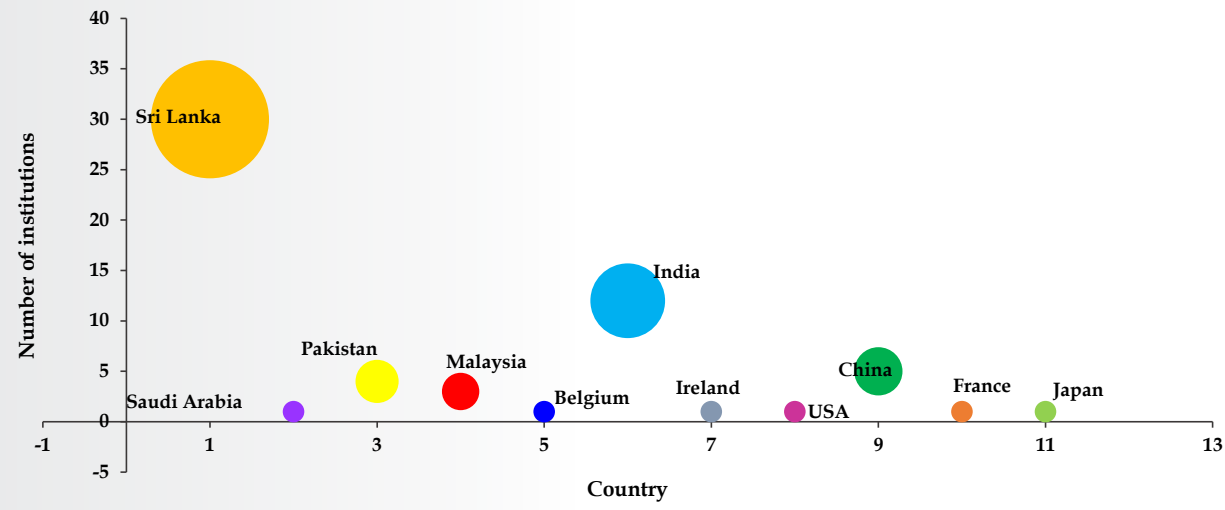


Figure 39: Geographical distribution of authors of volume 51

When considering the affiliations of Sri Lankan authors, the highest contribution was by authors from universities (75%). University of Peradeniya (15%), University of Ruhuna (14%), University of Sri Jayewardenepura (12%), University of Moratuwa (8%), and University of Kelaniya (8%). University of Peradeniya and University of Ruhuna were amongst the leading contributory universities. Out of the total number of local articles published, 25% articles were from authors of research institutions, government departments and industries.

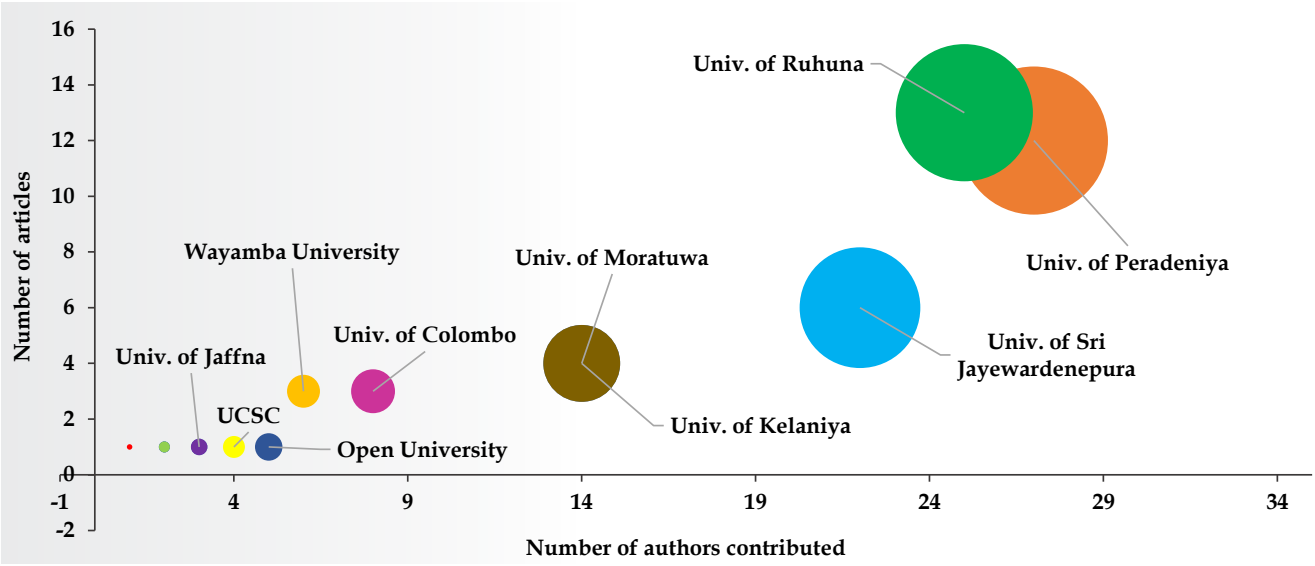


Figure 40: Author contributions from local universities

Single and multiple authorships

As represented in *Figure 05* it is noted that 93% of articles published in the four issues of JNSF were multi-authored with different types of collaborations; international collaborations (22%), inter-institutional collaborations (34%), inter-departmental collaborations (9%), and intra-departmental collaborations (28%). From the 54 articles published, 7% were single authored. The following *Table 02* depicts the breakdown figures for local and foreign authorships in articles published.

Table 02: Collaborations observed in articles published in 2023

Collaboration type	No. of citable articles (local)	No. of citable articles (foreign)
International (02 or more countries)	9	3
Inter-departmental	5	0
Inter-institutional	15	3
Intra-departmental	12	3
Single authored	4	0



Figure 41: Nature of collaborations in published articles

Link to SDG

Mapping the research output and key words pertaining to each published article revealed that the articles published in 2023 were linked to 10 Sustainable Development Goals, and 72% of the articles were aligned with the four SDGs: Zero Hunger (17%), Good Health & Wellbeing (21%), Industry, Innovation & Infrastructure (19%), and Life on Land (15%).

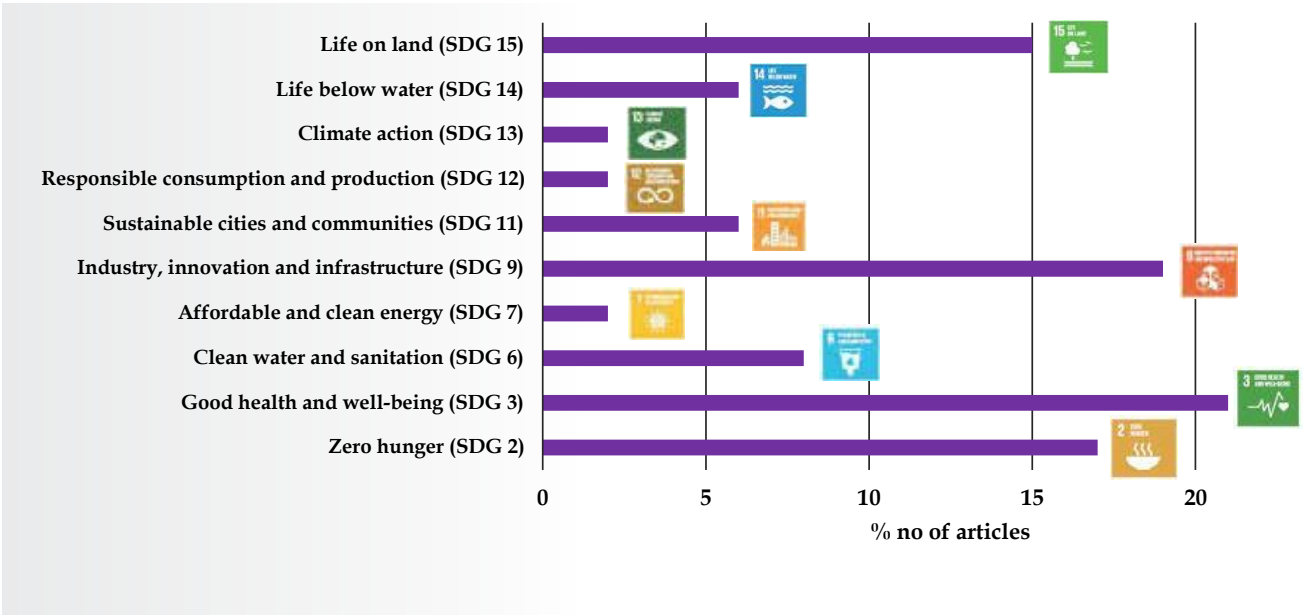


Figure 42: Percentage of articles published in 2023 linked to Sustainable Development Goals

Subject categories covered

It was observed that there is nearly a 2.5-fold increase in biological sciences related articles published in 2023 compared to physical science related subjects. When compared with 2022, there is a significant increase in the number of articles from Agriculture, Molecular Biology and Chemistry. There was a 50% drop in number of articles from Engineering, Physics and IT disciplines in 2023 compared to 2022.

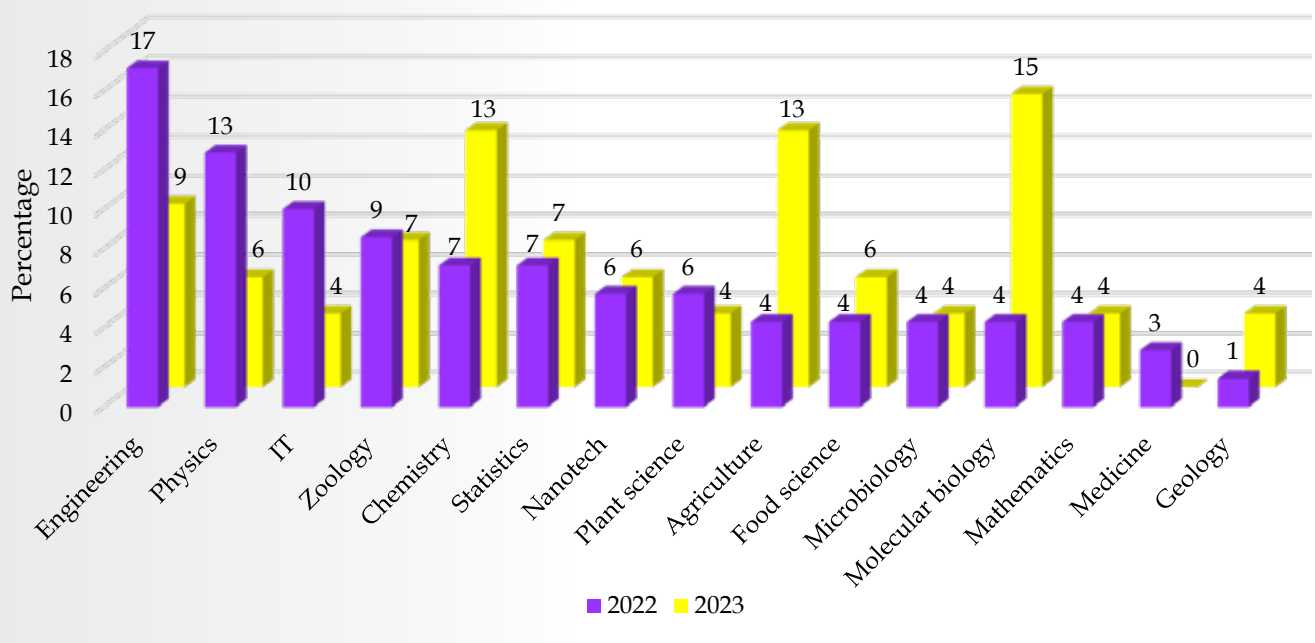


Figure 43: Disciplines of the articles published in 2022 & 2023

Reduction in turn-around-time (TAT)

The main challenge the journal had was increased turn-around-time from submission to publication. It is noted that the reduction in turn-around-time (mean value) from submission to publication and acceptance to publication has been improving since 2021 and for 2023 it has shown 15% reduction against the the base year 2020. Initiation of peer-review process through the SLJOL online platform sicne 2020 and appointment of language and content editors in final editing stages in 2021 have contributed to this improvement.

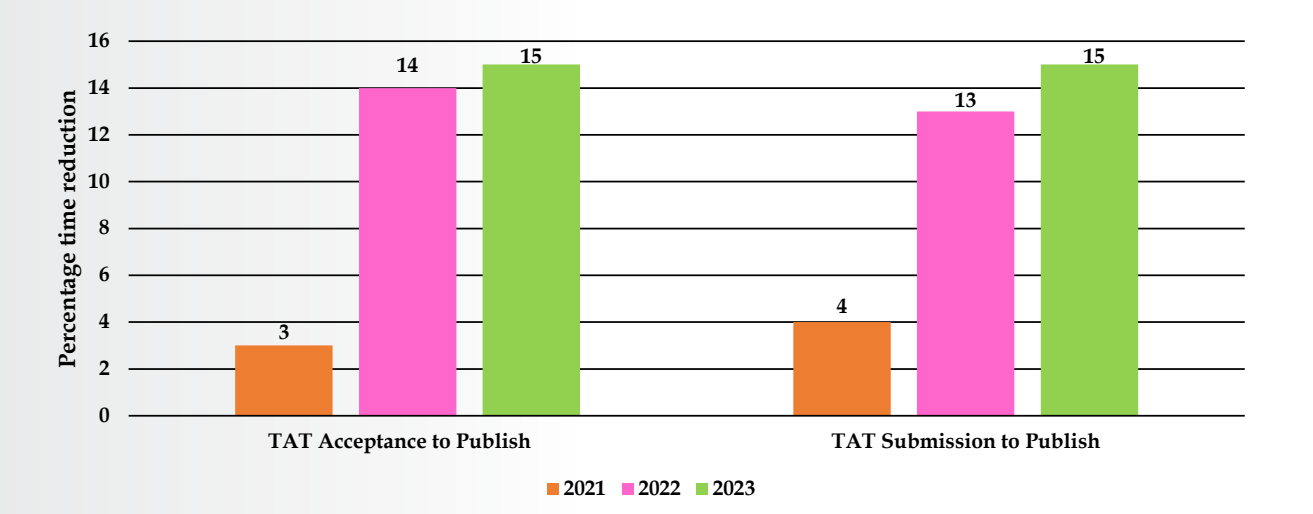


Figure 44: Turn-around time (TAT) reduction (2021-2023)

Citations in 2023 for 2022 published articles

From the JNSF articles published in 2022, 27% of the articles were cited in 2023 by researchers from USA, Canada, Germany, Japan, China, Italy, UK, Kenya, India, and Pakistan. These cited articles were published in many high impact journals such as, Comprehensive Reviews in Food Science and Food Safety (IF 14.8), (IF 8.9), Waste Management (IF 8.1), Current Opinion in Environmental Science & Health (IF 8.1), Scientific Reports (IF 4.6), Soft Computing (IF 4.1), and Marine Policy (IF 3.8), among others.



Journal Impact factor

Clarivate Analytics Journal Citation Report released in 2023 has reported a drop in JNSF two-year impact factor to 0.50 for 2022 from 0.682 of 2021, despite the increasing trend in Impact factor since 2010 and 9% increase of citable documents for 2022 impact factor calculation. It is assumed that the Covid19 emergence has made a negative impact on other research areas except medical and health science related research, affecting the citations for subject categories covered by the JNSF.

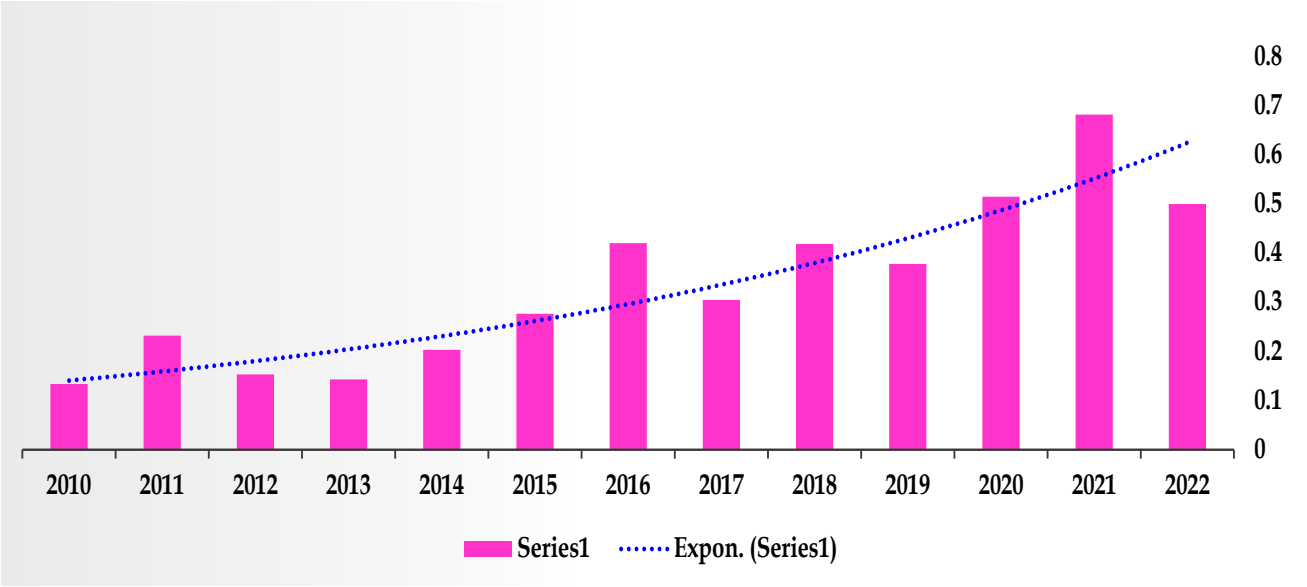


Figure 45: JNSF Impact Factor 2010 - 2022

JNSF indexing in new databases

The JNSF applied for inclusion in new indexing databases in 2023. The Journal was accepted for indexing in Directory of Open Access Journals (DOAJ), EBSCO Applied Science & Technology Source Ultimate, Journal TOCs and SafetyLit.

Income generation



In 2023, the JNSF earned **USD 1,631** as publication fees from foreign authors. This amounted to **LKR 497,522.45/.**

Sri Lanka Journal of Social Sciences (SLJSS)

Sri Lanka Journal of Social Sciences (SLJSS) is a Scopus and ESCI indexed academic journal published by NSF since 1978. It publishes Research, Review, Work-in-Progress articles and Book reviews in Sinhala, Tamil & English languages. It is published twice a year (in June and December) and focuses on social science related issues in Sri Lanka and/or South Asia. All articles are published with Open Access under CC-BY-ND 4.0 Creative Commons License.

Overview of the Editorial process

During 2023, a total number of 242 submissions were received by the journal through its SLJOL online platform. 139 of these were rejected at desk level and 103 were entered into pre-screening process. A total of 139 manuscripts inclusive of 36 in-review articles brought forward from 2022 were subjected to the review process during 2023. Of this number 4.3% of manuscripts were accepted while 3.6% was rejected. Accordingly, 92% was being reviewed.

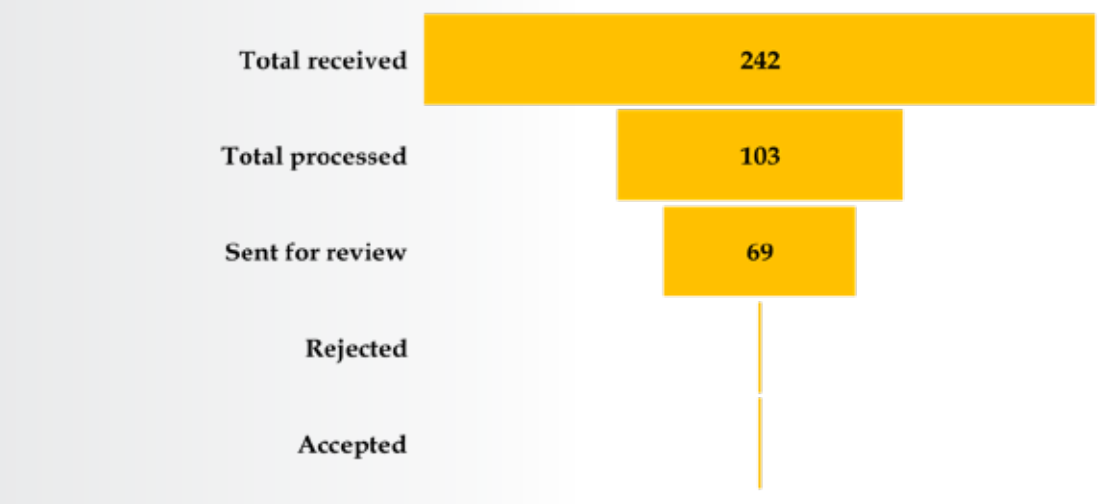


Figure 46: SLJSS submissions from 2023 (Statistics)

SLJSS, Volume 46 Issue 01 was published with a total of 8 scholarly articles, consisting of 3 Review articles and 5 Research articles.

Geographical Distribution of Authors

Articles from Local authors has dominated (75%) in the issue 1 where foreign author contribution accounted to 25% and of which major contribution was from Indian authors (23.5%).

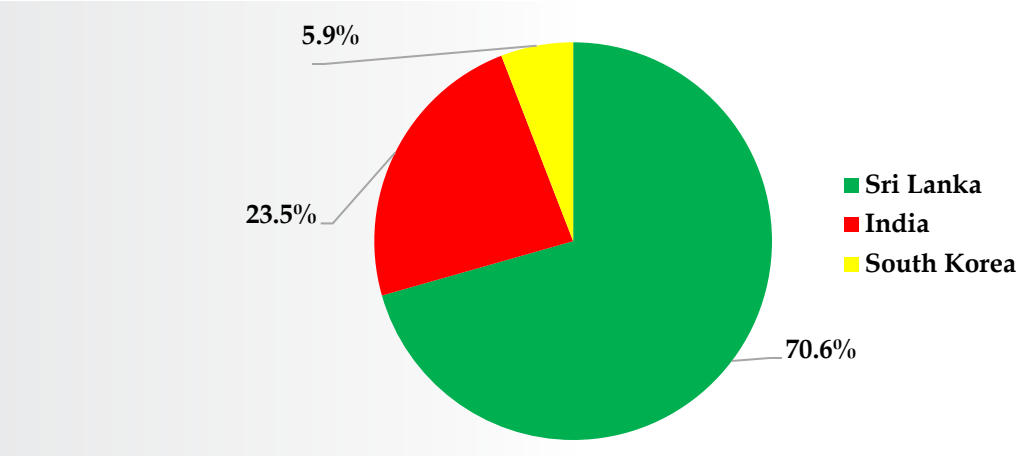


Figure 47: SLJSS Volume 46 Issue 01: authors' geographical distribution

Local Author Affiliations

Amongst the local authors major contribution was from the University of Kelaniya while University of Vavuniya, University of Ruhuna and Sri Lanka Institute for Advanced Technological Education has equally contributed as the second most contributors.

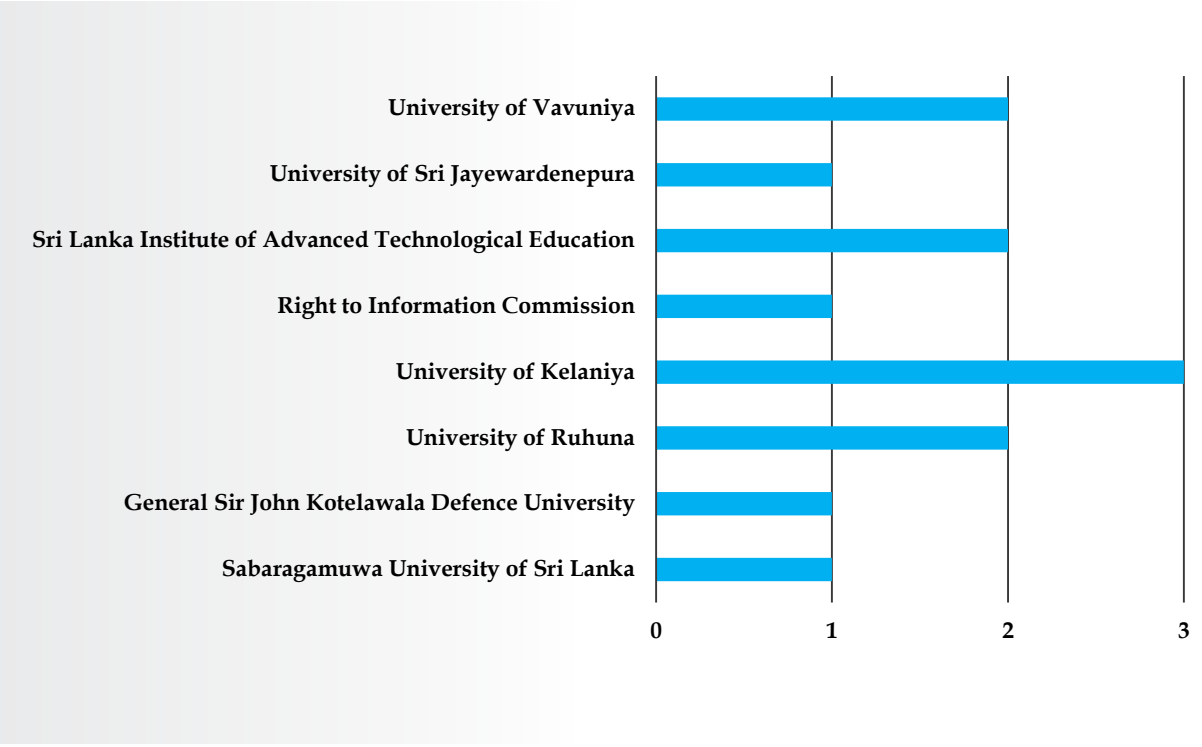


Figure 48: SLJSS Volume 46 Issue 01: local author affiliations

Citations in 2023 for 2022 published articles

22% of the articles published by SLJSS in 2022 has been cited within 2023. The cited articles have been published in many journals, including one indexed journal; Advanced Education (IF 1.1). This has been a significant milestone for SLJSS, making its contribution to knowledge dissemination.

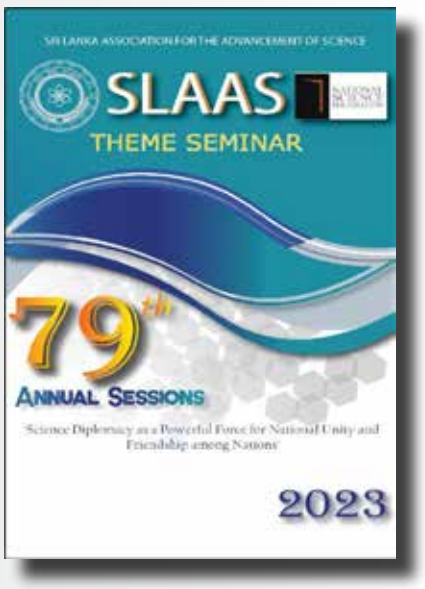


Figure 49: SLJSS Volume 46 Issue 01

Issue 02 was in the publication process.

Support for professional S&T body to publish proceedings

Sri Lanka Association for the Advancement of Sciences (SLAAS) was supported under this scheme to publish the proceedings from its 79th Annual Sessions and its Theme Seminar book. This year's annual sessions and theme seminar were conducted under the theme 'Science Diplomacy as a Powerful Force for National Unity and Friendship among Nations'. The proceedings were published with a total of 160 abstracts under 08 different themes; Medical, Dental & Veterinary sciences, Agriculture & Forestry, Engineering, Architecture & Surveying, Life & Earth sciences, Physical sciences, Chemical sciences, Computer sciences and Social sciences.





Sri Lanka Journals Online (SLJOL)

The Sri Lanka Journals Online (SLJOL) platform plays a crucial role in providing visibility to Sri Lankan researchers and their work across a broad spectrum of academic disciplines. As part of the Journals Online (JOL) project by INASP, UK, SLJOL hosts 131 scholarly peer-reviewed journals from Sri Lanka. Managed by the National Science Library & Resource Centre (NSLRC) of the National Science Foundation (NSF) and operated by Ubiquity Press, SLJOL serves as a significant platform for scholarly publications within Sri Lanka.



One of the key advantages of SLJOL is its ability to provide worldwide accessibility to Sri Lankan research outputs. This global visibility enhances the reach and impact of research conducted within the country, fostering collaboration and exchange of ideas on an international scale.

Moreover, SLJOL offers an avenue for researchers to disseminate their work without incurring publication costs, which is particularly significant considering the financial constraints often associated with publishing in foreign journals. By eliminating these barriers, SLJOL facilitates the dissemination of quality publications within the local academic community and beyond.

Overall, SLJOL plays a vital role in promoting scholarly communication, supporting academic research, and advancing the visibility of Sri Lankan research outputs on the global stage. Its accessibility and affordability make it an invaluable resource for researchers, institutions, and stakeholders invested in the advancement of knowledge and innovation within Sri Lanka.

Growth of the SLJOL

As a remarkable achievement and a significant contribution to the scientific community in Sri Lanka, the launch of the new platform for SLJOL was done in March 2023 demonstrating a commitment to improve accessibility to research and foster collaboration within the scientific community.Archiving and providing open access to over 20,000 research articles from 131 scholarly journals within a span of 15 years is an impressive feat. This not only showcases the richness and diversity of scientific inquiry happening in Sri Lanka but also underscores the importance of making research findings readily available to researchers, policymakers, educators, and the general public.

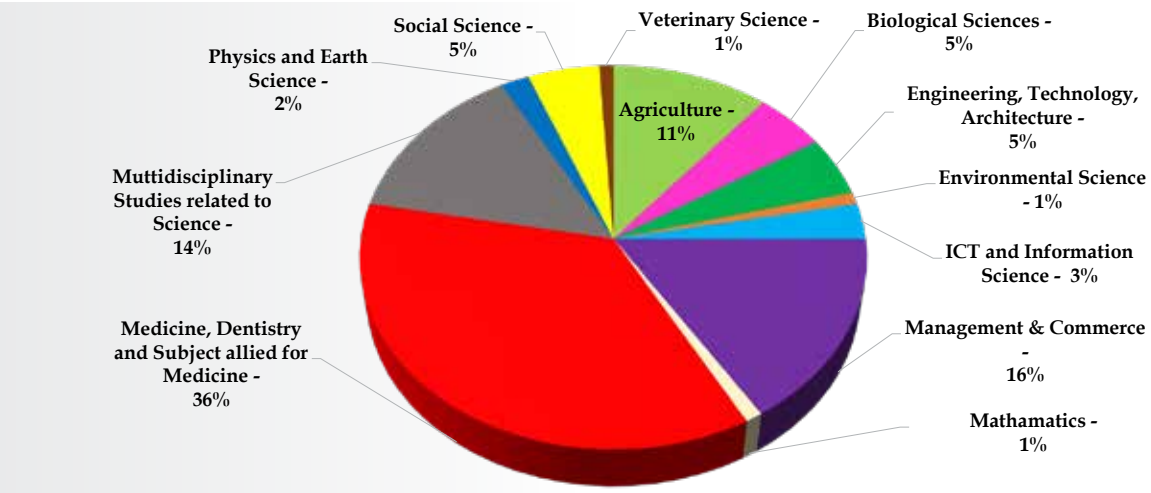


Figure 50: Subject areas covered by SLJOL platform

The dedication of authors in sharing their insights is crucial for the advancement of science and technology sectors globally. By acknowledging and crediting their contributions, it encourages further collaboration and knowledge sharing, ultimately driving progress and innovation.

It's evident that initiatives like this play a vital role in advancing scientific research and promoting knowledge dissemination, ultimately contributing to the socio-economic development of Sri Lanka and beyond.

In 2023, the Sri Lanka Journals Online (SLJOL) platform witnessed significant growth and development, with the inclusion of six journals that met the stringent standards and rigorous evaluation criteria set by SLJOL. This expansion highlights the commitment of SLJOL to uphold quality standards and enhance the diversity of scholarly publications available on the platform.

Throughout the year, SLJOL published a total of 2,550 research articles originating from 301 journal issues. This publication volume underscores the platform's dedication to facilitate the dissemination of research findings across various academic disciplines. Importantly, these publications align with the quality standards outlined in the 2017 Journal Publishing Practices Standards established by INASP and African Journals Online, reflecting SLJOL's commitment to upholding international best practices in scholarly publishing.

The continuous growth and adherence to quality standards demonstrate SLJOL's role as a reputable platform for scholarly communication and knowledge dissemination within Sri Lanka and beyond. By providing a robust infrastructure for hosting and disseminating research articles, SLJOL contributes to the advancement of academic research and fosters collaboration among researchers, institutions, and stakeholders worldwide.

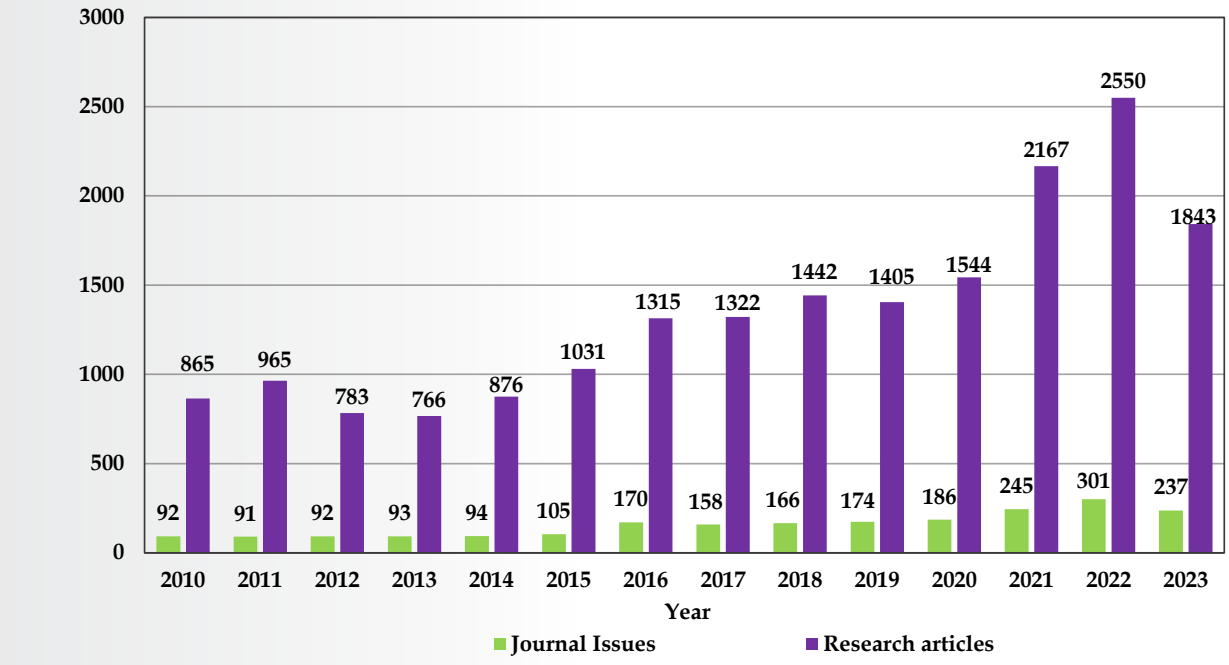


Figure 51: Growth of SLJOL

The SLJOL website features a user-friendly search tool, which has been meticulously designed to aid researchers in locating articles pertinent to their specific areas of study. This intuitive tool streamlines the process of accessing relevant scholarly content, thereby enhancing the efficiency of research endeavors.

In 2023, the Google Analytics statistics for SLJOL revealed an impressive engagement rate, with 1,597,301 viewers from a diverse range of 200 countries worldwide actively interacting with the platform. This widespread engagement underscores the platform's global reach and influence within the academic community.

Throughout this period, SLJOL made a substantial impact on a global scale, evidenced by the download of 192,958 full-text articles. These downloads signify the platform's pivotal role in facilitating the dissemination of scholarly content to a broad audience, emphasizing its significance as a key resource for researchers, educators, and students worldwide.

Overall, the statistics highlight SLJOL's effectiveness in connecting researchers with valuable academic resources and its contribution to the advancement of knowledge dissemination in various fields of study.

Table 03: Global distribution of SLJOL users

Global Distribution of SLJOL Users (Top Thirty-Six Countries)	
Country	**Users**
Sri Lanka	**88,800**
India	**19,300**
United States	**9,800**
Philippines	**6,100**
United Kingdom	**5,400**
China	**4,800**
Indonesia	**4,300**
Nigeria	**3,200**
Pakistan	**3,100**
Australia	**2,700**
Germany	**4,200**
Malaysia	**1,800**
Canada	**1,500**
Egypt	**1,300**
Singapore	**1,300**
Japan	**1,100**
France	**1,100**
Bangladesh	**1,000**
Turkey	**1,000**
South Korea	**953**
Netherlands	**864**
Thailand	**776**
Brazil	**741**
Italy	**719**
Hong Kong	**696**
Ethiopia	**689**
Vietnam	**665**
Nepal	**603**
Mexico	**563**
United Arab Emirates	**491**
Spain	**457**
South Africa	**447**
Russian Federation	**443**
Saudi Arabia	**424**
Kenya	**415**
Finland	**396**

The significant increase in the usage of SLJOL, coupled with a rise in full-text downloads from 2015 to 2023 is noteworthy. This upward trend reflects positively on the platform's impact and accessibility throughout the specified period.

The growth in usage suggests that SLJOL has effectively met the needs of researchers, academics, and other stakeholders, providing them with valuable scholarly resources and facilitating their access to relevant research articles. Additionally, the increase in full-text downloads underscores the platform's role in disseminating scholarly content to a wider audience, contributing to the advancement of knowledge and research within Sri Lanka and beyond.

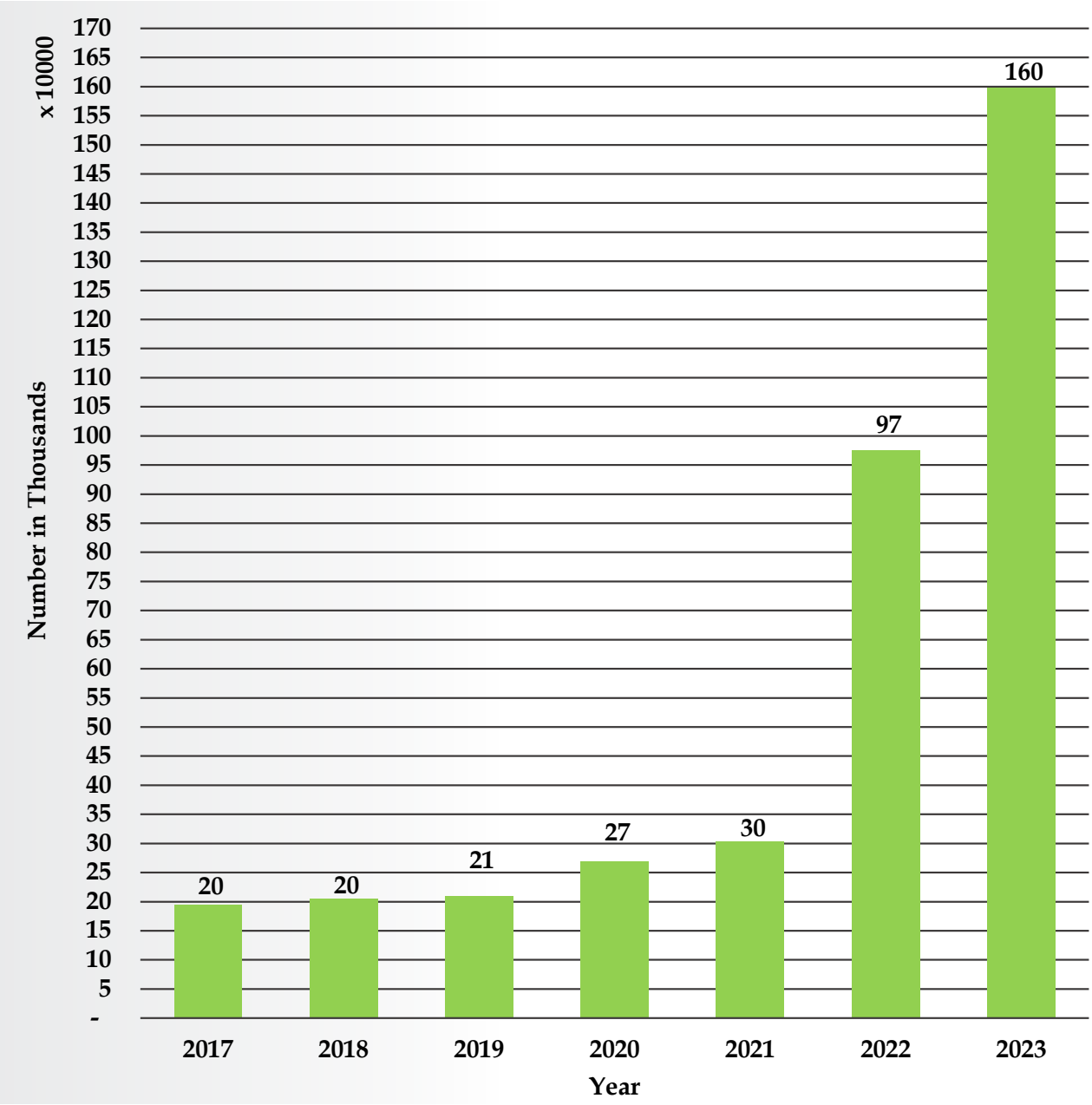


Figure 52: Users of SLJOL

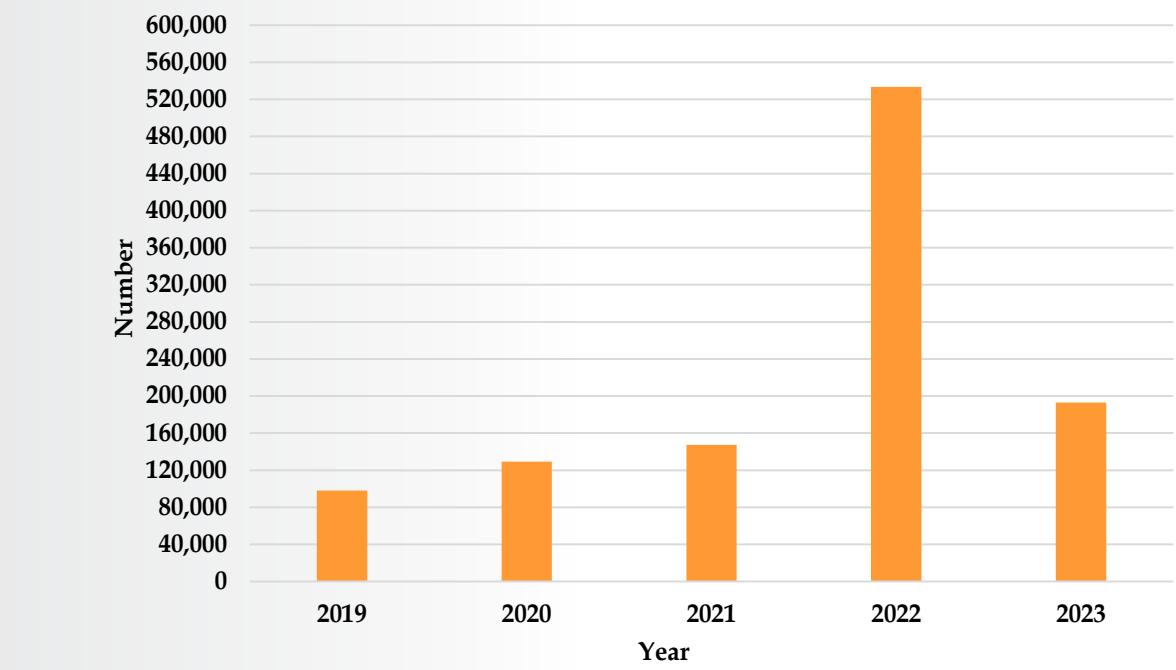


Figure 53: Downloads from SLJOL

Evaluating Journals on the SLJOL to improve their quality and strength and maintain their sustainability

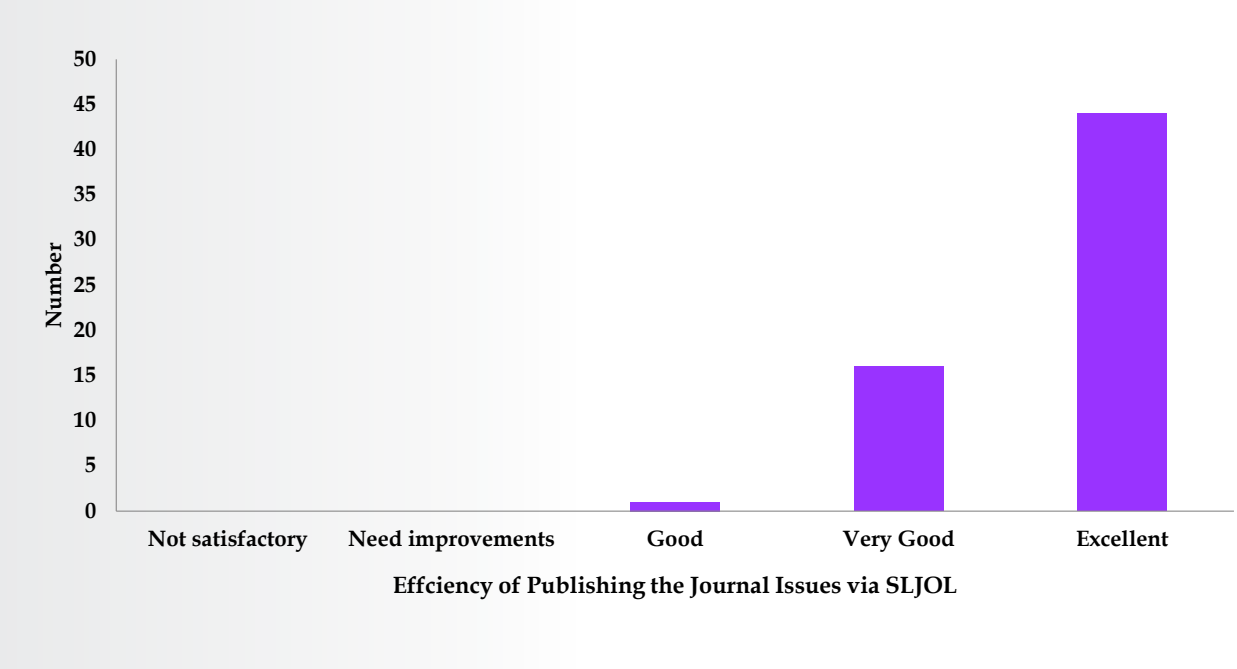


Figure 54: Efficiency of publishing the journal issues via SLJOL

An essential responsibility of Sri Lanka Journals Online (SLJOL) is conducting periodic evaluations to assess their success. These assessments aim to identify potential challenges and determine whether preventive actions are necessary to enhance the journals, making them more robust and successful in meeting the needs of the academic community. By monitoring performance and identifying areas for improvement, SLJOL can adapt to evolving trends and standards in scholarly publishing, ensuring the quality and relevance of the journals hosted on its platform. Through these evaluations, SLJOL can maintain its effectiveness in serving the needs of researchers, authors, and readers within Sri Lanka and beyond.

