National Science Foundation

NATIONAL SCIENCE FOUNDATION

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About Us

The National Science Foundation (NSF) was established in 1998 by Act No. 11 of 1994 as the successor to the Natural Resources Energy & Science Authority of Sri Lanka (NARESA). NARESA was established in 1981 as the successor to the National Science Council set up in 1968.

The National Science Foundation, mandated to serve and strengthen the Science and Technology sectors in Sri Lanka, performs its tasks in accordance with the functions setout in the Science and Technology Development Act , No 11 of 1994 and its activities conform to the National Science & Technology Policy. Accordingly, the NSF facilitates research, development and innovation to help create a knowledge economy. It also facilitates capacity building, research infrastructure development, technology transfer, knowledge creation and sharing in all fields of science & technology to improve the quality of life of the people.

VISION

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

MISSION

Initiate, facilitate and support research, development, innovation and technology transfer through funding, knowledge creation, capacity building, partnerships, information dissemination and popularizing science so as to;

- create a knowledge driven society and economy, efficiently and effectively, and
- contribute to improve the quality of life and standard of living of our people, whilst nurturing a competent staff and ensuring transparency, accountability, fairness, equity and principles of sustainability.

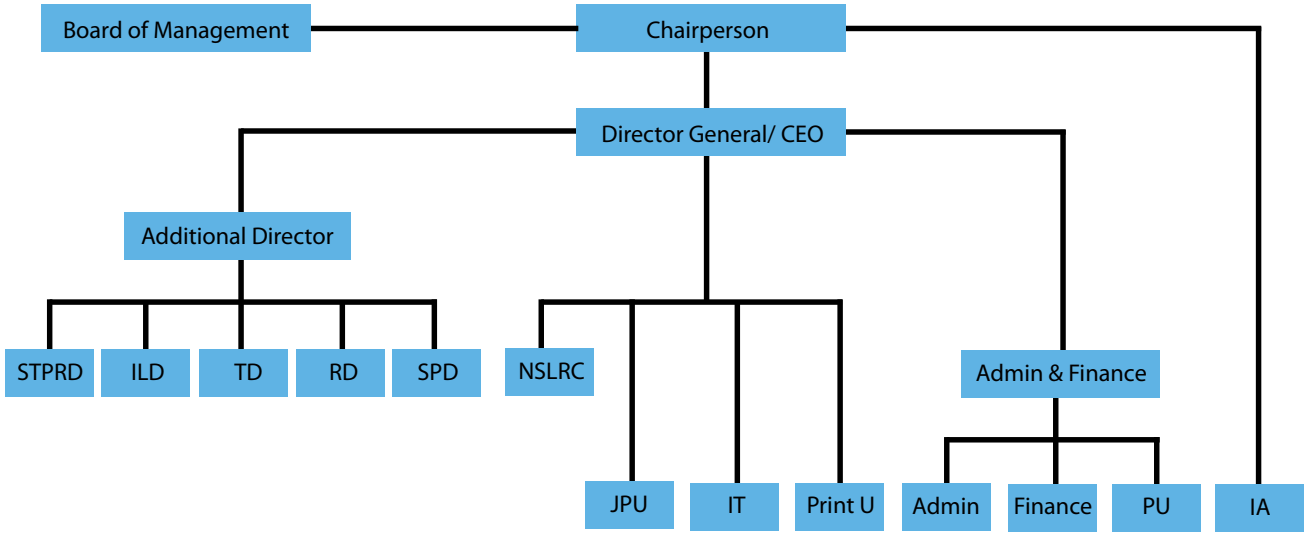
POLICY

"Anticipate and exceed stakeholder expectations by adopting a quality framework for the practice, review and continual improvement of our processes to be the premier driving force in Science and Technology in Sri Lanka"

Our Mandate

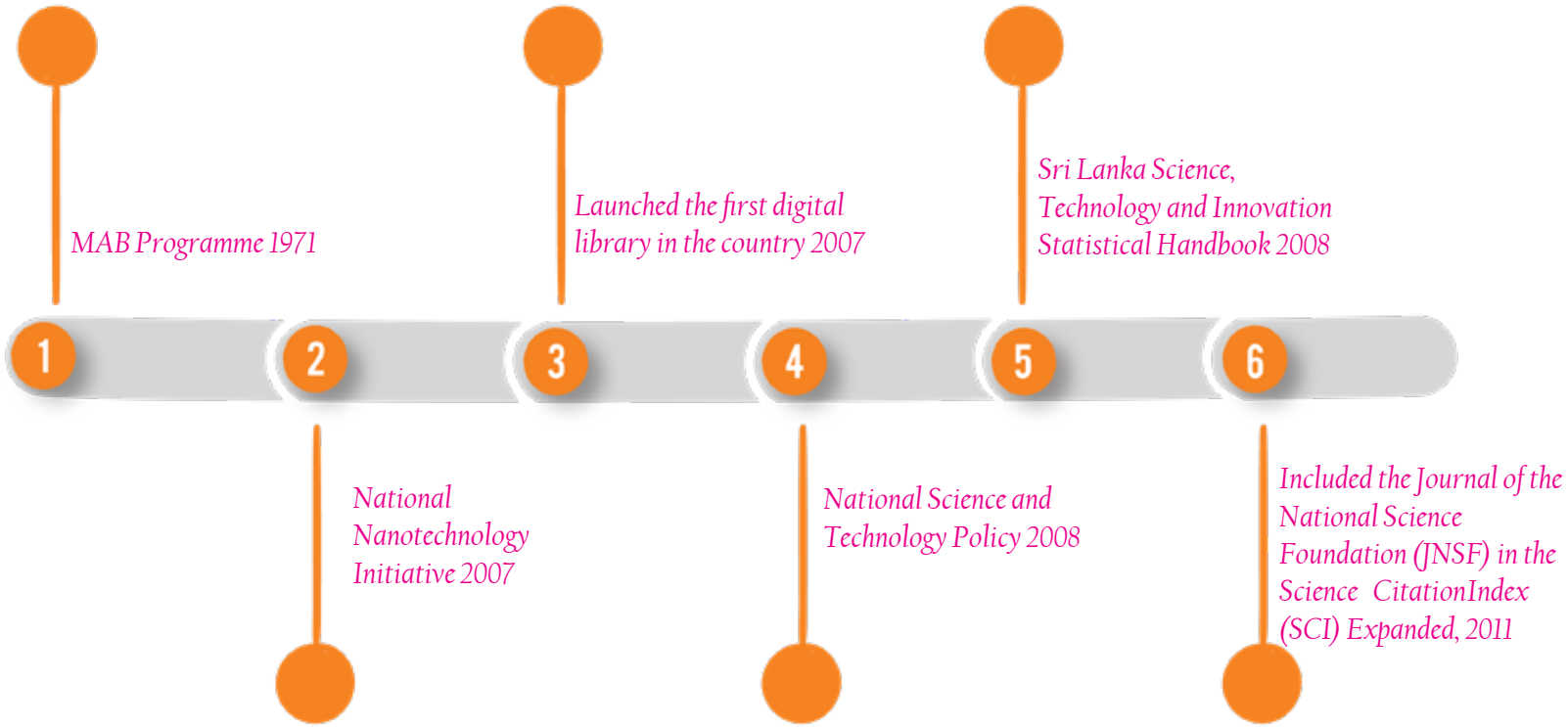
- To initiate, facilitate and support basic and applied scientific research by universities, science and technology institutions and scientists, with a view to:
    a. Strengthening scientific research potential, including research in the social science, and science education programmes
    b. Developing the natural resources of Sri Lanka
    c. Promoting the welfare of the people of Sri Lanka
    d. Training research personnel in science and technology
- To foster the interchange of scientific information among scientists in Sri Lanka and abroad.
- To award scholarships and fellowships for scientific study or scientific work at recognized science and technology institutions.
- To maintain a current register of scientific and technical personnel, and in other ways to the availability of 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.
- To popularize science amongst the people by funding and executing programmes for the purpose.

Organizational Structure of NSF



STPRD - Science and Technology Policy Research Division; ILD - Internal Liaison Division; TD - Technology Dicision; RD - Research Division; SPD - Science Popularization Division; NSLRC - National Science Library and Resource Centre; JPU - Journal Publication Unit; IIT - Information Technology Unit; Print U - Printing Unit; Admin - Administration Division; Finance - Finance Division; PU - Procument Unit; IA - Inernal Audit Unit

Our landmark achievements and milestones



Support Schemes for Researchers and Scientists

- Competitive Research Grant Scheme
  This Scheme facilitates harnessing independent, individual, intellectual capacity of scientists for R&D and encourages them to carry out research of high standard directed towards socio economic development of Sri Lanka

- Research Fellowships

- Research Scholarships

- Technology Grant Scheme

- Overseas Special Training Programme

Support Schemes for Scientists

Overseas Special Training Programme

Enhance national capacities by providing opportunities for training to acquire advanced laboratory & research skills, industrial technical experience, science teaching and communication skills at centers of excellence.