In 2023, SLJOL supported editors in fulfilling the task mentioned above in the following ways.

- Facilitated 18 journals to enable online submission of articles, allowing the entire editorial process to be conducted in a digital environment through the journal management system operated by SLJOL.

- SLJOL facilitated four journals in 2023 to enhance their editorial and publishing workflows through the SLJOL platform. This system, known for its reliability and consistency, attracted high-quality submissions from diverse geographic regions. The platform optimized editorial board engagement, improved overall office efficiency with minimal staff, contributed to increased citation levels and journal awareness, and assisted in indexing and ranking, ultimately enhancing the reputation of the journals.

- Gold Open Access Journals of SLJOL, The term "Gold Open Access Journal" signifies that the journal provides open access to its articles under a Creative Commons (CC) Attribution 4.0 International Public License *(https://creativecommons.org/licenses/by/4.0/)*. In support of this, editors of 12 journals published on SLJOL were assisted in generating relevant machine-readable CC statements. These statements were then incorporated into the journal's website and the front page of each article, indicating to readers how they can utilize the content in accordance with the terms of the license.

- User support and awareness were consistently provided for SLJOL users throughout the year.

- Enrolled 128 users as editors, section editors, authors, reviewers, and copy editors throughout the year.

- One hundred and ninety two (192) web updates were implemented to enhance the informativeness of the following sections of journals' home pages.

    1. Up-to-date and accurate details about the Editor and Editorial Boards
    2. Clear and comprehensive guidelines for authors
    3. Details about editorial policies, data policies and peer-reviewed processes
    4. Review forms for the online peer review process
    5. The formal copyright statements including an official licensing statement
    6. Statements related to membership of the Committee on Publication Ethics (COPE)

- The "Research Integrity" category was newly added to the home pages of four (04) journals as requested by editors. This addition incorporated details related to the responsibilities of editors, reviewers, authors, and ethical research, which are essential for meeting the criteria to be indexed in citation databases.

Offering Digital Object Identifiers (DOIs) to each article of the journal's issues

During the year, 2,532 articles from 301 journal issues were assigned Digital Object Identifiers (DOIs) by submitting batch files of required metadata to crossref.org. A DOI assigned to an article serves as a persistent unique identifier, ensuring the article can be reliably located and cited regardless of changes in location or metadata.

National Digitization Project

The National Science Foundation of Sri Lanka introduced the National Digitization Project in 2011 to empower and disseminate Science and Technology (S&T) information. The project aimed to digitize the literature collections of institutions in the country, making resources accessible globally through online e-Repositories. Utilizing DSpace software, the NSF developed numerous repositories, and successfully completed the third phase (Phase III) of the NDP in 2023. Over the past years, digitization efforts encompassed 25 library collections and the establishment of 25 Institutional Repositories (IRs). By the end of 2023, approximately 144,876 documents were made available for online access through these IRs.

Furthermore, in 2023, six institutions' e-Repositories hosted on the NSF server provided access to a total of 8,289 documents online. This illustrates the ongoing efforts to enhance access to scholarly information and promote knowledge dissemination in Sri Lanka's scientific community.

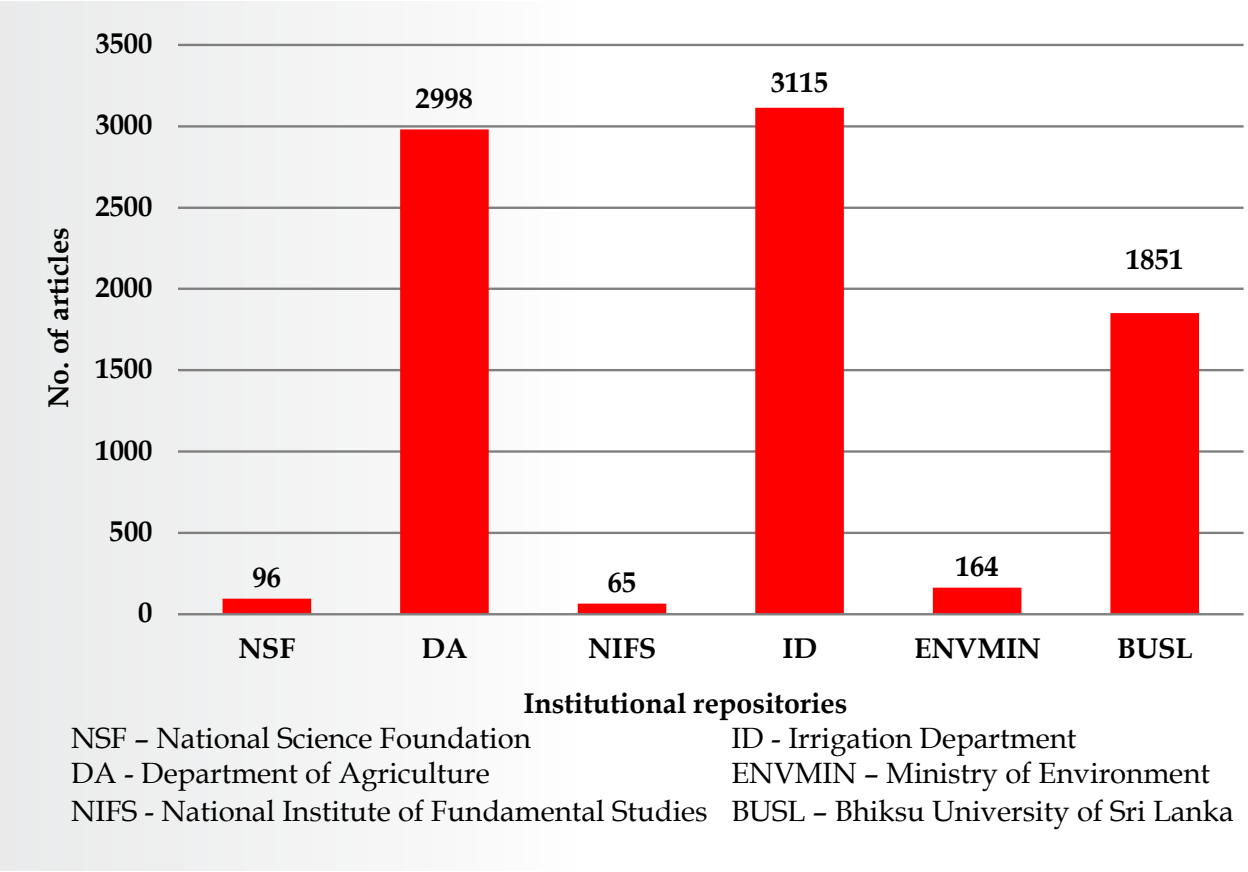


Figure 55: Number of articles published by institutes

Over the past few years, there has been a notable increase in demand for digitization services and the establishment of repositories provided by the National Science Library & Resource Centre (NSLRC). In response to this demand, the Sri Lanka Medical Library in Colombo and the Inland Revenue Department in Colombo have requested the digitization of their collections and the development of repositories in 2023. These two projects are scheduled to be implemented in 2024, further expanding the reach of digitized resources and enhancing accessibility to valuable information in Sri Lanka.

The accessibility of repositories hosted on the NSF server is continuously monitored, and there has been a remarkable growth in the number of articles downloaded and the number of searches performed each year. In the year under review, more than 8 million views and over 359,000 full-text document downloads were recorded. This significant increase in usage underscores the importance of these repositories in providing valuable access to scholarly information and demonstrates their impact in facilitating research and knowledge dissemination.

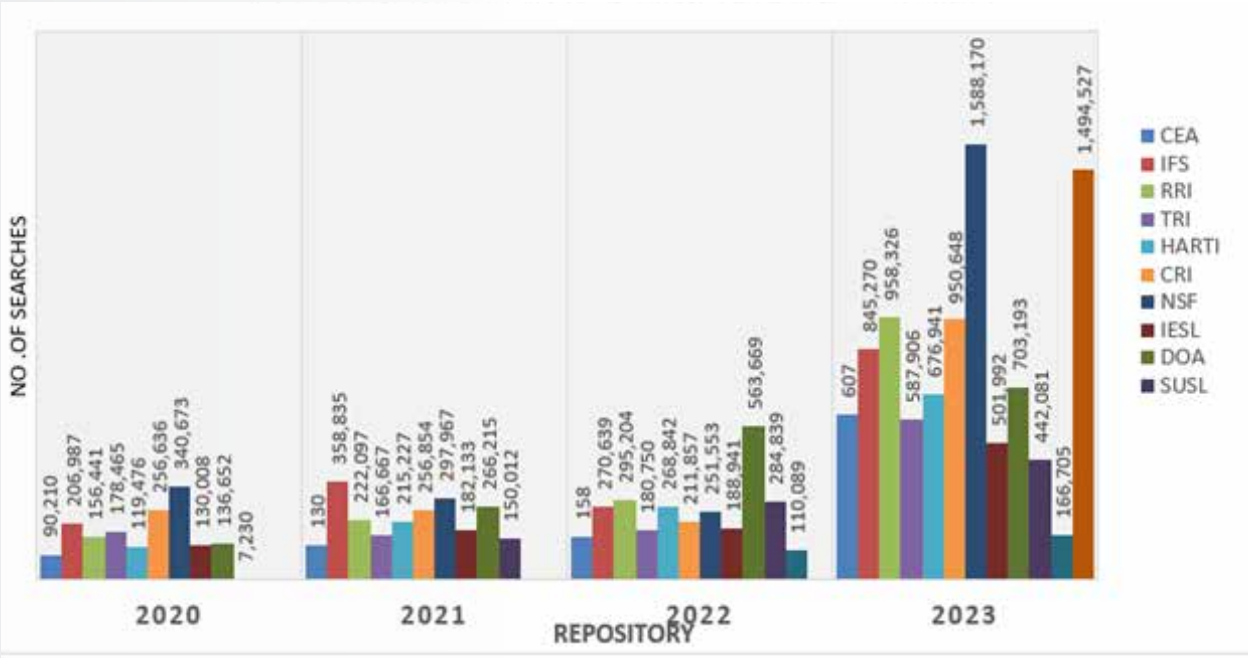


Figure 56: Number of searches performed in 2023

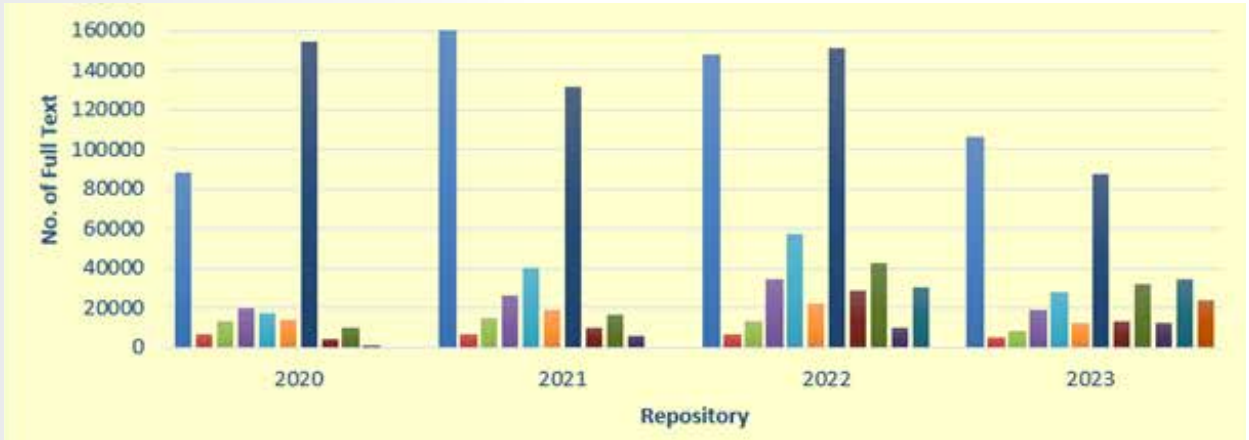


Figure 57: Number of full text documents downloded in 2023

Develop/Maintain e-Repositories, Bibliographic Databases, Library Catalogues for NSF and other S&T organizations by using Open-Source Library Management Software

The National Science Library & Resource Centre (NSLRC) of the National Science Foundation (NSF) of Sri Lanka has been involved in the development of several online e-Repositories, Scientific Bibliographic Database Platforms, and Library Catalogues. These initiatives encompass various institutions, including the National Science Foundation, SLSTINET member libraries (Sri Lanka Scientific and Technical Information Network), and other libraries, including schools. Open-Source Library Management Software such as DSpace, Koha, Java CDS/ISIS, along with advanced GUI tools like JavaScript, HTML5, and jQuery, are utilized by IT experts in NSLRC for these developments.

To ensure the excellence of the national Scientific Databases and Library Catalogue developed by NSLRC, the division has been diligently checking all the metadata contents in the databases. Specifically, NSLRC staff members have been focused on adding abstracts for each article in the Sri Lanka Science Index Database (SLSID), which consists of more than 70,000 research articles published by Sri Lankan authors. In 2023, a total of 11,317 records, including abstracts, were edited in this database.

Additionally, efforts were made to edit and update the data in the library catalogue using the KOHA Integrated Library Management Software. Progress was made with 2,225 edited records, ensuring the accuracy and relevance of the information provided. Furthermore, 1,034 records in the Research and Technology Grant Database (RTGRA) were also edited, contributing to the overall quality and reliability of the database.

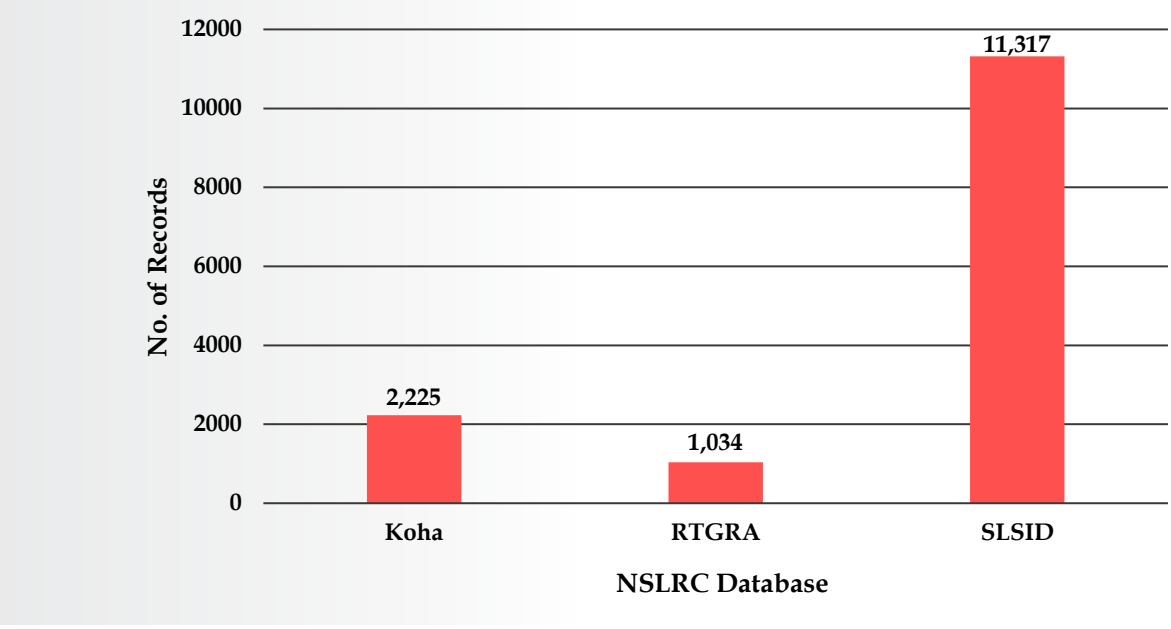


Figure 58: Number of records added to NSLRC Databases

During the year under review, the NSF strengthened its Scientific Information resources by adding 820 records to the Sri Lanka Science Index Database (SLSID), 241 records to the NSLRC Catalogue, and 160 records for the SLAAS (Abstracts of Proceedings of the Sri Lanka Association for the Advancement of Science) databases. These additions contribute to the comprehensive and up-to-date nature of these databases, enhancing their value as reliable sources of scientific information in Sri Lanka.

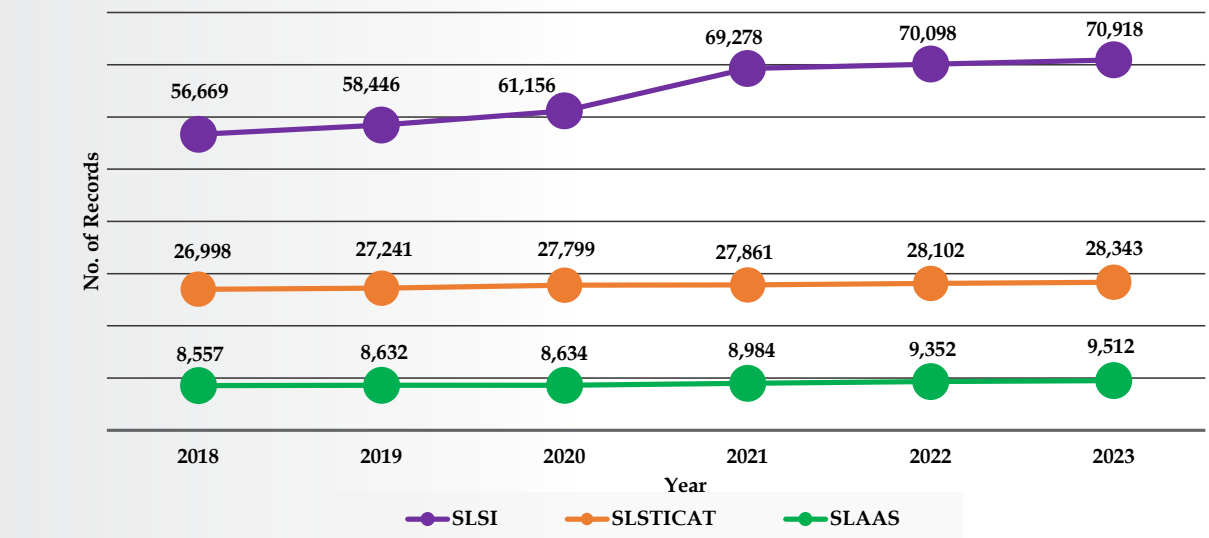


Figure 59: Number of records added to different databases

NSLRC consistently assists institutes in maintaining comprehensive, accurate, and timely intellectual records in their online resources. To support this endeavor, NSLRC offers continuous training for library and IT professionals on various aspects such as software tools, customization of platforms, essential operating systems, network configuration, supporting software engineering tools, various information formats, and data migration. This training enables professionals to effectively manipulate data, support users, provide online access, and host the site for developed databases.

Moreover, these developments have paved the way for exploring the possibility of resource-sharing among science and technological institutions. By leveraging the expertise and resources developed through NSLRC's initiatives, institutions can collaborate more effectively, share knowledge, and enhance research outcomes in the scientific and technological domain.

In 2023, the NSLRC undertook Library Catalogue and Digital Repository projects for Bhiksu University of Sri Lanka, Anuradhapura. These projects were successfully completed within the year and were officially launched by Senior Professor Kanattegoda Saddharatana Anunayaka Thero, the Vice Chancellor of Bhiksu University, on November 17, 2023.



In 2023, the NSLRC initiated the Library Catalogue project for Maris Stella College, Thimbirigaskatuwa, and the establishment of a digital Repository for the Presidential Secretariat. The NSLRC development team visited Maris Stella College in December 2023 to provide training for library staff. The project for Maris Stella College was successfully completed within the year and is scheduled to be launched in 2024.

Additionally, another training program was organized by NSLRC for the staff of the President's Secretariat on DSpace software in December 2023, as part of the digital Repository establishment project.



Koha Library Catalogue training programme, Maris Stella College, Thimbirigaskatuwa



DSpace Digital Repository Training programme for staff of the Presidential Secretariat at NSF

The Irrigation Department of Sri Lanka invited the NSLRC to conduct a demonstration on Koha Integrated Digital Library Software for their staff to facilitate the successful implementation of the catalogue. This demonstration took place on July 14, 2023. Additionally, discussions were held regarding further improvements to the e-Repository of the Irrigation Department of Sri Lanka, which was developed by the NSLRC under the National Digitization Project of the NSF.



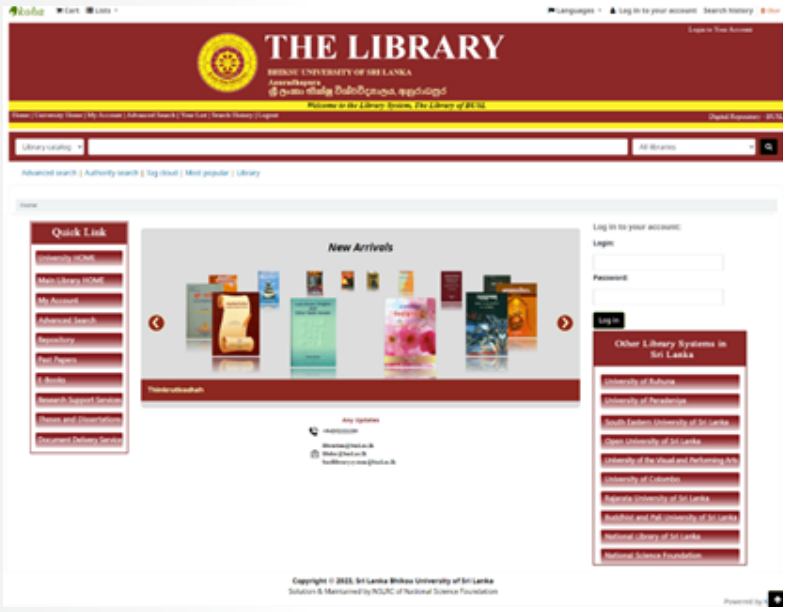
Digital Library Software Koha and DSpace Demonstration at Irrigation Department of Sri Lanka

The NSLRC consistently provides resourceful and effective troubleshooting, data migration, and version upgrade services for other institutions that have developed databases or repositories with its support. These platforms are hosted either by other institutions or on NSF servers. In 2023, more than 100 troubleshooting sessions were performed for both NSF and other institutions.

Furthermore, the Department of Census and Statistics of Sri Lanka requested an upgrade of their e-Repository from Version 4.1 to 6.3 in 2023. This task was carefully handled to ensure the integrity of its data, and the migration to the new version was completed in September 2023.

Table 04: Summary of services provided by the NSLRC

	Institute Name	Developed Year	Development Software	Total Number of Records added in 2023
01	Bhiksu University of Sri Lanka, Anuradha-puraLibrary Catalogue *http://catalogue.busl.ac.lk/*	2023	Koha	Catalogue -5963 Circulation -901
02	Bhiksu University of Sri Lanka, Anuradha-pura e-Repository *https://repo.busl.ac.lk/*	2023	DSpace	1851
03	Maris Stella College Thimbirigaskatuwa Library Catalogue *http://38.242.147.208*	2023	Koha	Catalogue - 5879 Circulation - on-going
04	Presidential Secretariat e-Repository *https://dlib.presidentsoffice.gov.lk/*	2023	DSpace	Ongoing
05	A/Swarnapali Balika Maha Vidyalaya, Anuradhapura Desktop Application	2023	JAVA CDS/ ISIS	Ongoing
06	Sri Lanka Federation of University Women (SLFUW), Colombo, Desktop Application	2023	JAVA CDS/ ISIS	2192
07	Coconut Research Institute *http://viduketha.nsf.gov.lk/cribib*	2022	JAVA CDS/ ISIS	2000



Library Catalogue of Bhiksu University of Sri Lanka, Anuradhapura



e-Repository of Bhiksu University of Sri Lanka, Anuradhapura

Developing a Membership Database for the Sri Lanka Association for the Advancement of Science (SLAAS)

In 2023, the NSLRC of NSF successfully developed a comprehensive and user-friendly online Membership Database for the Sri Lanka Association for the Advancement of Science (SLAAS). This database revolutionized traditional methods of data management, enabling prompt membership processing and providing easy access to scientific research expertise registered with SLAAS. Targeting key external audiences such as potential HDR candidates, government agencies, and media seeking experts, the database facilitates the retrieval of scientific research expertise, fostering collaboration opportunities.

The Membership Database was developed at the request of the SLAAS President and the Chairman of the National Science Foundation Prof. Ranjith Senaratne. The membership database enables the management of member and researcher profiles, thereby enhancing the visibility and impact of their research. Through the database, researchers can build comprehensive profiles that include their qualifications and research publications. This functionality not only allows researchers to showcase their expertise but also facilitates networking and collaboration opportunities with potential collaborators globally.

The database was officially launched at the 79th Annual Scientific Session of SLAAS on December 10, 2023, at BMICH. The event was graced by Prof. Mohan Munasinghe, as the Chief Guest, along with Prof. Ranjith Senaratne, President of SLAAS and Chairman of NSF, and Dr Sepalika Sudasinghe, Director General of NSF. Additionally, Mr Manuja Karunaratne, Head and Principal Information Officer of the National Science Library and Resource Center, and Mrs Thasneem Niyas, Information Officer responsible for preparing the membership database, were also present at this special event.

http://192.248.80.26/slaasmemb









Training Programmes Conducted

The National Science Library & Resource Centre (NSLRC) conducted an online training workshop on the latest version of WINISIS library management software, Java CDS/ISIS (J-ISIS), on October 19th and 20th, 2023. The workshop aimed to enhance the skills of library and IT professionals to adopt the latest technology in digital library management and develop smart library services for their user community. Mrs Thasneem Niyas, Information Officer of NSF, served as the resource person for the workshop, which saw participation from 21 professionals from SLSTINET libraries and other libraries. NSLRC organized another online training program on July 19, 2023, for Institute Managers of Private Institutes and recently joined government institutes on the National Instrument Database (NID). Mrs Thasneem Niyas, Information Officer of NSF, served as the resource person for this program, which saw participation from 20 attendees.

National Research and Development Survey



The National Research and Development Survey investigates performance of Research and Development activities of the country. The survey conducted for the fiscal year 2020 was completed and published as the R&D Statistical Handbook 2020. This statistical handbook reflects the performance of Research and Development activities of the country for the four sectors viz. Higher Education Sector, Government R&D Sector, Business Enterprise Sector and Private Nonprofit Sector.

This handbook entails R&D inputs like Gross Expenditure for R&D (GERD), sources of funds for R&D, Head count of R&D Scientists and Technicians and R&D outputs such as number of research publications in indexed journals, information on patents and industrial designs, postgraduate outputs etc.

The Survey is conducted based on international standards laid out by the Organization for Economic Cooperation and Development (OECD).

Highlights of R&D survey 2020

- Gross Domestic Expenditure on R&D (GERD) for the year 2020 corresponds to 0.12% of its GDP.
- The highest proportion of funds for R&D were granted by the government sector (44%)

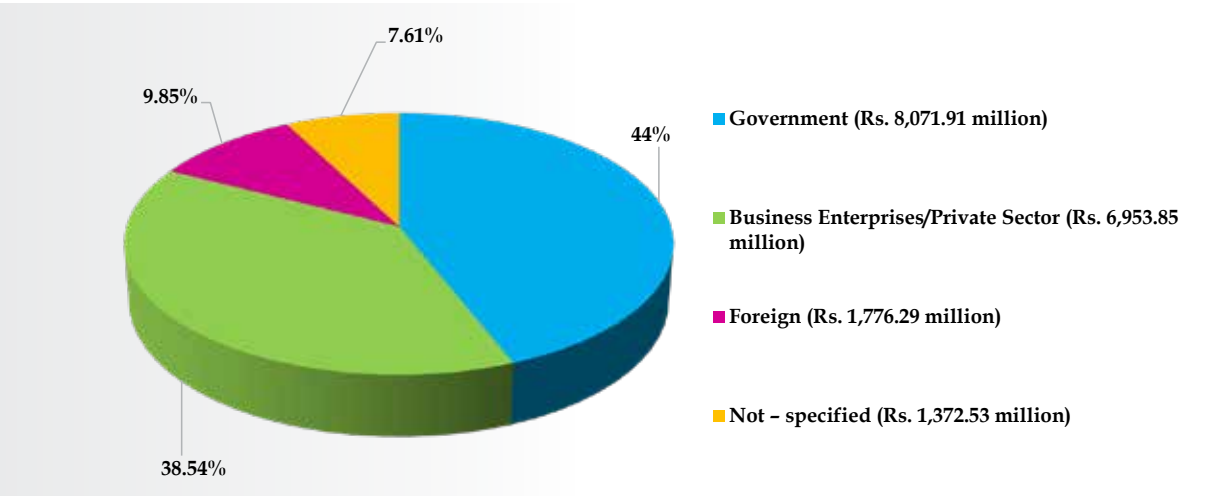


Figure 60: R&D Expenditure by source of Funds

- The highest proportion of funds for R&D were spent by the Business Enterprises (37.94%)

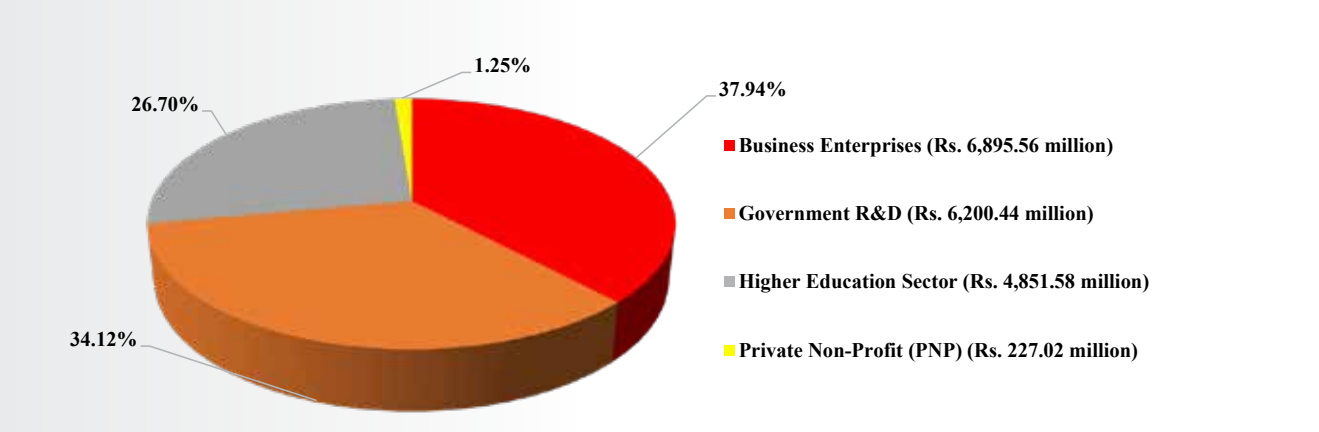


Figure 61: GERD by sectors

- The highest proportion of funds for R&D were spent by the discipline of Agricultural Sciences (27.65%)

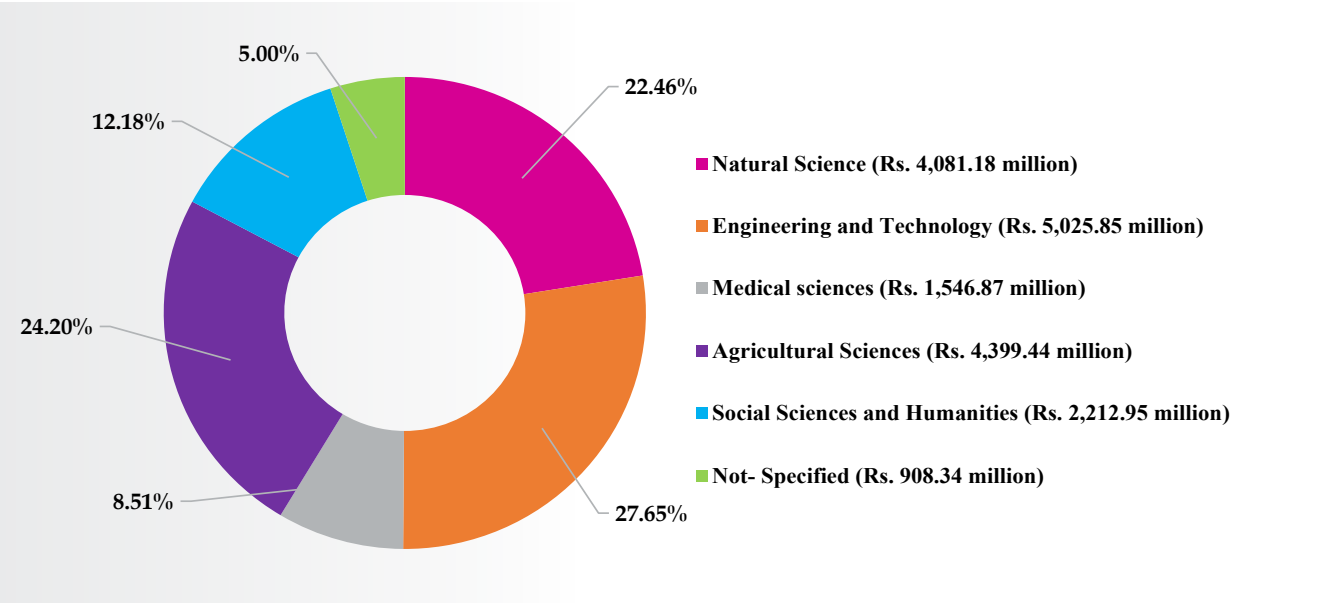


Figure 62: GERD by Field of Science

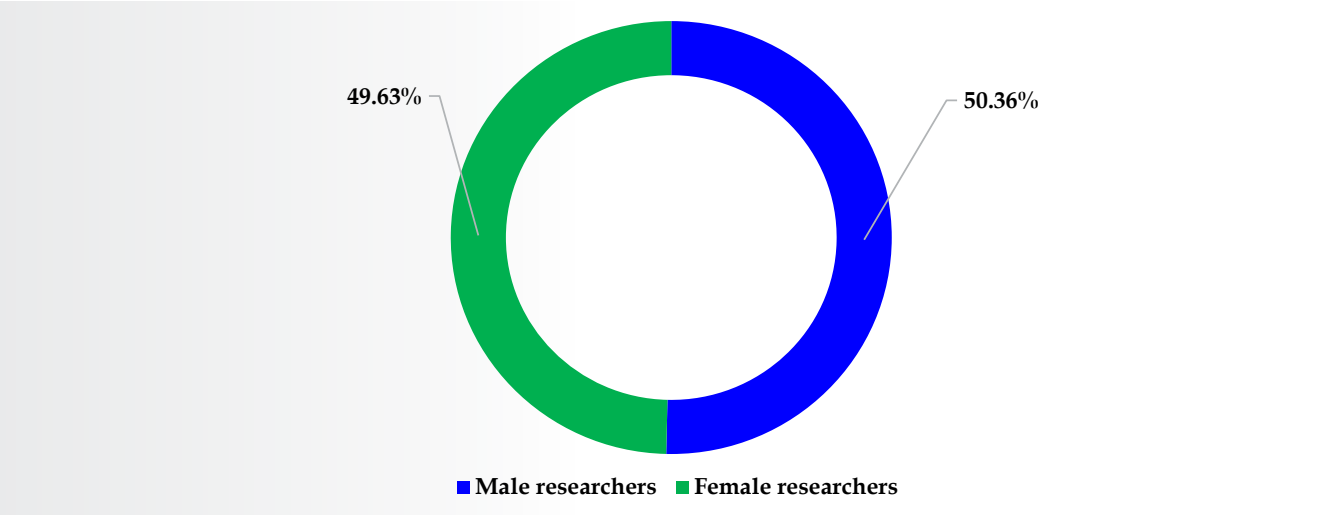


Figure 63: Head count of researchers

The National R&D Statistics of 2020 were submitted to the UNESCO Institute of Statistics (UIS) to enhance its international readership and usability. In addition, R&D statistics of 2020 relevant to SDG goals were inserted to the SDG data portal in Sri Lanka. Preliminary work to conduct the R&D survey for the fiscal year 2022 has been completed.

Science and Technology Management Information System (STMIS)

Science and Technology Management Information System (STMIS) is a computerized information system developed and maintained by the NSF since 2004. The STMIS database contains information on S&T related institutions, S&T personnel, advanced scientific equipment available in the institutions, ongoing research activities, technologies developed and transferred by the institutions, services and training programs offered by the S&T institutions for the public and research publications done by the individual scientists. Various initiatives were taken to streamline the processes within the STMIS to provide a better service.

With the objective of setting guidelines and principles on accessing sharable data in STMIS for relevant stakeholders for non-commercial legitimate purposes, while ensuring NSF proprietorship for curated data, a Data Sharing Policy was introduced for the STMIS. This will enable the proactive disclosure of data in the STMIS, while anticipating the avoidance of any duplication of this public funded asset.

By the end of 2023, STMIS recorded 7300 registrants currently in the STMIS database, of which 163 are new registrants during the year.

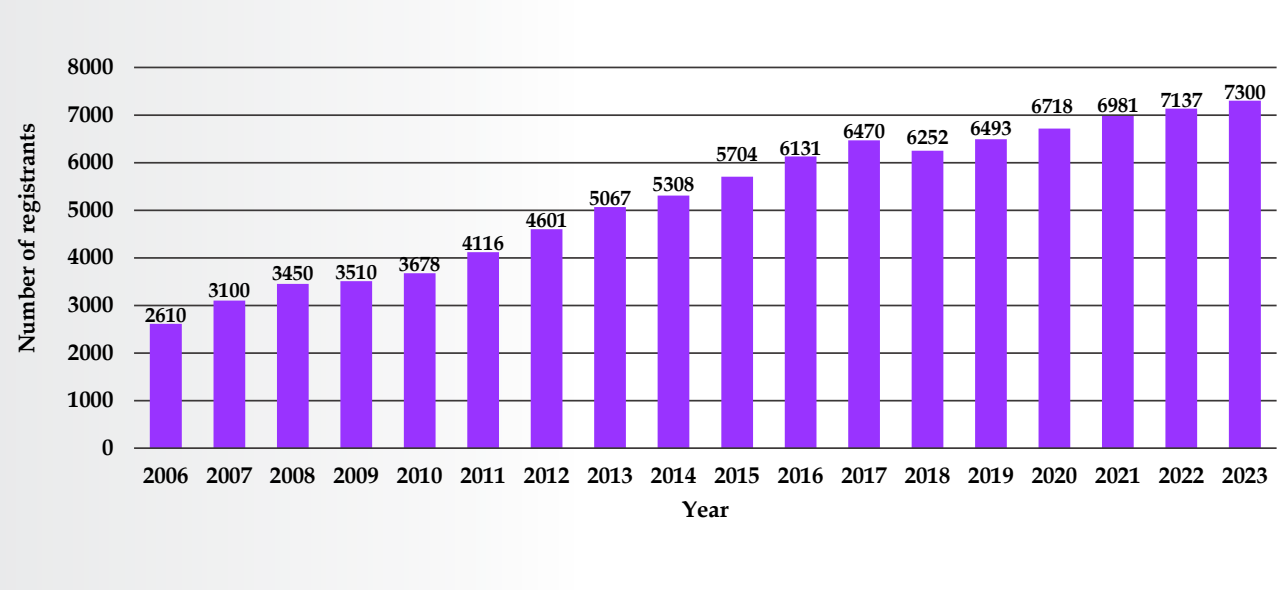


Figure 64: Number of STMIS registrants with time

Disseminating information covering scientific courses and events, grant calls and other career opportunities through STMIS for the benefit of the scientific community

Facility of disseminating important updates, such as scientific courses and events, grant calls and other career opportunities, for the benefit of the registrants through the STMIS was introduced in early 2020. The facility introduced with defined guidelines and streamlined process, facilitated external institutions who are organizing scientific events to publicize updates and information about their events among a wider community through the STMIS. Formal introduction of this facility has benefitted the STMIS registrants in receiving most current updates regarding the opportunities

available to them both nationally and internationally. Circulations are done either as a general circulation or a customized circulation where information is circulated among the pre-determined field/s of expertise upon the preference of the requesting party and the relevance of the content.