- Through the training acquired add value to natural resources and promote industrialization, thereby contributing towards reducing poverty and improving the country's economic competitiveness.
- To create awareness and enthusiasm for emerging technologies by communicating factual, scientific information to the general public.

International Travel Grants

- To assist Sri Lankan scientists and technologists to attend scientific meetings, conferences, symposia, to present their research findings at international fora as well as to gain insights into the latest scientific and technological trends in the global arena.

Capacity building of school children

- School Science Society Programme
- Science Research Projects Competition
- Overseas Special Education Programme

NSF and Industry

- Technology Grants
  Financial support for bringing R&D outputs/inventions to marketable level
- Patent Help Desk
  Provide guidance for Intellectual Property Management
- University Industry Institute Partnerships
  Facilitate private public partnerships for R&D commercialization
- Facilitating Technology Transfer
  Promote and facilitate Technology Transfer

NSF and Policy Makers

- Policy indicators for S&T sector
- Science and Technology Management Information System

Chairperson's Office

Support towards excelling science technology and innovation in the country

Serves as a Director at the Board of Management of the Sri Lanka Institute of Nanotechnology (Pvt) Ltd (SLINTEC) representing the National Science Foundation.
Co- Chair of the Advisory Board to Set-up the Biotech Park at the Ministry. The Sri Lanka Institute of Biotechnology (SLIBTEC) will be the government arm of BiotechnoPlex, which is proposed to be the Regional Research Centre for International Centre for Genetic Engineering and Biotechnology (ICGRB RRC) for South Asia that was proposed by the National Science Foundation (NSF) which is the focal point for IGGEB activities in Sri Lanka.

Co-Chair of the Technical Advisory Committee at the Ministry on establishing a National Science Centre (NSC). The project will lead to enhance knowledge economy of the country by supporting informal STEM education. NSC will create a Centre that will celebrate our technical heritage while stimulating, empowering and inspiring our people to drive Sri Lankan growth and prosperity through an understanding of Science, Technology and Innovation.
Chairs the Steering Committee on Research Programme on Health Science (RPHS)
Chairs the committee on the establishment of National Science Foundation Research Collaborating Centres. This scheme is for NSF to undertake co-funding to establish and maintain an entire facility as a NSF Research Collaborating Centre dedicated to a specialized topic attached to an existing organization in Sri Lanka.

Director General's Office

Support Scheme for Scientific Meetings and Events

The NSF encourages the organization of international, regional and national level scientific meetings in Sri Lanka by offering financial assistance to the organizers of conferences, workshops, seminars and training progammes, with a view to enhancing effective communication of their ongoing research, research results and facilitate fruitful partnerships.

The support is extended under two schemes:

1. **Co-organizing events with the NSF**
   The NSF is willing to co-organize events with national and international importance such as national and international conferences, workshops and seminars. The contribution of the NSF is decided during a meeting held between principal organizers and NSF Management after preliminary evaluation. The financial support would be up to a maximum of Rs 2,000,000/-.

2. **Conference Grant**
   Financial assistance to cover the costs of printing conference proceedings, course material and audio visual supports for scientific meetings or similar events up to a maximum of Rs 400,000/- will be provided.

Any Sri Lankan citizen representing either state or non state sector who is registered with the Science and Technology Management Information System (STMIS) of NSF is eligible to apply.

Details are available on http://www.nsf.gov.lk/index.php/component/content/article/179.html.

Research Division (RD)

Mission

To take the lead in mobilizing scientific research in order to enhance the quality of life of the people of Sri Lanka.

Mandate

- To support basic and applied research in order to strengthen the scientific research potential, develop natural resources and support & facilitate technology development and product commercialization in order to enrich welfare of the people.

- To promote and enhance capacity building through liaising with individuals, associations or institutions locally and internationally and facilitate return of Sri Lankan expatriate scientists and technologists of distinction for S & T development.

Objectives

The NSF, through the RD, facilitates research, development and innovation to create a knowledge economy, by supporting;

- Capacity building,
- Infrastructure development,
- Knowledge creation, and
- Knowledge dissemination.

Research Division of the NSF offers following grant schemes:

For Research:

- Competitive Research Grants
- National Thematic Research Programme (NTRP)
- Research grants under the NSF Bilateral Scientific Cooperation
  - NSF and Pakistan Science Foundation (PSF) Collaborative Research Programme
  - NSF and National Natural Scince Foundation of China Collaborative Research Programme

Special Grants for R&D Infrastructure Development

- Research Equipment Grants Scheme
- Spare Parts for Research Equipment Grants Scheme

Awards:

- NSF Research Awards (For NSF grant recipients)
- Support Scheme for Supervision of Research Degrees (SUSRED)
- Supporting page charges in reputed Journals indexed in the SCI, SCIE and SSCI

Postgraduate and Postdoctoral Grant Scheme:

- Postdoctoral Research Scientists
- Postgraduate Research Scholarships
- Research Fellowships

Competitive Research Grants

The NSF supports R & D activities of Sri Lankan scientists in all fields of Science & Technology, outputs and outcomes of which will ultimately benefit the Sri Lankan Society. Accordingly, the Competitive Research Grants facilitate and encourage scientists to carry out research of high standard, to strengthen the research base and promote R & D activities directed towards the socio-economic development of the country. These grants are expected to facilitate and support basic and applied scientific research while promoting capacity building of S & T personnel. It will also provide assistance to supplement the financial, physical and manpower resources available for scientific research in the scientists' own institutions.

Disciplines

NSF awards Competitive Research Grants to undertake research in the following disciplines:

- Agriculture and Food Science
- Basic Science
- Biotechnology
- Engineering Sciences, Architecture & Information Communication Technology
- Environment & Biodiversity
- Health Sciences
- Indigenous Knowledge
- Library & Information Science
- Oceanography & Marine Resources
- Science Education
- Social Sciences
- Science & Technology Policy Studies

National Thematic Research Programme (NTRP)

This novel multidisciplinary collaborative research programme has been initiated with a view to addressing national needs and to drive the national research system to produce well defined outputs that can be harnessed for national development. The themes under the NTRP are decided as per the national priorities. The NSF has identified Food Security, Water Security and Climate Change and Natural Disasters as the priority areas to start with.

Research Fellowships

This grant scheme provides financial support to eminent senior scientists/ engineers with postgraduate or equivalent qualifications as determined by the Board of Management, to carry out full time research up to 3 years. These grants are disbursed in all fields of Science & Technology after comprehensive evaluation by a panel of experts appointed by the NSF. Applicants should have evidence of excellent research achievements/ significant contribution to national development.

Research Scholarships

At present there is very low output of postgraduate research degrees by the Sri Lankan universities. It is important to attract and encourage graduates from recognized universities to conduct full time research leading to research degrees in order to encourage them to take up careers related to research. In this backdrop, the NSF Research Scholarships scheme was initiated with the specific objective of encouraging young and outstanding graduates to conduct full time postgraduate research leading to MPhil or PhD. Financial support is provided up to 3 years for MPhil and 4 years for PhD.

Postdoctoral Research Scientists

This grant scheme provides an opportunity for scientists / engineers with recent PhD or equivalent qualifications to carryout fulltime research within the country up to 2 years. These grants are awarded in all fields of Science & Technology after comprehensive evaluation by the NSF. Applicants should have evidence of excellent research achievements and strong recommendations from two referees.

Research Equipment Grants

Laboratories with modern infrastructure facilities are needed for research to be in par with the global S & T research. This scheme intends to assist the acquisition of equipment for research that is generally too costly to be purchased by the Research Institutions and Universities.

Spare parts for Research Equipment grants

Purchasing of spare parts for research equipment has become a major problem for universities and R & D institutions due to financial constraints. In order to overcome this problem NSF initiated the spare parts for Research Equipment grants scheme to enable researchers to purchase the necessary spare parts to repair/maintain the equipment.

Funding the page charges of publications of Sri Lankan scientists

Research publications enable sharing of the findings with others so that they can benefit from the new knowledge which has been discovered. It also gives project findings the opportunity to be critically evaluated, reproduced and thus gains validity. Therefore, the way to reach the widest audience is to publish the findings in a reputed journal. However, some reputed journals charge publication fees. As such, the NSF initiated this grant scheme to support the publication fees for Sri Lankan Scientists whose papers have been accepted by reputed journals indexed in the Science Citation Index, Science Citation Index expanded and Social Science Citation Index as an encouragement for them, to ensure greater visibility for their R & D activities.