A total of 120 circulations were done during the year 2023 accounting for Rs. 127,000/- of income to the NSF. This service was provided through the STMIS with the support of the NSF IT Unit, is becoming popular among the S&T community in the country as a reliable passage in reaching wider yet relevant audience.

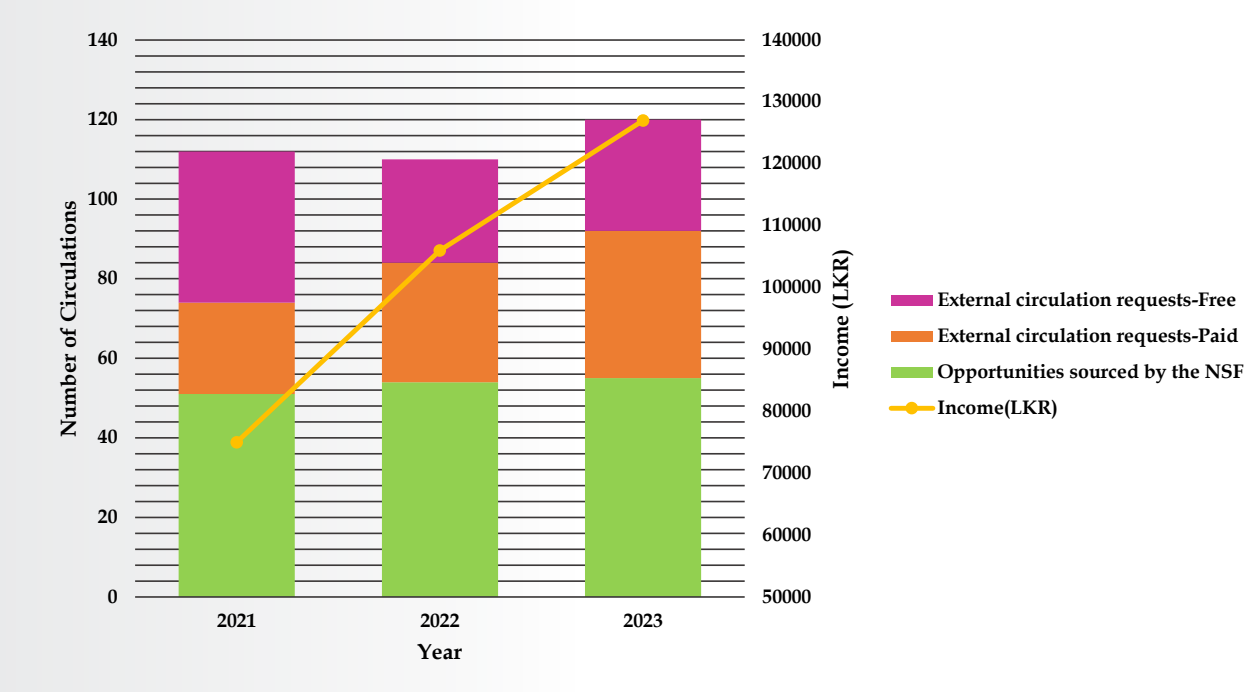


Figure 65: Number of information circulations through STMIS and income eared

Information Requests

Six customized comprehensive reports were generated based on the requests of different stakeholders. These reports included verified details of over 1,000 experts in relevant fields.

In addition, STMIS *(https://stmis.nsf.gov.lk/)* has achieved 16,200 hits for the year which is indicative of the increased usage of this online System among the public.

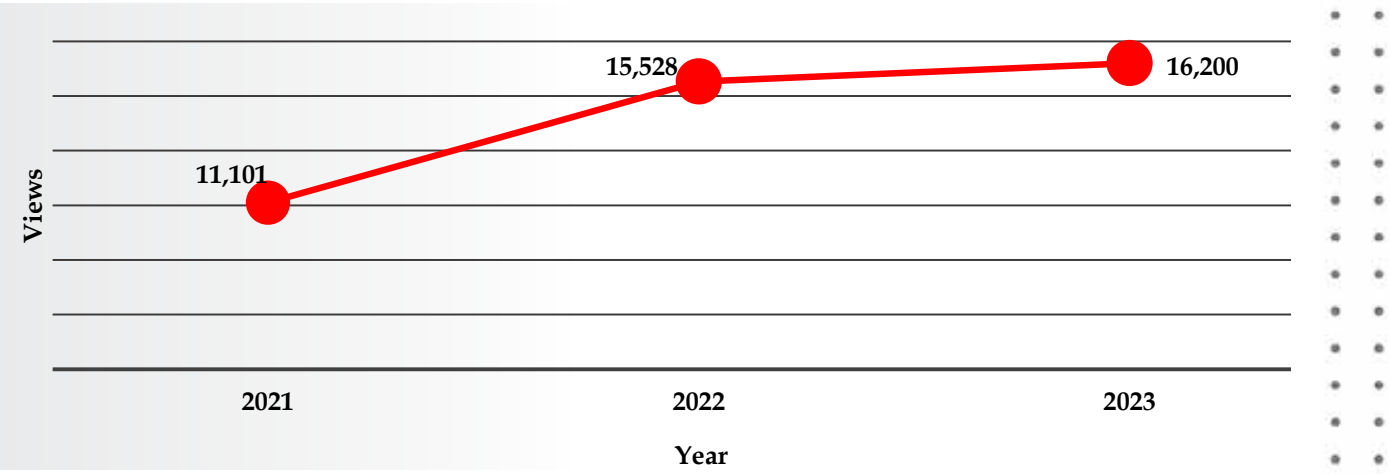


Figure 66: number of views through STMIS

Liaising with Association of Asian Social Science Research Councils (AASSREC)

The NSF is a member of the AASSREC which is an association of a number of Social Science entities in Asia. AASSREC holds biennial Conferences on most important current topics relevant to society. The 25th biennial general Conference of the AASSREC was held in Seoul, Korea on the theme "Social Sciences in Asia: Past, Present and Future" from 14-16 June 2023.

Abstracts were called for this Conference and received abstracts were reviewed by a panel of reviewers and two abstracts which scored the highest marks were sent to the AASSREC. The AASSREC selected the abstract of Prof. Ranagalage, the Head of the Department of Environmental Management, Faculty of Social Science and Humanities, Rajarata University of Sri Lanka which was on 'Current Challenges and Future Opportunities Facing Social Science Researchers in Sri Lanka' to be presented at the Conference.

With the intention of initiating some collaborative activities between the two institutes in the areas of Social Sciences, several communications were made with the AASSREC on Global Development Network (GDN) project proposal for the Joint Regional Research Program in Asia. A nomination was forwarded from Sri Lanka for the AASSREC Policy & Strategy Committee.



The meeting with the expert panel to provide input and comments for improvement of the country paper presented by Prof. Ranagalage

Rejuvenating NSF work on Social Sciences

The new committee appointed to work on social sciences commenced its activities in November 2023. The committee is equipped with a pool of experts in diverse social science disciplines and would bring their expertise together to fulfill its objectives. Aligning with its Terms of Reference (ToR), the committee will be able to address interdisciplinary research with a strong social component within the research that will produce more pragmatic outputs. Further, the committee would discuss important issues that need social science interventions and recommendations arising from such discussions and would communicate them to the decision-makers. Capacity building of young scholars would enhance quality of research and related findings. Dissemination of social science perspectives on current issues would form a well-informed society that would adapt rationally to diverse societal changes. The committee will also liaise with internationally recognized bodies of social science by creating linkages and collaborative endeavors. While fulfilling the aforementioned objectives, the committee is expected to generate momentum towards a vigorous program of research and other activities in social sciences at NSF.



Inaugural meeting of the NSF Working Committee on Social Sciences

Awareness Programmes

As the focal point of Sri Lanka Scientific & Technical Information Network (SLSTINET), the National Science Library & Resource Centre (NSLRC) organized several library awareness programs for SLSTINET libraries across universities, R&D institutes, and other S&T libraries throughout the country. At the library awareness programs conducted in 2023, the primary focus was on providing a comprehensive overview of the various scientific resources offered by NSF and highlighting the opportunities available for researchers from universities and research institutes to benefit from these resources.

Furthermore, the library awareness programs delved into detailed explanations about the NSF mandate, the activities of each division, and the array of local and global databases available through NSF. Participants were also informed about NSF grant schemes, the Science & Technology Management Information System (STMIS), the Global Digital Platform (GDP), the National Instrument Database (NID), The Sri Lanka Journal Online (SLJOL), the National Digitization Project (NDP), e-repositories, bibliographic databases, and other services provided by NSF.

During these sessions, practical knowledge and strategies were shared among participants, aimed at enhancing their understanding and utilization of NSF resources. It is hoped that the information provided will prove valuable in current research endeavors and in shaping future projects for universities and research and development institutions.

Participants were encouraged to ask questions and seek clarifications from NSF during the library awareness programs. This interactive approach aimed to facilitate a deeper understanding of the topics discussed and allowed the academic and research community to gain more knowledge and ideas from NSF. By fostering open communication and dialogue, participants were able to engage directly with NSF representatives, address any uncertainties, and gain valuable insights to enhance their utilization of NSF resources.

Table 05: Library Awareness Programmes Conducted During the year 2023

No.	Institute	Date	No. of Participants
01	University of Peradeniya	23.02.2023	34
02	National Agriculture Information and Communication Center (NAICC), Gannoruwa	23.02.2023	127
03	Department of Census and Statistics	08.03.2023	41
04	Sri Lanka Institute of Advanced Technological Education (SLIATE)	20.06.2023	30
05	Eastern University Sri Lanka (EUSL)	09.08.2023	39
06	Main Library, Oluvil, South Eastern University of Sri Lanka (SEUSL)	10.08.2023	47
07	Faculty of Applied Sciences Library, Sammanthurai, South Eastern University of Sri Lanka (FAS, SEUSL)	11.08.2023	48
08	Bhiksu University of Sri Lanka, Anuradhapura	26.09.2023	14



Awareness Programme at the National Agriculture Information and Communication Center (NAICC), Gannoruwa



Awareness Programme at the Eastern University of Sri Lanka (EUSL), Vantharoomolai, Chenkalady



Awareness Programme at the Main Library, South Eastern University of Sri Lanka (SEUSL), Ampara



Awareness Programme at the Faculty of Applied Sciences Library,
South Eastern University of Sri Lanka (FAS, SEUSL)

Donation of Books and Journals

Based on the recommendation of the NSF Board of Survey conducted for NSLRC between 2018 and 2022, a total of 486 books, 123 NSF publications, 377 Vidya Journals, and 117 NSF Journals were identified for removal due to duplication, damage, non-durability, and online accessibility. These material were weeded out and donated by NSLRC to other S&T libraries in 2023.



Donation of weeded-out books for International College of Business & Technology (ICBT) Campus and South Eastern University of Sri Lanka

Subscription, Acquisition, and Information Dissemination Services

The National Science Library & Resource Center (NSLRC) fulfills the information needs of the scholarly community, receiving article requests via physical visits, phone calls, or email. In 2023, the division received 2011 article requests and inquiries from general users. However, there has been a significant rise in online access to all NSLRC databases, with a remarkable number of online accesses and downloads recorded. Physical users conducted 271 searches on local databases, while 84 full-text articles were downloaded from the TEEAL international database.

In terms of Acquisition management, the division curated various collections to meet the reference needs of the scholarly community. In 2023, the division received 12 new books, some purchased and others donated. Additionally, 12 local journals, 6 foreign journals, and 22 conference proceedings were acknowledged. Furthermore, 4 theses and 12 final research reports were added to the physical collection of research reports.

Awareness sessions conducted on resources and services available at NSLRC

1. As a Resource Person at the "Special Programme on Evaluating Proposals for Awarding Research Grants" organized by the Research Council of Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka on 12th October 2023 at the Hector Kobbekaduwa Agrarian Research and Training Institute, Colombo 07, Mr Manuja Karunaratne – Head of NSLRC conducted an awareness program about the library resources and services available at NSF for the research community at the two-day residential program for academic staff of the University on developing quality proposals to obtain external/internal research grants.



Awareness Programme for Academic Staff of Gampaha Wickramarachchi University of Indigenous Medicine

2. As a Resource Person for the International Engineering Research Symposium organized by the National Engineering Research and Development Centre of Sri Lanka on 02nd November 2023 at Waters Edge Hotel, Battaramulla, Mr Manuja Karunaratne - Head of NSLRC and Eng. Mahesh Dissanayake, Head of the Research Division, conducted an awareness programme on "NSF Resources and Opportunities for Researches".



Awareness Programme at International Engineering Research Symposium organized by the National Engineering Research and Development Centre of Sri Lanka









Mr Manuja Karunaratne – Head NSLRC attended as special invitee to the 13th International Conference of University Librarians Association of Sri Lanka







Mr Manuja Karunaratne – Head NSLRC attended to the launch of E-repository and Koha Library Management Software implemented by NSLRC at Bhiksu University of Sri Lanka, Anuradhapura on 17th November 2023.



Meeting Dr Liwan Liyanage to discuss the implementation of the National Digital Library Consortium and search for foreign funds.



Cambridge University Press and Assessment hosted a Cambridge Education Conclave in Sri Lanka, which brought together distinguished experts and educators from the field of education from across the island nation, to explore the growth map of education and envision its future. The event was held in Colombo on 11th September 2023.







The Asia Pacific Advanced Network (APAN56) conference was held from the 21st to the 25th of August 2023 in Colombo, Sri Lanka. Mr Manuja Karunaratne and Dr Mahesha Nadugala attended this conference representing NSF. They presented the Open Science programs implemented by NSF aimed at strengthening science communication through Open Access. Furthermore, a special meeting was held at NSF with a delegation of experts to identify the opportunities that could be harnessed through international collaborations.

NSF Mandate c) Science & Technology Capacity Building

International Affairs Division of the NSF could successfully carry out activities planned under the annual action plan in 2023 despite the turbulent and dire economic situation of the country, effectively utilizing its digital instruments to deliver impact. The cost savings through such measures could be noted as exemplary.

The chart below shows the cost saved by the International Affairs Division through its activities in 2023. Here, mainly the programmes conducted free of charge by the resource persons registered under the NSF Global Digital Platform are considered under 03 categories; i.e., Training Programes, Knowledge Transfer Programmes and Meetings, Conferences and Other capacity building activities. Estimated cost for each 01 man hour had been USD 100 which is multiplied by the number of man hours and converted to LKR. The highest cost savings had been through Meetings, Conferences and Other capacity building activities.

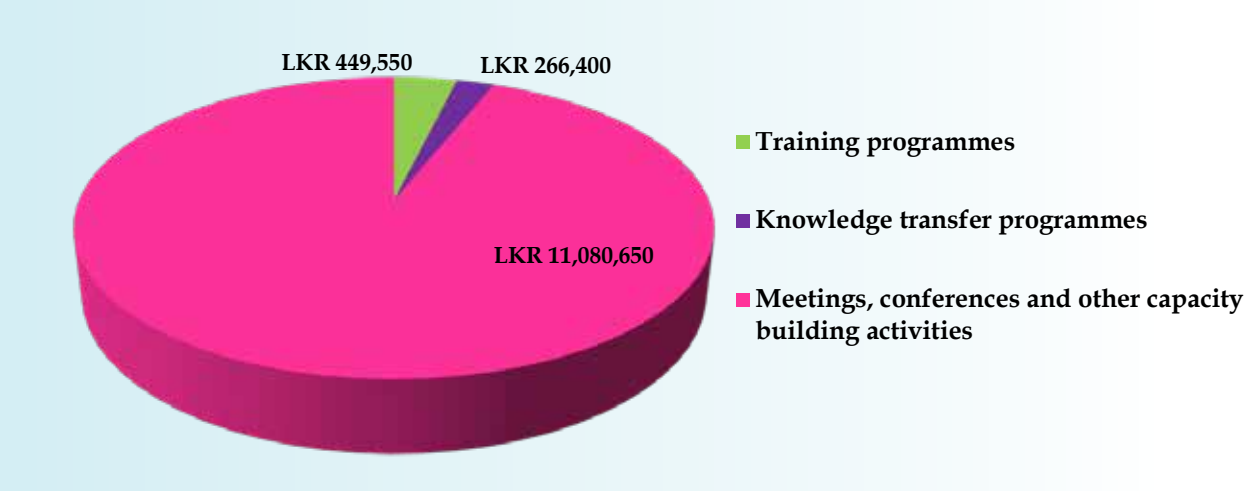


Figure 67: Cost saved by the International Affairs Division through its activities in 2023 (LKR)

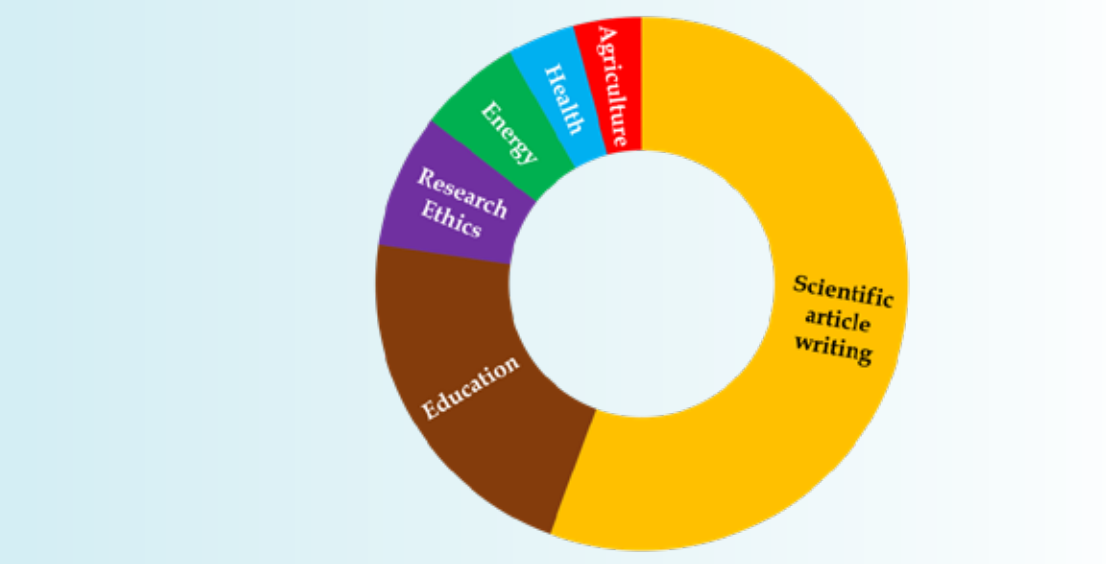


Figure 68: Capacity building through the digital platform

- Expanding the GDP with new registrants

Invitations were extended to a total of 195 Sri Lankan expatriates to register with the GDP. Accordingly, 90 expatriates were registered newly. A series of online meetings were conducted with overseas Sri Lankan scientists, professionals and researchers representing Asia-Oceania, the USA, Canada, the UK, and Japan to explore potential collaborations and leverage the expertise base for capacity building of Sri Lankan researchers, enhance R&D outputs and global visibility of Sri Lanka's STI landscape.

- Improving, maintaining and ensuring the information security of GDP

Two online meetings with the GDP web developers and officials of Sri Lanka Association of Software Services Companies (SLASSCOM) were held to address teething problems, fine-tune processes, and ensure information security. This ongoing process was actively monitored and follow up actions were in progress.

- Partnership building through the GDP towards research collaboration and technical cooperation

International Affairs Division was exploring the requirements of Sri Lankan Universities, R&D institutions and other public sector organizations with a view to connect potential expatriates for research collaboration and technical cooperation through the GDP. Accordingly, nine international linkages were established between Sri Lankan academia and overseas Sri Lankan scientists and professionals as follows:

- Department of Agriculture Uva Wellassa University and Dr Manjula Bandara, University of Saskatchewan, Canada
- Department of Manpower and Employment and Dr Anas Usoof University of Alberta, Canada
- Open University of Sri Lanka and Dr Liwan Liyanage, Western Sydney University, Australia
- Open University of Sri Lanka and Dr Ashani Amarasinghe, University of Sydney, Australia
- Dr Subodha Charles, Faculty of Engineering University of Moratuwa and Prof. Gomika Udugamasooriya University of Houston Drug Discovery Institute, USA.
- Prof. Swarna Hapuarachchi and Prof. Kamal Perera of the Faculty of Indigenous Medicine, University of Colombo and Prof. Gomika Udugamasooriya University of Houston Drug Discovery Institute, USA.
- Prof. Sharmini Gunawardhana, Faculty of Medicine, University of Colombo and Prof. Gomika Udugamasooriya University of Houston Drug Discovery Institute, USA.
- Prof. Chandrika Nanayakkara, Department of Plant Sciences, University of Colombo and Dr Niroshani Gunasinghe, University of Southern Queensland, Australia
- Ms Malika Perera, Crop Production Division Sugarcane Research Institute, Udawalawe and Dr Shashi Gunathilaka, Faculty of Sciences, Engineering and Technology, University of Adelaide, Australia.

This accomplishment not only enhances capacity building but also fosters productive collaboration in research and development, marking a significant advancement in local innovation ecosystem through global engagement and tapping the global talent pool.

A strategic collaborative partnership was forged between NSF and the Office of Overseas Sri Lankans (OOSLA) which is established under the Presidential secretariat to harness Sri Lankan expatriates for national development with synergy and complementarity.



Meeting between officials of the NSF and the Office of Overseas Sri Lankan Affairs (OOSLA) on strengthening mutual cooperation (held on 04.05.2023)

Capacity Building of STI personnel

- Partnering with the National Apprentice and Industrial Training Authority (NAITA) for development of a curriculum for a National diploma on Data Science

NSF partnered with the National Apprentice and Industrial Training Authority (NAITA) to enhance the performance of technical and vocational education and training with an emphasis of emerging fields such as data science addressing emerging opportunities in the global labour market.

Accordingly, a comprehensive curriculum for a National Diploma course in Data Science was developed and submitted to NAITA as per their request. Generous support for this curriculum development was received from a team of overseas Sri Lankan experts and local expert namely Dr Charini Vimansha (Research Fellow, The Australian National University), Dr Rasika Rajapaksha (Postdoctoral Fellow, University of Wyoming, USA & Senior Lecturer, Faculty of Computing & Technology, University of Kelaniya) and Dr Liwan Liyange (Senior Lecturer in Data Science, Western Sydney University, Australia). This development will enable NAITA to introduce new courses addressing demand in the global labour market.



Curriculum development for National Apprentice and Training Authority (NAITA) related to Data Science

- Building capacity of staff of the Department of Information Technology, University of Vocational Technology (UNIVOTEC) in the field of Internet of Things (IoT).

Presently, the expertise within UNIVOTEC staff pertaining to IoT is limited where they obtain service from external experts for teaching in this field. Addressing this gap, a capacity building programme was conducted aimed at Lecturers in the Department of Information Technology, UNIVOTEC with support from Eng. Wasantha Perera, a Telecommunications and 5G Wireless Engineering Consultant, Senior Network Solutions Engineer and a Team Lead - Program Manager at Qualcomm International, Australia. This programme will enable strengthening internal capacities of the UNIVOTEC to conduct their degree programmes in ICT without depending on external expertise especially in the field of IoT.

- Strengthening non-State sector Tertiary and Vocational Education Commission (TVET) institutions addressing Fourth Industrial Revolution.

Wayamba Technical College, a government approved non-State sector leading TVET institution has indicated their willingness to infuse with emerging technologies especially to reap benefits from Data Science. Accordingly, NSF facilitated an online meeting between officials of Wayamba Technical College and data science expert Dr Rasika Rajapaksha (Postdoctoral Fellow, University of Wyoming, USA & Senior Lecturer, Faculty of Computing & Technology, University of Kelaniya). Follow up actions were in progress to furtherance of same for the benefit of Wayamba Technical College and its trainees addressing emerging opportunities in the global labour market.

- Facilitation of harnessing foreign funds through ICGEB meetings and Courses programme and ICGEB Arturo Falaschi Programme.

Three proposals were submitted to be considered under the ICGEB under ICGEB Meetings and Courses Programme and one researcher was able to secure a grant worth of LKR 4.2 Mn. The project was on advancing next generation sequencing Sri Lanka; A residential workshop for international and national attendees.

Under Arturo Falaschi Fellowship 2023, a young Sri Lankan researcher was awarded with a post-doctoral long-term fellowship of LKR 5.7 Mn. The project was on engineering an *Aspergillus flavus* long chain alkaline degrading monocytogenase to degrade LDPE microplastics. As such, it is important to note that the national R&D capacities had been strengthened through ICGEB funding during past decade with valuable coordination through NSF.

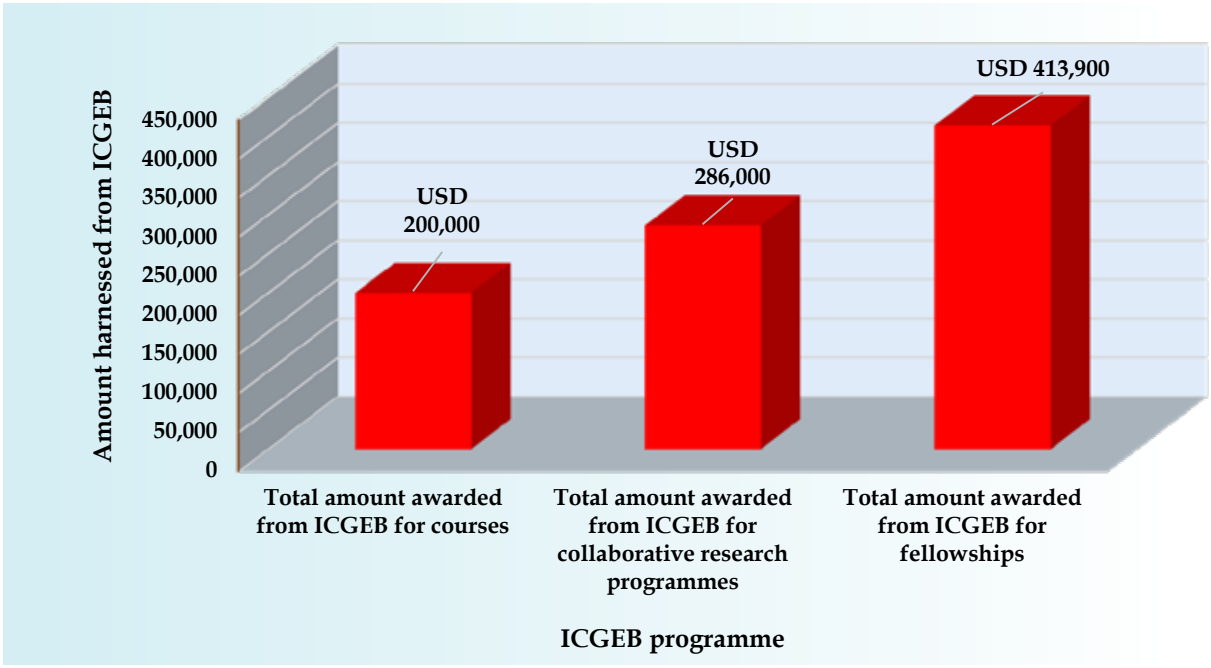


Figure 69: Funds harnessed by Sri Lankan R&D community from ICGEB during the past decade with NSF facilitation

Strengthening TVET sector infused with 4 IR

As the fourth industrial revolution (4IR) takes hold, driven by rapid advancements in artificial intelligence robotics, Internet of Things (IoT), Data Science, blockchain, quantum computing and other emerging technologies, there is a growing concern towards a "skills gap." Technological advances in the context of 4IR will transform the labour market opportunities and challenges faced by young women and men. 4IR is a potential mean for low and middle-income countries to "leapfrog" to more advanced stages of development. At the same time, it may also dislocate labour markets with widening inequality. As per insights of the International Labour Organization, although young people are among the most willing to embrace new technologies, many have deep-seated anxieties about their future employment prospects. Vocational training, in particular, is associated with subsequent employment in jobs more liable to automation.

Since Sri Lanka considers investments in human capital development as a critical pillar of overall sustainable development, TVET institutions need to be very innovative and oriented toward industry demand. Addressing this requirement, NSF initiated a programme on strengthening TVET sector institutions addressing emerging opportunities in the global labour market in which catalyzing and mobilizing relevant expertise through the NSF Global Digital Platform (GDP) was in progress.

Cross-border transfer of cutting-edge knowledge

As Sri Lankan expatriates are serving in leading universities, world-class R&D centers abroad, they are always updated with the cutting-edge knowledge in respective disciplines. Therefore, their engagement in knowledge transfer is very much important so that Sri Lankan researchers could also be updated with the cutting-edge knowledge. Accordingly, seven knowledge transfer programmes were conducted with the contribution of overseas resource persons through NSF GDP addressing needs of universities, R&D institutions, industry and individual researchers as follows.

- Partnered with the Institute of Engineering Technology (IET), Katunayake and conducted a cutting-edge knowledge transfer programme on Internet of Things (IoT) aimed at IET lecturers and final year students.

- A Knowledge transfer session was conducted on 'Wisdom beyond chemistry: Novel technologies to expedite the drug lead discovery process' in which resource person was Prof. Gomika Udugamasooriya, University of Houston Drug Discovery Institute, USA. This was aimed at researchers engaged in cancer research and drug development. This Knowledge transfer session also facilitated establishing three collaborative partnerships between the resource person and local researchers.

- A Knowledge transfer programme was conducted on 'Electronic Industry: From R&D to Practice and Future Projections' in which the resource person was Dr Sandeepa Wimalananda, Research Professor, Sunchon National University, South Korea targeting industrial sector. This programme facilitated knowledge transfer to the forefronts of local electronic industry as well.

- A Knowledge transfer programme was conducted on 'Cyber threats and Information Security' to the IT officers of government institutions, students and researchers in which the resource person was Dr Chaminda Thushara Hewage, Department of Computer Science, Cardiff Metropolitan University, UK. The beneficiaries were able to grasp cutting-edge know-how on how to ensure security of information systems in their organizations in today's challenging environment.

- IAD facilitated conducting a knowledge sharing session on opportunities available for collaboration by Prof. Dilantha Fernando, Dean of Studies, St. Pauls College, University of Manitoba (UoM), Canada during his visit to NSF. As a follow up to this session, a proposal on opportunities for further academic and research collaborations was shared with the resource person.

- IAD facilitated conducting a knowledge sharing session on opportunities available for collaboration by Prof. Dakshina De Silva, Professor of Economics, Lancaster University, UK during his visit to NSF, where the importance of Mathematics and Statistics for in-depth studies in Economics was also discussed. Importance of taking steps towards creating a conducive environment and capacity building in this line was also highlighted during the discussion.



Meeting with Prof. Dakshina Silva from UK held at NSF on 07.12.2023

- IAD facilitated conducting a knowledge sharing session by Dr Bandula Wijay, a world-renowned biomedical expert based in USA on opportunities available for collaboration during his visit to NSF which was conducted aimed at relevant researchers as well as industry.

- A Knowledge sharing session was organized jointly with National Natural Science Foundation of China (NSFC) to disseminate findings of the research projects carried out under NSF-NSFC 1st joint research programme with the participation of researchers from Sri Lanka and China, relevant officials of both NSF and NSFC and other relevant stakeholders.

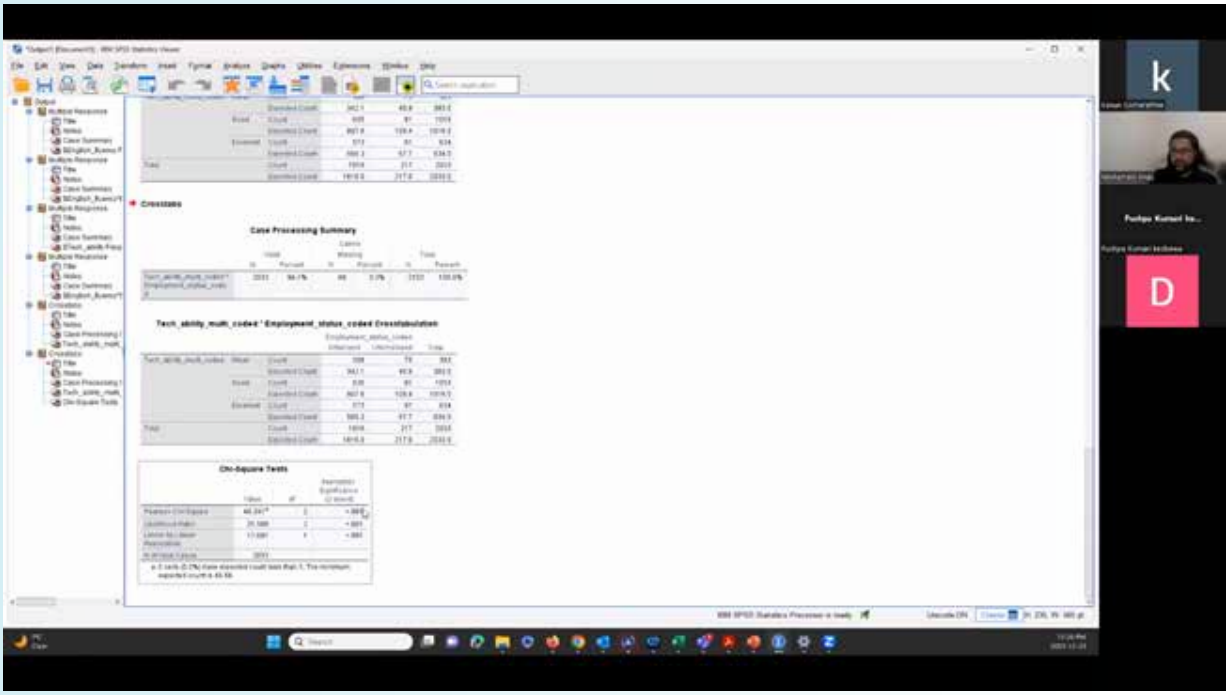
- A Knowledge sharing session was conducted jointly with ICGEB on effective proposal writing with special attention to especially the early-career researchers. The objective of this session was to make researchers aware on how to successfully pitch their research proposals to ICGEB collaborative research programme (CRP) 2023 call which provides opportunity to receive financial support from the ICGEB to carry out collaborative research addressing original scientific problems of relevance for the host country and of regional interests in the fields of basic sciences, human healthcare, industrial & agricultural biotechnology and bioenergy. Dr Vittorio Venturi, ICGEB Scientific Coordinator and M Marianna Maculan, Chief, External Relations, ICGEB delivered information on the CRP Call and lessons learnt. This event enabled Sri Lankan researchers to prepare competitive research proposals aimed at funding from the ICGEB.

Interventions addressing national high-priority concerns

- Training sessions for the staff officers of the Department of Manpower and Employment

A capacity building programme was conducted for staff officers of the Department of Manpower and Employment on how to conduct tracer studies systematically. Two training sessions were also conducted for them on comprehensive data analysis and interpretations followed by a third session

on how to prepare effective questionnaires. The sessions included practical examples and interactive exercises, ensuring participants gained both theoretical knowledge and practical skills for immediate application in their work. The goal was to build capacity of said staff officers on conducting impactful tracer studies, contributing to improved research practices within the Department thereby producing more effective and reliable policy indicators. Expatriate Sri Lankan scientist; Dr Anas Mohamed Usoof (Postdoctoral Fellow, Department of Biological Sciences, University of Alberta, Canada) and Prof. Nilantha De Silva (Professor (Chair) in Agricultural Economics and Director of the Staff Development Center, University of Ruhuna) served as the resource persons of this capacity building programme.



Training programme on conducting tracer studies systematically was conducted to the staff officers of the Department of Manpower and Employment

- Exploring potentials of growing red Lentil in Sri Lankan context

Initiative was taken to explore potentials of growing red Lentil in Sri Lankan context as an import substitute in collaboration with Department of Agiculture and the Uva Wellassa University. Expatriate Sri Lankan scientist Dr Manjula Bandara (Adjunct Professor -Field Crops, University of Suskechewan and University of Leithbridge, Canada and International Center for Agricultural Research in the Dry Areas (ICARDA), India have supported in this endeavor and pilot level field trials were in progress with a view to ascertain optimum agro-climatic conditions and screen the suitable.



Dhal plants cultivated through field trails

- New know-how transferred towards improving productivity of the rubber plantation sector through sustainable bark management

This initiative underscores the importance of responsible and sustainable practices for the long-term viability of the rubber industry in the country. Advancing the enhancement of sustainable rubber latex yields nationwide by introducing sustainable rubber tapping practice was the main aim of this project which was implemented as furtherance to a past NSF grant under Overseas Special Training Programme which was offered to by Dr T.U.K. Silva, Head of the Department of Crop Cultivations, Rubber Research Institute of Sri Lanka (RRISL).

This comprehensive initiative extended its impact to approximately 1000 employees within the rubber plantation sector, ensuring the transfer of essential knowledge and technology to the grassroot level. Through this strategic approach, the project aimed to optimize rubber yield across the entire productive lifespan of the trees, fostering increased economic gains and long-term sustainability though effective bark management. It was conducted at a pilot scale in four rubber growing districts, i.e. Kalutara, Ratnapura, Kegalla and Moneragala, targeting small holders and the large-scale plantation sector companies. Field staff of the Department of Rubber Development were also trained through this project.

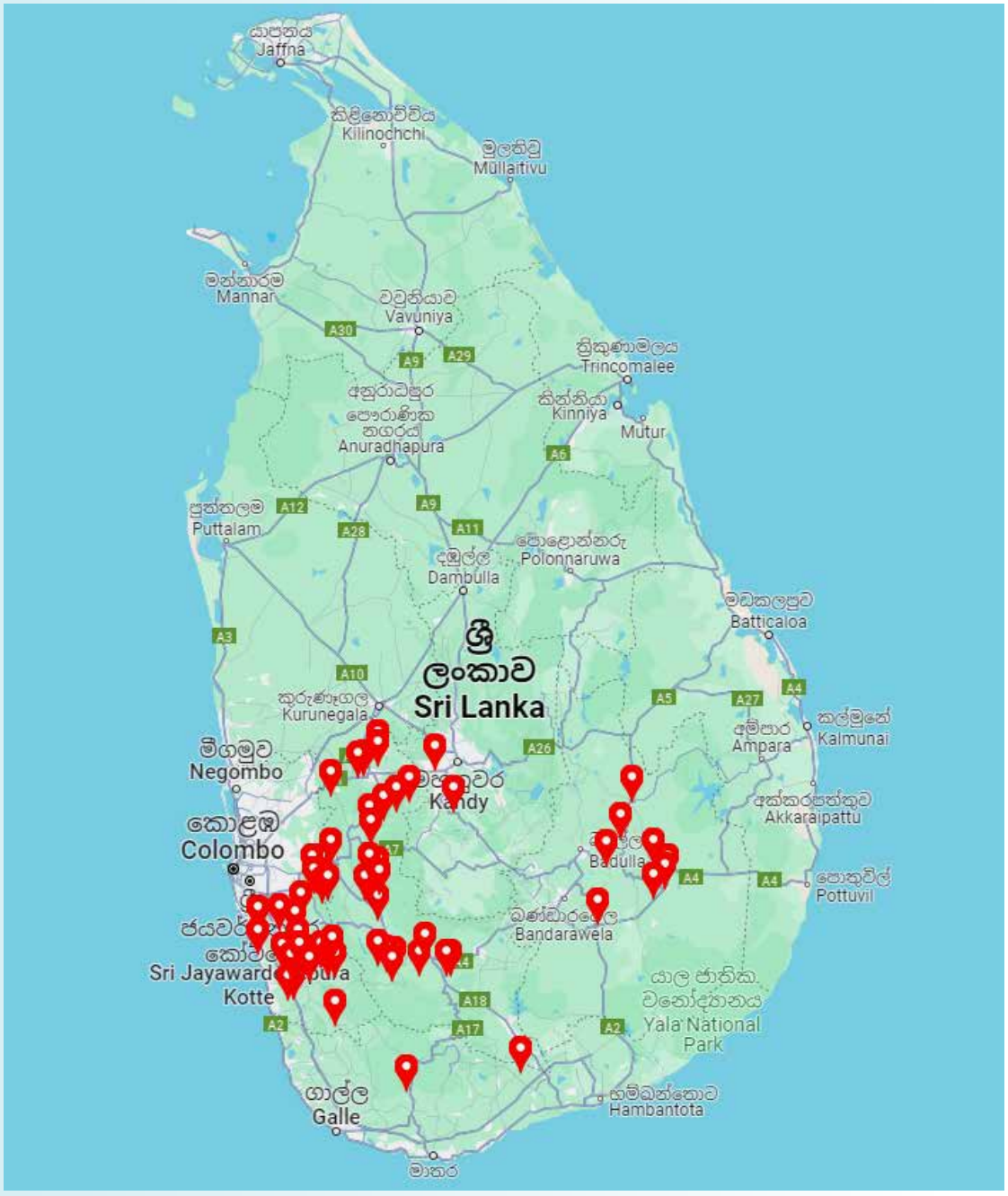
According to estimates provided by the RRISL's project team, the project's impact is expected to yield a significant increase in productivity, translating into elevated socioeconomic benefits over the long term. The successful transfer of knowledge in sustainable tapping practices is poised to contribute positively to the overall well-being of the rubber plantation sector in Sri Lanka.



Field monitoring at Kalutara Rubber Estate under OSTP Furtherance

Table 06: Projected economic benefit through sustainable rubber tapping

Extended period (years) due to the effect of sustainable harvesting	Expected yield (kg/ha/year)	Net Sale Average (Rs.)	Regaining Income (Rs. /Mn/ha)	Expected income if it happens in 100 ha (Rs. Mn)	Expected income if it happens in 1000 ha (Rs. Mn)
1	1000	400	0.4	40	400
2	2000	400	0.8	80	800
3	3000	400	1.2	120	1200
4	4000	400	1.6	160	1600
5	5000	400	2	200	2000



A map of Sri Lanka showing the areas where training on sustainable Rubber tapping were conducted

- Facilitation of R&D towards development of an effective fertilizer combination with Eppawala Rock Phosphate (ERP) through fungal bacterial biofilm action to enhance vegetable crop productivity

The national requirement of Phosphate fertilizers has been 96,000 metric tons for 2018 and prior to its ban in 2021, the Government had spent billions of rupees annually to import fertilizer including Triple Super Phosphate (TSP) and Single Super Phosphate (SSP) into the country. Research reports have identified that the imported TSP which is the main Phosphorus fertilizer imported to Sri Lanka is having very high percentages of Cadmium (Cd) and Arsenic (As) impurities. It has also been identified that the excessive use of these imported fertilizers had resulted adverse environmental and health impacts. Eppawala Rock Phosphate (ERP) has been identified as having least amount of As and Cd but it is a slow releasing fertilizer and therefore not suitable for annual and biennial crop cultivations. Microbial biofilms which secrete organic acids such as citric acid, gluconic acid, lactic acid and oxalic acid have the ability to solubilize the insoluble Phosphorus into soluble form rapidly. Therefore, this project focused on the field trails on effective utilization of Eppawala Rock Phosphate by mitigating the drawbacks that are available with ERP to be used as an effective fertilizer while enhancing its quality to cater the Phosphorus fertilizer requirement of the country.

In this project which was implemented as a furtherance to a past OSTP grant offered to Prof. Amila Henagamage (Head and Senior Lecturer, Department of Science and Technology, Faculty of Applied Sciences, Uva Wellassa University).

Initial test trials have shown promising results where it has been shown that ERP has the potential to be used as a Phosphate fertilizer with properties comparable to imported Phosphorus fertilizer in short-term vegetable crops, viz. Potato and Cabbage with some physical modifications such as particle size reduction through grinding and biological modifications using microbial biofilms.

Testing this ERP biofertilizer on actual farmer fields under different climatic conditions and for other short-term crops such as Rice would be the next step of this R&D activity. Converting the treated ERP powder in to a granular form with industrial assistance for the convenience of application and for commercialization is another productive outcome, leading to potential economic gains.



Monitoring of the progress of development of an effective fertilizer combination with Eppawala Rock Phosphate (ERP) through fungal bacterial biofilm action to enhance vegetable crop productivity

- Facilitating technical cooperation with Brazil to improve Sugarcane and Dairy sectors of Sri Lanka

Sri Lanka currently imports more than 60% of its milk requirement, which costs more than LKR 56 billion per annum. Sri Lanka's Imports of Sugars and sugar confectionery was US$268.66 Million during 2022 which was more than 90% of the national requirement. In such a context, Dairy and Sugarcane sectors of Sri Lanka have a high potential to get their internal capacities developed to fulfill the national needs towards ensuring food security. Addressing this gap and on request of the

Ministry of Foreign Affairs, NSF partnered with Brazilian Cooperation Agency (ABC Institute) for technical cooperation with a view to improve Sugarcane and Dairy sectors of Sri Lanka. Teams of key stakeholder institutes in both sectors were linked in this exercise, with the Directorate of Livestock of the Ministry of Agriculture and Plantation Industries as the focal point for the Dairy Sector and the Sugarcane Research Institute as the focal point for that sector. Brazilian Cooperation Agency (ABC Institute) connected through the relevant missions in both countries and the respective Ministries of Foreign Affairs.

In order to assess the potentials of technical cooperation in both fields for win-win benefits, a fact-finding mission was conducted by the Brazilian Cooperation Agency to Sri Lanka in mid-2023 where NSF played a lead role in coordinating this endeavor. Experts from the Federal University of São Carlos, and the Federal University of Viçosa of Brazil also joined with this mission. Based on fact-finding mission, draft logical frameworks for both sectors on way forward were developed and follow up on same was in progress.



Meeting with Brazil Delegation at the Ministry of Foreign Affairs held on 20.06.2023

Networking with the globe to strengthen local potentials

- International Centre for Genetic Engineering and Biotechnology (ICGEB) - Collaborative Research Programme (CRP)

The ICGEB provides funding opportunities annually through its collaborative research programme which is dedicated to fostering projects addressing the demand side of the STI sector having relevance to the host country and of regional interest among member countries. NSF being the national focal point of ICGEB, made wider publicity regarding call for applications and received 23 proposals in 2023. After thorough evaluation of same, five applications (two early career return grant applications and three standard research grant applications) were endorsed to the ICGEB addressing the high-priority R&D needs of the country. Final evaluation from ICGEB is in progress. Accordingly, it could be noted that the funding instruments of ICGEB had benefitted the Sri Lankan scientific and research community to a greater extent with the facilitation of NSF as the national liaison office for ICGEB.

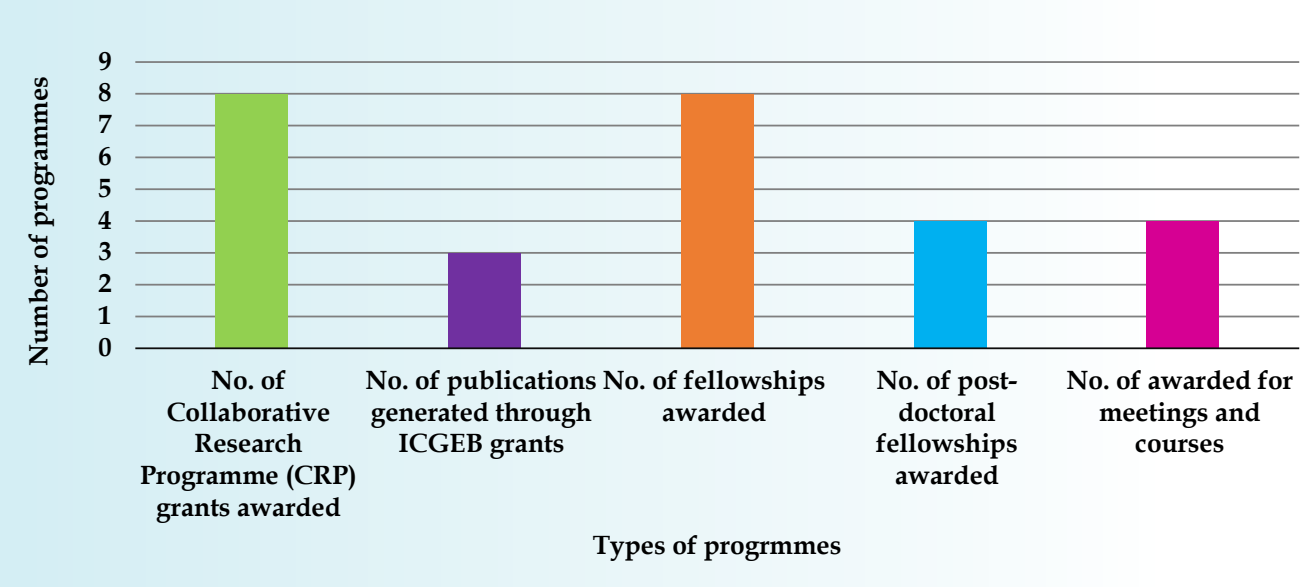


Figure 70: Funds harnessed by the Sri Lankan R&D community from ICGEB during the past decade with NSF facilitation

- Linkages to facilitate Gender aspects in STEM fields

Leadership was provided in organizing the hybrid session on Equality, Diversity and Inclusion (EDI) of the Asia Pacific Regional Meeting - Global Research Council focused on sustainable research. A conference on 'Contribution of the Women in Science and Technology to the technology-driven Sustainable Tourism Industry in Sri Lanka' was conducted jointly by the Sri Lanka National Chapter of Organization for Women in Science in Developing Countries (OWSD/SLNC) and the NSF in latter 2023 addressing the gap in female participation in the tourism industry, especially the middle and senior management level where women in science could play a crucial role.

Both these activities provided avenues (both locally and regionally) to share best practices and to develop further actions to address gaps in gender aspects in STEM fields.



Participants of the collaborative workshop with OWSD/ SLNC



Flyer of the event

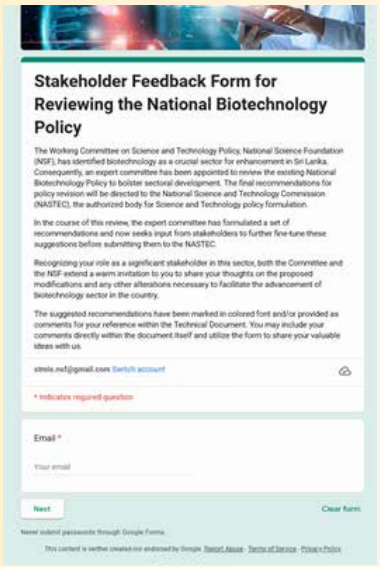
NSF Mandate d) Science & Technology Policy Research

Revisiting The National Biotechnology Policy

While recognizing the importance of having up to date Policy in the field of Biotechnology, which is one of the rapidly expanding technologies, the NSF Sub Committee on Biotechnology which comes under the NSF Committee on Science and Technology Policy, initiated reviewing the current National Biotechnology Policy which was prepared by the NSF in collaboration with the National Science and Technology Commission (NASTEC) in 2009.

In 2022, the policy was reviewed by experts and inputs were obtained with regard to the sectors, health, agriculture, industry, environment, and energy. Compiled and refined set of recommendations were then tabled to obtain inputs from a wide range of stakeholders through an interactive meeting which was held on 19th September 2023 at the NSF.

Over 60 stakeholders representing academia, research institutes, regulatory bodies, and industry from all over the country have participated for this consultation. Apart from this direct consultative forum for the stakeholders, their feedback was obtained through a comprehensive form to capture specific improvements needed for the existing policy.



Stakeholder feedback form



Captures from the stakeholder consultation



Captures from the stakeholder consultation

Refined amendments proposed to the existing policy through these exercises will be submitted to the National Science and Technology Commission of Sri Lanka NASTEC) to be incorporated into the next version of the National Biotechnology Policy.

NSF Mandate e) Science Popularization

Sri Lankan Team participated at the 7th Belt and Road Teenager Maker Camp and Teacher Workshop 2023 in China and secured places at the best performance categories

A team of students (10) and teachers (03) participated at the Belt and Road Teenager Maker Camp & Teacher Workshop organized by the China Association for Science and Technology (CAST) and The Ministry of Science and Technology of China jointly with World Organization of Science Literacy (WOSL). They have won places in the categories of 'Best Team', 'Best Presentation' and 'Best Maker' for the activities they carried out at the Camp.

Teachers who participated at the workshop also got the opportunity to engage in special training programmes.

The team participated at the programme included:

Ms Abhimani Ranathunge, Scientific Officer, National Science Foundation
Ms Upeksha Darshani Abeysekara, Thurstan College, Colombo 07
Ms Thushari Nelka Munasinghe, Harischandra National School, Negombo
Ms Tekla Manoja Sudarshani, Tangalle Balika Vidyalaya, Tangalle

Table 07: Winners of Certificates

Winning Category	Name of the student	School
Best Team	Nadeeja Prathibhana	Thurstan College, Colombo 07
Best Presentation	Anusara Weerakoon	Dharmaraja College, Kandy
	Sahan Shavinda Fernando	St. Joseph Vaz College, Wennappuwa
	Medini Thrishala Thudahewage	St. Paul's Girls School, Milagiriya, Colombo 05
	Amaya Sankalani Bandara	St. Thomas' Girls School, Matale
Best Maker	Siluni De Silva	Musaeus College, Colombo 07
	Mohammed Baheej Al Barrah	Kinniya Central College, Kinniya
	Sadeesha Devendra Ranaweera	Mahamevnawa Buddhist College, Demalagama
	Sachini Kaushalya Bulumulla	Mahamaya Girl's College, Kandy
	Mahesha Piyumi Weerasinghe	Mahamaya Girl's College, Kandy



Popularization of Science to Create a Scientifically Literate Society

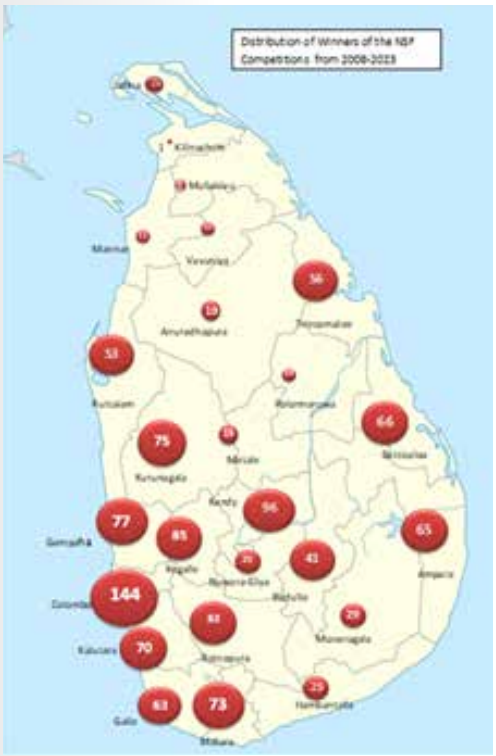
The National Science Foundation is Focusing to develop a scientifically literate society by,

1. Implementing programmes to promote science education through STEAM approach.
2. Popularization of science though various programmes and activities to take science to different segments of the community.

To facilitate above mentioned goals in a productive manner, the NSF established the Science Communication and Outreach Division (SCOD) at the NSF in 2005.

Promoting Science Education through STEAM Approach

1.1 Establishment of Science Society Network



To take science to the community, effectively and efficiently the NSF has established a science society network covering different segments of the community especially the school community since 2005. Accordingly, at the end of 2023, the NSF registered 1,163 School Science Societies (SSS) and 55 University Science Societies (USS). Initiative has also been taken to establish community-based science societies at the village level.

1.2 Creating environment sensitive nature loving future generation

1.2.1 Kid naturalist programme

The Kid Naturalist programme is another programme conducted by the NSF since 2020 targeting students of grades 1-6. The main objective of the programme is to make students observe the nature they live in following scientific methodologies aiming to create environment sensitive student population that learn and practice science and scientific concepts in their day-to-day life. The students who participate in the progrmme has to prepare a nature journal based on their observations carried out through a period of 6-weeks. The submitted nature journals are evaluated by a subject specialist panel appointed by the NSF and the selected best projects will be felicitated at the NSF awarding ceremony. Accordingly, the programme conducted in 2023 received 1,506 applications and 331 nature journals were selected for the final round of evaluation. The 10 best nature journals of each grade were selected as national winners of the programme.

Table 08: **T**he best performers of the Kid Naturalist Programme 2023

Category: Grade 1		
No.	**Name of the winner**	**School**
01	Muralitharan.Akaran	St.John Bosco's Vidyalayam, Jaffna
02	W. Shanuki Shehansa	MR/Kudalahena K.V.
03	Kavini Nihinsa Menon	Mahamaya Girls' College, Kandy
04	R. Rishika	J/Holy Family Convent, Jaffna
05	Imalsha Mihisara	MR/Elamaldeniya K.V.
06	S. Kavinaya	J/Holy Family Convent, Jaffna
07	R. Dironi	J/Holy Family Convent, Jaffna
08	S.M. Tharushi Lakshani	R/Eththota Vidyalaya, Eththota, Gallella, Raththota
09	S. Sujalini	J/Holy Family Convent, Jaffna
10	A.S. Marita	J/Holy Family Convent, Jaffna
Category: Grade 2		
No.	**Name of the winner**	**School**
01	Nethya Palliyage	Girls' High School, Kandy
02	Sakila Gesara Dunukepotha	St.Anthonys Boys College
03	M.G.Suwahas Dewshan	MR/Diyadawa K.V.
04	Wageesha Prabashwara Bandara	St/Sylvester's College -Kandy
05	J. Kasvini	J/Holy Family Convent Jaffna
06	J.V.G. Thinuli Sehansa	MR/Rambukana Kodikaragoda K.V
07	Methya Palliyage	K/Girls' High School, Kandy
08	D.G. Esandi Dahamsa	MR/Rambukana Kodikaragoda K.V.
09	T.M Tasheni Nethusari	M/R Siyambalagoda West Primary School
10	T. Najanitha	J/ Holy Family Convent, Jaffna
Category: Grade 3		
No.	**Name of the winner**	**School**
01	H.B.Indeepa Geenuka Hitibandara	CP/KOT/Delta Gamunupura M.V
02	W M Denith Minruka Weerasinghe	Thurstan College, Colombo 07
03	Thesadi Naveethma Deshapriya	K/Seethadevi B.M.V.
04	Sadiw Kithnuka Vithanage	Thurstan College, Colombo 07
05	R. Sanjana	J/Holy Family Convent, Jaffna
06	K.O.G.Jayami Malithya	MR/Rambukana Kodikarahoda P.V

07	H.B.Chandeepa Gethma Hitibandara	CP/KOT/Delta Gamunupura M.V
08	N.H.H. Chamathkara Roosarani	CP/ Hangu Mathurata Central College
09	R.K.Thisum Thejan Nawarathna	CP/KOT/Delta Gamunupura M.V
10	G. Praharsha Kaushan Fonseka	Kingswood College, Kandy
11	D.E. Naduli Tamaya	MR/Rambukana Kodikaragoda K.V

Category: Grade 4		
No.	**Name of the winner**	**School**
01	V.A. Themiya Ranumitha Samarawickrama	Kandy International School, Kandy
02	K.Rahen Seneth Perera	Thurstan College, Colombo 07
03	K. Swarnie Krishmina	Highlands National College, Hatton
04	A.V.Osandi Devduni	M/Morawaka Primary School
05	Shanthakumar Jayashwini	K/Girls' High School, Kandy
06	W.G.Sathsilu Wehara	CP/KOT/Delta Gamunupura M.V
07	P.G.Iseli Sarya Gallage	G/Sangamiththa Balika Collage, Galle
08	T.Nethum Mihisara Ranasinghe	Thurstan College, Colombo 07
09	Thedasi Nadulya Kalupahana	G/Sanghamiththa Balika Vidyalaya
10	Okitha Thanujitha Vidana Gamage	Dharmaraja College, Kandy
11	Ransilu Kaveeshwara Vanigasekara	MR/Thalapekumbura P.V
Category: Grade 5		
No.	**Name of the winner**	**School**
01	D.A.Chathura Deshanjana Dharmarathne	CP/KOT/Delta Gamunupura M.V
02	H.R.L. Sanuka Dewsithu	MR/Deniyaya Madya Vidyalaya
03	L.Tyon Abhishka Perera	Bapa /Kala Sapugaskanda Sobitha Vidyalaya
04	W.M. Sanuthi Ashvini Weerasekara	Vision International School Kandy
05	Yashodhara Damsaree Wikramarathna Siriwardhana	St.Joseph's Balika Maha Vidyalaya -Kegalle
06	Senula Insitha Vithanage	Thurstan College, Colombo 07
07	M.G.B.Y.C. Bandara	K/Mahanama Collage
08	P.G.Sathusha Nimnada	CP/KOT/Delta Gamunupura M.V
09	Dulithi Nethumsa Rodrigo	Sujatha Vidyalaya, Matara
10	B.A. Sanudika Sandasan Bandara	R/Kandangoda Primary College
Category: Grade 6		
No.	**Name of the winner**	**School**
01	T.G. Indumini Methma	MR/Kirilipana Kanitu Viduhala
02	M.I.M. Aathif	K/Ranabima Royal College
03	D.K. Basitha Thimath Rathnayake	K/Ranabima Royal College
04	J.G. Ashen Nethsara	MR/Kirilipana Kanitu Viduhala
05	W.K.J. Sithumi Seya	MR/Kirilipana Kanitu Viduhala
06	R.K.G.I. Udesh Bandara	K/Ranabima Royal College
07	D.L. Kemitha Suhas Liyanage	K/Ranabima Royal College
08	Mayuran Ajairaav	J/Thavady Hindu Tamil Mixed School
09	Kanishka Balakumar	V/Nelukkulam Kalaimahal M.V.
10	Aranya Ganeshatheva	J/Jaffna Hindu Ladies College

1.3 School Science Competitions (SSC)

School Science Competitions are annually conducted by SCOD to popularize science among the school community with the STEAM approach. Accordingly, seven competitions under the theme "STEAM Education for a Better Future" were conducted in 2023 as indicated below:

1. Essay competition
2. Digital storytelling
3. Viridu competition
4. Poster competition
5. Short science stories (fiction)
6. Song competition
7. Role play competition

Table 09: Winners of the competitions

Essay Competition			
No.	**Name of the Student**	**School**	**Place**
Sinhala medium			
01	D.P.K.G. Tharushi Deumini Dasanayaka	CP/Denu/Handessa Maha Vidyalaya, Daulagala, Peradeniya	1st
02	Nipun Dhananjaya Premarathna	Dharmaraja College, Kandy	2nd
03	W.G. Senugi Lehansa	Delta Gemunupura Maha Vidyalaya, Pussallawa	3rd
English medium			
01	Mohamed Nowzad Beena Dhaneen	KM/Mahmud Ladies College (National School), Kalmunai	1st
02	Aaysha Mohideen	BADI-Udin Mahamud Girl's College, Kandy	2nd
03	Athiyya Jezee	BT/St. Cecilla's Girls' College, Batticaloa	3rd
04	M.S. Shafa	British International College, Polgahawela	3rd
Tamil medium			
01	Paraniha Selvendradas	J/Skandavarodaya College, Jaffna	1st
02	Thevasihamani Kasanthanan	Tk/Sri Ramakrishna College, Akkaraipattu	2nd
03	S. Logalakshan	Tk/Sri Ramakrishna College, Akkaraipattu	3rd

Short Science Stories (Fiction) Selected 5 best short Science Stories			
No.	**Name of the Student**	**School**	**Place**
01	H. W. M Randinee Vandanu Wijayasinghe	Mahamaya Girls' College, Kandy	Among best 5
02	Rubiga Arunthavam	J/Vembadi Girls' High School, Jaffna	Among best 5
03	R. M Charani Sipsandee	Jinaraja Girls' College, Gampola	Among best 5
04	Anthony Rupasinghe	Matale International School	Among best 5
05	Binal Yesandu Ekanayake	Matale International School	Among best 5

Digital Story Telling			
No.	**Name of the Student**	**School**	**Place**
01	Yaneth Ranabahu	Thurstan College	1st Place
02	Nethuni Himanga Gamage	St Joseph Balika Maha Vidyalaya, Gampola	Appreciation
03	Thewmali Piyadasa	Sirimavo Bandaranaike Vidyalaya	Commendation

Song Competition			
No.	**Name of the student/ teacher**	**School**	**Place**
01	H. A. Deep Anchitha Ms A. Abayasiriwardena (Lyrics Writer)	CO/Rajasinghe Maha Vidyalaya, Colombo 9	1st
02	Mansoor Fathima Hasna Haroon Fathima Hishma Samsudeen Arashad Shams Aariff (Lyrics Writer)	KM/AK/Akkaraipattu Muslim Central College, Akkaraipattu	2nd
03	M. M. D. Eina Saawangi I. M. Washitha Harshana Mrs. Dhammika Chandralatha (Lyrics Writer)	Harischandra College, Negombo	2nd
04	P. D. Duleema Indeewaree L. W. P. Thisari Sandasiluni Mrs M.S.K. Marasinghe (Lyrics Writer)	Royal Central College, Polonnaruwa.	3rd

Viridu Competition			
No.	**Names of the student/ teacher**	**School of the Student**	**Place**
01	Atheek Ahamad Mr A.L. Ansar (Lyrics Writer)	Maccan Markar National School, Eravur, Batticaloa	1st
02	Heshan Athapaththu Hirushan Wijesinghe Heshan Athapaththu Hirushan Wijesinghe (Lyrics Writers)	Thoranakada Dharmaraja Vidyalaya, Eheliyagoda	2nd
03	Hashini Sansala Dinuka Dilshan Vidana Pathirana Hashini Sansala (Lyrics Writer)	Alapaladeniya National School	3rd
04	Duleema Indeewari Thisani Sandasiluni Mrs. K.A. Thamara Priyadarshani (Lyrics Writer)	Royal College, Polonnaruwa	3rd

Role Play Competition

No.	Name of the Student	School of the Student	Place
01	M.P. Praharshana Undugodage	Royal Central College, Polonnaruwa	1st
02	K.A. Nadin Thathsara	Thurstan College, Colombo 07	2nd
03	Y.G. Bindya Induvari Wijesinghe	St. Joseph Balika Maha Vidyalaya, Gampola	3rd

Poster Competition

No.	Name of the Student	School of the Student	Place
Grade 13			
01	A.G.W. Yasami Thenuwara	Royal Central College, Polonnaruwa	1st
02	S.G.W.D. Induwara	Royal Central College, Polonnaruwa	2nd
03	M. Sheba Simirna	WP/ C/ ST Annes Girls' M.V., Colombo 13	3rd
Grade 12			
01	Tharusha Shehan Amarathunga	Royal Central College, Polonnaruwa	1st
02	S.S. Sasmitha Weerasundara	Thurstan College, Colombo 07	2nd
03	A. Chathushki Nayanathara Dissanayaka	KG/St. Joseph's Balika M.V., Kegalle	3rd
Grade 11			
01	D.G. Upeksha Indeewari Abesinghe	Royal Central College, Polonnaruwa	1st
02	G.P.G.M. Kalhara	Thoranakada Dharmaraja Vidyalaya	2nd
03	U.S. Poornima	Royal Central College, Polonnaruwa	3rd
04	U.G. Chathumini Kaushalya	Royal Central College, Polonnaruwa	3rd
Grade 10			
01	K.D.N. Sanvidu	Royal Central College, Polonnaruwa	1st
02	A.G. Nethmina Thejan	Royal Central College, Polonnaruwa	2nd
03	W.H.M. Chameesha Avindi	CP/ HG/ Mathurata M.V	3rd
Grade 09			
01	Hasith Sasmitha De Silva	Thurstan College, Colombo 07	1st
02	D.M.M. Hashara Dissanayeke	Royal Central College, Polonnaruwa	2nd
03	D.M.P. Wathsala Dissanayeke	Royal Central College, Polonnaruwa	3rd
04	U. Harish	C/St Anthony's Boys'M.V., Colombo	3rd
Grade 8			
01	B. Savishka	St. Annes Girl's M.V.	1st
02	R.M Raya Raihan	Mercy Education Institute	2nd
03	M.R.F. Riffath Rasha	School of Excellence	3rd
Grade 7			
01	M. Jinulakshaya	Tk/Sri Ramakrishna College, Akkaraipattu	1st
02	S. Thaboorshaan	Tk/Sri Ramakrishna College, Akkaraipattu	2nd
03	K. Sharmithan	Tk/Sri Ramakrishna College, Akkaraipattu	3rd
Grade 6			
01	R. Kiruthigan	Tk/Sri Ramakrishna College, Akkaraipattu	1st
02	P. Kiriththika	Tk/Sri Ramakrishna College, Akkaraipattu	2nd
03	S. Sujasthikan	Tk/Sri Ramakrishna College, Akkaraipattu	3rd

1.4 Science Research Project Training programme and Competition 2023/24

School Science Research Programme (SRP) was initiated in 2008 to create a research culture among the school community. This programme consists of three main components as mentioned below:

1. Training programmes for teachers on basic concepts and steps in scientific research
2. Training programmes for students to give hands-on experience to conduct a research project of their interest
3. Science Research Project Competition (SRPC)

The Science Research Project Competition 2022/23 was completed in early 2023 with the participation of 125 students and 60 teachers in STEP I competition. The applications for the SRPC 23/24 were called with their project proposals to participate in the programme in August 2023. The evaluation of project proposals was completed, and 75 project proposals were selected to participate in the SRPC 2023/24 programme at the end of the year 2024.

1.5 NSF special school project with STEAM approach

The National Science Foundation has initiated a project to promote science education through STEAM approach in 50 selected schools. The project was implemented jointly with the Science Branch of the Ministry of Education (MoE) and Corporate Social Responsibility Trust of Commercial Bank of Ceylon PLC. This project is focused on eight different aspects of training. The pilot project was initiated in 05 schools mentioned below :

1. Dudley Senanayake Vidyalaya, Narahenpita, Colombo 05
2. Anuruddha Balika Vidyalaya, Dematagoda, Colombo 09
3. Rajasinghe Maha Vidyalaya, Maligawatte, Colombo 09
4. Ave Maria Vidyalaya, Mattakkuliya, Colombo 15
5. Wijayaba Maha Vidyalaya, Stace Road, Colombo 14

The launching programme of the project was held on 16th May 2023 at the NSF Auditorium. Director General of the NSF, Dr Sepalika Sudasinghe delivered the welcome address while Dr P.R.M.P. Dilrukshi, Head of the SCOD explained the background to the project. Mr Bandula Sarath, Director of the Science Branch of the Ministry of Education and Mrs Kamalini Ellawala, Senior Manager, Sustainability, Women Banking and CSR Unit of the Commercial Bank of Ceylon PLC highlighted the importance and their role in the project. Dr Jayantha Wattevidanage, the Chairman of the NSF working Committee on Science Popularization, Mr Mahesh Rathnayake, Project Coordinator Commercial Bank PLC, Mr Vipula Kulathunge, Deputy Director, Science Branch of MoE, Prof. R.M. Dharmadasa, Director, Herbal Technology Division of the Industrial Technology Institution, Mr A.K.A.N. Kodithuwakku, K/Sugatha K.V., Kalutara North and Mr E.A.D. Senarathne, Director, Career Guidance and Promotion, Vocational Training Authority of Sri Lanka were the Resource Persons at the Technical Session that followed. A team of teachers and principals (30) representing the 05 schools presented their action plans pertaining to the year 2023 at the end of the Technical Session.

1.6 Programme in creating skilled students for the future STEAM job market

The programme to develop skills and talents to meet the demand of the 21st century job market was launched jointly with the Science Branch of the Ministry of Education (MoE) and Corporate Social Responsibility Trust of Commercial Bank of Ceylon PLC, On 16th August 2023 at Dudley Senanayake Vidyalaya, Narahenpita. The Officials representing the Government, Ministry of Education and

other organizations participated at the programme. Coinciding with the event, a STEM classroom developed at the Dudley Senanayake Vidyalaya with the assistance by the Commercial Bank, was declared open for the use of students.

Over 300 students and teachers from the five selected schools namely Dudley Senanayake Vidyalaya, Narehenpita: Anuruddha Balika Vidyalaya, Dematagoda; Rajasinghe Maha Vidyalaya, Maligawatte: Wijayaba Maha Vidyalaya, Colombo 14; and Ave Maria Vidyalaya, Mattakkuliya participated in the programme. Followed by the inaugural session, technical sessions giving hands on experience to students were conducted by the Vocational Training Authority (VTA), Ceylon-German Technical Training Institute (CGTTI) and the Department of Meteorology. The VTA also conducted a "skill text" for students of age 15 years and above. Around 150 students participated in this Skill Text. With the collaboration of the Commercial Bank, two training programmes on "coding" and "mobile phone repairing" were initiated for students of Dudley Senanayake Vidyalaya. Further, to promote urban agriculture among students, a session on hydroponic culture was conducted by Prof. R.M. Dharmadasa, Research Professor of Industrial Technology Institute where students were also imparted with knowledge on extraction of essential oil and science behind home gardening. This project will continue for three years.

National Programme for Introducing STEAM Educational Approach to General Education

The national programme to introduce the STEAM education to the education system of Sri Lanka was held at the 'Nawarangahala' of the Royal College, Colombo 07, on 31st March 2023 under the patronage of the Hon. Minister of Education Dr Susil Premajayantha. The event was jointly organized by the Ministry of Education (MoE), the National Science Foundation (NSF) and National Institute of Education (NIE). Around 1200 students, teachers, principals, scientists, educationists, foreign delegates, and officials of the Institutes under the MoE participated at the event.

The Hon. Minister of Education Dr Susil Premajayantha participated as the Chief Guest. In his address he stated that the STEAM education process was being introduced to Sri Lanka through the current transformational education process. Dr Chandra Embuldeniya gave the introductory address and while the students of some selected schools made short drama presentations on "STEAM education" to increase school community awareness. Three Panel discussions on topics 'STEAM Everywhere"; "STEAM for School" and "STEAM for Future" were held with the participation of scientists, educationists and Officials of the relevant institutions acting as panelists. Mr Lochana Fernando who won several awards for his research during his school time, two world renowned young expatriates Eng. Nipuni Karunarathne and Eng. Greshan Fernando also joined the panel, sharing their experience with participants. This programme was joined online by school teams from all provinces.















NSF Grant scheme to support infrastructure development and Science Popularization programmes

The NSF has been operating the Science Education and Popularization Programme (SEPP) grant scheme to develop laboratory and special science education facilities in schools and to facilitate programmes conducted by schools and universities related to science popularization.

The schools and field study centers supported in 2023 are:

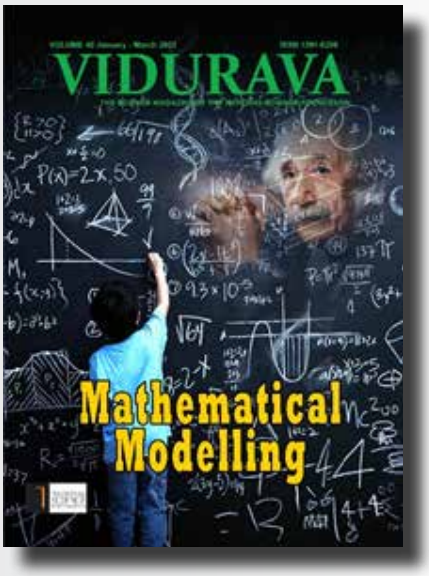
1. Deniyaya Science Field Study Centre
2. Astronomical Study Centre of St. Mary's College, Kegalle
3. Dudley Senanayake Vidyalaya, Colombo 05

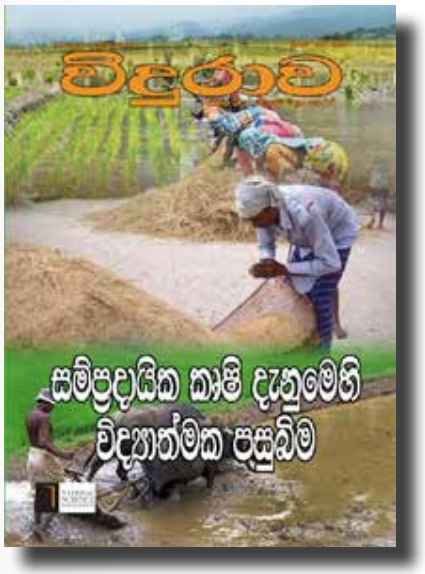
Popularization of science has been done through various programmes and activities to take science to different segments of the community.

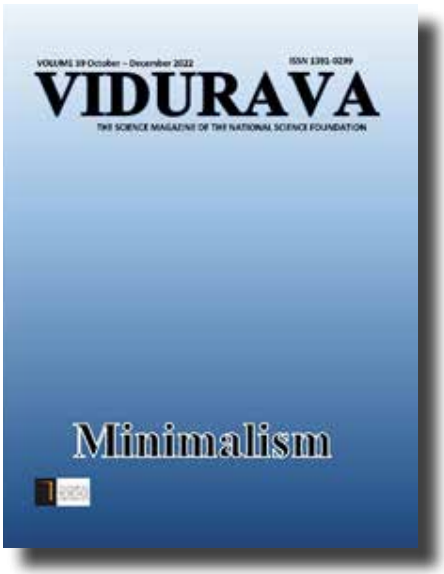
2.1 Vidurava Science Magazine

The "Vidurava" Science Magazine, which has been published as a Science Bulletin since 1978 is one of the oldest Science Magazines in the arena. Four issues of the Magazine in all three languages (Sinhala, Tamil and English) are published quarterly on a selected theme of national or global importance. Accordingly, issues were published on following topics in 2023:

1. Mathematical modelling
2. Science behind traditional agriculture
3. Minimalism







2.2 Establishing community-based science society network in the country to increase scientific literacy, for a socio-economically empowered nation

2.2.1 Dialogue between village and the NSF

The National Science Foundation initiated establishing community-based science societies including different segments of the community to take science to the community while conducting programmes to improve their socio-economic wellbeing. Accordingly, the NSF established its

first community-based science society at the Kanatholuwa village in Kuliyapitya in Kurunegala District jointly with the Sarvodaya Shramdana Movement.

A prelimainry dialogue was held with the Kanatholuwa Village community and Dr Vinya Ariyarathne , President Sarvodaya Shramadana Movement with his team. The meeting was held at Kanatholuwa Village on 25th May 2023 with the participation of 105 families living in the village.





2.2.2 Establishment of first NSF Community-based Science Society (CSS)

The first community based science society was established in the Kanotholuwa village on 26th July 2023. Community programmes have been initiated targetting the improvement in a). education and science literacy of the community b). socio-economic status and c). infrastructure development of the village. Accordingly, the problems associated with sanitory conditions, clean drinking water and electricity were discussed. Further, children at schooling age were engaged in STEAM based activties and youth were engaged in few economic activties. The programme will continue for a period of 3 years.









Media and Event Management Division (MEMD)

1.0 Objective Science Reporting Programme

It is observed that objective science reporting has been ignored by many media organizations and they provide less space and interest in publishing science news through their print and electronic media channels.

Objective science reporting is reporting accurate facts and authentic information relevant to scientific findings / innovation / or any other scientific development as a news story, feature article, documentary or radio programme. Science reporting increases the science literacy of people and thereby increases public understanding of science allowing them to take informed decisions on their day-to-day activities.

Therefore, the NSF took initiative to start a programme with the intention of minimizing error reporting on science by media with the following objectives.

- To train and build capacity of science journalists to take science to the general public, policy makers, and other government officials.
- To strengthen skills and attitudes of media personnel and management of media organizations on objective science reporting.
- To ensure receiving of authentic facts and information on scientific developments.

This programme consists of two main categories; namely "Science Knowledge Base" (consisting of "Contact Points" of stakeholder scientific organizations – Media will directly contact them, and "Independent Scientific Group" - for further analysis of scientific issue related news) and "Media Base" (consisting of "Science Reporters").

The MEM Division identified "Contact Points" from stakeholder scientific organizations, scientists and retired subject specialists from the stakeholder scientific organizations during 2023. One "Orientation Session" was conducted in December 2023 to make them aware on the objectives, mechanism and the way forward of the programme. The next "Orientation Session" for the "Independent Scientific Group" will be organized in early 2024.

2.0 Contribution for organizing the STEAM Launch organized by the NSF and the MoE on 31 March 2023

The NSF organized the STEAM Launch in collaboration with the Ministry of Education and the NIE at "Navarangahala", Royal College, Colombo 07 on 31 March 2023 under the patronage of Hon. Minister of Education.

The MEM Division arranged a "Subarathi Programme" via Sri Lanka Broadcasting Corporation on "Introducing STEAM approach to General Education of Sri Lanka" on Wednesday, 29 March 2023 (from 7.00 - 8.00 am) free of charge. Dr Jayantha Wattavidanage, Chairman, Working Committee on Media representing the Director General, NSF, Dr Kithsiri Munagama, Director of Education, Technology, Ministry of Education, and Dr Sunil Jayantha Navaratne, Director General, National Institute of Education participated at the programme as the resource group.

Apart from this, the MEM Division arranged a Stall at the premises depicting the activities of the NSF including presentation of NSF Databases.

3.0 Inspiring STEAM Education Excursion (ISEE) - Beyond the School Curriculum programme from 12-14 October 2023

The National Science Foundation (NSF), Ministry of Education (MoE), National Institute of Education (NIE), and Maharagama National College of Education (NCoE) jointly organized the "Inspiring STEAM Educational Excursion (ISEE): Beyond the School Curriculum" from 12-14 October 2023 successfully based on a concept of the Hon. Minister of Education. The programme was organized with the objectives of motivating and creating interest in students to follow STEAM subjects' streams and creating awareness in students about the high-end STEAM job market.

The NSF played a key role in organizing the programme and finding funds through sponsors for the programme with the guidance of the Hon. Minister of Education. The design of the whole programme was prepared by the NSF (MEMD), Selected schools representing each district were invited for the programme (20 students and 01 teacher from each school). The whole group of school children and teachers were divided into two groups; Group A (13 schools) and Group B (12 schools). Four hundred and ninety-five (495) School children in Grade 12 and 52 teachers representing 25 schools (one school from each district) participated at the programme.

The inauguration of the ISEE Programme was held with the patronage of the Hon. Minister of Education at the NCoE Auditorium. Five state-of-art scientific institutions; namely SLINTEC (Sri Lanka Institute of Nano Technology), SLIBTEC (Sri Lanka Institute of Biotechnology), NSBM Green University, Port City Colombo, and the Faculty of Medicine of University of Colombo were visited. Each institute arranged a short programme on their own and they were informative and interesting to the children, and therefore, students were able to obtain novel experience on STEAM applications. The Department of Physics, University of Colombo arranged a night sky observation programme at the NIE playground for children. The Closing Ceremony was held at the Auditorium of the new building of the Faculty of Medicine on the 14th afternoon.

Around 13 private and state organizations gave their maximum support by providing funds, materials or sometimes by providing transportation facilities to arrange a successful and fruitful programme.

4.0 Zero Budget Project on Reading Space

The Board of Management granted its approval in to a zero-budget project to distribute excess stock of 14 NSF publications remaining at the NSF to relevant end users with the following objectives.

- To create opportunities for people to utilize their time more effectively with books.
- To contribute to the popularization of science through printed material.
- To clear the excess stock of NSF publications.

Two flyers were designed and sent to Private Hospitals (15 nos.) and to the Faculties of Science (51 nos). A total of 1461 copies (out of 2599) were distributed among S&T organizations, Universities (Science Faculties), Private hospitals, School children and the general public. For the year 2023, the target was to distribute 1500 copies (97%).

5.0 Workshop on Preparation of Lay Articles

The NSF receives many Final Reports from the Research projects it fund, and the results of these research papers prepared by the scientific community are with scientific jargon that is difficult to be understood by the general public. Hence preparation of "Lay Articles" is important in this scenario at least by the scientific staff of the NSF since the researchers / scientists do not have time and interest in preparing articles for newspapers on their research results and talking to the public through radio and/or television. This is an activity to convert scientific articles into articles that can be easily understood by a lay person.

A two-day workshop was organized by the MEM Division on 2nd and 21st November 2023 at the NSF with the participation of the scientific staff of the NSF, HARTI and ITI. Dr Jayantha Wattavidanage and Mr Thusitha Malalasekara serving as resource persons, shared their knowledge on preparation of lay articles. Based on sample "Abstract" provided to the participants, they prepared lay articles and presented them on the second day of the workshop.

6.0 Awareness on the NSF activities and "Science A B C" among the general public including school children

The MEMD organized NSF Stalls at the following exhibitions to provide publicity to NSF activities and to popularize science among the people using "Science A B C" messages prepared by the MEMD, and "Mihimandala" video programmes produced by the NSF.

Table 10: NSF stalls organized at exhibitions

No.	Exhibition	Dates	Venue	No. of participants
01	Science Exhibition	27 & 28 June 2023	St. John's College, Nugegoda	350 School children and teachers from invited schools
02	National Science Exposition	08-10 November 2023	National Museum	600 school children and teachers
03	"Mahapola" Educational Exhibition & Trade Fair	13-17 December 2023	Ja-Ela	1000 general public
04	"Sathutu Pavula" Educational Exhibition & Trade Fair	25-31 December 2023	Kirindiwela Maha Vidyalaya	2000 general public

Topics of the Science A B C messages:

- How rainbows are created.
- Difference between climate and weather.
- Why is the sky blue?
- Reasons for the heat inside of a vehicle parked under the sunlight.
- Taking off mechanism of an aeroplane.

Acquisition of capital assets, maintenance and system administration

Human Resources Development

Talent management is a constant process that involves attracting and retaining high-quality employees, developing their skills, and continuously motivating them to improve their performance. The primary purpose of talent management is to create a motivated workforce who will stay in the organization in the long run. Talent management naturally encompasses many of the responsibilities of human resources. In this regard NSF has a talent management strategy in place to gain optimal results from the employees, through the following activities: Use Employee Training Tools. (Inhouse training/ attending for knowledge sharing activities of other organizations/ etc.), standardize Talent Review and Onboarding Processes, Track and Measure Performance. (i.e., performance appraisal), Give Feedback and Reviews, Recognize and Reward Top Performers, Increase Employee Motivation, Provide Career Development Paths. The training programmes conducted in 2022 to fulfill the above activities, are mentioned in detail in *Annex 07.*

Maintaining the ICT Infrastructure

The IT Unit is responsible to maintain the organizational ICT infostructure facilities and provide end-user IT supports to the NSF Staff.