NSF Research Awards

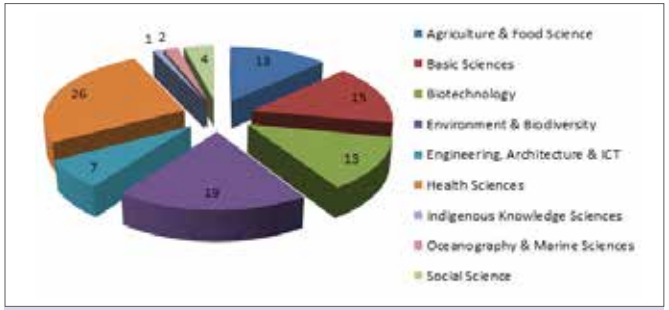
This scheme was initiated in order to bestow on NSF grant recipients who have attained a high level of excellence in their research work, the recognition they deserve and to recognize their contribution to the advancement of science. At present NSF Research Awards are given annually for projects completed during the previous year. Recommendations are made by Working Committees based on final reports submitted by grantees.

Support Scheme for Supervision of Research Degrees (SUSRED)

SUSRED is a NSF award given to Supervisors of postgraduate research degrees (MPhils and PhDs) and Departments/Divisions/Units of institutions that support postgraduate research in Sri Lanka as an encouragement to supervisors.

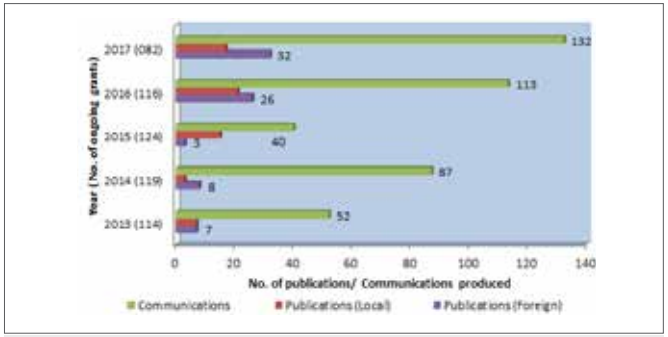
Past performance/contribution to socio-economic development'

- Research Division



Competitive Research Grants given in different disciplines

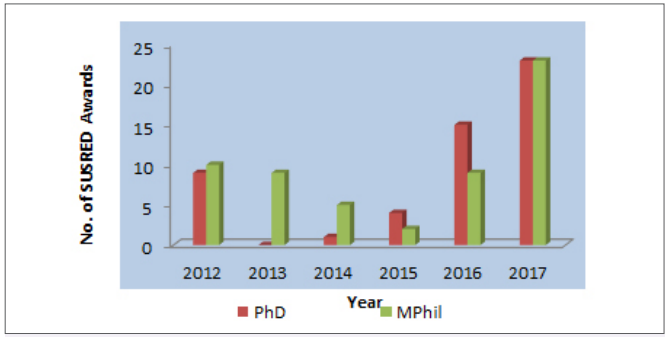
Competitive Research Grants(CRG) awarded during last 5 yrs



Publications arising from Competitive Research Grants in international refereed journals

Research Equipment grants distribution among institutes - 5 yrs

Research Equipment grants given to strengthen R&D infrastructure of the country



No. of SUSRED Awards (Started in 2012)

Awards given to motivate and encourage researchers

Technology Division

Mandate

Technology Division at the National Science Foundation (NSF) contributes to the economic growth and social welfare of the country by facilitating and promoting R & D commercialization, technology transfer and innovation through different strategies by:

- Providing funds for Technology Development and Start-ups based on new technologies
- Facilitating Intellectual Property Management and commercial exploitation
- Promoting public-private partnerships

Acitivities

Facilitate Technology Development and R&D commercialization

- **Technology Grant Scheme**

This scheme provides financial assistance for state sector, non-state sector as well as individuals under two main grant schemes:

a) Support for Technology Development (Tech-D)

This grant scheme aims at taking research outputs/inventions beyond laboratory scales up to commercial level by extending financial support to State-sector organizations (Universities and R&D institutions), non-state sector organizations (industry) and to individual inventors for socio-economic advantage.

b) Support for Start-up Business based on New Technologies

This grant scheme provides financial support for researchers/scientists/engineers to establish start up businesses or spinoffs using their university/ institute-based new technologies.