Printing Support

The Printing Unit was continuously engaged with printing activities fulfilling the printing requirements of the Scientific Divisions with available resources. Accordingly, the following work was completed with quality outputs in order to attract the stakeholders to printed new scientific information. Nine (09) different types of publications were printed during the period under review. The details are given in *Table 11.*

Table 11: Variety of publications printed

	Publication	Quantity
Vidurava		
1.	Vidurava Jan-March 2020 (Sinhala) Reprint	**1200**
2.	Vidurava Jan-March 2020 (Sinhala) Reprint	**300**
3.	Vidurava Jan-March 2020 (Tamil)	**600**
4.	Vidurava April-June 2021 (Sinhala)	**2000**
5.	Vidurava July-Sep 2021 (Sinhala)	**2000**
6.	Vidurava July-Sep 2022 (Sinhala)	**2000**
Handbooks		
7.	Statistical Handbook 2020	**250**
Other		
8.	Annual Report 2022	**02**
9.	NSF Letter Heads	**1550**

In addition, the Printing Unit covered all the other printing requirements of the NSF by attending to Twentynine (29) other print jobs and Seventeen (17) Binding jobs during the year 2023. Further, initiatives have been taken to utilize currently available physical and human resources in the Unit effectively and seek ways and means to generate income for the institution from these resources accordingly as well. With that intention several communications were done with the officials of the Department of Government Printing to obtain their viewpoints and suggestions in this regard.

Audit Committee Report

The Board of Management of the NSF (BoM/NSF) appointed new three non-executive board members including a Treasury Representative to serve in the Audit & Management Committee (AMC) at its meeting held on 21st February 2023, as a new BoM has been appointed as per the directives given by the Guidelines on corporate governance for state owned enterprises. Ms. M. K. S. Jayasena was nominated in the place of Mrs. A. Y. Harshani Anuruddha with effect from 1st March 2023. A representative from the National Audit Office and Chief Internal Auditor of the Ministry would be invited to serve as observers to the committee.

As a new BoM has been appointed, the BoM appointed Prof. Sampath Punchihewa and Mr Denzil Indrajith Perera as the new members to the Audit and Management Committee (AMC)

Accordingly, the following members were serving during the year.

- Ms. M. K. S. Jayasena (Chairperson & Treasury Representative to the BoM/NSF)
- Prof Sampath Punchihewa (Member of the BoM/NSF)
- Mr Denzil Indrajith Perera (Member of the BoM/NSF)
- Ms. H. D. Anuruddhika (Chief Internal Auditor/Ministry of Education, Skills Development, Vocational Education, Research & Innovation Division)
- Ms. P. A. D. R. K. Wickramathilaka (Representative of the Nation Audit Office)

The committee conducted its first meeting on 17th March 2023 and then the committee met on 11th August and 27th December 2023. Ms. M. K. S. Jayasena served as the Chairperson of the AMC for meetings as the treasury representative to the Board of Management of the NSF. The committee report its recommendations to the Board of Management soon after, along with the minutes of the meeting and the Internal Auditor of the NSF conveyed the recommendations of the AMC to the Heads of the Divisions to take appropriate action for smooth functioning. Progress reports on the actions taken were also reported at the next AMC meeting.

The committee drew special attention to the following as recommendations of the AMC.

- Follow-up on the National Audit Office queries until completion and avoid repetitions.
- Follow-up on the statutory requirements of the NSF throughout the year.
- Review of activities of the NSF and making recommendations on corrective and preventive actions.
- Review internal audit observations and external audit reports, management letters and recommendations on these and help the board to take remedial action.
- Approve the annual audit plan and review and provide directives for the internal audit activities.

Future Projection Report

Programme	Measures	
	Short-term	**Medium-term**
1. Be the premier organization for research funding, grant administration & management and S&T capacity building addressing national priorities	Drive, promote and support Research, Development and Innovation initiatives aligning with the national research needs to encourage bottom-up research ideas and sustain a healthy research ecosystem Recognize research excellence and talent of researchers & supervisors to motivate and inspire for effective engagement in research, development and innovations	Initiate, facilitate and support mission oriented collaborative research of trans-disciplinary/ multi-disciplinary approach research projects to address national high priority concerns, complex challenges and value addition, utilization & conservation of natural resources Promote and support R&D of local industries R&D activities strengthening local enterprises through public-private partnerships Facilitate progressive enhancement of R&D capacities to build up a critical mass of top research talent
2. Lead in facilitating technology development, technology transfer, R&D commercialization, intellectual property protection & exploitation	Facilitate development of potential technologies, start-ups, licensing and technology transfers & diffusions with institutionalized mechanisms, towards sustainable development Recognize national S&T achievements of scientists, engineers, technologists and entrepreneurs who have made outstanding contribution towards the economic and social development through application of STI in Sri Lanka	Strengthen the support service for intellectual property (IP) protection & management and commercial exploitation
3. Be the center of excellence for the collection, analysis, interpretation and dissemination of STI information whilst using modern ICT platforms	Establish the National Digital Library Consortium providing access to high quality, peer-reviewed journals, databases, articles and e-Books across a wide range of disciplines among Universities, R&D and Higher Education Institutions Produce and publish STI information and recommendations with expanded scale and scope Provide evidence-based policy recommendations addressing a socioeconomic issue of national priority	Strengthen National Science Library and Resource Centre (NSLRC) to be the hub for online dissemination of local and international literature and related services Continue to publish Journal of National Science Foundation and Sri Lanka Journal of Social Sciences and achieve impact factor 1.2 and SLJSS as an indexed journal in Social Science Citation index
4. Be the leader in popularizing STI amongst school community and public to improve science literacy and promoting science education	Continue to implement "Science for all" initiatives using multitude of mechanisms Continue to promote and strengthen science education with STEAM approach	Increasing civic science literacy and facilitate to develop next generation of STEAM leaders

5. Be the key gateway in promoting global partnerships and harnessing foreign funding for STI development.	Increase foreign funding received for capacity building and cutting-edge collaborative research Increase globally engaged STI personnel in Sri Lanka through NSF facilitated partnerships	Increase impactful fruitful global partnerships for progressive advancement of science technology and innovation
6. Nurture a creative team of well accomplished, skilled and contented staff to meet the conditions of a science driven, people centric learning organization	Develop technical capability of scientific staff to carry out functions with consultative assistance from external parties Make staff competent, skilled and accountable, empowered, motivated and satisfied through need-based staff development at all times	Enhance social capital, achieve cordiality and promote cohesion among all staff through social interaction activities Attract and retain qualified staff to occupy over 98% staff positions at all times

Financial Review

Financial highlights of the preceding 10 years (2013-2022)

The NSF keeps records of all financial performance and reviews such records frequently (by the Finance Division and Internal and External Auditors). Areas of priority, to be invested in the following year, will be decided on the current year's financial record as well as preceding year's records. Thereby assuarance is given that the most suitable and nationally important areas of Science Technology & Innovation will be funded.

The financial highlights of the preceding 10 years are given in *Table 12*.

Table 12: Financial Highlights of the Preceding 10 Years (2013-2022)

Year	Financial Details (in Rs. Million)		
	Allocation	Funds Received	Expenditure
2013	250.00	135.00	140.00
2014	260.00	223.00	211.00
2015	290.00	235.00	246.00
2016	250.00	232.00	237.00
2017	260.00	243.00	259.97
2018	300.00	283.00	308.00
2019	342.32	307.19	277.51
2020	59.00	59.00	82.07
2021	67.89	61.67	67.85
2022	50.00	16.00	43.90

Figure 71 Shows the financial status of the last 10 years, as the percentage between allocation and received funds and the percentage between received funds and expenditure

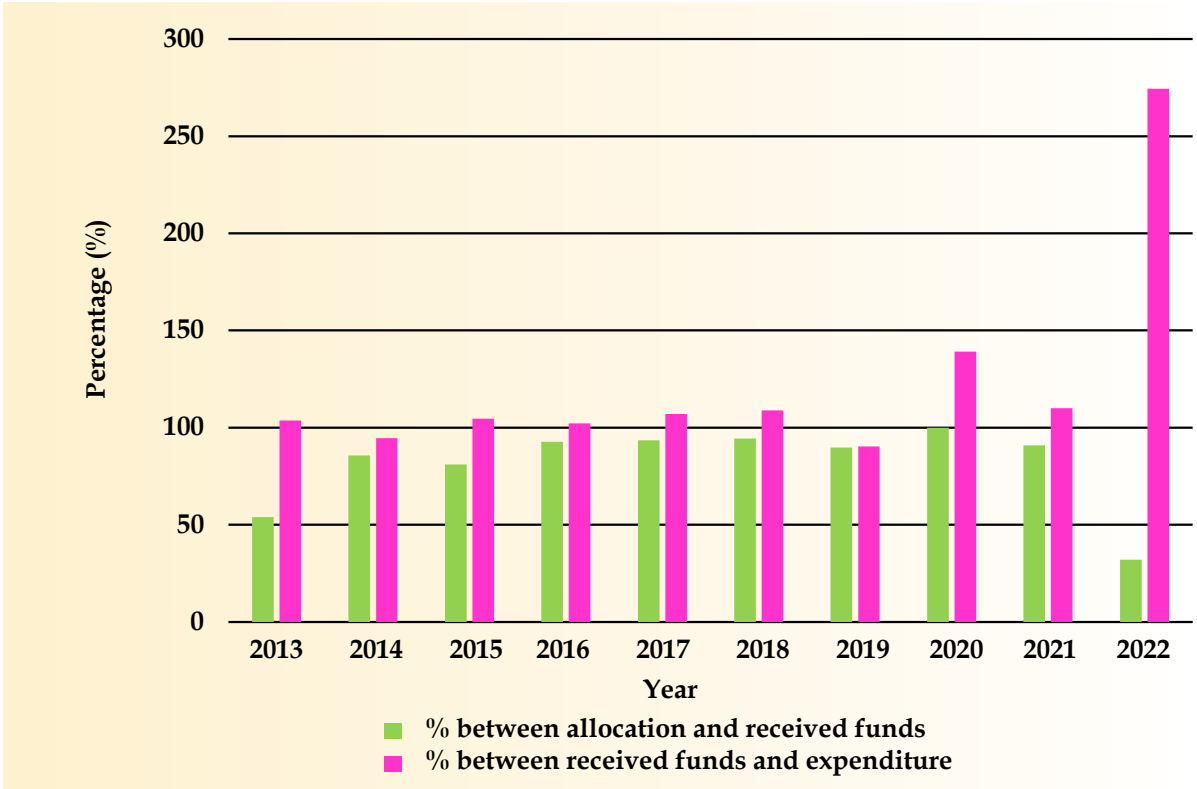


Figure 71 : Financial Status of Last 10 Years (in Percentage)

Observation of the accounting officer on performance 2023

NSF is a funding organization which is solely dependent on government funds. Funds recommended by the Department of National Budget under"Recurrent"and"Capital"expenditure for NSF for the year 2023 were Rs.162.23 million and Rs.70 million, respectively. Department of Treasury Operations released Rs.142.7 million for "Recurrent" expenditure and Rs.14 million for" Capital" expenditure in installments and NSF collected Rs.15.22 million as balances remaining in the completed grants during the year. The details of expenditure are given in *Table 13.*

Table 13: Recurrent and Capital Expenditure in 2023

Description	Rs. '000	
	Estimate	Expenditure
Recurrent Expenditure		
Personal Emoluments	120,868	115,678
Other Recurrent	41,360	31,573
Total Recurrent Expenditure	**162,228**	**147,251**
Capital Expenditure	**70,000**	**25,432**

The details of Capital Expenditure for 2023 is given in *Table 14.*

Table 14: Details of Capital Expenditure in 2023

Mandate	Description	Expenditure - 2023 (Rs. '000)
Mandate - 01	Promoting Research & Development	10,738
Mandate - 02	S&T Information Dissemination	4,236
Mandate - 03	S&T Capacity Building	2,751
Mandate - 04	Science & Technology Policy Research	1,429
Mandate - 05	Science Popularization	5,439
Mandate - 06	Acquisition of Capital Assets, Maintenance and System Administration	839
	Total Capital Expenditure	**25,432**

NATIONAL SCIENCE FOUNDATION
STATEMENT OF FINANCIAL POSITION
As at 31st December 2023.

As at 31.12.2022		Notes	Rs.	Rs.
	Assets			
	Current Assets			
9,982,539.00	Cash & Cash Equivalents	**21**	10,239,927.06	
7,350,859.91	Receivables	**22**	3,922,317.14	
1,181,242.97	Stocks	**23**	1,332,118.02	
2,049,185.57	Pre Payments - ***(Schedule - 09)***		1,939,319.63	
93,650.00	Other Current Assets	**24**	93,650.00	
20,657,477.45	Total Current Assets			17,527,331.85
	Non-Current Assets			
9,914,532.00	Receivables	**22**	8,651,967.00	
1,252,333,560.21	Property,plant & Equipment	**25**	1,237,942,023.67	
4,203,449.88	Intangible Assets	**26**	3,073,873.07	
883,002,124.00	Investments	**27**	883,002,124.00	
2,149,453,666.09	Total Non-current Assets			2,132,669,987.74
2,170,111,143.54	**Total Assets**			2,150,197,319.59
	Liabilities			
	Current Liabilities			
7,760,037.00	Accrued Expenses	**28**	4,198,147.71	
2,951,949.60	Creditors	**29**	2,963,345.10	
10,711,986.60				7,161,492.81
	Non-Current Liabilities			
43,532,122.50	Provision for Retiring Gratuity	**30**	41,318,456.75	
49,679,397.69	Deffered Revenue	**31**	43,742,434.34	
93,211,520.19				85,060,891.09
103,923,506.79	**Total Liabilities**			92,222,383.90
2,066,187,636.75	**Net Assest**			**2,057,974,935.69**
	Equity and Reserves			
	Accumulated Fund			
(27,981,008.94)	Retained Earnings		(53,728,698.72)	
(38,548,294.33)	Add: Excess of Expenditure over Income		(20,842,305.61)	
(66,529,303.27)	**Total Accumulated Funds**			(74,571,004.33)
1,249,216,114.91	Revaluvation Reserve			1,249,216,114.91
883,002,124.00	Government Grant			883,002,124.00
498,701.11	NSF Development Fund	**32**		327,701.11
2,066,187,636.75	**Total Equity**			**2,057,974,935.69**

Head Administration & Finance (C)

Accountant
NATIONAL SCIENCE FOUNDATION
47/5, Maitland Place,
Colombo 7,
Sri Lanka.

The Accounting policies and Notes on pages 06 to 36 form an integral part of these Financial Statements. The Board of Directors is 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

Board Member

Chairman
National Science Foundation
47/5, Maitland Place
Colombo 07
Sri Lanka

Director General
NATIONAL SCIENCE FOUNDATION
47/5, Maitland Place,
Colombo 07,
Sri Lanka.

M. K. Sithara Jayasena
Additional Director General
Department of Management Service
General Treasury
Colombo 01

NATIONAL SCIENCE FOUNDATION
STATEMENT OF FINANCIAL PERFORMANCE
For the year ended 31st December 2023.

As at 31.12.2022		Rs.	Rs.	Rs.
	Grants from Treasury			
16,000,000.00	Capital			14,000,000.00
141,060,000.00	Recurrent			142,714,183.00
157,060,000.00				156,714,183.00
	Income for the year			
703,790.34	Interest received	674,220.79		
45,320.25	Sundry Income	672,315.00		
75,900.00	Sale of Publications - **(Note 19.1)**	18,827.50		
2,472.00	Photocopy receipts	2,905.00		
710,812.18	Publications Charges Received - JNSF	497,522.45		
373,900.00	NSLRC Income	545,000.00		
106,000.00	Income from Workshops	127,000.00		
159,080.00	Profit/(Loss) Disposal of Fixed Assets	-		
2,177,274.77			2,537,790.74	
	Other			
7,956,449.55	Deffered Income (Assets)	6,157,083.85		
2,662,611.00	Deffered Income (Publications)	2,287,577.36		
586,359.00	Income form Projects	-		
11,205,419.55			8,444,661.21	
13,382,694.32				10,982,451.95
170,442,694.32				167,696,634.95
	Less; Expenditure for the year			
	Recurrent Expenditure			
	Office Expenditure			
649,500.00	Traveling & Allowances for Board Members	580,500.00		
86,236.85	Refreshments for meetings	157,394.70		
3,550,673.84	Cost of Sales - Publications **(Note 19.2)**	2,318,154.51		
4,286,410.69			3,056,049.21	
	Staff Emoluments			
77,085,102.47	Salaries & Allowances	75,439,077.34		
11,081,558.67	Employees Provident Fund	10,747,206.08		
2,217,313.43	Employees Trust Fund	2,149,422.74		
19,635,419.93	Other Allowances	19,992,578.77		
3,479,077.50	Provision for Retiring Gratuity	3,367,046.75		
1,572,638.17	Overtime	1,704,094.83		
-	Holiday Payment	65,133.25		
-	Uniforms	-		
115,071,110.17			113,464,559.76	
	Office Administration			
799,568.13	Travelling - Office	108,751.59		
216,030.57	Stationery & Consumables	948,261.16		
2,609,235.26	Electricity	5,113,172.18		
1,880,799.14	Telephone/ Fax	567,750.72		
37,050.00	Postal charges	41,860.00		
375,000.00	Audit fees - Auditor General's Department	550,000.00		
61,825.00	Bank charges	96,305.00		
183,545.74	Medical Expenses	187,490.25		
-	Advertising	-		
2,881,661.81	Fuel Expenses	2,521,925.92		
2,273,166.11	Maintenance of Motor Vehicles	1,541,996.17		
2,852,233.03	Maintenance of Office Equipment & Furniture	4,169,632.45		
682,513.51	Maintenance of Building	717,665.76		

		Rs.	Rs.	Rs.
-	Maintenance of Land	-		
765,697.29	Insurance	777,094.00		
453,432.60	Water Consumption charges	654,941.85		
1,759,115.00	Security Services	2,017,386.00		
16,222,222.97	Depreciation	14,436,657.04		
1,318,376.58	Amortisation of intangible assets	1,304,576.81		
130,000.00	Legal Fees	12,500.00		
286,422.88	Sundry Expenses	354,048.75		
1,858,463.90	Janitorial Services	1,917,458.25		
181,802.10	Translation charges	7,092.75		
1,175.00	Stamp duty	1,025.00		
-	Debtor Written off	6,000.00		
-	Loss of Refundable Deposit	-		
1,728,475.68	Software Licence Renewal Charges	1,268,041.11		
6,000.00	Provision for Doubtful Debtors	-		
94,550.80	Stock of Magazines & Journals written off	3,578.82		
39,658,363.10			39,325,211.58	
	Others			
-	National Science Library & Resource Centre- **Note 19.3**	-		
566,078.58	Printing Division - **Note 19.4**	951,760.54		
5,509,134.08	Subscription for Internet Services	6,308,675.40		
6,075,212.66			7,260,435.94	
	Capital Expenditure			
24,309,046.55	NSF Mandate 01 - **Note 20.1**	10,738,386.13		
4,632,141.37	NSF Mandate 02 - **Note 20.2**	4,236,147.43		
6,176,717.09	NSF Mandate 03 - **Note 20.3**	2,750,598.82		
1,651,676.89	NSF Mandate 04 - **Note 20.4**	1,429,344.82		
4,119,231.77	NSF Mandate 05 - **Note 20.5**	5,439,075.37		
3,011,078.36	NSF Mandate 06 - **Note 20.6**	839,131.50		
43,899,892.03			25,432,684.07	
208,990,988.65				188,538,940.56
(38,548,294.33)	**Net Surplus/(Deficit) for the year**			**(20,842,305.61)**

NATIONAL SCIENCE FOUNDATION
Statement of Changes in Net Assets/Equity
for the year ended 31st December 2023

Summery

	Revaluation Reserve	Other Reserve	Other Funds	Retained Earnings	Accumulated Fund	Total Funds
Balance as at 01.01.2023	1,249,216,114.91	883,002,124.00	498,701.11	(66,529,303.27)	(66,030,602.16)	2,066,187,636.75
Changes in accounting Policy	-	-	-	-	-	-
Prior year adjustments	-	-		12,800,604.55	12,800,604.55	12,800,604.55
Restated balance	1,249,216,114.91	883,002,124.00	498,701.11	(53,728,698.72)	(53,229,997.61)	2,078,988,241.30
Change in net asset/equity for 2023						
Revaluation Surplus	-	-	-	-	-	-
Investment adjustment	-	-	-	-	-	-
Grants From Treasury						
Capital	-	-	-	14,000,000.00	14,000,000.00	14,000,000.00
Recurrent	-	-	-	142,714,183.00	142,714,183.00	142,714,183.00
Other operations	-	-	(171,000.00)	10,982,451.95	10,982,451.95	10,811,451.95
Expenditure during the year						
Capital	-	-	-	(25,432,684.07)	(25,432,684.07)	(25,432,684.07)
Recurrent	-	-	-	(163,106,256.49)	(163,106,256.49)	(163,106,256.49)
Total recognised revenue and expences for the period	-	-	(171,000.00)	(20,842,305.61)	(20,842,305.61)	(21,013,305.61)
Balance as at 31st December 2023	**1,249,216,114.91**	**883,002,124.00**	**327,701.11**	**(74,571,004.33)**	**(74,072,303.22)**	**2,057,974,935.69**

NATIONAL SCIENCE FOUNDATION
STATEMENT OF CASH FLOW

	2023 Rs.		2022 Rs.	
Cash flows from operating Activities				
Net Surplus/(Deficit) for the year	(20,842,305.61)		(38,548,294.33)	
Add: NSF fund prior year adjustments	12,800,604.55		11,037,305.65	
	(8,041,701.06)		**(27,510,988.68)**	
Adjustments for				
Depreciation	14,436,657.04		16,222,222.97	
Amortisation of Intangible assets	1,304,576.81		1,318,376.58	
Gratuity paid during the year	(5,580,712.50)		(1,336,550.00)	
Provision for Gratuity	3,367,046.75		3,479,077.50	
Profit on Disposal of Fixed Assets	-		(159,080.00)	
Write off of Debtors	6,000.00		-	
Provision for Doubtful Debtors	-		6,000.00	
Deffered Revenue	(6,157,083.85)		(7,956,449.55)	
Operating profit/(loss) before working capital changes	**(665,216.81)**		**(15,937,391.18)**	
Net (Increase)/Decrease in trade other receivables	4,794,973.71		(3,018,985.02)	
Net (Increase)/Decrease in inventories	(150,875.05)		1,343,543.12	
Net Increase/(Decrease) in trade payables	(3,550,493.79)		(1,039,259.93)	
Cash generated from operations	1,093,604.87		(2,714,701.83)	
Net Cash Flows from Operating Activities		**428,388.06**		**(18,652,093.01)**
Cash flows from Investing Activities				
Proceed of Disposal of Fixed Assets	-		159,080.00	
Purchase of assets	(220,120.50)		(2,250,692.80)	
Net Cash Flows from Investing Activities		**(220,120.50)**		**(2,091,612.80)**
Cash Flows from Financial Activities				
Contribution from Government	220,120.50		2,250,692.80	
Contribution from NSF Components	(171,000.00)		-	
Net Cash Flows from Financial Activities		**49,120.50**		**2,250,692.80**
Net Increase/(Decrease) in cash & cash equivalents		257,388.06		(18,493,013.01)
Cash & Cash Equivalent at beginning of the period		9,982,539.00		28,475,552.01
Cash & Cash Equivalent at end of the period		**10,239,927.06**		**9,982,539.00**
Cash & Cash Equivalents				
BOC - 0002323269		2,979,645.49		2,977,620.19
BOC - 0002323270		172,027.60		1,417,990.25
BOC - 0002322471		1,685,377.79		1,187,855.34
BOC Savings - 80771519		5,402,963.49		3,613,181.53
Special Cash Imprest		-		100,000.00
Petty Cash		-		5,000.00
Cash & Cheques in hand		(87.31)		680,891.69
		10,239,927.06		**9,982,539.00**

NATIONAL SCIENCE FOUNDATION

Notes on Accounting Policies

For the Year Ended 31st December 2023

1. General

1.1 Reporting Entity

National Science Foundation has been incorporated under the Act No.11 of 1994, and located at No.47/5, Maitland Place, Colombo - 07 Sri Lanka. NSF is functioned under the Ministry of Education.

1.2 Reporting Period

The financial period of the National Science Foundation represents from 01st January 2023 to 31st December 2023.

1.3 Approval of Financial Statements

The financial statements for the year ended 31 December 2023 were authorized for issue by the Board of Directors at the meeting held on 20th February 2024 at 4.00 pm at the NSF Board Room.

1.4 Principal activities and nature of operations

Accordingly, the National Science Foundation facilitates research, development, and innovation to create a knowledge economy. It also facilitates capacity building, infrastructure development, technology transfer, knowledge creation and sharing in all fields of science & technology to improve the quality of life of the people.

Functions of the National Science Foundation shall be;

- ✓ To initiate, facilitate and support basic and applied scientific research by universities science and technology institutions and scientists.
- ✓ To strengthening scientific research potential, including research in the social science and science education programs.
- ✓ To developing the natural resources of Sri Lanka
- ✓ To training research personnel in science and technology
- ✓ To foster the interchange of scientific information among scientists in Sri Lanka and foreign countries
- ✓ To awards scholarships and fellowships for scientific study or scientific work at science and technology institutes.
- ✓ To awards Research Grants and Technology Grants
- ✓ To Popularization of Science

1.5 Responsibility for financial statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards, and for such internal control as management determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

2. Summary of Significant Accounting Policies

2.1 Statement of compliance

The Financial Statements of the Institute have been prepared in accordance with Sri Lanka Public Sector Accounting Standards (SLPSAS's) and presented in accordance with Sri Lanka Public Sector Accounting Standards SLPSAS 01 - Presentation of Financial Statements. However, Sri Lanka Accounting Standards have also been used in the areas where Public Sector Accounting Standards are not available. These Financial Statements comprise the statement of Financial Position, Statement of Financial Performance, Statement of Cash flows, Changes in equity and Notes to the Financial Statements.

2.2 Basis of preparations

The financial statements of the National Science Foundation have been prepared on an accrual basis and under the historical cost convention and apply consistently. No adjustments have been made for inflation factors affecting to the FSs except for the PPE measured at fair value.

2.3 Comparative Information

The Accounting Policies applied by the Institute are, unless otherwise stated, consistent with those used in the previous year. Previous year figures and phrases have been rearranged wherever necessary to conform to the current year presentation.

2.4 Presentation of functional currency

The financial statements of the Institute are presented in Sri Lankan Rupees (LKR), which is the primary economic environment in which the Institute operates.

2.5 Going Concern

The Management has assessed its ability to continue as a going concern and is satisfied that it has the resources to continue in business for the foreseeable future. Furthermore, the Management is not aware of any material uncertainties that may cast significant doubt upon the Institute's ability to continue as a going concern. Therefore, the Financial Statements of the Institute continue to be prepared on a going concern basis.

3. Property Plant & Equipment

The National science foundation Property Plant & Equipment (PPE) includes Land, Buildings, Office Equipment & Furniture, Library Books, Motor Vehicles, Accessories & Miscellaneous, Documentation Equipment.

3.1 Basis of recognition

Property, Plant and Equipment are recognised if it is probable that future economic benefits associate with the item will flow to the entity and the cost of the item can be reliably measured.

3.2 Initial recognition

Property, Plant & Equipment are initially recognised at cost including the cost of purchase with any incidental expenses incurred in bringing the assets to its working conditions, for its intend use, Subsequent to initial Recognition, PPE are measured at cost less accumulated depreciation and accumulated impairment losses.

3.3 De-recognition

The carrying amount of an item of Property, plant & equipment is de-recognised on disposal; or when no future economic benefits are expected from its use or disposal. Gains and losses on de-recognition are recognised in income statement and gains are not classified as revenue. When re-valued assets are sold, any related amount included in the revaluation reserve is transferred to Retained Earnings.

3.4 Revaluation

After recognition as an asset, class of PPE whose fair value can be measured reliably have been carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Land, Building (Including Container Office) and Motor Vehicles were revalued by the Department of Government Valuation in 2019 and charged revaluation surplus/deficit directly debit/credit to revaluation surplus, to the extent the asset value has increased/decreased.

3.5 Disclosure on Land and Building

According to the cabinet decision No. 20/1607/306/035, a Memorandum dated 2020-10-12 by the Minister of Urban Development & Housing on " Vesting/Acquisition of State and Private Lands with the Urban Development Authority for proposed Projects centered on Major Cities including the City of Colombo" granted approval to vest the National Science Foundation Land referred to under serial No.6 of the Annex - 1 to the Memorandum.

3.6 Intangible Assets

Computer software and License have been recognised as intangible assets when it is probable that future economic benefits that are attributable to the assets will flow the enterprise and the cost of the asset can be measured reliably. Intangible assets acquired are stated at cost less accumulated amortization and accumulated impairment losses.

Amortisation

The depreciable amount of an intangible asset in amortised on a straight-line basis over the estimated useful life and is recognised as an expense. Depreciation Rate is as Follows.

Computer Software	-	20%

3.7 Depreciable assets & Depreciation

Depreciation is recognised in the statement of Financial Performance on original cost or at revaluation on a straight-line basis from the date of purchase of the assets and is calculated to write-off the assets over their estimated useful life. The estimated rates are as follows.

Assets Category	Rate
Building	5%
Office Equipment & Furniture	20%
Motor Vehicles	20%
Accessories & Miscellaneous	20%
Library Books	5%
Documentation Equipment	10%

4. Grants for Research & Other Scientific Work

Our policy in funding research grants as formulated in the Research Grants contractual agreement is to transfer the funds to the Institution where the grantee is employed in installments. After completion of the project a debtor is created for the unutilised funds. project unutilised balance to be refunded to NSF. The funds transferred to the Institution are treated as expenditure at the end of the year.

5. Investment

The Ministry of Technology and Research oversees the Government's involvement of SLINTEC through the National Science Foundation (NSF). NSF investment in SLINTEC is Rs. 883,002,124/-.

6. Publications

These are published mainly to disseminate scientific knowledge to school children in particular & the society in general as well as to impart knowledge to the scientific community, policy makers, funding agencies etc.

Therefore in many occasions publications have to be given free of charge to schools & other relevant various organizations specially as prizes/ awards for science related activities with the Director General approval.

The Journals and Magazines over six months were written down by 50% and the value of Journals and Magazines which are over a year were written down to zero as per the decision of the Board of Management on 15th November 2010.

The value of books or any other publications other than Journals & Magazines were written down to Zero value after five years of printing as per the decision of the Board of Management on 12th August 2011.

The Cost of the Publications is treated as an expenditure to the relevant Division as per the decision of the Board of Management on 13th August 2015.

7. Presentation of Grants related to assets and income

7.1 Grants related to assets

The treatment of depreciation related to assets have been dealt as differed income which is recognised as income on a systematic and rational basis over the useful life of the asset in accordance with LKAS 20.

7.2 Grants related to income

Grants related to income are presented as a credit in the statement of financial performance and alternatively they are deducted in reporting the related expense.

8. Inventories

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

9. Receivables

Receivables includes Cash Advances, Staff Loan, Staff Debtors and Sundry debtors. NSF provides doubtful debts for debts which are outstanding for more than 3 years.

10. Cash and Cash Equivalents

In the Statement of Cash Flows of the Institute, cash and cash equivalents includes cash and cheques in hand, cash at bank, Petty Cash and Special petty Cash.

11. Employees Benefits

All employees are covered by EPF & ETF. An approved Medical Scheme is provided in addition to the normal Welfare facilities available. Retirement benefits to employees are provided according to the laid down statutory requirements. Institute contribution for provident fund and employees' Trust Fund is 15% and 3% respectively.

Gratuity

Retirement benefits to employees are provided according to the laid down statutory requirements. Gratuity provision is made according to the Gratuity Act No.12 of 1983.Provisions have been made in the accounts in respect of liability for retiring gratuity for the employees who have completed one year of Service. The funds required for payment of gratuity is given by Treasury when requires. Gratuity has been calculated based on Basic Salary and Cost of Living Allowance.

Gratuity Provision and Payment details as follows.

Gratuity Amount paid for the year	5,580,712.50
Gratuity Provision for the year	3,367,046.75

12. Provisions, contingent assets, and contingent liabilities

Provisions are made for all obligations existing as at the Balance Sheet date when it is probable that such an obligation will result in an outflow of resources and a reliable estimate can be made of the quantum of the outflow. There are no contingent assets or liabilities to be disclosed.

13. Revenue

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

13.1 Interest Income

Interest income is recognised as and when the interest accrues.

13.2 Sundry Income

Sundry income is recognised on an accrual basis.

13.3 Profit/(Loss) Disposal of property, plant, and equipment's

Net gain and loses from the disposal of Property, plant and equipment's and other non- current assets, are accounted for in the Statement of Financial Performance. Gain or Loss is calculated after deducting the carrying amount of such assets and the related selling expenses from the sales proceed.

13.4 NSLRC Income

NSLRC income includes Library Services, Winsis Packages and Database migrations. Revenue from rendering of the services is recognised in the accounting period in which the services are rendered or performed.

13.5 Sale of Publications

Sale proceeds of the Publications are recognised as an income at the point in time of dispatch or sale has occurred.

13.6 Income From Workshops

Income from workshops, conference is recognised at the point in time upon register and collect on the payment for the event.

13.7 Income From Projects

Income of the projects is recognised its administration cost given from relevant division.

13.8 Publication Author Charges

Author Charges income is recognised on an accrual basis.

13.9 Differed Income

Where the capital grant relates to an asset released from the General Treasury, when the recurrent related to an expense item, it is recognised as income over the period necessary to match the grant on a systematic basis to the cost that it is intended to compensate.

14. Expenditure and Presentation in Income Statements

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

15. Statement of Cashflow

The cashflow statement has been prepared by using The Indirect Method in accordance with the SLPSAS 2 whereby gross cash receipts and gross cash payments of operating activities, finance activities and investing activities have been recognised.

16. Current Liabilities

Current Liabilities are stated at their book value.

17. Events after the reporting period

Since the Balance sheet date there have been no events which could materially affect the state of affairs of the Institute.

18. Funds Drawn from the Treasury during – 2023

18.1	Budget Rs.	Received Rs.	
Capital Funds	70,000,000	14,000,000	**Note A**
Recurrent Funds	162,228,000	142,714,183	

Note A: Capital Funds Allocation to Relevant Mandates

- NSF Mandate – 01 35,700,000
- NSF Mandate – 02 8,076,000
- NSF Mandate – 03 2,390,000
- NSF Mandate – 04 3,800,000
- NSF Mandate – 05 14,734,000
- NSF Mandate – 06 5,300,000

18.2 Presentation of Budget

The approved budget of the Institute has been prepared for the year 2023. The budget of the Institute has been prepared as per action plan activities. Statement of comparison of budget and actual amounts are shown in separate annexure on page no 19 to 21 in Financial Statements 2023.

NATIONAL SCIENCE FOUNDATION
Notes on Accounts
For the Year Ended 31st December 2023

Note No 19

	19.1 - Sale of Publications		**2023**	**2022**
			Rs.	Rs.
	Sales Proceed of Publications	**Note - A**	18,827.50	75,900.00
			18,827.50	**75,900.00**

	Note - A Sales Proceed of Publications		
1	Sri Lanka Journal of Social Sciences	-	800.00
2	Sri Lanka Journal of Social Sciences Vol No. 42	-	-
3	Sri Lanka Journal of Social Sciences Vol No. 43	-	400.00
4	Sri Lanka Journal of Social Sciences Vol No. 44	-	200.00
5	Other Publications	27.50	4,500.00
6	Natural Resources of Sri Lanka	18,000.00	18,000.00
7	Vidurava - Old	800.00	4,000.00
8	Journal of National Science Foundation Vol No. 48	-	2,000.00
9	Covid - 19	-	45,000.00
10	Vidurava Vol. 37-2 (E)	-	200.00
11	Vidurava Vol. 37-2 (S)	-	200.00
12	Vidurava Vol. 37-4 (E)	-	200.00
13	Vidurava Vol. 37-4 (S)	-	400.00
		18,827.50	**75,900.00**

	19.2 - Cost of Sales - Publications		
	Opening Stock as at 01.01.2023	358,879.72	1,341,493.36
	Add		
	New Publications Cost	2,287,577.36	2,662,611.00
		2,646,457.08	4,004,104.36
	Less		
	Publication Stock Written off	(3,578.82)	(94,550.80)
	Closing Stock as at 31.12.2023	(324,723.75)	(358,879.72)
		2,318,154.51	**3,550,673.84**

	19.3 - National Science Library & Resource Centre		
1	Maintenance & Repairs	-	-
2	Consumables	-	-
		-	**-**

	19.4 - Printing Unit		
1	Consumables & Chemicals	291,384.45	369,056.90
2	Paper & Boards	(188,390.82)	95,089.14
3	Maintenance & Repairs	848,766.91	101,932.54
		951,760.54	**566,078.58**

NATIONAL SCIENCE FOUNDATION
Notes on Accounts
For the Year Ended 31st December 2023

Note No 20

20.1 - NSF Mandate 01
Promoting Research and Development

		2023	2022
		Rs.	Rs.
1	Research Division	10,481,431.38	22,449,920.80
2	Technology Division	256,954.75	16,125.75
3	Research Scholarship & Fellowships	-	1,843,000.00
4	International Affairs Division	-	-
		10,738,386.13	**24,309,046.55**

20.2 - NSF Mandate 02
S & T Information Dissemination

	National Library and Resource Center		
1	SLJOL Databse	2,078,621.12	2,043,520.68
2	Library Books	-	72,720.80
3	National Digitization	118,303.18	158,166.65
4	Seminars & Workshops	-	-
5	Subscriptions & Periodicals	195,910.00	94,620.00
6	Awarness Programmes	235,480.05	-
7	National Repository S & T	-	-
		2,628,314.35	2,369,028.13
	Journal Publication Unit		
1	Journal of National Science Foundation - (JNSF)	1,234,183.08	1,859,157.52
2	Sri Lanka Journal of Social Sciences - (SLJSS)	373,650.00	403,955.72
		1,607,833.08	2,263,113.24
		4,236,147.43	**4,632,141.37**

20.3 NSF Mandate 03
S & T Capacity Building

	International Affairs Division		
1	International Contacts - Travel Grants	-	-
2	International Contacts - OSTP	-	2,731,970.00
3	International Contacts - IPSAT	-	-
4	International Affairs Division	605,756.91	678,711.88
5	Subscription to International Scientific Organizations	1,672,179.58	2,015,984.25
		2,277,936.49	5,426,666.13
	Science & Technology Policy Research Division		
1	Subscription to International Scientific Organizations	222,662.33	250,050.96
		222,662.33	250,050.96
	Journal Publication Unit		
1	Journal of National Science Foundation - (JNSF)	250,000.00	500,000.00
		250,000.00	500,000.00
		2,750,598.82	**6,176,717.09**

20.4 - NSF Mandate 04
Science & Technology Policy Research

		2023	2022
		Rs.	Rs.
1	Science & Technology Policy Research Division	1,429,344.82	1,559,676.89
2	International Affairs Division	-	92,000.00
		1,429,344.82	**1,651,676.89**

20.5 - NSF Mandate 05
Science Popularization

1	Science Communication Outreach Division - SCOD	4,995,380.80	4,058,195.48
2	Media Division	443,694.57	61,036.29
		5,439,075.37	**4,119,231.77**

20.6 - NSF Mandate 06
Acquisition of Capital Assets, Maintenance and System Administration

	Administration & IT		
1	Office Equipment & Furniture	1,550.00	6,372.00
2	Building	-	-
3	Motor Vehicles	-	-
4	Information Technology	175,000.00	2,427,622.87
5	Land & Improvements	-	-
6	Accessories & Miscellaneous	43,570.50	7,400.00
7	Staff Development Local	401,461.00	569,683.49
	Foreign	217,550.00	-
		839,131.50	**3,011,078.36**

NATIONAL SCIENCE FOUNDATION
Notes on Accounts
For the Year Ended 31st December 2023

	Note No 21 - Cash and Cash Equivalents			2023	2022
				Rs.	Rs.
	Bank Accounts				
1	BOC Current A/c	0002323269	**Note - A**	2,979,645.49	2,977,620.19
2	BOC Current A/c	0002323270		172,027.60	1,417,990.25
3	BOC Current A/c	0002322471		1,685,377.79	1,187,855.34
4	BOC Savings A/c	80771519		5,402,963.49	3,613,181.53
5	Special cash imprest			-	100,000.00
6	Petty cash			-	5,000.00
7	Cash & Cheques in hand			(87.31)	680,891.69
				10,239,927.06	**9,982,539.00**

Note A : Capital Cash Balance as at 31.12.2023

Treasury Funds - Capital	27,695.89	25,670.59
Covid - 19	823,540.00	823,540.00
Cinemon Project	2,045,054.75	2,045,054.75
NSF Kid Naturalist Project - 2021	83,354.85	83,354.85
	2,979,645.49	**2,977,620.19**

	Note No 22 - Receivables			
1	**Loans to Staff**			
	Distress loan - 01	***Schedule - 1***	1,502,754.00	1,867,273.00
	Distress loan - 02	***Schedule - 2***	10,611,463.00	12,175,703.00
	Combined loan	***Schedule - 3***	-	-
2	Festival Advance	***Schedule - 4***	20,000.00	31,250.00
3	Staff Debtors	***Schedule - 5***	140,219.70	34,571.53
4	Sundry Debtors	***Schedule - 6***	273,187.44	3,162,594.38
	Less: Provision for Doubtful Debt		-	(6,000.00)
5	Miscellaneous Cash Advance	***Schedule - 7***	26,660.00	-
			12,574,284.14	**17,265,391.91**

Note 22.1 - Receivable Analysis	Amount	Settlements With in one Year	Settlements After one year
Distress Loan - 01	1,502,754.00	440,422.00	1,062,332.00
Distress Loan - 02	10,611,463.00	3,021,828.00	7,589,635.00
Other Receivables	460,067.14	460,067.14	-
	12,574,284.14	**3,922,317.14**	**8,651,967.00**

	Note No 23 - Stocks			
1	Stationery and Consumables	***Schedule - 8***	1,007,394.27	822,363.25
2	Publications	***Schedule - 8***	324,723.75	358,879.72
			1,332,118.02	**1,181,242.97**

	Note No 24 - Other Current Assets			
1	Refundable Deposits	***Schedule - 9***	93,650.00	93,650.00
			93,650.00	**93,650.00**

NATIONAL SCIENCE FOUNDATION
Notes on Accounts
For the Year Ended 31st December 2023

Note No 25 - Property, plant and Equipments

Description	Balance as at 01.01.2023 (Rs.)	Additions	Disposals	Balance as at 31.12.2023 (Rs.)
Assets - (Cost & Revaluation)				
Land	1,134,314,859.19	-	-	1,134,314,859.19
Building	124,647,001.40	-	-	124,647,001.40
Office Equipment & Furniture	100,937,457.78	1,550.00	-	100,939,007.78
Motor Vehicles	25,320,000.00	-	-	25,320,000.00
Accessories & Miscellaneous	1,428,958.55	43,570.50	-	1,472,529.05
Library Books	5,768,827.82	-	-	5,768,827.82
Documentation Equipment	15,783,121.85	-	-	15,783,121.85
	1,408,200,226.59	45,120.50	-	1,408,245,347.09
Accumulated Depreciation				
Building	21,508,072.48	6,232,350.07	-	27,740,422.55
Office Equipment & Furniture	97,363,075.30	3,070,413.13	-	100,433,488.43
Motor Vehicles	15,187,787.40	5,064,400.00	-	20,252,187.40
Accessories & Miscellaneous	1,390,139.11	22,586.01	-	1,412,725.12
Library Books	4,634,470.24	46,907.83	-	4,681,378.07
Documentation Equipment	15,783,121.85	-	-	15,783,121.85
	155,866,666.38	14,436,657.04	-	170,303,323.42
Net Value	**1,252,333,560.21**			**1,237,942,023.67**

Note No 26 - Intangible Assets

	2023	2022
Cost	Rs.	Rs.
Balance at the beginning of the year	8,905,571.54	6,763,571.54
Additions	175,000.00	2,142,000.00
Transfers/Disposals	-	-
Balance as at the end of the year	**9,080,571.54**	**8,905,571.54**
Accumulated amortisation		
Balance at the beginning of the year	4,702,121.66	3,383,745.08
Charge for the year	1,304,576.81	1,318,376.58
Transfers/Disposals	-	-
Balance as at the end of the year	**6,006,698.47**	**4,702,121.66**
Carrying amount as at the end of the year	**3,073,873.07**	**4,203,449.88**

*** Intangible assets include computer software and software licenses purchased.**

NATIONAL SCIENCE FOUNDATION

Notes on Accounts

For the Year Ended 31st December 2023

			2023	2022
			Rs.	Rs.
	Note No 27 - Investments			
1	SLINTEC	**Note - B**	883,002,124.00	883,002,124.00
			883,002,124.00	**883,002,124.00**
	Note - B : Investments Breakup			
		No of Shares		
	Ordinary Shares	43,680,786	394,036,527.00	394,036,527.00
	Preference Shares	51,792,386	488,965,597.00	488,965,597.00
			883,002,124.00	**883,002,124.00**
	Note No 28 - Accrued Expenses			
1	Accrued Expenses	***Schedule - 10***	4,198,147.71	7,760,037.00
			4,198,147.71	**7,760,037.00**
	Note No 29 - Creditors			
	Creditors amounting to Rs.2,963,345.10 represents monies held by NSF as given below,			
1	NSF Kid Naturalist Project - 2021		83,354.85	83,354.85
2	Covid - 19		823,540.00	823,540.00
3	Cinemon Project		2,045,054.75	2,045,054.75
4	Staff Creditor	***Schedule - 6***	11,395.50	-
			2,963,345.10	**2,951,949.60**
	Note No 30 - Provision for Retiring Gratuity			
	Balance as at 01.01.2023		43,532,122.50	41,389,595.00
	(+) Provision for the year		3,367,046.75	3,479,077.50
			46,899,169.25	44,868,672.50
	(-) Paid during the year		(5,580,712.50)	(1,336,550.00)
	Balance as at 31.12.2023		**41,318,456.75**	**43,532,122.50**
	Note No 31 - Deffrede Revenue			
1	Deffred Revenue - Assets	**Note - C**	43,742,434.34	49,679,397.69
			43,742,434.34	**49,679,397.69**
	Note C : Deffered Revenue - Assets			
	Balance as at 01.01.2023		49,679,397.69	55,385,154.44
	(+) Assets Capitalized		220,120.50	2,250,692.80
			49,899,518.19	57,635,847.24
	(-) Depreciation Deffered		(6,157,083.85)	(7,956,449.55)
	Balance as at 31.12.2023		**43,742,434.34**	**49,679,397.69**
	Note No 32 - NSF Development Fund			
1	NSF Component		167,966.31	338,966.31
2	Staff Component		159,734.80	159,734.80
			327,701.11	**498,701.11**

NATIONAL SCIENCE FOUNDATION

Budget & Actual Expenditure 2023

Capital Expenditure

Rs.000'

Description	*Estimate 2023*	*Revised Estimate 2023*	*Actual Expenditure*	*Surplus/(Vareinces)*
NSF Mandate - 01	35,700	35,700	10,738	24,962
NSF Mandate - 02	8,076	8,076	4,236	3,840
NSF Mandate - 03	2,390	2,900	2,751	149
NSF Mandate - 04	3,800	3,800	1,429	2,371
NSF Mandate - 05	14,734	14,224	5,439	8,785
NSF Mandate - 06	5,300	5,300	839	4,461
Accruals	-	-	3,584	(3,584)
Total	**70,000**	**70,000**	**29,016**	**40,984**

Recurrent Expenditure

Rs.000'

Description	*Estimate 2023*	*Revised Estimate 2023*	*Actual Expenditure*	*Surplus/(Vareinces)*
Personal Emoluments	121,000	120,868	115,678	5,190
Travelling Expenses	1,240	1,240	109	1,131
Supplies	9,350	7,050	3,470	3,580
Maintenance Expenditure	6,000	8,200	6,429	1,771
Contractual Services	12,400	12,230	11,090	1,140
Others	15,010	12,640	10,475	2,165
Accruals	-	-	4,518	(4,518)
Total	**165,000**	**162,228**	**151,769**	**10,459**

NATIONAL SCIENCE FOUNDATION

Budget & Actual Expenditure 2023

Rs.000'

Description	*Estimate 2023*	*Revised Estimate 2023*	*Actual Expenditure*	*Surplus/(Variences)*
Staff Emoluments				
Salaries & Allowances	76,072	76,072	75,439	633
Employees Provident Fund	11,362	11,362	10,747	615
Employees Trust Fund	2,272	2,272	2,149	123
Payment for unutilized leave	-		-	-
Other Allowance	23,694	23,694	19,993	3,701
Retiring Gratuity	5,400	5,600	5,581	19
Overtime & Holiday Payment	2,200	1,868	1,769	99
	121,000	**120,868**	**115,678**	**5,190**
Traveling				
Office Traveling	1,240	1,240	109	1,131
	1,240	**1,240**	**109**	**1,131**
Supplies				
Uniforms	350	350	-	350
Stationary & Consumables	4,250	3,150	948	2,202
Fuel & Lubricants	4,750	3,550	2,522	1,028
	9,350	**7,050**	**3,470**	**3,580**
Maintenance				
Maintenance of Motor vehicle	2,500	2,500	1,542	958
Maintenance of Office Equipments	2,000	4,200	4,170	30
Maintenance of Building	1,500	1,500	718	782
Maintenance of Land	-	-	-	-
	6,000	**8,200**	**6,429**	**1,771**
Services				
Electricity	3,500	5,200	5,113	87
Postage	750	400	42	358
Telephone/ Fax	2,200	830	568	262
Insurance Charges - Vehicles & Building	900	900	777	123
Water consumption	550	700	655	45
Security Services	2,100	2,100	2,017	83
Janitorial Services	2,400	2,100	1,917	183
Leasing	-	-	-	-
	12,400	**12,230**	**11,090**	**1,140**

Rs.000'

Description	*Estimate 2023*	*Revised Estimate 2023*	*Actual Expenditure*	*Surplus/(Variences)*
Other Recurrent				
Advertising	450	250	-	250
Allowances to Board members Audit Committee & Travelling	950	950	581	370
Audit fees - Auditor General's Dept.	430	550	550	-
Bank charges	150	150	96	54
Entertainment	-	-	-	-
Legal fees	200	110	13	98
Medical scheme	230	230	187	43
Refreshments for committee meetings	200	200	157	43
Library & Resources Centre	-	-	-	-
Printing unit	450	1,700	952	748
Stamp duty	50	50	1	49
Sundry Expenses	700	450	354	96
Translation charges	200	200	7	193
Internet membership fees	5,670	6,400	6,309	91
Subscription for Software Licence Renewal	5,330	1,400	1,268	132
	15,010	**12,640**	**10,475**	**2,165**
Total	**165,000**	**162,228**	**147,251**	**14,977**
Provision & other				
Gratuity Provision	-	-	3,367	-
Depreciation	-	-	14,437	-
Amortitation of Intangible Assets	-	-	1,305	-
Debtor Written off	-	-	6	-
Loss of Refundable Deposit	-	-	-	-
Stock Stationery & Consumables Written off	-	-	-	-
Stock Magazines & Journals Written off	-	-	4	-
Cost of Sales - Publications	-	-	2,318	-
Total Other Recurrent	**-**	**-**	**21,436**	**-**
Total	**165,000**	**162,228**	**168,687**	**-**

Schedule - 1

	Distress Loan - 01	Rs.	Rs.
1	Ruwanthi Ipalawatta	83,564.00	
2	K.G.J.Karunasena	35,910.00	
3	Chandima Samarasinghe	26,406.00	
4	S.V.P.M Rukshani	9,144.00	
5	S.N.P.K Sapumohotti	38,920.00	
6	H.I. Sandanayake	40,549.00	
7	M.M.C. Perera	148,866.00	
8	Danushka Zoysa	78,888.00	
9	J.A.C.G. Samarasinghe	111,852.00	
10	Champika Priyadarshanie	45,364.00	
11	Umeka Gunarathna	149,976.00	
12	Chinthaka Ekanayake	4,648.00	
13	R.M.M.Jayajeewani	48,124.00	
14	B.V.I.D. Wimalarathna	38,628.00	
15	Sadari Dematagolla	110,150.00	
16	Dilushi Munasinghe	20,100.00	
17	S.A. Jayasinghe	40,755.00	
18	P.N.Hansamali	158,654.00	
19	P.H.Hasni	42,714.00	
20	Ranil Kumara	57,998.00	
21	M.D.P. Perera	43,882.00	
22	B.M.Rihaz	34,306.00	
23	K.M.De Silva	42,252.00	
24	A.H.D.R Monali	91,104.00	
			1,502,754.00

Distress Loan - 02 *Schedule - 2*

1	Ajantha Kanthi	12,498.00
2	V.R. Priyanganie	187,470.00
3	N.S. Liyanage	187,470.00
4	N.S.S. Silva	17,439.00
5	Saman Sujeewa	179,138.00
6	Uppala Medhavi	179,138.00
7	Monika Wijemanne	183,304.00
8	K.D.P.N.Nanayakkara	237,462.00
9	B.S. Cooray	187,470.00
10	Ruwanthi Ipalawatta	133,068.00
11	N.A.H.Priyadarshanie	187,470.00
12	A.J.N.Silva	162,474.00
13	D.M.N.Prishanthi	179,138.00
14	I.C. Ramani	183,304.00
15	K.G.J.Karunasena	109,865.00
16	W.A.D.A. Perera	83,320.00
17	Nadeeja Wickramarachchi	4,166.00
18	K.N.R. Hansi Mahapitiya	220,798.00
19	Dilani Jayaweera	224,964.00
20	Chandima Samarasinghe	11,088.00
21	M.A.R.L Millawithana	4,166.00
22	S.V.P.M Rukshani	140,832.00
23	S.N.P.K Sapumohotti	127,720.00
24	H.I. Sandanayake	130,257.00
25	M.M.C. Perera	30,229.00
26	Mahesha Nadugala	174,972.00
27	Danushka Zoysa	158,574.00
28	Abhimani Ranatunge	4,166.00
29	P.D. G .Muditha	224,964.00
30	Sammani Weerasinghe	179,138.00
31	Yohan Chandeera	179,138.00
32	K.G.C.M. Silva	191,636.00
33	Kanchana Sewwandi	183,304.00
34	J.A.C.G. Samarasinghe	50,622.00
35	Champika Priyadarshanie	137,896.00
36	Chinthaka Ekanayake	4,803.00
37	Pushpa Ellapallage	179,138.00
38	Priyanka Bamunendra	183,304.00
39	R.M.M.Jayajeewani	172,621.00
40	A.N.L. Perera	191,636.00

41	B.V.I.D. Wimalarathna	115,514.00	
42	R.P.C. Janaka	41,290.00	
43	A.I.Ahangama	154,142.00	
44	Saroja Thilakarathne	15,544.00	
45	Sadari Dematagolla	98,150.00	
46	Dilushi Munasinghe	42,390.00	
47	S.A. Jayasinghe	188,375.00	
48	P.N.Hansamali	32,982.00	
49	S.C.S. Fernando	187,470.00	
50	W.A.B. Fernando	191,636.00	
51	P.H.Hasni	182,250.00	
52	Ranil Kumara	137,804.00	
53	Pujitha Hewawasam	12,498.00	
54	Thasneem	166,640.00	
55	Sarani Meneripitiya	170,806.00	
56	Harsha Shamini	237,462.00	
57	Hiranya Vinoli	183,304.00	
58	P.S.D. Fernando	191,636.00	
59	Pavani Abeysiri	208,300.00	
60	Sumudu Gunasekara	191,636.00	
61	Manuja Karunarathna	250,000.00	
62	S.Warnasooriya	187,470.00	
63	Nadeesha Muhandiram	29,162.00	
64	K.N.Samamthi	16,664.00	
65	M.D.P. Perera	206,118.00	
66	B.M.Rihaz	107,338.00	
67	K.M.De Silva	132,720.00	
68	Maheshi Madushani	216,632.00	
69	Nuwan Nishantha	220,798.00	
70	H.K.A.S. Fernando	187,470.00	
71	MN.M.Wickramasinghe	162,474.00	
72	C.N.G. Moragoda	162,474.00	
73	A.H.D.R Monali	108,864.00	
74	G.D.N Ranjan	179,138.00	
75	Uvini Chamathka	91,652.00	
76	P.J.M.C Perera	82,500.00	
			10,611,463.00

Schedule - 3

Combined Loan

		Rs.	Rs.
1	Not Available	-	
			-

Schedule - 4

Festival Advance

	Name	Rs.
1	Mr.K.A.D.P.N. Nanayakkara	10,000.00
2	Mr.Jude Malan	10,000.00
	Total	**20,000.00**

Schedule - 5

Staff Debtors Schedule

1	Miss.Nandani Paranavidana	1,043.85
2	Mr.D.P.N Nanayakkara	4,398.37
3	Ms.E.M.D.C.K Ekanayake	32,225.79
4	Ms.W.L.C Dassanayake	1,784.05
5	Mrs.A.N.L Perera	3,553.21
6	Mrs.Kanchana Sewwandi	6,446.59
7	Mrs.Champika Priyadarshanie	3,581.44
8	Mr.Umeka Samaranayake	674.98
9	Mrs.Nisansala Hansamali	1,409.99
10	Mrs.Saduni Samarasekara	49,726.18
11	Mr.Sadun Fernando	5,909.50
12	Mrs.Nadeesha Muhandiram	16,318.12
13	Mrs.N.M Wickramasinghe	4,765.63
14	Mrs.Chamali Moragoda	8,382.00
		140,219.70

Staff Creditors Schedule

1	Mrs.L.N.A.L.P Nissanka	11,395.50
		11,395.50

Schedule - 6

Sundry Debtors Schedule

Date	V.No	Grant No.	Grantee	Amount Rs. cts.
31-12-2022	JV - 255	Invoice No - 5311	President Secreatarial Gall Face	75,000.00
29-12-2023	JV - 283	Invoice No - 5339	The Registar Faculty of Technology & Applied Science Rajarata university Mihinthale	35,730.00
29-12-2023	JV - 329	TG/2020/COVID/AG/01	Bursar, University of Ruhuna Mapalana Kamburupitiya	772.00
29-12-2023	JV - 329	RG/2019/SS/01	Bursar University of Ruhuna Wellamadama Matara	69,261.50
29-12-2023	JV - 332	RG/2019/AG/02	Bursar University of Kelaniya Kelaniya	92,423.94
				273,187.44

Schedule - 7

Miscellaneous unsettled cash advance

Date	V. No.	File No.	Name	Amount - Rs.
22-12-2023	G - 1011	RGB/GEN- 114 Media	Mr.Janaka Karunasena	26,660.00

Schedule - 8

	Stocks	Rs.	Rs.
1	**Stationary & Consumables**		
	Stores	303,373.25	
	Printing	704,021.02	**1,007,394.27**
2	**Publications**		
	Coral Reef Posters	80.00	
	Horton Plains Vedio Cassettes	8,043.75	
	Covid - 19	315,000.00	
	Vidurawa 37 - 1 (Tamil)	400.00	
	Vidurawa 38 - 2 (Sinhala)	400.00	
	Vidurawa 38 - 3 (Sinhala)	400.00	
	Vidurawa 39 - 3 (Sinhala)	400.00	**324,723.75**
	Total		**1,332,118.02**

Schedule - 9

	Prepayments	Rs.
1	Insuarance	281,811.31
2	Maintenance of Building	324,324.00
3	Maintenance of Office Equipments	786,686.78
4	Postage	34,223.00
5	Software Licence Renewal	512,274.54
		1,939,319.63

	Deposits	Rs.
1	Felix Perera & Sons	65,000.00
2	Director of Telecommunication	450.00
3	Telecom	5,000.00
4	Ceylon Electricity Board	10,000.00
5	Telecom - IDD facilities	5,000.00
6	Laugh Holdings	8,200.00
		93,650.00

Schedule - 10

Accrued Charges

Recurrent Expenditure

1	Audit Fees	550,000.00	
2	Electricity	489,286.15	
3	Water Consumption charges	38,085.61	
4	Stationeries & Consumables	31,512.50	
5	Security Services	173,259.00	
6	Janitorial Services	174,334.25	
7	Fuel Expenses	386,563.00	
8	Telephone	43,133.63	
9	Medical Expenses	30,322.00	
10	Sundry Expenses	4,000.00	
11	Salaries & Allowances	18,165.32	
12	Travelling - Office	1,575.00	
13	Overtime	186,986.83	
14	Subscription for Internet Charges	1,482,278.16	
15	Mobile Internet	15,622.74	
16	Travelling Allowance for Board Members	7,500.00	
17	Software Licence Renewal Charges	141,410.34	
18	Maintenance of Office Equipments	114,558.37	3,888,592.90

Capital Expenditure

1	Research Division	18,529.64	
2	Awarness Programmes	175.00	
3	International Affairs Division	5,000.00	
4	Media Division	60,152.30	
5	Journal of National Science Foundation - (JNSF)	51,000.00	
6	Sri Lanka Journal of Social Sciences - (SLJSS)	15,000.00	
7	Science & Technology Policy Research Division	17,500.00	
8	Office Equipments & Furnitures	1,550.00	
9	Science Communication Outreach Division	35,097.87	
10	Staff Development - Foreign	105,550.00	309,554.81
	Total		**4,198,147.71**

NATIONAL SCIENCE FOUNDATION
Notes to Financial Statements

Note

As per the audit observation Publication Cost of Sales - Publications and Deffered Income - Publications Accounts has been Restated as follows,

	Audited Balance	Adjustment	Restated Balance
Cost of Sales - Publications	3,460,180.85	90,492.99	3,550,673.84
Deffered Income (Publications)	2,572,118.01	90,492.99	2,662,611.00

NATIONAL SCIENCE FOUNDATION
Reconciliation of Financial Position

	Note	Audited Balance as at 31 December 2022	Adjustments	Adjusted Balance as at 31 December 2022
ASSETS				
Current Assets				
Cash & Cash Equivalents		9,982,539		9,982,539
Receivables		7,350,860		7,350,860
Stocks		1,181,243		1,181,243
Pre Payments		2,049,186		2,049,186
Other Current Assets		93,650		93,650
Total Current Assets		20,657,477	-	20,657,477
Non-Current Assets				
Receivables		9,914,532		9,914,532
Property,plant & Equipments		1,252,333,560		1,252,333,560
Intangible Assets		4,203,450		4,203,450
Investments		883,002,124		883,002,124
Total Non-current Assets		2,149,453,666	-	2,149,453,666
Total Assets		2,170,111,144	-	2,170,111,144
Liabilities				
Current Liabilities				
Accrued Charges		7,760,037		7,760,037
Creditors		2,951,950		2,951,950
		10,711,987	-	10,711,987
Non-Current Liabilities				
Provision for Retiring Gratuity		43,532,123		43,532,123
Deffered Revenue		49,679,398		49,679,398
		93,211,520	-	93,211,520
Total Liabilities		103,923,507	-	103,923,507
Net Assets		**2,066,187,637**	**-**	**2,066,187,637**
Equity and Reserves				
Accumulated Funds				
NSF Fund		(66,529,303)		(66,529,303)
Revaluvation Reserve		1,249,216,115		1,249,216,115
Government Grant		883,002,124		883,002,124
NSF Development Fund		498,701		498,701
Total Equity		**2,066,187,637**	**-**	**2,066,187,637**

NATIONAL SCIENCE FOUNDATION

Reconciliation of Financial Performance

Year ended 31 December 2022

	Audited Balance 2022		Adjustments	Adjusted Balance 2022	
Revenue					
Government Grant	157,060,000			157,060,000	
Other Income				-	
Interest received	703,790			703,790	
Sundry Income	45,320			45,320	
Sale of Publications	75,900			75,900	
Photocopy receipts	2,472			2,472	
Publication Charges Received - JNSF	710,812			710,812	
NSLRC Income	373,900			373,900	
Income from Workshops	106,000			106,000	
Profit/(Loss) Sale of Fixed Assets	159,080			159,080	
Income from Projects	586,359			586,359	
Differed Income - Publications	2,572,118		90,493	2,662,611	
Differed Income - Assets	7,956,450			7,956,450	
		170,352,201			170,442,694
Expenditure					
Office Expenditure					
Traveling & Allowances for Board Members	649,500			649,500	
Refreshments for meetings	86,237			86,237	
Cost of Sales - Publications	3,460,181	4,195,918	(90,493)	3,550,674	4,286,411
Staff Emoluments					
Salaries & Allowances	87,290,971			87,290,971	
Employees Provident Fund	11,081,559			11,081,559	
Employees Trust Fund	2,217,313			2,217,313	
Transport & Fuel Allowance	9,429,552			9,429,552	
Provision for Retiring Gratuity	3,479,078			3,479,078	
Overtime	1,572,638			1,572,638	
Holiday Payment	-			-	
Uniforms	-			-	
		115,071,110			115,071,110
Office Administration					
Travelling - Office	799,568			799,568	
Stationary & Consumables	216,031			216,031	
Electricity	2,609,235			2,609,235	
Telephone/ Fax	1,880,799			1,880,799	
Postal charges	37,050			37,050	
Audit fees - Auditor General's Dept.	375,000			375,000	
Bank charges	61,825			61,825	
Medical Expenses	183,546			183,546	
Advertising	-			-	
Fuel Expenses	2,881,662			2,881,662	
Maintenance of Motor Vehicles	2,273,166			2,273,166	
Maintenance of Office Equipment & Furniture	2,852,233			2,852,233	
Maintenance of Building	682,514			682,514	
Maintenance of Land	-			-	
Insurance	765,697			765,697	
Water Consumption charges	453,433			453,433	
Security Services	1,759,115			1,759,115	
Depreciation	16,222,223			16,222,223	

Amortisation of intangible assets	1,318,377			1,318,377	
Legal Fees	130,000			130,000	
Sundry Expenses	286,423			286,423	
Janitorial Services	1,858,464			1,858,464	
Translation charges	181,802			181,802	
Stamp duty	1,175			1,175	
Software Licence Renewal Charges	1,728,476			1,728,476	
Provision for Doubtful Debtors	6,000			6,000	
Stock of Magazines & Journals written off	94,551	39,658,363		94,551	39,658,363
Others					
National Science Library & Resource Centre	-			-	
Printing Division	566,079			566,079	
Subscription for Internet Services	5,509,134	6,075,213		5,509,134	6,075,213
Capital Expenditure					
NSF Mandate - 01	24,309,047			24,309,047	
NSF Mandate - 02	4,632,141			4,632,141	
NSF Mandate - 03	6,176,717			6,176,717	
NSF Mandate - 04	1,651,677			1,651,677	
NSF Mandate - 05	4,119,232			4,119,232	
NSF Mandate - 06	3,011,078			3,011,078	
		43,899,892			43,899,892
Excess of Income over expenditure		**(38,548,294)**			**(38,548,294)**

NATIONAL SCIENCE FOUNDATION

Reconciliation of Statement of Cash Flow Rs'000

	Audited Balance 2022		Adjustments	Adjusted Balance 2022	
Cash flows from operating Activities					
Net excess of expenditure over income	(38,548)			(38,548)	
Add; NSF fund prior year adjustments	11,037			11,037	
	(27,511)			**(27,511)**	
Adjustments for					
Depreciation	16,222			16,222	
Amortisation of Intangible assets	1,318			1,318	
Gratuity paid during the year	(1,336)			(1,336)	
Provision for Gratuity	3,479			3,479	
Disposal of Fixed Assets	(159)			(159)	
Writtenoff of Intangible Assets	-			-	
Provision for Doubtful Debtors	6			6	
Deffered Revenue	(7,956)			(7,956)	
Debtor Written off	-			-	
Operating profit/loss before working capital chan	**(15,937)**			**(15,937)**	
Net increase/decrease in trade other receivables	(3,019)			(3,019)	
Net increase/decrease in inventories	1,343			1,343	
Net decrease/increase in trade payables	(1,039)			(1,039)	
Cash generated from operations	(2,715)			(2,715)	
Net cash from operating activities		**(18,652)**			**(18,652)**
Cash flows from Investing Activities					
Proceed of Disposal of Fixed Assets	158			158	
Purchase of assets	(2,250)			(2,250)	
Proceeds from sale of books	-			-	
Net cash used in investing activities		**(2,092)**			**(2,092)**
Cash Flows from Financial Activities					
Contribution from Government	2,250			2,250	
Contribution from NSF Component	-			-	
		2,250			**2,250**
Net cash from financing activities		(18,494)			(18,494)
Cash & cash equivalent at beginning period		28,476			28,476
Cash & cash equivalent at end of period		**9,982**			**9,982**

NATIONAL SCIENCE FOUNDATION
Assets Addition During the Year 2023

Office Equipments						
Asset No	**Voucher No**	**Date of purchase**	**Supplier**	**Classification**	**No. of Items**	**Value**
2023/OE/COM/RD/01	JV - 295	2023.12.12	Mobile Doc	Computer USB Mouse	1	1,550.00
						1,550.00
Miscellanious and Accessories						
2023/MIS/AD/01	JV - 58	2023.03.17	NTS Electronics	Hot Water Flask	1	6,000.00
2023/MIS/AD/02	G - 647	2023.11.04	Mega Heaters (pvt) Ltd	Water Boiler	1	37,570.50
						43,570.50
Intangible Assets						
2023/IA/IT/01	G - 506	2023.08.31	Accsoft Solutions	Salary Package	1	175,000.00
						175,000.00

Auditor General's Report

ජාතික විගණන කාර්යාලය
தேசிய கணக்காய்வு அலுவலகம்
NATIONAL AUDIT OFFICE

මගේ අංකය
எனது இல.
My No.

ඔබේ අංකය
உமது இல.
Your No.

දිනය
திகதி
Date

Chairman

National Science Foundation

22nd May 2024

Report of the Auditor General on the Financial Statements and Other Legal and Regulatory Requirements of the National Science Foundation for the year ended 31 *December 2023* in terms of Section 12 of the National Audit Act, No. 19 of 2018.

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1. Financial Statements

1.1 Qualified Opinion

The audit of the financial statements of the National Science Foundation for the year ended 31 December 2023 comprising the statement of financial position as at 31 December 2023 and the statement of financial performance, statement of changes in equity and cash flow statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, 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 provisions of the National Audit Act No. 19 of 2018 and Finance Act No. 38 of 1971.

In my opinion, except for the effects of the matters described in the basis for Qualified Opinion section of my report, the accompanying financial statements give a true and fair view of the financial position of the Foundation as at 31 ***December 2023,*** and of its financial performance and its cash flows for the year then ended in accordance with ***Sri Lanka Public Sector Accounting Standards.***

1.2 Basis for Qualified Opinion

a. Even though full depreciation has been completed in accordance with paragraph 65 of Sri Lanka Public Sector Accounting Standard No. 07, the assets worth of Rs. 100,250,215 which are still being used have not been disclosed in the financial statements. As well as in accordance with Sri Lanka Public Sector Accounting Standard No. 03, effective life of these assets has not been reviewed and adjusted in the financial statements.
b. The expenditure of Rs.464,356 paid for renewal of office 365 A3 software related to the period of 5th November 2022 to 04th November 2023 have been disclosed in the financial statement as the expenditure of 2023 and 2024. As a result of that, reviewed year expenditure has been reduced by Rs.392,038 and prepayments have been over calculated by Rs. 392,038.

I conducted my audit in accordance with Sri Lanka Auditing Standards (SLAuSs). My responsibilities, under those standards, are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of my report. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my qualified opinion.

1.3 Other information included in the Foundation's 2023 Annual Report.

The other information comprises the information included in the Foundation's 2023 Annual Report but does not include the financial statements and my auditor's report thereon, which is expected to be made available to me after the date of this auditor's report. Management is responsible for the other information.

My opinion on the financial statements does not cover the other information and I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the financial statements, or my knowledge obtained in the audit or otherwise appears to be materially misstated.

When I read the Foundation's 2023 Annual Report, if I conclude that there are material misstatements therein, I am required to communicate that matter to those charged with governance for correction. If further material uncorrected misstatements are existed those will be included in my report to Parliament in pursuance of provisions in Article 154 (6) of the Constitution that will be tabled in due course.

1.4 Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards, and for such internal control as management determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Foundation's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Foundation or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Foundation's financial reporting process.

As per Section 16(1) of the National Audit Act No. 19 of 2018, the Foundation is required to maintain proper books and records of all its income, expenditure, assets and liabilities, to enable annual and periodic financial statements to be prepared of the Foundation.

1.5 Auditor's Responsibilities for the Audit of the Financial Statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with Sri Lanka Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Sri Lanka Auditing Standards, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit 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 Foundation's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the management.
- Conclude on the appropriateness of the management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Foundation to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

2. Report on Other Legal and Regulatory Requirements

2.1 National Audit Act, No. 19 of 2018 include specific provisions for following requirements.

2.1.1 I have obtained all the information and explanation that required for the audit and as far as appears from my examination, proper accounting records have been kept by the Foundation as per the requirement of section 12 (a) of the National Audit Act, No. 19 of 2018, except for the effects of the matters described in the basis for Qualified Opinion section of my report.

2.1.2 The financial statements presented is consistent with the preceding year as per the requirement of section 6 (1) (d) (iii) of the National Audit Act, No. 19 of 2018.

2.1.3 The financial statements presented includes all the recommendations made by me in the previous year as per the requirement of section 6 (i) (d) (iv) of the National Audit Act, No. 19 of 2018.

2.2 Based on the procedures performed and evidence obtained were limited to matters that are material, nothing has come to my attention.

2.2.1 to state that any member of the governing body of the Foundation has any direct or indirect interest in any contract entered into by the Foundation which are out of the normal cause of business as per the requirement of section 12 (d) of the National Audit Act, No. 19 of 2018.

2.2.2 to state that the Foundation has not complied with any applicable written law, general and special directions issued by the governing body of the Foundation as per the requirement of section 12 (f) of the National Audit Act, No. 19 of 2018, except observations mention below.

Reference to law/direction

Paragraph 9.1 (a) and (b) of Public Finance Circular No. 1/2020 dated 20th August 2020.

Observation

An accounting officer may at his discretion authorize a Petty Cash Sub-Imprest up to a maximum of Rs.25,000/- to any officer working under the direct supervision of a Staff Officer. Against this provision Foundation have been issued Imprest which total of Rs.1,577,900/- in 27 occasions to the three Management Assistants.

2.2.3 to state that the Foundation has not performed according to its powers, functions and duties as per the requirement of section 12 (g) of the National Audit Act, No. 19 of 2018.

2.2.4 to state that the resources of the Foundation had not been procured and utilized economically, efficiently, and effectively within the time frames and in compliance with the applicable laws as per the requirement of section 12 (h) of the National Audit Act, No. 19 of 2018.

2.3 Other Matters

a. A grant scheme has been planned to provide the support for science education and promotion programme conducted by the schools and universities. Since adequate publicity has not been given to the schools and universities about the scheme, only 5 school have been sent application asking support from the scheme.

b. A total of Rs.8,454,100 funds have been provided to the 2 research projects under the theme of natural disaster and climate change from 2017. In auditing it cannot be satisfied with the decision taken to change the theme and sample of one research and limit the numbers of samples of the other research and its effect on the materiality of recommendation on the expenditure done.

c. 7 Computers with all the accessories which valued Rs.750,750/-, 14 Central Process Units (CPU), 12 monitors and 16 Keyboard in usable condition have been identified as idle in the physical verification of the stores.

d. An action has not been taken to settle the creditor balances of Rs.2,951,950 which represent Rs.2,045,055 over 5 years and Rs.906,895 over 2 years.

e. There are 04 Technology projects with total value of Rs.15,469,633/- out of these 2 projects have been completed with delays. Foundation is in the matter of communicating with the grantee and grantee of the other grant have been migrated after the retirement. In such a situation action have to be taken according to 8.5.1 of the grant agreement but it didn't.

f. Rs.4 allocated for the 6 activities included in the action plan prepared for the year 2023. As a result of expanding only 0.72 m for these activities financial progress has been drop to 18%. As such there are 13 instances where the expected target in each action has not been included quantitatively in the action plan.

W.P.C. Wickramaratne

Auditor General

NSF feedback on the Auditor General's Report

The Auditor General,

National Audit Office,

No. 306/72, Polduwa Road,

Battaramulla,

2024.04.17

Comments for the Draft Report of the Auditor General on the Financial Statements and Other Legal and Regulatory Requirements of the National Science Foundation for the year ended 31 December 2023 in terms of Section 12 of the National Audit Act, No. 19 of 2018.

1. Financial Statements

1.2.1 Accounting Deficiencies

(a) Agree with the audit observation

According to Sri Lanka Public Sector Accounting Standard No.7, the cost of the assets which is still used worth Rs: 100,250,215 included in the financial statement are being reviewed to identify the assets for revaluation. At this stage only the office equipment was considered and on the inspection the value of physically identifiable assets in the fixed assets register is Rs 92,222,742.74. The balance worth Rs 8,714,715.09 consists of two types. The assets recorded in the asset register but physically cannot be identified and the assets physically available, but value of the asset cannot be identified as the asset numbers are erased.

The report was submitted to the Audit & Management Committee with all the work done in this assignment and the problems that have arisen in the verification. As per the recommendations of the committee, efforts are being made to further identify the unidentified assets. Revaluation willother categories of assets will be considered.

It is expected to revalue assets along with the progress of the assignment.

(b) Agree with the audit observation.

When submitting the documents related to the office 365 A3 software license for payment, validity period was not mentioned. Therefore, the cost was recorded as the expenditure for the year 2024. However, it has been confirmed that this expenditure is relevant from 5th of November, action will be taken to correct in the year 2024.

2.2.2 Reference to law/direction

	Reference to law/direction ----------	Explanation for the Observation ----------
(a)	Section 1 of Chapter XIV of Establishment Code	Agreed with the audit observation. Since working in the exhibition stall is a very difficult task, the Board of Management has taken a decision in 2019 to pay a hardship allowance to the employees who work in the exhibition stalls. Based on this board decision, a hardship allowance was paid to the officers who attended for the duties of "Mahapola" exhibition. Officers who were assigned duties at exhibition stalls were not allowed to go out of the stall while on duty and therefore, they were provided meals & other refreshments. Approval of the Treasury has been requested for all the payments which are made at present without approval of the Treasury. Arrangements will be made to release the payments as per the E-Code until approval is received for our proposal.
(b)	F.R. 454 (1) (2)	Partially agree with the audit observation. As per item 454 (1) of the Financial Regulations, an inventory book has not been used to record the receipt and issue of office equipment, furniture, and other equipment so far. However, a soft copy was prepared from 2015 to use after adjusting the opening balance with completion of the reconciliation of the assets and cost is completed. Also, as per F.R.454 (2) a register for electrical items and fittings in government buildings has been prepared from 2023.
(c)	F.R. 756 (5) (a) & (b)	Agree with the Audit observation. T 66 & A 66 forms have not been used to check errors in the Board of Survey and arrangement will be made to use those forms for next Board of Survey – 2024.
(d)	F.R.757	Agree with the Audit observation. Due to lack of staff members, the Board of Survey panels attended to complete the job with their assigned work in the divisions and therefore, submitting of 2022 reports was delayed. This will be corrected from 2023 Board of Survey.

(e)	F.R.780	Agree with the Audit observation. This exhibition was held from 25 Dec. 2023 to 31 Dec. 2023. One driver who was attached to the pool vehicles resigned on 13 Nov. 2023 and therefore, two drivers were available to assign duties. Out of these two drivers, one driver was on leave from 27 December 2024 to 29 Dec. 2024 and the other driver was used to cover work at the office. He also did not report to work on 29 Dec 2024 due to sickness. Due to these reasons, we had to hire vehicles from a reputed company which had been selected through the procurement process to provide transport to the exhibition duties. The cost of transport was covered by the allocated budget for the event. If we assigned the driver available in the office to duties of the exhibition, all the office work would be hampered. Further, vehicles were not allowed to park in the exhibition area, and we faced a problem parking our vehicles. This exhibition was closed at 11.00 p.m. every day. If we use NSF vehicles to provide transport to the staff members after their duties, the driver had to drive the vehicle around 3.00 a.m., and he had to start his duty around 6.30 a.m. in the following day to take staff members to the exhibition stall. We noticed that this would be a great difficulty for the driver. Since we used hired vehicles to provide transport, we were able to reduce fuel cost, maintenance cost of the vehicles, OT & subsistence of the drivers.
(f)	Public Finance Circular No.438 dated 13/11/2009	Agree with the Audit observation. Due to the delay in providing the Board of Survey reports of 2022, actions could not be taken to the unusable items identified by the Board of Survey panel, as per the instructions given in the Public Finance Circular no. 438. These items will be disposed of soon.
(g)	(a) & (b) of Paragraph 9.1 of Public Finance Circular No.01/20202	Agree with the Audit observation. NSF purchased fuel on credit basis for a long time. Fuel prices were increased with the fuel crisis that occurred in 2022 and the supplier stopped providing fuel on credit until July 2023. Therefore, we had to take cash advance to pump fuel to the NSF pool vehicles. The supplier provided fuel to the NSF vehicles on credit basis from Aug. 2023 to Dec. 2023. Since the supplier stopped providing fuel on credit basis, we had to take cash advance again. These cash advances were given to a Management Assistant under the supervision of Senior Administrative Officer. According to the audit observation, arrangements have already been made to take cash advances to the name of Senior Administrative Officer to pump fuel to the NSF pool vehicles. Further, it has been planned to send a request to the supplier to obtain fuel on a credit basis and make payment by cheque.

2.3 Other matters

(a) Disagree with the audit observation.

Scientific nomenclature of plants and trees in areas where more often present such as parks, school gardens, working paths etc., is one of the teaching methodologies that employed to teach plant diversity in many countries in the world. Further, it is part of science education and also is considered as one approach towards creating an environmentally sensitive people and scientifically literate society. The NSF Science popularization basically focusses on creating a scientifically literate society. Further, the scientific nomenclature of plants and identifications of plants species in the country also is part of the school science syllabus.

The school that has been given financial support is a school located in the middle of the Colombo urban area. In addition, this school has been identified as an underprivileged school and underperforming. The children attending these schools have very limited opportunities to visit botanical gardens to see or experience a diverse array of plants species in the country. Most of these students are from households that are in urban housing schemes that have no space to grow plants. Being aware of the surrounding environment of their households, it is identified as an essential as well as fundamental requirement to give some space at school to give them hands on experience in learning botany with live specimens in their school garden. Accordingly, under the National Science Foundation's special science education project NSF has given small grants to identify the plant species already planted and grow in their school garden under supervision of Senior Professor who has volunteered to guide teachers and students to correctly identify the plants species in school garden. The NSF has given small grants to prepare name bords containing the scientific names of the plants and their common name etc. following correct scientific nomenclature methodology. This has enabled the children of the whole school to become aware of the scientific and common names of the plants in the school grounds. This exercise is directly relevant to science education and popularization of science among the school community.

(b) Not agree with the audit observation.

As this research is related to field studies, the operational planning of this project has been hampered due to the corona epidemic, travel restrictions, fuel crisis and rising transportation costs. Accordingly, data collection and analysis from surveys of the elderly population was hampered by the emergence of the Covid-19 pandemic. As per this approved project proposal, Rs. 11.032 million was estimated and so far, Rs. 2.28 million (about 20.67% of the estimated amount) has been disbursed. The Principal Investigator (PI) of the project, Professor Indrika Rajapakse, Department of Architecture, Faculty of Architecture, University of Moratuwa, has informed NSF that due to the pandemic related and economic crisis related difficulties and budget cuts, it is not possible to conduct the study covering four districts as planned and the study will have to be limited to the urban areas of Colombo District.

The Steering Committee on Climate Change and Natural Disasters analyzed the scope limitation of the study and reviewed the progress of the project closely by obtaining necessary clarifications from the Project leader to make recommendations for this issue. The committee noted that there will be a very high cost of fuel and travel to carry out the study covering all the 4 districts. Accordingly, taking into consideration the request made by the project leader, current situation, expected outputs and the importance of the study and also with the desire to bring the project to a reasonable conclusion commensurate with the funds already expended, the title of the project was revised as "Heat stress, quality of life and well-being of elders living in urban areas: An experimental investigation on ageing-in-place in a low-income settlement in Metropolitan region" and extension of the project period up to 08th June 2024 was approved by the NSF. Now the project has reached its final stage.

The Colombo metropolitan area is the area with the highest number of adults living in Sri Lanka (in terms of indoor environment and population density) affected by extremely hot and humid conditions. Thus, the study sample represents the elderly population most vulnerable to extreme heat conditions. Therefore, using the area of greatest influence for study is more effective for critical analysis. This approach confirms that all other locations are less vulnerable to warmer conditions than this region, as adults living in the rest of the island are less affected by temperature effects.

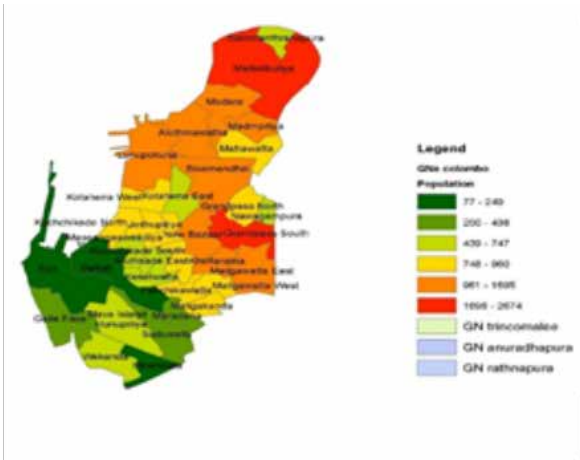

Fig. 1: Distribution of the young elderly population in the Colombo district

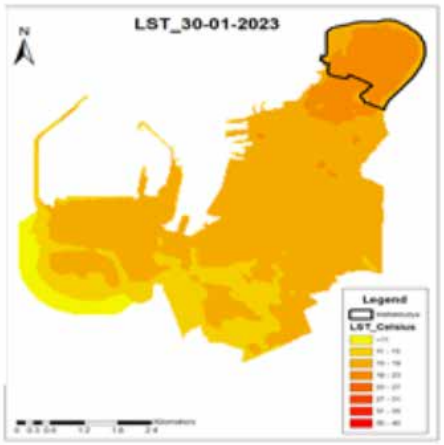

Fig. 2: Land surface temperature

(c) The NTRP/2017/CC&ND/TA 02/P02/01 project is a field study related project and it was not possible to cover all the four cultivation sectors of tea, coconut, rubber and sugarcane as expected due to the corona virus and other social and financial problems, which was identified during the review of the progress of the projects. Accordingly, in order to commensurate with the amount spent, the research was directed to cover only the tea and coconut cultivation sectors. The results of this project will be sufficient to provide recommendations for tea and coconut plantations.

For this study, monthly data covering the last 15-18 years were collected from tea and coconut growing districts. This collection created a huge amount of data and a database related to tea and coconut. There were 11,040 and 17,868 observations in tea and coconut, respectively, for a total of 29,508 observations, a very large data set. Using this data, predictions were made for all tea and coconut growing areas regarding the impact of climate change on productivity, profitability and technical efficiency as originally proposed. Also, regarding these two crops, the vulnerability profiles in their cultivation have been prepared according to the geographical information system maps [GIS Maps] which are very important in the future national planning of the country. As tea and coconut are Sri Lanka's major export agricultural crops, the results of this study are ideally consistent with the NSF project's objective of assessing climate change impacts on Sri Lanka's plantation and export agriculture sectors.

Also, two students were able to obtain their post-graduate degrees through this project. This also aligns well with the National Science Foundation's objective of enhancing human resource capacity in science disciplines in Sri Lanka. It is also noted that, the amount spent is only half of the total expected project cost.

(d) These All-In-One computers are locally manufactured in 2016 and have been removed from service as they can no longer be used in the corporate computer network by updating the software. These will be systematically discarded removing sensitive information.

(e) The balance of the Cinnamon Project will be settled immediately after receiving the final report of the one project which is pending to the date. Future action will be taken regarding the remaining balance money of the donations received for Covid 19 and Kids naturalist projects after receiving the Donors advice.

(f) i. TG/2017/Tech-G/02

Agree with the audit observation.

This grantee was also followed up for periodic progress reviews. In the year 2022, the researcher was connected with WIPO (World Intellectual Property Organization) for the mentorship course for commercialization offered for successfully completed research. However, according to the agreement, G form report on the purchase of equipment and according to section 8.5.1 a report on the latest activities related to this grant for a period of 5 years will also be arranged before May 30, 2024.

ii. TG/2016/Tech-D/06

Agree with the audit observation.

This researcher has been followed up on various occasions. He commercialized this product with Arpico (Pvt) Limited and launched the product at the National Science Foundation Auditorium. However, according to clause 8.5.1 of the agreement, a report on the latest activities related to the project for a period of 5 years will be obtained from the principal researcher before the end of May 2024.

iii. TG/2017/Tech-D/07

Agree with the audit observation.

Regarding the issue of contacting the grantee of this project, a confidential report was called from the Grama Niladhari through the Divisional Secretariat and a police complaint has also been filed. Information has also been received from the Election Commissioner's Office and the Department of Registration of Persons, and with that information, further steps are being taken as per the instructions of the Audit and Management Committee and the Boar of Management.

iv. TG/2017/Tech-D/06

Agree with the audit observation.

The final report of this project was sent for evaluation in January 2023. Since the assessment report was delayed, several reminders were made and the evaluation report has been promised to be provided very soon. However, considering the current situation, a final reminder will be made to send the report immediately. If not, this report will be sent to another evaluator.

The researcher was followed up on the research on various occasions and also asked about the scientific publications related to the research. Information was also obtained from him for the progress reviews conducted by the Ministry. However, according to clause 8.5.1 of the agreement, a report on the latest activities related to the project for a period of 5 years will be obtained from the principal researcher before the end of May 2024.

(g) Annexture I and II

Chairman

National Science Foundation

Annexure I

Action Plan 2023

Implementing Agency: National Science Foundation

#	Project	Reason not to achieve the expected target
1	ii. Publication of Sri Lanka Journal of Social Sciences (SLJSS)	"Publication of Vol. 46 Issue 2 (June 2023) published - Agree with the audit query. Due to staff shortage. Single officer who is full time engaged in SLJSS work was on leave due to issues in caretaking baby triplets. Vol. 46 Issue 02 is in progress - due to the same reasons Details of 16 new reviewers were added to the SLJOL system - the entire SLJSS work has been disturbed due to staff issues An officer was assigned temporary to expedite the process."
2	iii. Support one Professional S&T body (SLASS) to publish proceedings of the annual sessions	Awarded grant for SLAAS 79th Annual Sessions publication. 50% of grant released prior event. Pending report from grantee. Agree with the audit query. SLAAS annual sessions was held from 12-14th December 2023 December. As per the agreement 50% of the NSF contribution was released prior to the event as the first installment and the second installment was to be released upon receipt of the financial report and the event report. Both reports were pending from the SLAAS by the end of December 2023.However, actions were taken to obtain the financial report and the event report without further delay.
3	Conduct/prepare other relevant policy studies/surveys/policy briefs	Considerable time and resources were committed to review and identify gaps/ updates in the current Biotechnology Policy. A stakeholders consultation meeting to obtain feedback was conducted and several meetings and discussions were held with the Committee to streamline the work and activities during the period. Finally at the end of the year, the prepared document with the recommendations on gaps/ updates for the current Policy was submitted to the NSF Boar of Management for their concurrence. This is one of the outputs that was targeted in 2023 in this aspect. As such, one was achieved in 2023 and the remaining one could not be accomplished. Even though the reviewed set of completed Research Grants had yielded outputs having scientific impact and potential technology development, the substantiality of same were not within the scope of policy briefs. However, there are some more completed Research Grants projects to be reviewed from which policy briefs might be able to be produced in this year.

4	Maintain/upgrade and expansion of science society network to include; - Schools - Universities - "Vidatha" Centres/farmer associations and other community groups.	Achieving set targets were not permissive due to following reasons i) Schools were not fully engage in extra-curricular activities as they were struggling to meet the syllabuses activities pertaining to exams. Thus, school engagement with science popularization programme became low compared to other years which was beyond our control. ii) Lack of timely funding to make necessary visits and conduct workshops and programmes for the community iii) Difficulties in obtaining transport due to cost involve and fuel crisis (QR code) iv) Due to the elevation of fuel, accommodation and meal charges it was not practical to conduct outreach programme with existing budget lines. Officers had to spend their own money to do outreach programmes thus doing 2 or more per month has become difficulty with the current financial constraints and staff constraints.
5	Conduct training programmes for; teachers & students	Achieving set targets were not permissive due to following reasons i) Lack of timely funding to make necessary visits and conduct workshops and programmes for the community ii) Difficulties in obtaining transport due to cost involve and fuel crisis (QR code) iii) Due to the elevation of fuel, accommodation and meal charges it was not practical to conduct outreach programme with existing budget lines. Officers had to spend their own money to do outreach programmes thus doing 2 or more per month has become difficulty with the current financial constraints and staff constraints.
6	Improving multimedia facilities in the Auditorium	It was not implemented due to financial limitations. The activity was brought forward to the 2024 action plan. A temporary basic solution was given till the original implementation is done.

Annexure II

Physical and Financial Progress of Development Projects and Programmes as at 31/12/2023

Implementing Agency: National Science Foundation

#	Project	Reasons not to include targets in nos.
1	Creating new knowledge/ technologies/products & processes & innovations through award of grants including scholarships and monitoring the progress of R&D projects under	Quantitative targets had been given under 'expected outputs' as follows. No. of grants awarded- 15 No. of institutes benefitted- 8 No. of research equipment purchased through research grants - 5 No. of PIs & CoIs benefitted from the research grants - 25 No. of Scholarship Awarded - 5 No. of MPhil, PhD produced - 11 No. of Research Students and Technical assistants trained - 20 No. of publications generated from research grants - 25, No. of patents produced-2, No. of webinars held-6, No. of new knowledge created-15, No. of grants with technology potential-5, No. of follow up action taken- 5, No. of success stories developed-5 No. of Scientists recognized through SUSRED awards and NSF research awards - 20
	different schemes (Priority will be given to bridge the technological gaps in sectors earning foreign exchange using local raw material)	
2	Conduct SUSRED Awards	
	Conduct NSF Research Awards	
3	i. Publication of Journal of National Science Foundation (JNSF)	Quantitative targets had been given under 'expected outputs' as follows. "Publish Vol 51; Issue 1 - with at least 10 articles by end of March 2023 Publish Vol 51; Issue 2 - with at least 10 articles by end of June 2023 Publish Vol 51; Issue 3 - with at least 10 articles by end of September 2023 Publish Vol 51; Issue 4 - with at least 10 articles by end of December 2023"
4	ii. Publication of Sri Lanka Journal of Social Sciences (SLJSS)	"Publish Vol 46; Issue 01 - with at least 10 articles by end of June 2023 Publish Vol 46; Issue 02 - with at least 10 articles by end of December 2023 "
5	Developing digital platforms facilitating R&D and policy making	We noted that the physical targets have not been specified in the Action Plan 2023, but for the Action Plan 2024 our physical targets have been mentioned quantitatively i.e. numerically. Some activities it is difficult to indicate the targets in figures but clearly mentioned STPRD targets there in the AP'23 as descriptive physical targets as per the
6	Conduct S&T activities partnering with ICGEB, ISC, GRC, GRA & AASSREC	

7	National R&D Survey	requirement. With regard to the National R&D Survey activity, targets have been specified as percentages in the Expected Outcome column.
	a) Complete the R&D Survey-2022	
	b) Publish the R&D Survey Statistical Handbook 2022	
8	Review and identify gaps/ updates in the current Biotechnology Policy	
9	Increase awareness and usage of applications related to Fourth Industrial Revolution in Sri Lankan context	
10	Conduct/prepare other relevant policy studies/surveys/policy briefs	
11	Maintain/upgrade and expansion of science society network to include; - Schools - Universities - "Vidatha" Centres/farmer associations and other community groups.	In 2023 the number of schools added to the Science Society Network (SSN) was 27 and it is 23% of the expected target. The reasons for this low number mainly due to the following reasons: 1. The Research and Innovation Division (Ministry MoE) has been planning to establish STEM society network thus, approval to sending letters to school under the cover of approval from the secretary was not obtained due to this reason. This decision still pending and SCOD still not got necessary approvals to continue the network expansion work and awaiting the decision. 2. However, to participate the NSF programmes school need to get registrations to School network, thus, 23 schools newly participated the programme send their applications for registrations. 3. Further, it was noted that the schools were not fully engage in extra-curricular activities as they were struggling to meet the syllabuses activities pertaining to exams. Thus, school engagement with science popularization programme became low compared to other years which was beyond our control. **The Community and Youth societies** NSF had planned to establish 03 Community SS during 2023, but only one was established and 02 programmes were conducted in this village with the partial support from the Sarvodaya Sheramadana Movement. The reasons for not meeting the targets: Though preliminary arrangements with the relevant parties were made and necessary BoM approval received to conduct the programme below mentioned facilities were not received to continue the work

		1. Lack of funding to make necessary visits and conduct workshops and programmes for the community 2. Difficulties in obtaining transport due to cost involve and fuel crisis (QR code) 3. Due to the elevation of fuel, accommodation and meal charges it was not practical to conduct outreach programme with existing budget lines. Officers had to spend their own money to do outreach programmes thus doing 2 or more per month has become difficulty with the current financial constraints and staff constraints.
12	Conduct competitions promoting science education and science popularization	SRPC: During 2022/23 was completed. The students who were selected to participate the SRPC programme have to conduct research project under supervision of senior researcher. This takes to complete 8 months. Thus, preliminary work initiated in 2022 and completed in 2023. The winners also participated the Overseas programme. The next cycle of competition 2023/24 initiated in November 2023. Total progress reported was 122%. School terms were changed thus, NSF had to wait to start the programme in the first quarter of the following year.in 2024, still new year term has not started. Further, students are getting ready for national examinations thus, NSF programmes has to adjust to suit the school time tables.
	1. Science Research Project Competition (SRPC)	
	2. Science Society Competition (SSC)	Science Competitions; Target group is grade 6 and above, this was initiated in June due to school examinations and national examinations in three stages. This contain 8 competitions (drama, essay, fiction, song, Virdi etc.) and due to shortage of funds, shortage of staff, transport restrictions, and restrictions enforced in government circulars on cost cutting, the regional competitions had to be done as online competitions which needed substantial time commitment as students had to record their performance on videos and NSF had to evaluate them with number of technical difficulties etc. However, this was successfully completed (100%) having 74 winners to be felicitated at the award ceremony scheduled to be held on 30th April 2024.

	3.Kid Naturalist Programme (KNP)	Kid Naturalist programme target group is grade 1-6 students. The programme planned for 2023 was started in May 2023. However, we compelled to delay this programme due to school term tests, grade 5 scholarship examination etc. The final submission of nature journal after completion of student project completed giving 02 weeks after grade 5 scholarship examination on request of teachers. This was successfully completed by having around 1200 applications and having submission of more than 540 completed nature journals for final evaluation. After final evaluation done, 62 winners were selected for felicitation. However school year has change 2023 from March 2023 to March 2024 thus NSF school programmes also has to adjusted accordingly considering term tests, provincial examinations and national exams plus teachers engagements in paper markings etc..
13	Improving multimedia facilities in the Auditorium	It was not implemented due to financial limitations. The activity was brought forward to the 2024 action plan. A temporary basic solution was given till the original implementation is done.

** Progress of some activities were hindered because of the financial constraints, fuel and mobility limitations and change in school terms.*

Annexures

Principal Staff - As at 31st December, 2023

Annex 1

Chairman

Prof. Ranjith Senaratne
Ph.D (Vienna), Ph.D (Durham) h.c.

Director General

Dr S R S N Sudasinghe
PhD (Dev. Admin.), MA (Economics), PGD (Economic Dev.), BA

Additional Director

Dr Thamara F. Dias, *M.Sc (Hons) (Moscow), Ph.D (Moscow)*	Additional Director *Up to 01.06.2023*
Dr J G Shantha Siri, *B.Sc. (Hons) (Colombo), M.Sc. (Kelaniya), Ph.D (Wayamba)*	Additional Director (Covering) *w.e.f 01.07.2023*

Research Division (RD)

Eng. T M R Dissanayake, *B.Sc Engineering (Production Eng), M.Sc in Processing & Food Engineering*	Principal Scientific Officer & Head
Ms W L C Dasanayake, *B.Sc. Agric. (Hons) (Peradeniya), M.Sc. (Peradeniya), M.Sc (Japan), M.Eng (Germany)*	Senior Scientific Officer
Dr L M N S Nadugala, *B.Sc. Agric. (Hons) (Peradeniya), M.Sc. (Asian Institute of Technology). P.hD (Sir John Kothalawala Uni.)*	Senior Scientific Officer
Ms H D N Jayaweera, *M.Sc, Environmental Science (Open Uni.) B.Sc. (Hons.) (Sri Jayewardenepura)*	Scientific Officer
Dr H I Sandanayake, *B.V.Sc. (Peradeniya), M.Sc (London)*	Scientific Officer
Ms G G K P S Kumari, *B.Sc. Special in Agric. (Peradeniya) MPhil in Agricultural Engineering (Peradeniya)*	Scientific Officer
Eng. Sureshinie Warnasooriya, *B.Sc Special Eng. (Moratuwa), MSc (Moratuwa)*	Scientific Officer

Science and Technology Policy Research Division (STPRD)

Mr S M A W Anuruddha, *B.Sc. (Hons) (Colombo), M.Sc. (Colombo)*	Principal Scientific Officer & Head
Ms Chamika Dharmasena, *B.Sc. Special (Hons) (Colombo) Postgraduate Diploma in Applied Sociology (Colombo)*	Scientific Officer
Ms M A D D Munasinghe, *B.Sc. Special (Agric.) (Hons) (Peradeniya), M.Sc (Peradeniya)*	Scientific Officer
Ms G R P I Abeysiri, *B.Sc Agric. Special (Wayamba) M.Sc Crop Science (Peradeniya)*	Scientific Officer

International Affairs Division (IAD)

Dr J G Shantha Siri, *B.Sc. (Hons) (Colombo), M.Sc. (Kelaniya), Ph.D (Wayamba)*	Principal Scientific Officer & Head
Ms E M D C K Ekanayake, *B.Sc. Agric. (Hons) (Peradeniya), M.Sc. (Peradeniya)*	Senior Scientific Officer
Ms K A T K G Kandanamulla, *B.Sc. Agric. (Hons) (Ruhuna), M.Sc. (Colombo)*	Scientific Officer
Ms N L Muhandiram, *B.Sc (Hons). (Uva Wellassa)*	Scientific Officer

Technology Development and Innovation Division (TDID)

Eng. T M R Dissanayake, *B.Sc Engineering (Production Eng.), M.Sc in Processing & Food Engineering*	Principal Scientific Officer & Head (Covering)
Ms Sarani K Meneripitiya, *B.Sc. Special (Hons.) (Kelaniya), M.Sc, Environmental Science (Open Uni.)*	Scientific Officer

Science Communication & Outreach Division (SCOD)

Dr P R M P Dilrukshi, *B.Sc. Special (Hons) (Peradeniya), Ph.D. (Peradeniya)*	Principal Scientific Officer & Head
Ms M D Senarathne, *Graduateship in Chemistry (I. Chem.), M.Sc, Polymer Science (Sri Jayewardenepura)*	Senior Scientific Officer
Ms R A A R Ranatunga, *M.Phil Eco-toxicology (Colombo) B.Sc. Special (Hons) (Colombo)*	Scientific Officer
Ms H M A J Herath, *B.Sc. Special, Food Science & Nutrition (Wayamba)*	Scientific Officer

Journal Publication Division (JPD)

Ms D N Wickramarachchi, *B.Sc. (Hons) (The Open University), M.Sc. (Sri Jayewardenepura)*	Principal Scientific Officer & Head
Ms Uthpala Karunarathne, *B.Sc. Special (Hons) (Kelaniya), M.Sc (Colombo)*	Senior Scientific Officer
Ms W M U K Rathnayake, *B.Sc. Special (Hons) (Wayamba)*	Scientific Officer
Ms S Samarasekera, *B.Sc Special (Hons.) (Sri Jayewardenepura) B.Sc (Economic & Mgt.) (Uni. of London)*	Scientific Officer

Media & Event Management Division (MEMD)

Mr K G J Karunasena, *B.Sc Agric. (Hons) (Peradeniya), M.Phil Agric. (Peradeniya)*	Principal Scientific Officer

National Science Library and Resource Centre (NSLRC)

Mr Manuja Karunarathne, *B.Sc. (Kelaniya), M.Sc (Kelaniya)*	Principal Information Officer/Head
Ms Amila A Tennakoon, *B.Sc. (Kelaniya)*	Senior Information Officer *(Up to 25.10.2023)*
Ms R P Sugathadasa, *B.Sc. (Sri Jayewardenepura)*	Senior Information Officer *(Up to 15.07.2023)*
Mr Pujitha D Hewawasam, *B.Com. (Swinburn University)*	Information Officer
Ms M Niyas Thasneem, *B.Sc. (Southern University), MSc (Peradeniya)*	Information Officer
Ms K N Samanthi, *B.A (Peradeniya) MA (Kelaniya)*	Information Officer
Ms N A H Priyadarshani, *Diploma in Library & Information Science*	Junior Information Officer

Director General's Office

Ms G R P I Abeysiri, *B.Sc Agric. Special (Wayamba), M.Sc Crop Science (Peradeniya)*	Scientific Officer

Additional Director's Office

Dr K B Hasanthi, *B.V.Sc. (Peradeniya)*	Scientific Officer *(Up to 18.10.2023)*

Administration Division

Mr S N P K Sapumohotti, *B.Sc. (Peradeniya), MPM (SLIDA)*	Senior Administrative Officer
Ms. B T Wickremasinghe, *B.Sc. (Sri Jayewardenepura)*	Procurement & Transport Officer
Mr Saman Sujeewa Ipalawatte *Postgraduate Diploma in HRM, Master of Business Studies*	Human Resource Development Officer

Finance Division

Ms E M P Bamunendra, *B.Com. (Sri Jayewardenepura), Master of Professional Accounting, Licentiate Certificate of ICASL*	Accountant
Ms W P S S Weerasinghe, *HNDA*	Accounts Officer
Ms Pushpa Ellapallage, *Intermediate of ICASL, HNDA*	Accounts Officer

Printing Unit

Mr S M A W Anuruddha, *B.Sc. (Hons) (Colombo), M.Sc. (Colombo)*	Principal Scientific Officer & Printing Officer (Covering)

Internal Audit Unit

Ms M M Jayajeewani, *B.Sc. (B.Ad.) Special (Sri Jayewardenepura)*	Internal Auditor

IT Unit

Mr H M M Perera, *MBCS*	IT Manager
Mr W A B Fernando, *B.Sc. (Networking) (Wolverhampton)*	Network Administrator

Retired during the year 2023

Dr Thamara F Dias	Additional Director	Retired on 01.06.2023
Ms Renuka P Sugathadasa	Information Officer	Retired on 15.07.2023
Ms Amila Thennakoon	Information Officer	Retired on 25.10.2023

Resigned During the year 2023

Ms L N A Lakshika Nissanka	Management Assistant	Resigned on 05.01.2023
Mr B A R Bandara	Office Aide	Resigned on 07.07.2023
Mr Dileepa Wijesurendra	Driver	Resigned on 14.11.2023
Dr K B Hasanthi	Scientific Officer	Resigned on 18.10.2023

Ongoing Grants in 2023

Annex 2

R&D Grants

Competitive Research Grants

Agriculture & Food Science

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2019/AG/02**	**Prof. Kapila Seneviratne** Department of Chemistry Faculty of Science University of Kelaniya *Collaborator* **Dr Nimanthi Jayathilaka** Department of Chemistry University of Kelaniya Kelaniya	Effect of virgin coconut oil selected edible oils on the intestinal absorption of chlorogenic acid: an *in vivo* and *in vitro* study **03 Years**	**4,949,000/-**
2.	**RG/2021/AG/02**	**Prof. M. Vithanage** Ecosphere Resilience Research Centre **Dr A.U. Rajapaksha** Office of the Dean Faculty of Applied Sciences University of Sri Jayawardenapura **Prof. C.V.L. Jayasinghe** Department of Food Science & Technology **Dr P.U.S. Peiris** Biostatistics & Agronomy Unit Faculty of Livestock Fisheries & Nutrition Wayamba University of Sri Lanka *Collaborator* **Mrs. H.P.M.K. Herath** Training Division Chief Secretariat, North Western Province Provincial Office Complex **Mr. S. Kumara** Provincial Department of Agriculture North Western Province Kurunagala	Synthesis of organo-mineral enriched biochar as fertilizer and nemato -repellent to enhance soil nutrient cycling, yield and quality of organic export root crops ginger and turmeric **03 Years**	**3,180,000/-**
3.	**RG/2021/AG/03**	**Dr W.A.U. Vitharana** Department of Soil Science Faculty of Agriculture University of Peradeniya **Mr R.A.C.J. Perera** Field Crops Research and Development Institute, Mahailluppallama *Collaborator* **Mohamed Farook Ahamed Zaneer** Office of the Deputy Director of Agriculture Ampara	Mapping of salinity development in paddy grown soils using proximal and remote sending based techniques **03 Years**	**4,086,680/-**
4.	**RG/2021/AG/04**	**Dr B.R. Fernando** Department of Veterinary Public Health and Pharmacology Faculty of Veterinary Medicine and Animal Science, University of Peradeniya **Dr S.S.P. Silva** Department of Animal Production & Health Peradeniya	Profiling of risks associated with veterinary drug residues in animal feed and food of animal origin to ensure consumer safety. **02 Years**	**3,750,000/-**

5.	**RG/GAPF/2021/ AG/01**	**Dr L.J.P.A.P. Jayasooriya** **Dr D.A. Satharasinghe** Department of Basic Veterinary Sciences Faculty of Veterinary Medicine & Animal Sciences University of Peradeniya **Prof. T.M. Madujith** Department of Food Science Faculty of Agriculture University of Peradeniya **Prof. Gammika Prathapasinghe** Department of Livestock and Avian Sciences Wayamba University of Sri Lanka	Value addition to chicken egg with enrichment egg yolk lipids with natural Conjugated Linoleci Acid (CLA) having anti-cancer actions & subsequent commercialization of the value-added product. **01 Year 03 Months**	**1,670,000/-**

Basic Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2017/BS/06**	**Prof. U.L.B. Jayasinghe** **Prof. N.S. Kumar** National Institute of Fundamental Studies *Collaborators* **Prof. N.K.B. Adikaram** National Institute of Fundamental Studies, Hantana Road, Kand **Dr N.R. Amarasinghe** Department of Pharmacy Faculty of Allied Health Science University of Peradeniya	Chemistry and bioactivity of endophytic fungi from four popular condiment plants Curcuma longa, Myristica fragrans, Syzygium aromaticum and Zingiber officinale used in indigenous system of medicine in Sri Lanka: Possible applications in health and agriculture **3 years**	**3,086,300/-**
2.	**ICRP/NSF-NSFC/2019/ BS/01**	**Prof. Meththika Suharshini Vithanage** Office of the Dean Faculty of Applied Sciences University of Sri Jayewardenepura **Dr Dhammika Magana-Arachchi** National Institute of Fundamental Studies (NIFS) **Dr Rasika Pabodani Wanigatunge** Department of Botany Faculty of Science University of Kelaniya **Dr Anushka Upamali Rajapaksha** Faculty of Applied Sciences University of Sri Jayewardenepura	Enrichment mechanisms of CKDu-risk factors in groundwaters, their uptake pathways and potential remedies **3.5 years**	**19,209,155/-**
3.	**ICRP/NSF-NSFC/2019/ BS/02**	**Prof. Rohana Chandrajith** **Dr N.H. Koralagedara** Department of Geology University of Peradeniya Peradeniya **Prof. S.K. Gunatilake** Department of Natural Resources Sabaragamuwa University of Sri Lanka	Assessment of aquifer quality in relation to chronic kidney disease with unknown aetiology in dry zone of Sri Lanka through an integrated approach using isotopes and water chemistry **3.5 years**	**15,285,580/-**

4.	**RG/2021/BS/01**	**Ms D.C.K.K. Dissanayake** Director of Life Sciences Sri Lanka Atomic Energy Board **Dr L.L.W.C. Yalegama** **Dr Dushan Kumaratunge** Coconut Research Institute **Ms Priyanga Ratnayake** Sri Lanka Atomic Energy Board *Collaborator* **Kasun Binduhewa** Dulanjalee Madhusha Rajapaksha Sri Lanka Atomic Energy Board, No 60/460, Baseline Road, Orugodawatte, Wellampitiya **J.A.K.M. Fernando** Coconut Research Institute Mahawewa	Design and development of a decision support system to reconfigure fruit and vegetable supply chain to enhance the food security **3 years**	**1,929,600/-**

Biotechnology

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/BT/01**	**Dr K. Wijesinghe** Department of Chemistry Faculty of Science University of Colombo	Investigating the role of Dengue NS1 protein in potentiating Dengue virus infection in uninfected cells by inducing changes in the host plasma membrane proteome **03 Years**	**2,310,000/-**

Engineering, Architecture & ICT

No	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2019/ EA&ICT/02**	**Dr M. A. Wijewardena** **Dr M. M. I. D. Manthilake** **Dr R. A. C. P. Ranasinghe** Department of Mechanical Engineering, Faculty of Engineering University of Moratuwa	Design, Development and Modeling of a Thermo-Acoustic generator for low grade heat recovery **03 years**	**3,380,350/-**
2.	**RG/2021/ EA&ICT/01**	**Prof. K. M. A. K. Kulatunga** **Dr U. S. S. Dharmapriya** Department of Manufacturing & Industrial Engineering Faculty of Engineering University of Peradeniya Peradeniya *Collaborator* **Ms. Y.M.P. Samarasinghe** National Institute of Post Harvest Management Anuradhapura	Design and development of a decision support system to reconfigure fruit and vegetable supply chain to enhance the food security **03 years**	**3,453,750/-**

3.	**RG/GAPF/2021/ EA & ICT/01**	**Prof. J. B. Ekanayake** Department of Electrical & Electronic Engineering Faculty of Engineering University of Peradeniya **Dr Akila Wijethunge** Department of Materials & Mechanical Technology Faculty of Technology University of Sri Jayewardenepura **Dr J. V. Wijayakulasooriya** Department of Electrical & Electronic Engineering Faculty of Engineering University of Peradeniya	An integrated application of the dynamic line rating, and the solar PV inverter control to enhance the rooftop solar PV integration in to distribution networks **2.5 years**	**2,475,000/-**

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2018/EB/01**	**Prof. Deepthi Yakandawala** Department of Botany Faculty of Science University of Peradeniya **Dr Kapila Yakandawala** Department of Horticulture & Landscape Gardening Faculty of Agriculture & Plantation Management Wayamba University of Sri Lanka, Makandura	Taxonomic study of the Sri Lankan species, belonging to Family Elaeocarpaceae **03 Years**	**5,552,492/-**
2.	**RG/GAPF/2021/ EB/01**	**Dr I R M Kottegoda** **Dr RCL De Silva** Industrial Technology Institute	Purification of Graphite of Sri Lanka as a high value addition **02 Years**	**925,000/-**

Environment & Biodiversity Health Sciences

No	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**NSF -PSF / ICRP/ 2017/ HS/02**	**Prof. G M Kamal B Gunaherath** Department of Chemistry **Dr K Hector Jayawardana** Department of Zoology **Dr Chandani Ranasinghe** Department of Chemistry Faculty of Natural Sciences The Open University of Sri Lanka *Collaborators* **Dr Muhammad Yar** **Dr Sher Zaman Safi** COMSATS Institute of Information Technology, Pakistan	Preparation of cost-effective synthetic skin grafts for the treatment of burns and chronic ulcer wounds: bioactivity directed investigation of angiogenic and cell-migration potentials of plant extracts **03 years**	**3,720,000/-**
2.	**RG/2019/HS/01**	**Dr R N Mohamed Jalaldeen** Department of Zoology and Environment Sciences , Faculty of Science University of Colombo *Collaborators* **Prof. Suranjith Seneviratne** **Prof. Ishan de Zoysa** **Prof. Nandadeva Samarasekara** Department of Surgery, Faculty of Medicine, University of Colombo	Identifying colorectal cancer specific autoantibodies and their role in diagnosis, prognosis and prediction of colorectal cancer. **01 year**	**1,000,000/-**

3.	**RG/2019/HS/02**	**Prof. S Nobel Surendra**n Department of Zoology Faculty of Science University of Jaffna *Collaborator* **Mr. R.T. Jayaseelan** Regional Director of Health Services Jaffna	Dengue transmission intervention using lure-based adult suction traps and gravid *Aedes* traps (GAT): A cluster randomized trial approach in Jaffna municipal area. **02 Years**	**4,165,000/-**
4.	**NSF-NSFC / ICRP/ 2019/ HS/02**	**Prof. Kamani Wanigasuriya** Department of Medicine **Dr P. P. Rasika Perera** Department of Biochemistry Faculty of Medical Sciences University of Sri Jayewardenepura *Collaborator* **Dr Asanga Ranasinghe** Renal Disease Prevention and Research Unit Ministry of Health	Novel urinary biomarkers for early detection of chronic kidney disease of Unknown Aetiology (CKDu) in Sri Lanka **03 Years**	**29,112,271/-**

National Thematic Research Programme on Climate Change and Natural Disasters

No	Grant No.	Grantee/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**NTRP/2017/ CC&ND/TA-04/P-02/01**	**Prof. G. L. L. Pradeepa Silva** Department of Animal Science Faculty of Agriculture University of Peradeniya **Prof. D. K. N. G. Pushpakumara** **Prof. Jeevika Weerahewa** **Prof. Chandi Rajapakshe** **Prof. C. M. B. Dematawewa** **Dr Lalith Suriyagoda** **Dr U. Vitharana** **Prof. Terrene Madujith** **Dr K. S. Hemachandra** University of Peradeniya **Prof. Devaka Weerakone** University of Colombo **Dr J. Sinniah** University of Jaffna **Dr K. T. Premakantha** Forest Department **Mr Ranga Pallewela** Janathakshan (GTE) Limited	Comparative Analysis of Climate-Resilient Biodiversity of Homegarden ecosystems in different Agro-ecological Regions of Sri Lanka **04 years**	**14,573,870/-**
2.	**NTRP/2017/ CC&ND/TA-02/P-02/01**	**Prof. Jagath C. Edirisinghe** **Prof. Udith Jayasinghe** **Dr Keminda Herath** **Mr Chandana Jayathilake** **Wayamba University of Sri Lanka** **Dr Wasana Wijesuriya** **Ms Dhammika Balasooriya** Rubber Research Institute of Sri Lanka **Dr M. A. Wijeratne** Tea Research Institute **Dr Sanathanie Ranasinghe** Coconut Research Institute of Sri Lanka **Dr Shiromani Jayawardene** Department of Meteorology **Mr I.V. Kuruppu** Hector Kobbekaduwa Agrarian Research Institute	Assessment of Spatial Impacts of Climate Change on Geographic, Economic and Social Vulnerability on the Plantation Sector in Sri Lanka **04 years**	**8,674,000/-**

3.	**NTRP/2017/ CC&ND/TA-05/P-01/01**	**Prof. P. N. Ranasinghe** University of Ruhuna **Prof. A. L. T. Hewawasam** University of Peradeniya **Dr C. H. E. R. Siriwardana** Geological survey and Mines Beureau **Dr Shiromani Jayawardene** Department of Meteorology	Understanding the long-term influence of Indian Ocean Warm Pool and Indian Ocean Dipole on the monsoon variability of Sri Lanka **04 years**	**11,732,977/-**
4.	**NTRP/2017/ CC&ND/TA-04/P-01/01**	**Prof. W. A. J. M. De Costa** **Dr K. W. L. K. Weerasinghe** University of Peradeniya **Dr Sampath Wahala** Sabaragamuwa University of Sri Lanka **Dr K. D. B. Ukuwela** **Dr W.M.G.A.S.T.B. Wijetunga** Rajarata University of Sri Lanka **Dr H. I. U. Caldera** University of Colombo **Mr Anura Sathurusinghe** **Mr W. D. P. Gomes** Department of Forest Conservation	Quantification of the response of tropical rain forests of Sri Lanka to varying atmospheric temperature for prediction of the impact of future climate change on their carbon balance and biodiversity **04 years**	**19,618,138/-**
5.	**NTRP/2017/ CC&ND/TA-01/P-01/01**	**Prof. Indrika Rajapakshe** **Prof. Upendra Rajapakshe** University of Moratuwa **Prof. Saroj Jayasinghe** **Prof. Upul Sonnadara** **Dr Shreenika De Silva** **Dr Nishantha Perera** **Dr Sunethra Perera** University of Colombo **Dr Shiromani Jayawardene** Department of Meteorology	Assessment of vulnerabilities and challenges on Quality of Life (QoL) of national ageing population due to climate change risks **03 years**	**2,280,100/-**

Grants of the Research Programme on Health Science (RPHS)

Technology Development Grants
Grants on COVID Research

Research Scholarships

No.	Scholarship No.	Scholar/Institute	Project Title/Duration	Postgraduate Degree	Total Allocation (Rs.)
1.	**NSF/SCH/2019/06**	**Ms Lakna L. Warnapura** Department of Transport Management & Logistics Engineering Faculty of Engineering University of Moratuwa	An integrated strategy for reviving rail freight in Sri Lanka **03 Years and 09 Months**	**MPhil. Upgraded to PhD**	**2,983,000/-**
2.	**NSF/SCH/2019/08**	**Ms. Sara Mariyam** Abdulla Industrial Technology Institute 503 A, Halbarawa Garden Thalahena, Malambe	In-silico and bio-assay based study on natural compounds isolated from Sri Lankan medicinal plants as drug leads for management of dyslipidemia **02 Years**	**PhD**	**1,440,000/-**

Awarded Grants in 2023

Annex 3

R&D Grants

Competitive Research Grants

Agriculture & Food Science

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/AG/01**	**Dr Ruchira Nalinga Wijesena** **Dr Nadeeka D. Tissera** Division of Textiles and Clothing Engineering Institute of Technology University of Moratuwa **Dr W.M.G.I. Priyadarshana** Department of Materials and Mechanical Technology University of Sri Jayewardenepura **Dr Chanaka Sandaruwan** SLINTEC Pitipana, Homagama **Mr O.A.D. Padmaperuma** Department of Export Agriculture Faculty of Agricultural Sciences Sabaragamuwa University of Sri Lanka	Sensor system for rapid evaluation of key soil nutrient parameters **02 Years**	**3,013,500/-**
2.	**RG/2023/AG/02**	**Dr R.M.N.A. Wijewardane** **Ms G.D. Nadeeshani Menike** **Dr R.M.R.N.K. Ratnayake** **Ms C.R. Gunawardane** **Mr W.M.C.B. Wasala** National Institute of Post-Harvest Management Anuradhapura	Use of bioactive compounds extracted from agriculture residues for quality enhancement of fresh fruits and vegetables at the postharvest stages **02 Years**	**3,704,100/-**

Basic Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/BS/01**	**Dr A.D.K. Isuri Weeraratne** **Dr Chandima Narangoda** Department of Chemistry Faculty of Applied Sciences University of Sri Jayewardenepura *Collaborator* **Mr Isuru Rathnayaka** Assistant Manager R&D JAT Holdings Pannipitiya Road Thalawathugoda	Development of anticorrosive surface coatings utilizing redox-innocent metal complexes **02 years**	**2,806,003/-**
2.	**RG/2023/BS/02**	**Dr M.A.M. Maddumaarachchi** Department of Polymer Science, University of Sri Jayewardenepura **Prof. S.M. Egodage** Department of Chemical and Process Engineering, University of Moratuwa **Dr D.G. Edirisinghe** Rubber Technology & Development Department Rubber Research Institute of Sri Lanka Telawala Road, Ratmalana	Natural rubber latex foam sheets with enhanced hydrophobicity using diatomaceous earth as an efficient oil sorbent **02 years**	**2,000,000/-**

Biotechnology

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/BT/01**	**Dr K. Wijesinghe** Department of Chemistry Faculty of Science University of Colombo	Investigating the role of Dengue NS1 protein in potentiating Dengue virus infection in uninfected cells by inducing changes in the host plasma membrane proteome **03 Years**	**2,310,000/-**
2.	**RG/2023/BT/02**	**Dr W. H. Jayasinghe** **Prof. H. M. V. G. Herath** Department of Agricultural Biology Faculty of Agriculture University of Peradeniya	Inhibition of aphid-mediated transmission of plant viruses through a RNAi-based biopesticide **02 Years**	**1,989,500/-**

Engineering Sciences, Architecture & ICT

No	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/ EA&ICT/01**	**Prof. Shiromi Karunaratne** Department of Civil Engineering **Dr Nuwan Kodagoda** Department of Computer Science and Software Engineering Sri Lanka Institute of Information Technology	Further development of a comprehensive whole building environmental life cycle assessment software tool for Sri Lanka **02 years**	**1,350,000/-**

Health Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/HS/01**	**Prof. Ruwan Jayasinghe** Department of Oral Medicine and Periodontology Faculty of Dental Sciences **Prof. R.M.G. Rajapakse** Department of Chemistry Faculty of Science **Prof. H.M.T.U. Herath** Department of Medical Laboratory Science Faculty of Allied Health Sciences **Prof. Jayanthe Rajapakse** Department of Vet. Pathobiology Faculty of Veterinary Medicine and Animal Science **Dr Chamara Dalugama** Department of Oral Medicine and Periodontology Faculty of Dental Sciences University of Peradeniya **Prof. Nalin de Silva** Department of Chemistry Faculty of Science University of Colombo *Collaborator* **Mr Hemantha Perera** Sarasavi Industries Pvt. Ltd., 375/1B, High Level Road, Pannipitiya	Controlled release of chlorhexidine encapsulated in medical-grade metal oxide and carbonate nanomaterials which are embedded in a mucoadhesive polymeric patch for intraoral dental applications and possible extension to other diseases such as Parkinson's and strokes. **03 Years**	**5,283,300/-**

Social Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2023/SS/01**	**Dr Ruwan Gamage** **Dr Pradeepa Wijetunge** National Institute of Library & Information Science University of Colombo *Collaborator* **Ms Waruni Gangabadaarachchi** Colombo Public Library Colombo 07	Designing an information, financial and mobile literacy curriculum for senior citizens of Sri Lanka **01 Year**	**514,880/-**

Completed Grants in 2023

Annex 4

R&D Grants
Competitive Research Grants

Agriculture & Food Science

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2016/AG/01**	**Dr T.H.P.S Fernando** **Dr K.V.S Kudaligama** **Dr M.K.R. Silva** **Dr P. Senevirathne** Rubber Research Institute Agalawatta	Investigation on biological control measures for white root disease of rubber to improve integrated disease management strategies **03 Years**	**4,358,232/-**
2.	**RG/2017/AG/01**	**Dr K. V. V. S Kudaligama** **Dr T. H. P. S Fernando** **Dr V. H. L Rodrigo** **Dr P. Senevirathne** Rubber Research Institute Agalawatta **Prof. K. M. E. P. Fernando** Department of Botany University of Sri Jayewardenepura, Nugegoda *Collaborators* **Mr H.P.P.S. Somasiri** ITI, Colombo –07 **Ms A.P. Attanayake** Rubber Research Institute Ratmalana	Development of in-country ethephon formulations to promote low-cost harvesting systems for rubber plantations in Sri Lanka **03 Years**	**2,895,000/-**
3.	**RG/2019/AG/01**	**Dr Anupama P. Halmillawewa** Department of Microbiology Faculty of Science University of Kelaniya	Bacteriophage-mediated biocontrol of soft rot in carrots (Dacus carota) caused by *Pectobacterium spp*. in Sri Lanka **02 Years**	**2,155,258/-**
4.	**RGCOVID/2020/ AG/01**	**Dr N. P. Vidanapathirana** Institute for Agro-Technology and Rural Sciences University of Colombo Weligatta New Town Hambantota **Prof. S. Subasinghe** Department of Crop Sciences Faculty of Agriculture University of Ruhuna **Mr H. Rohanadheera** Inst. for Agro-Technology and Rural Sciences University of Colombo Weligatta New Town, Hambantota	Development of *in-vitro* protocol for mass production of micro rhizomes of Turmeric (*Curcuma longa L.*) **01 Year**	**1,586,416/-**
5.	**RG/COVID/2020/ AG/02**	**Dr S.J. Arasakesary** Regional Agriculture Research and Development Centre Department of Agriculture Kilinochchi *Collaborators* **Mr A. Amirthalojanan** **Mrs Kugapriya** Regional Agriculture Research & Development Centre, Kilinochchi	A research study to identify suitable location for onion production promotion through true seeds in the potential areas of north province of Sri Lanka **01 year**	**1,229,000/-**

Basic Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2017/ BS/03**	**Prof. R. M. G. Rajapakse** Department of Chemistry Faculty of Science **Prof. R. P. V. J. Rajapakse** Department of Veterinary Pathobiology Faculty of Veterinary Medicine & Animal Science **Dr H.M.T.U. Herath** Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Peradeniya	*In vitro* evaluation of biocompatibility and antimicrobial properties of Hydroxyapatite Nanoparticles and their composites derived from naturally occurring Sri Lankan minerals for biomedical and water purification applications **3 years**	**3,420,000/-**
2.	**RG/2018/ BS/02**	**Prof. R. Senthilnithy** Department of Chemistry Faculty of Natural Sciences Open University of SL	Computational studies on inhibition of epigenetic modifications of cancer codes **3 years**	**3,093,000/-**
3.	**RG/2018/ BS/03**	**Prof. G.R.A. Kumara** Research Professor National Institute of Fundamental Studies (NIFS) Hantana Road, Kandy *Collaborators* **Prof. R.M.G. Rajapakse** Senior Professor in Chemistry Department of Chemistry University of Peradeniya **Prof. P. Ravirajan** Professor/Department of Physics University of Jaffna, Jaffna	Development of highly efficient and environmentally stable perovskite solar cells and perovskite solar panels by industrially viable methods for power generation **3 years**	**5,257,000/-**
4.	**RG/2019/BS/01**	**Dr Gayan Bowatte** Department of Basic Sciences Faculty of Allied Health Sciences University of Peradeniya **Dr Sachith P. Abeysundara** Department of Statistics & Computer Science Faculty of Science University of Peradeniya **Prof Rohan Weerasooriya** National Institute of Fundamental Studies (NIFS) *Collaborators* **Prof. Lidia Morawska** **Dr Rohan Jayaratne** International laboratory for Air Quality and Health, Science and Engineering Faculty Queensland University of Technology, Australia **Dr Luke Knbbs** School of Public Health Faculty of Medicine University of Queensland Australia **Prof. Yuming Guo** Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine, Monash University, Australia **Prof. Shyamali Dharmage** Melbourne School Population and Global Health, Australia	Building a 3D air pollution model for the city of Kandy: a platform to evaluate health outcome **3 years**	**4,526,300/-**

5.	**RG/2019/BS/02**	**Dr W.M.D.G.B. Wijayaratne** Department of Microbiology Faculty of Medicine University of Ruhuna Karapitiya, Galle *Collaborator* **Dr M.T. Napagoda** Head & Senior Lecturer Department of Biochemistry Faculty of Medicine University of Ruhuna Karapitiya, Galle	Evaluation of *anti-Candida* activity of selected medicinal plants in Sri Lanka against oral candidiasis in cancer patients **2.5 years**	**2,915,500/-**
6.	**ICRP/NSF-NSFC/2019/BS/03**	**Prof. K. B. S. N. Jinadasa** Department of Civil Engineering University of Peradeniya **Dr S. K. Weragoda** National Water Supply and Drainage Board, Katugastota **Prof. K. G. N. Nanayakkara** Department of Civil Engineering University of Peradeniya **Dr H. M. A. M. C. Herath** Department Of Chemical Sciences Faculty of Applied Sciences Rajarata University of Sri Lanka *Collaborators* **Dr G.B.B Herath** Department of Civil Engineering Faculty of Engineering University of Peradeniya **Mr L.P.R.J. Wijesinghe** Senior Chemist National Water Supply and Drainage Board	Membrane fouling mechanism and control of high pressure membrane processes (NF/RO) and electrodialysis (ED) purifying groundwater with DOM and high hardness in CKDu affected areas of Sri Lanka **3.5 years**	**17,005,280/-**

Biotechnology

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2019/BT/01**	**Prof. Rupika Rajakaruna** **Dr Piyumali Perera** Department of Zoology Faculty of Science University of Peradeniya *Collaborators* **R.P.V.J. Rajapakse** Department of Veterinary Pathobiology Faculty of Veterinary Medicine and Animal Science University of Peradeniya **Prof. Marina Eremeeva** Public Health Georgia Southern University, USA	Tick borne spotted fever group rickettsioses in the Central province: type of pathogens, vertebrate reservoir host community composition and tick species involved in circulation and maintenance of pathogens **03 Years**	**4,988,000/-**

2.	**RG/2019/BT/02**	**Dr Thusitha Wickramasinghe** Department of Biochemistry & Clinical Chemistry Faculty of Medicine University of Kelaniya **Dr N. V. Chandrasekharan** Department of Chemistry Faculty of Science University of Colombo **Dr K. M. N. Kumarasinghe** Department of Preclinical Sciences General Sir John Kothelawala Defence University *Collaborator* **Dr Prabodhika Mallikarchchy** Assistant Professor City University of New York-Lehman College, New York USA	Optimization of bead-based SELEX for selection of apartmers and evaluation of a novel real time PCR based approach for monitoring SELEX **02 Years**	**1,497,000/-**

Engineering Sciences, Architecture & ICT

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2017/ EA&ICT/03**	**Prof. L. W. P. R. Udayanga** Department of Electronic and Telecommunication Engineering Faculty of Engineering University of Moratuwa **Dr Y. A. A. Kumarayapa** Department of Electronics Faculty of Applied Sciences Wayamba University of SL *Collaborator* **Mr Hasitha Seneviratne** Dialog Axiata Plc, No. 475, Union Place, Colombo 02	Optical injection locking and characterization for direct modulation in optical communication **03 years**	**4,486,750/-**
2.	**NSF-PSF/ ICRP/2017/ EA&ICT/01**	**Prof. K. Vignarooban** **Mr S. Senthuran** **Mr K. Prashanthan** Department of Physics Faculty of Engineering University of Jaffna *Collaborators* **Prof Muhammad Makshoof Athar** Director, Institute of Chemistry University of the Punjab Lahore, Pakistan **Dr Maria Zahin** Assistant Professor University of Gujrat Sialkot, Pakistan	Novel materials for secondary sodium-ion batteries and proton exchange membrane fuel cells **03 years**	**2,480,000/-**

3.	**NSF-PSF/ ICRP/2017/ EA&ICT/03**	**Dr N. Gunawardhana** **Dr B. S. Dassanayake** Department of Physics Faculty of Science University of Peradeniya *Collaborators* **Prof. Naseen Iqbal** Associate Professor at the US-Pakistan Center for Advanced Studies in Energy National University of Sciences and Technology (NUST), Pakistan **Prof. Tayyaba Noor** Assistant Professor in Chemical Engineering National University of Sciences and Technology (NUST), Pakistan	Novel nanoparticle (M=Ti/V/ CdS/CdTe)- graphene based material for lithium-ion batteries and solar cells **02 years**	**3,689,000/-**
4.	**RG/2019/ EA&ICT/01**	**Prof. S. H. P. Gunawardena** **Dr S. A. D. T. Subasinghe** Department of Chemical & Process Engineering Faculty of Engineering University of Moratuwa	Optimization of biorefinery processes for conversion of rice straw extracted cellulose to platform chemicals **02 year**	**3,415,500/-**

Environment & Biodiversity

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2017/EB/03**	**Prof. M. D. Amarasinghe** **Dr R. M. C. S. Ratnayake** Department of Plant & Molecular Biology Faculty of Science University of Kelaniya	Studies on ecology of *Typha angustifolia*, its current and potential uses to develop a community-based management strategy to control its invasion in the Man & Biosphere (MAB) wetland reserve at Bundala **03 Years**	**4,336,500/-**
2	**RG/GAPF/2021/ EB/02**	**Prof. M. M. Pathmalal** Department of Zoology **Prof. S. D. M. Chinthaka** Department of Chemistry **Dr G. Y. Liyanage** Department of Aquatic Bioresources Faculty of Applied Sciences University of Sri Jayewardenepura	Scale up of the developed domestic water filter for removal of Geosmin, 2-MIB, cyanotoxins, and antibiotics in drinking water **01 Year**	**2,000,000/-**

Health Sciences

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/COVID/2020/ HS/01**	**Prof. P. B. R. Dissanayake** Department of Civil Engineering **Dr A.K. Kulatunga** Department of Manufacturing **Dr A.M.A.C.S. Bandara** Department of Civil Engineering **Dr H.A.D. Samith Buddika** Department of Civil Engineering Faculty of Engineering University of Peradeniya *Collaborators* **Dr P.A.K. Karunananda** Department of Civil Engineering Faculty of Engineering Technology The Open University of SL **Prof. S.A.S.C. Siriwardane** Department of Mechanical, Structural Engineering & Material Sciences University of Stavanger – UiS, Norway Nishantha Nanayakkara National Hospital, Kandy	Development of Innovative Shelter Hospital Buildings for Infectious Diseases **01 year**	**1,599,500/-**
2.	**RG/COVID/2020/ HS/02**	**Dr Murugathas Thanihaichelvan** Department of Physics **Prof. Sinnathamby Nobel Surendran** Department of Zoology **Prof. Punniamoorthy Ravirajan** Department of Physics Faculty of Science University of Jaffna **Dr Thirunavukarasu Kumanan** Department of Medicine Teaching Hospital, Jaffna **Mr R. Valluvan** Department of Interdisciplinary Studies Faculty of Engineering **Dr (Ms) Sutharsini Ubenthiran** Department of Physics University of Jaffna *Collaborator* **Dr Natalie O.V. Plank** University of Wellington New Zealand	Development of an Electronic Detection system for rapid diagnosis of COVID-19 caused by SARS-CoV-2 **01 year**	**1,500,000/-**

Social Sciences

No.	Grant No.	Grantee/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RG/2019/SS/01**	**Dr S. Wijeratne** Department of Geography Faculty of Humanities and Social Science University of Ruhuna Matara	Risk analysis of landslides in the Morawaka "Kanda" area in Matara district of Sri Lanka	**939,775/-**

Technology Grants

No.	Grant No. and Title	Information of Grantee
1.	**TD/2020/COVID/AG/01** Upgrading the already developed IoT based protected house automation system for cultivating up-country vegetables in low-country areas in "medium scale poly-tunnels" and home gardening units	**Dr K.K.L.B. Adikaram** Computer Unit, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya 071-4951248 *lasantha@agri.ruh.ac.lk*
2.	**TD/2020/COVID/AG/02** Biofertilizers for vegetable production through eco-friendly agriculture	**Prof. Ananda Kulasooriya** National Institute of Fundamental Studies, Hantane Road, Kandy 081-2232002 ext.263, 077-6004940 *ananda@kulasooriya.com, ananda.ku@nifs.ac.lk*
3.	**TD/2020/COVID/HS/01** Low-cost particle filter analyzer	**Prof. Gamini Rajapaksha** Dept. of Chemistry, Faculty of Science, University of Peradeniya 076-8854267, 081-2394442 *rmgr@pdn.ac.lk*
4.	**TG/2017/Tech-D/05** Fabrication of Low-Cost Polyethylene Water Treatment Plant Capacity (150-250m^3/day)	**Mr G.G.N. Gunawardhana** 26/1, Shobana Place, Asiri Uyana, Katubedda 0773129441 *ggngunawardhana@gmail.com*
5.	**TG/2018/Tech-D/01** Amelioration of acid sulphate conditions in paddy tracs of Nilwala ganga flood protection and drainage project area through manipulation of water table – a pilot study.	**Dr Nanda Senanayake** 463/4, Natures Breeze Welivita Road, Kaduwela

Grants of the Research Programme on Health Sciences (RPHS)

No.	Grant No.	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
1.	**RPHS/2016/DTM /02**	**Dr Anjula De Silva & Team** Department of Electronic and Telecommunication Engineering Faculty of Engineering University of Moratuwa *Team Members* **Prof. Saroj Jayasinghe** **Prof. Mandika Wijeratne** **Dr Pujitha Silva** **Dr Nuwan Dayananda** **Dr Inoshi Atukorala** **Dr Chathuranga Ranasinghe** **Dr Thusitha Kahaduwa** **Prof. Thilak Weerarathna** **Mr Sahan Ranasinghe** **Mr Buddhika Marasinghe**	Development of tools for screening and treating diabetes and related foot complications through Biomedical Engineering innovations	**21,547,107/-**
2.	**RPHS/2016/CKDu/03**	**Dr Sameera Gunawardena & Team** Department of Forensic Medicine & Toxicology University of Colombo *Team Members* **Dr Eranga Wijewickrama** **Dr N V Chandrasekharan** **Dr Nishantha Perera** **Prof. Sisira Siribaddana** **Prof. Mare de Broe** **Dr Ajith Jayasena** **Dr Praneetha Senevirathne** **Dr Samantha Wijeratne** **Dr Ruwan Nanayakkara** **Dr Asaruppulige Dayapala** **Ms Manjula Ranasinghe** **Prof. Dries Knapen** **Dr Francois Busquet** **Dr Lucia Vergauwen** **Dr Melanie Knobel**	An exploratory study on environmental, genetic and dietary determinants of chronic kidney disease of uncertain aetiology based on postmortem tissue analysis	**7,954,983/-**
3.	**RPHS/2016/CKDu/04**	**Dr S. H. N. P. Gunawickrema** General Sir John Kotelawala Defence University, Kandawala Estate, Ratmalana	Immunomodulation associated with CKDu progression in Sri Lanka	**2,812,874/-**

Research Scholarships

No.	Grant No. & Duration	Scholar and Institution	Supervisor/s	Title	Postgraduate Degree obtained
1.	**NSF/ SCH/2019/09** **02 Years**	**Madushika Maduwanthi Kumari Galabadage** Postgraduate Institute of Science (PGIS) University of Peradeniya	**Prof. A. N. Navaratne** Department of Chemistry Faculty of Science University of Peradeniya Peradeniya **Prof. K. B. Ranawana** Department of Zoology Faculty of Science University of Peradeniya Peradeniya	Biochemical Assessment of quality of feeding resources and milk of cattle dependent on saltmarsh pastures of Mannar District, Sri Lanka	**MPhil.**
2.	**NSF/ SCH/2016/01** **04 Years + 14 Months ext.**	**Dr Lalindra Sanjaya Kaththiriarachchi** Faculty of Graduate Studies University of Sri Jayawardenepura	**Prof. S. W. Wimalasekara** Department of Physiology Faculty of Medical Sciences University of Sri Jayawardenepura **Prof. A. L. S. Mendis** Department of Physiology Faculty of Medicine University of Ruhuna **Dr D. C. Hewage** Department of Physiology Faculty of Medical Sciences University of Sri Jayawardenepura	Cognitive functions and associated psychosocial determinants among peri-urban adolescents in Sri Lanka	**PhD**
3.	**NSF/ SCH/2018/11** **03 Years + 06 Months ext.**	**Ms K. Prabodha M. Weerarathne** Postgraduate Institute of Science (PGIS) University of Peradeniya	**Prof. H. M. T. G. A. Pitawala** Department of Geology Faculty of Science University of Peradeniya **Prof. H. R. D. Pieris** Department of Basic Sciences Faculty of Dental Sciences University of Peradeniya	Reconstructing Prehistoric human diet using stable, isotope, paleo-proteomics and chemical analysis of human and faunal skeletal remains recovered from Pallemalala shell midden, Sri Lanka	**MPhil.**

Annex 5

Summary of Research Grants – 2023

		Agriculture & Food Science	Basic Sciences	Biotechnology	Environment & Biodiversity	Engineering, Architecture & ICT	Health Sciences	Social Sciences	Climate Change and Natural Disasters	Research Programme On Health Sciences	Total
1.	Total no. of ongoing grants as at 31.12.2023 *	05	04	01	02	03	04	-	05	-	**24**
2.	Grants awarded	02	02	02	-	01	01	01	-	-	**09**
3.	Grants completed	05	06	02	02	04	02	01	-	03	**25**
4.	Grants withdrawn	-	-	-	-	-	-	-	-	-	
5.	Grants terminated	-	-	-	-	-	-	-	-	-	
6.	RSs appointed/to be appointed	03	02	01	02	01	01	01	-	-	**11**
7.	RSs registered for postgraduate degree/ to be registered for postgraduate degree	02	-	01	02	-	01	-	-	-	**06**
8.	TAs appointed/to be appointed	-	-	-	-	01	01	01	-	-	**03**
9.	PG degrees completed										
	PhD	-	01	01	01	-	01	-	01	-	**05**
	MPhil	02	06	-	01	02	01	-	04	04	**20**
	MSc	-	-	-	-	-	-	-	-	-	**-**
	MD	-	-	-	-	-	-	-	-	-	**-**
10.	SCIE indexed publications	-	04	01	-	01	07	-	02	06	**21**
	Refereed journal publications (Non-SCIE indexed)	-	02	01	01	-	01	-	02	-	**07**
	Communications	03	01	-	01	01	03	-	06	29	**44**
11.	Patents arising from grants	-	-	-	01	-	02	-	-	-	**03**
	Patents filed from grants	-	01	-	03	-	01	-	-	-	**05**

* Ongoing grants does not include the newly awarded 09 Grants

Support Scheme for Supervision of Research Degrees (SUSRED) Awards 2021 / 2022

- PhD -

No	Names and affiliations of Supervisory Team	Title of the thesis	Student & awarding University
1.	**Prof. Shalindra Ranasinghe** Department of Parasitology **Snr. Prof. Renu Wickremasinghe** Department of Parasitology **Snr. Prof. Surangi Yasawardene** Department of Anatomy **Prof. Manjula Weerasekera** Department of Microbiology Faculty of Medical Sciences University of Sri Jayewardenepura	Fluorescence *in situ* hybridization assay to diagnose cutaneous leishmaniasis and characterization of the microbiome & biofilms in lesions caused by *Leishmania donovani* in Sri Lanka	**T. D. J. Kaluarachchi** University of Sri Jayewardenepura
2.	**Dr K.M.G. Gehan Jayasuriya** **Prof. A.M.T.A. Gunaratne** Department of Botany University of Peradeniya	Seed biological traits of selected rainforest species from Sri Lanka: towards conservation of biodiversity	**B.R.C.P. Samarasinghe** University of Peradeniya
3.	**Prof. M.A. Jagath Wansapala** **Prof. Indira Wickramasinghe** Department of Food Science & Technology Faculty of Applied Sciences University of Sri Jayewardenepura **Dr A.S.K. Warahena** Department of Manufacturing Technology Faculty of Engineering Technology University of Vocational Technology	Comprehensive analysis of fresh fish logistic chain in Sri Lankan marine fishery	**U.A.S.K. Edirisinghe** University of Sri Jayewardenepura
4.	**Prof. N. Kengatharan** Department of Human Resource Management Faculty of Management Studies and Commerce University of Jaffna	When teachers go the extra mile: Determinants of organizational citizenship behavior of school teachers in Jaffna, Sri Lanka	**A.H. Gnanarajan** University of Jaffna
5.	**Prof. S. N. Surendran** Department of Zoology Faculty of Science **Prof. V. Arasaratnam** Department of Biochemistry **Prof. T. Kumanan** Department of Medicine Faculty of Medicine **Prof. K. Gajapathy** Department of Zoology Faculty of Science **Prof. K. Suthakar** Department of Geography Faculty of Arts University of Jaffna	*Aedes* larval bionomics, circulating serotypes and a risk map in relation to dengue transmission in Jaffna district	**P.J.T. Thanesh** University of Jaffna
6.	**Dr M.C.M. Nasvi** **Prof. P.B.R. Dissanayake** Department of Civil Engineering Faculty of Engineering University of Peradeniya	Investigation of rice husk ash as a sustainable source material for blended low calcium fly ash-based alkali activated binders	**K.S.D.M. Fernando** University of Peradeniya

7.	**Prof. Dinithi Peiris** Department of Zoology Faculty of Applied Sciences University of Sri Jayewardenepura **Dr Pathmasiri Ranasinghe** Herbal Technology Section Industrial Technology Institute **Dr Kalpa W. Samarakoon** KDU-CARE General Sir John Kotelawala Defence University	The study of anti-diabetic and anticancer activities of the bioactive constituents of Sri Lankan marine algae *Chnoospora minima* and *Gracilaria edulis*	**T.L. Gunathilaka** University of Sri Jayewardenepura
8.	**Prof. Pulani Lanerolle** **Prof. Indu Waidyatilaka** **Prof. Pujitha Wickramasinghe** Department of Biochemistry and molecular Biology Faculty of Medicine University of Colombo	Validation of selected physical activity assessment methods against doubly labelled water technique and a school-based physical activity intervention in 11–13-year-old adolescents	**P.M. Dabare** University of Colombo
9.	**Prof. A.P. Attanayake** **Prof. K.A.P.W Jayatilaka** Department of Biochemistry **Prof. L.K.B. Mudduwa** Department of Pathology Faculty of Medicine University of Ruhuna	Nephroprotective activity of a novel herbal nutraceutical mixture derived from selected medicinal plant extracts in rats with chemically induced nephrotoxicity	**A.M.S.S. Amarasiri** University of Ruhuna
10.	**Prof. N.D.K. Dayawansa** Department of Agricultural Engineering Faculty of Agriculture University of Peradeniya	Assessing environmental sustainability of the rice based agro-food system in Deduru Oya river basin of Sri Lanka	**M.M.J.G.C.N. Jayasiri** University of Peradeniya
11.	**Prof. M. Siyamalan** **Prof. A. Ramanan** Department of Computer Science Faculty of Science University of Jaffna	Deep learning based fine-grained diabetic retinopathy image grading	**R. Nirthika** University of Jaffna
12.	**Prof. M.A.K. Lakshman Dissanayake** **Prof. G.K.R. Senadeera** National Institute of Fundamental Studies Kandy	Development of novel poly (ethylene oxide)/ conducting polymer-based electrolytes and graphite based counter electrodes for dye/q-dot sensitized solar cells	**J.M.K.W. Kumari**
13.	**Dr A. Ramanan** Department of Computer Science Faculty of Science University of Jaffna	A semi-supervised deep learning approach based on attentive visual features for fashion clothing classification	**M. Shajini** University of Jaffna
14.	**Prof. A.L.A.K. Ranaweera** Department of Physics and Electronics **Prof. S.R.D. Kalingamudali** Faculty of Science University of Kelaniya	Development of an innovative and enhanced solar energy harnessing technique using supercapacitor as an energy storage	**P.L.A.K. Piyumal** University of Kelaniya
15.	**Prof. N.S. Kottearachchi** **Dr D.R. Gimhani** Department of Biotechnology Faculty of Agriculture and Plantation Management Wayamba University of Sri Lanka **Prof. Venura Herath** Department of Agricultural Biology Faculty of Agriculture University of Peradeniya	QTL map-based candidate gene discovery for salt tolerance in rice (*Oryza sativa*)	**B.P. Abhayawickrama** Wayamba University of Sri Lanka
16.	**Prof. N.A.K.P.J. Seneviratne** **Prof. Nimanthi Jayathilaka** Department of Chemistry Faculty of Science University of Kelaniya	Evaluation of the effect of coconut oil and selected edible oils on the absorption of polyphenolic antioxidants through intestinal epithelium and assessment of resultant nutritional advantages	**T. Weerakoon** University of Kelaniya

17.	**Prof. O.V.D.S.J. Weerasena** IBMBB University of Colombo **Prof. N. S. Kottearachchi** Department of Biotechnology Faculty of Agriculture and Plantation Management Wayamba University of Sri Lanka	Assessment of pathogeography and pathogenicity of the blast and brown spot diseases in rice (*Oryza sativa* L.) using phenetic, molecular and digital image sensing approaches	**S. Terensan** University of Colombo
18.	**Prof. S.S.N. Perera** **Dr A.C. Mahasinghe** Department of Mathematics University of Colombo	Modelling and analysis of optimal strategies for the control of dengue transmission in Sri Lanka	**K.K.W.H. Erandi** University of Colombo
19.	**Prof. R. Senthilnithy** Department of Chemistry The Open University of Sri Lanka **Prof. M.S.S. Weerasinghe** **Prof. D.P. Dissanayake** Department of Chemistry University of Colombo	Computational studies on inhibition of epigenetic modifications of cancer codes	**R. Dushanan** The Open University of Sri Lanka
20.	**Prof. D.M.S. Fernando** Department of Physiology **Prof. C.S.E. Goonewardena** **Dr M.D.I.A. Waas** Department of Psychiatry Faculty of Medical Sciences University of Sri Jayewardenepura **Prof. A. Balasuriya** Department of Para Clinical Sciences Faculty of Medicine General Sir John Kotelawala Defence University **Dr B.C.V. Senaratna** Department of Community Medicine Faculty of Medical Sciences University of Sri Jayewardenepura	Perinatal anxiety and its association with obstructive sleep apnoea and other maternal and foetal outcomes in women of selected Medical Officer of Health areas in Colombo District	**M.N. Priyadarshanie** University of Sri Jayewardenepura

- MPhil -

No.	Names and affiliations of Supervisory Team	Title of the thesis	Student & University
1.	**Prof. G.D.K. Mahanama** Department of Physics University of Ruhuna **Prof. D.S.M. De Silva** Department of Chemistry University of Kelaniya	ZbS/CdS/CdTe solar cells using close space sublimated CdTe layers deposited on electrodeposited CdS/ZnS layers	**H.M.L.U. Madhuwanthi** University of Kelaniya
2.	**Prof. R.R. Ratnayake** National Institute of Fundamental Studies **Prof. S.K. Gunatilake** Faculty of Applied Sciences Sabaragamuwa University of Sri Lanka	Development of baseline soil information system for paddy growing soils of Sri Lanka based on soil carbon and other selected soil macro- and micro-nutrients	**T.M. Paranavithana** University of Peradeniya
3.	**Prof. K.P. Vidanapathirana** **Prof. (Mrs) G.A.K.S. Perera** Department of Electronics Wayamba University of Sri Lanka	Fabrication and analysis of supercapacitors with low-cost composite hybrid electrodes to meet the future energy challenge	**K.M.R.R.N.B.D.S.K. Rajaguru** Wayamba University of Sri Lanka
4.	**Prof. (Mrs) G.A.K.S. Perera** **Prof. K.P. Vidanapathirana** Department of Electronics Wayamba University of Sri Lanka	Fabrication and characterization of energy storage devices using ionic liquid-based gel polymer electrolytes	**R.M.L.L. Rathnayake** Wayamba University of Sri Lanka
5.	**Prof. S.K. Gunatilake** **Prof. E.P.N. Udayakumara** **Dr. L.V. Ranaweera** Department of Natural Resources Faculty of Applied Sciences Sabaragamuwa University of Sri Lanka	Investigating geochemical factors contribute to the prevalence of chronic kidney disease of uncertain etiology (CKDu) in the Uva province, Sri Lanka	**I.D.U.H. Piyathilake** Sabaragamuwa University of Sri Lanka
6.	**Prof. D.N. Magana-Arachchi** National Institute of Fundamental Studies **Dr R.P. Wanigatunge** Department of Plant and Molecular Biology Faculty of Science University of Kelaniya	Diversity and distribution of thermophilic bacteria and archaea in hot springs of Sri Lanka: culture-dependent and culture-independent approach	**D.G.S.N. Samarasinghe** University of Kelaniya
7.	**Prof. D.N. Karunaratne** Department of Chemistry Faculty of Science University of Peradeniya **Dr K.M.G.K. Pamunuwa** Department of Horticulture and Landscape Gardening Faculty of Agriculture and Plantation Management Wayamba University of Sri Lanka	Biopolymer based micro-/nano- vehicles for safe delivery of food bio-actives and nutraceuticals	**I.F. Shakoor** University of Peradeniya
8.	**Prof. Pradeepa C.G. Bandaranayake** Agricultural Biology Centre **Prof. D.K.N.G. Pushpakumara** Department of Crop Science Faculty of Agriculture University of Peradeniya	Environmental effect on different tissue parts at different maturity stages in biosynthetic gene expression and biochemical composition of Cinnamomum zeylanicum Blume	**N.M.N. Liyanage** University of Peradeniya
09.	**Dr Anupama P. Halmillawewa** Department of Microbiology Faculty of Science University of Kelaniya	Bacteriophage-mediated biocontrol of soft rot in carrots (*Daucus carota*) caused by *Pectobacterium spp.* in Sri Lanka	**N.K.N. Naligama** University of Kelaniya

10.	**Dr Renuka N. Attanayake** **Dr H.M. Herath** Department of Plant and Molecular Biology University of Kelaniya **Dr Priyanga Wijesinghe** Department of Botany University of Peradeniya	Ligninase production and low-density polyethylene degradation ability of wood-decaying fungi and the genome analysis of *Phlebiopsis flavidoalba*	**P.M.P.A.S. Perera** University of Kelaniya
11.	**Prof. Priyani A. Paranagama** Department of Chemistry **Dr Renuka N. Attanayake** Department of Plant and Molecular Biology Faculty of Science University of Kelaniya	Bioprospecting of secondary metabolites of endolichenic fungi isolated from mangrove-associated lichens in Negombo lagoon	**W.R.H. Weerasinghe** University of Kelaniya
12.	**Dr Ajith Kumara Dissanayake** Department of Obstetrics and Gynecology Faculty of Medicine and Allied Sciences Rajarata University of Sri Lanka	Assessment of metabolic syndrome in early pregnancy and its effect on outcomes of pregnant women in Anuradhapura district of Sri Lanka	**H.M.I.U. Jayasinghe** Rajarata University of Sri Lanka
13.	**Dr Imalka Munaweera** **Prof. Nilwala Kottegoda** **Prof. A.D.L.C. Perera** Department of Chemistry Faculty of Applied Sciences University of Sri Jayewardenepura	Synthesis of copper doped phosphate functionalized activated carbon nanohybrids and its potential applications in drinking water	**M.L.C. Madhusha** University of Sri Jayewardenepura
14.	**Prof. Punniamoorthy Ravirajan** Faculty of Science University of Jaffna	Role of Quarterthiophene and Ruthenium based dyes in enhancing the performance of hybrid Titanium dioxide / polymer solar cells	**Pirashanthan** University of Jaffna
15.	**Prof. (Mrs.) I.V.N. Rathnayake** Department of Microbiology **Dr Mahendra Priyantha Deeyamulla** Department of Chemistry Faculty of Science University of Kelaniya	Detoxification and removal of hexavalent chromium [Cr(Vl)] in aquatic systems using heterotrophic and phototrophic biofilms	**A.M.K.C.B. Aththanayake** University of Kelaniya
16.	**Dr D.M.B. Thushari Dissanayake** **Prof. Jananie Kottahachchi** Department of Microbiology Faculty of Medical Sciences University of Sri Jayewardenepura	Central venous catheter related bloodstream infections and catheter colonization in intensive care unit patients and characterization of coagulase negative *Staphylococci* as a common cause	**L.S.D. Mendis** University of Sri Jayewardenepura
17.	**Prof. (Mrs) Meena Senthilnanthan**an Department of Chemistry **Prof. Punniamorthy Ravirajan** Department of Physics University of Jaffna	Storage of solar energy by heterostructured Carbon/Silver-metal oxides/Tin Sulphide photocapacitors	**K. Thirunavukarasu** University of Jaffna
18.	**Prof. (Mrs) Meena Senthilnanthanan** Department of Chemistry **Prof. Punniamorthy Ravirajan** Department of Physics University of Jaffna	Enhancing the Performance of Dye-Sensitized Solar Cells through Doping / Co-doping TiO_2 Electrodes	**T. Rajaramanan** University of Jaffna

19.	**Dr Laksiri Weerasinghe** Department of Chemistry University of Sri Jayewardenepura **Prof. Inoka C. Perera** Department of Zoology Faculty of Science University of Colombo **Dr Nuwanthi Katuwavila** NSBM Green University **Dr Ranga Jayakody** Department of Chemistry University of Sri Jayewardenepura	Improving the stability of XLAsp-P2 through nano-conjugation	**B.M.Y.D. E. Amarasekera** Sri Lanka Institute of Nano Technology
20.	**Prof. Nilwala Kottegoda** Department of Chemistry Faculty of Applied Sciences **Prof. Veranja Karunaratne** Sri Lanka Institute of Nano Technology **Dr Surani Chathurika** Department of Urban Bioresources Faculty of Urban and Aquatic Bioresource University of Sri Jayewardenepura	Next generation plant nutrient delivery system based on modified hydroxyapatite nanoparticles	**W.A.D.L.S. Abeywardana** Sri Lanka Institute of Nano Technology
21.	**Dr W.L. Isuru Wijesekara** **Dr K.W.M.A. Jayasinghe** Department of Food Science & Technology University of Sri Jayewardenepura	Characterization of proteins from selected seaweeds in Sri Lanka and application as protein alternatives in bakery foods	**R.M.J.N. Samarathunga** University of Sri Jayewardenepura
22.	**Prof. G. Asha Sewvandi** Department of Materials Science and Engineering University of Moratuwa **L. K. Thanuja Srimal** Department of Mechanical and Manufacturing Engineering Faculty of Engineering University of Ruhuna	Development of coir fiber based insulative composite material to reduce thermal heat in buildings	**L.G. Chamath** University of Moratuwa

Training and Capacity Building

Annex 7

Staff Involvement in Awareness & Knowledge Enhancement and Process Improvement Activities (Common - Local)			
EPF No.	**Name**	**Designation**	**Training programme/s**
322	Mrs. D M N Prishanthi	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
341	Mrs. W A D A Perera	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
330	Mrs. I C Ramani	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
357	Mrs. J A C H Samarasinghe	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
358	Mrs. M A R L Millawithana	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
346	Mrs. K N R H D Mahapitiya	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
359	Mrs. S V P M Rukshani	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
272	Mrs. N S Liyanage	Management Assistant	Office System (10.08.2023)
281	Mrs. M Wijemanna	Management Assistant	Office System (10.08.2023)
318	Mrs. A J N Silva	Management Assistant	Office System (10.08.2023)
280	Mrs. R K D Uppalamedavi	Management Assistant	Office System (10.08.2023)
294	Mrs. D M R Ipalawatte	Management Assistant	Office System (10.08.2023)
270	Mrs. V R Priyanganie	Management Assistant	Office System (10.08.2023)
374	Mr. C A B Wickremasinghe	Management Assistant	Financial management (08.08.2023), Office System (10.08.2023)
393	Mr. T D K G Soyza	Management Assistant	Computer knowledge (09.08.2023), Office System (10.08.2023)
451	Mr. L R Kumara De Silva	Management Assistant	Computer knowledge (09.08.2023), Office System (10.08.2023)
379	Mrs. H I Sandanayake	Scientific Officer	Office System (10.08.2023), Importance of Evaluation for Development results in the Public Sector (21.07.2023)
395	Miss. R A A R Ranatunga	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
400	Miss. K A T K G Kandanamulla	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
401	Mrs. Chamika Dharmasena	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
438	Ms. M A D D Munasinghe	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
457	Ms. S C Samarasekara	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
464	Ms. M S K Meneripitiya	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
486	Ms. G R P I Abeysiri	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
488	Ms. G G K P Sumudu Kumari	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
516	Ms. S Warnasooriya	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
524	Ms. H M A J Herath	Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)

356	Mrs. H D N Jayaweera	Scientific Officer	Financial management (08.08.2023), Office System (10.08.2023), Importance of Evaluation for Development results in the Public Sector (21.07.2023)
367	Mrs. W M U K Ratnayake	Scientific Officer	Financial management (08.08.2023), Office System (10.08.2023), Importance of Evaluation for Development results in the Public Sector (21.07.2023)
378	Mrs. E M D C K Ekanayake	Senior Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
389	Mrs. L M N Nadugala	Senior Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
391	Miss. U T Karunaratne	Senior Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
369	Mrs. W L C Dasanayake	Senior Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
419	Mrs. E M P Bamunendra	Accountant	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
420	Mrs. M M Jayajeewani	Internal Auditor	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
460	Mr. P D Hewawasam	Information Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
461	Ms. M N Thasneem	Information Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
521	Ms. K N Samanthi	Information Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
370	Mr. S N P K Sapumohotti	Senior Admin Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
309	Mr. S M A W Anuruddha	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
332	Mr. K G J Karunasena	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
325	Mr. J G Shantha Siri	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
337	Dr. P R M P Dilrukshi	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
513	Mr. Manuja Karunarathne	Principal Information Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
344	Mrs. D N Wickremaarachchi	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)
553	Eng. T M R Dissanayake	Principal Scientific Officer	Importance of Evaluation for Development results in the Public Sector (21.07.2023)

Staff Involvement in Awareness & Knowledge Enhancement and Process Improvement Activities (Individual - Local)			
EPF No.	**Name**	**Designation**	**Training programme/s**
277	Mr. I W S Sujeewa	HRD Officer	HR Development (04.11.2023)
379	Mrs. H I Sandanayake	Scientific Officer	Forum on National Quality Infrastructure (NQI) 22.03.2023
395	Miss. R A A R Ranatunga	Scientific Officer	Lyceum Evaluation (03.03.2023) Sri Lanka Health and Ageing Study (SLHAS) 1st Conference (23.06.2023)
400	Miss. K A T K G Kandanamulla	Scientific Officer	Capacity building workshop on Data analysis through SPSS (17,24).11.2023 SLAAS Theme seminar (11.12.2023) conference on 'The contribution of the women in Science and technology to the technology - driven sustainable Tourism Industry in Sri Lanka'(20.12.2023)
401	Mrs. Chamika Dharmasena	Scientific Officer	SDG Data Portal Training - Session 2 (28.02.2023) Gamini Corea Foundation Forum - Sub National Planning Gamini Corea Foundation Forum - Good Governance (07.07.2023) Capacity building workshop on Data analysis through SPSS (17,24).11.2023
438	Ms. M A D D Munasinghe	Scientific Officer	5th Annual Conference of SLAYS (09.02.2023) Capacity building workshop on Data analysis through SPSS (17,24).11.2023
457	Ms. S C Samarasekara	Scientific Officer	conference on 'The contribution of the women in Science and technology to the technology - driven sustainable Tourism Industry in Sri Lanka'(20.12.2023)
464	Ms. M S K Meneripitiya	Scientific Officer	Lyceum Evaluation (03.03.2023) Gamini Corea Foundation Forum - Sub National Planning SLAAS Theme seminar (11.12.2023) conference on 'The contribution of the women in Science and technology to the technology - driven sustainable Tourism Industry in Sri Lanka'(20.12.2023)
486	Ms. G R P I Abeysiri	Scientific Officer	Lyceum Evaluation (03.03.2023) Sri Lanka Health and Ageing Study (SLHAS) 1st Conference (23.06.2023)
488	Ms. G G K P Sumudu Kumari	Scientific Officer	International Conference on Circular economy and bio energy (07.12.2023) SLAAS Theme seminar (11.12.2023)
516	Ms. S Warnasooriya	Scientific Officer	ICTer International conference (08.11.2023) SLAAS Theme seminar (11.12.2023)
520	Ms. N L Muhandiram	Scientific Officer	Capacity building workshop on Data analysis through SPSS (17,24).11.2023
524	Ms. H M A J Herath	Scientific Officer	Capacity building workshop on Data analysis through SPSS (17,24).11.2023 conference on 'The contribution of the women in Science and technology to the technology - driven sustainable Tourism Industry in Sri Lanka'(20.12.2023)
356	Mrs. H D N Jayaweera	Scientific Officer	NASTEC Award Ceremony, 8th China-Sri Lanka joint workshop on "Marine Sustainable Development" (25.04.2023)
367	Mrs. W M U K Ratnayake	Scientific Officer	Lyceum Evaluation (03.03.2023), Sri Lanka Inventor's forum: Paper on Agriculture (02.08.2023)
378	Mrs. E M D C K Ekanayake	Senior Scientific Officer	Capacity building workshop on Data analysis through SPSS (17,24).11.2023

389	Mrs. L M N Nadugala	Senior Scientific Officer	Stakeholder meeting of Project SUCCESSFUL (10.03.2023) Preparation of Corporate Plan of Antidoping Agency, BICOST (23,24).03.2023 Institutionalizing Science Advice to Governments (7,8).07.2023 Sri Lanka Inventor's forum : Paper on Agriculture (02.08.2023) conference on 'The contribution of the women in Science and technology to the technology - driven sustainable Tourism Industry in Sri Lanka' (20.12.2023)
391	Miss. U T Karunaratne	Senior Scientific Officer	Lyceum Evaluation (03.03023) Sri Lanka Inventor's forum: Paper on Agriculture (02.08.2023)
369	Mrs. W L C Dasanayake	Senior Scientific Officer	Official launch of the report "A Medium- and Long-term Strategy for Indo- Japanese Collaboration to support the Economic Transformation of Sri Lanka" (29.03.2023) Capacity building workshop on Data analysis through SPSS (17,24).11.2023
399	Miss. M D Senarathne	Senior Scientific Officer	Stakeholder meeting of Project SUCCESSFUL (10.03.2023)
419	Mrs. E M P Bamunendra	Accountant	HR Development (04.11.2023)
420	Mrs. M M Jayajeewani	Internal Auditor	අවදානම් තක්සේරුව සහ අවදානම් කළමනාකරණය (20.09.2023) HR Development (04.11.2023)
460	Mr. P D Hewawasam	Information Officer	International conference on Circular energy & Bio energy
461	Ms. M N Thasneem	Information Officer	International Conference on Circular economy and bio energy (07.12.2023)
521	Ms. K N Samanthi	Information Officer	Gamini Corea Foundation Forum - Good Governance (07.07.2023) Capacity building workshop on Data analysis through SPSS (17,24).11.2023
370	Mr. S N P K Sapumohotti	Senor Admin Officer	HR Development (04.11.2023)
309	Mr. S M A W Anuruddha	Principal Scientific Officer	BICOST (23,24).03.2023 National Mineral Policy (22.06.2023)
325	Mr. J G Shantha Siri	Principal Scientific Officer	Stakeholder meeting of Project SUCCESSFUL (10.03.2023) HR Development (04.11.2023)
513	Mr. Manuja Karunarathne	Principal Information Officer	International Conference on Library & Information Science (ICLIS) (27.06.2023) Cambridge Education Conclave - Sri Lanka (11.09.2023)
553	Eng. T M R Dissanayake	Principal Scientific Officer	Institutionalizing Science Advice to Governments (06.07.2023)

Staff Involvement in Awareness & Knowledge Enhancement and Process Improvement Activities (Foreign)

No.	Programme, Country & Duration	Awarding Agency	Staff Participation
01	Annual Meeting of the STEPAN 2023 & attending Workshop on Open Science & Artificial Intelligence Infrastructure Jakarta, Indonesia 31.05.2023 – 01.06.2023	UNESCO Jakarta Office	**Dr Mahesha Nadugala** Senior Scientific Officer
02	Innovation and Equity Forum, Mapping Global Opportunities in Women's Health R&D, United States of America 06.07.2023 – 07.07.2023	Bill and Melinda Gates Foundation & National Institute of Health (NIH), USA	**Ms. K A Thilina K Kandanamulla** Scientific Officer
03	Strengthening Collaboration & responding to R&D Needs of Industry in Sri Lanka as per the Framework of the NSF – NFSC MoU, China 31.08.2023 – 05.09.2023	Chinese Academy of Sciences	**Dr J G Shantha Siri** Principal Scientific Officer/ Additional Director (Covering)
04	Strengthening & responding to R&D Needs of Industry in Sri Lanka as per the Framework of the NSF – NFSC MoU China 31.08.2023 – 05.09.2023	Chinese Academy of Sciences	**Eng. T M R** Principal Scientific Officer
05	Representation of the NSF to attend Preparatory Committee Meeting on World Organization for Science Literacy & World Conference on Science Literacy Beijing, China 18.09.2023 – 21.09.2023	China Association for Science & Technology (CAST)	**Dr. P R M P Dilrukshi** Principal Scientific Officer
06	School Team for 7th Belt and Road Teenager Maker Camp and Teacher Workshop Chongqing, China 05.11.2023 – 11.11.2023	China Association for Science & Technology (CAST)	**Ms. R A Abhimani Ranatunga** Scientific Officer
07	Representation of the NSF at the Belt & Road Initiative Science Museum International Symposium (BRISMIS) Beijing, China 27.11.2023 – 30.11.2023	Chinese Association of Natural Science Museum (CANSM)	**Dr. P R M P Dilrukshi** Principal Scientific Officer
08	Representation of the National Science Foundation to attend Asia Pacific Regional Foresight Workshop 07.12.2023 – 08.12.2023 Bangkok, Thailand	UN Environment Programme Organizers (UNEP)	**Ms. Nadeeja Wickramarachchi** Principal Scientific Officer

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