Having considered the fact that many research findings arising from research and experimental development projects are confined to laboratories without progressing into commercial applications and also with a view to developing a technopreneurial culture among researchers/scientists/engineers in the research institutes and universities the grant scheme "Support for start up businesses based on novel Technologies (Start Ups)" was established.

Recent successful Technology Grant outputs which have high socio economic impacts to the country

a) Project Title: e-Health KIOSK (TG/2017/Tech-D/01)

Health information systems and healthcare practices in Sri Lanka are largely relying on paper work and manual procedures that are often complicated and heavily time consuming. At present, regardless of a government or private healthcare facility, patients usually have to visit hospitals and stay long hours in queues to obtain a channel number and consult a doctor. This is a very inconvenient practice and it has led to frustration among patients. East Link Engineering Company (Pvt) Ltd with financial support under the Technology Grant Scheme of the NSF has invented an e-Health solution titled "e-Health KIOSK" to address the said problems in Sri Lankan healthcare industry.

e-Health KIOSK" automates routine activities of Sri Lankan healthcare sector covering from patient check-in, doctor consultations and to the completion of prescriptions at hospitals. As such, it is an interactive self-service system that is designed for public use to deliver information on channeling services, OPD services, clinic services, specialist care services, doctor visits, consultation hours, channeling charges, etc without having to wait in hospital queues and interact with a registration clerk. Thus, this tool improves the healthcare service quality and patient satisfaction. Product operations of this device can also be extended to a level where a patient can make payments for channeling services, pharmacy or obtain test reports through e-Health KIOSK.

Two e-Health KIOSKs machines developed by the East Link Engineering Company (Pvt) Ltd are deployed at Nawaloka Hospitals PLC and the Colombo National Hospital.

b) Project title: Novel Accessible Technologies on Touchscreen Devices (TG/2012/Tech-D/03)

A software product "iBrailler Notes" facilitates blind users to interact with modern touch screen devices. It's dynamic virtual keyboard ensures that keys are always underneath user's fingers and user need not move their fingers to find buttons. Now the product is in the Apple App. store which can be downloaded online.

This product has created an enabling environment for blind users to interact with modern touch screen devices for the purpose of learning and information exchange.

Revenue generated so far from selling the product is Rs. 19 M.

c) Project Title: Further development, quality upgrade of Nucleic Acid Extraction Kits (Viral RNA and Human Genomic DNA) and recombinant enzymes for commercialization (TG/2012/Tech-D/06)

CeyGen Biotech (Pvt) Ltd developed and commercialized three quality certified products, ViroSpinTM viral-RNA extraction kit, GenoSpinTM genomic-DNA extraction kit and Recombinant ThermoReadTM Taq-DNA-polymerase with the financial support of the NSF under the Technology Grant Scheme. Together with this, CeyGen enhanced production capacity, developed infrastructure and set up advanced technologies that are required to manufacture high-tech biotech products. As CeyGen products are manufactured in Sri Lanka, the cost of Ceygen kits and reagents are approximately 35% of the price of similar imported products and therefore, it is forecasted that there would be a total estimated saving of over Rs. 75,000,000/= (or equivalent foreign exchange) for one molecular lab within the next five years. The availability of low cost biotechnology products would enable health authorities to provide molecular based diagnostics at affordable cost to patients and reseachers.

d) Project Title: Collecting, Washing and Recycling of Waste Polythene (TG/2015/Tech-D/09)

Polythene recycling process becomes challenging when it contains half dried waste polythene with moisture content. As pellet cannot be made from half dried waste, it has to be dried twice using a drying machine which requires a higher amount of electricity. A machine was fabricated to remove moisture content present in the half dried polythene in order to make pellets to manufacture recycled polythene. The moisture removal unit has the capacity of loading 100-150 kg of polythene and the pelletizing unit gives an output of 100-150 kg of pellets per batch. It is estimated that 1 kg of recycled polythene manufactured from imported pellets accounts for Rs 280.00 whereas pellets made from locally fabricated machine can be made available at a price of Rs. 160.00 bringing an economic contribution to the country.

b) Project Title: Fault Detection, Isolation Restoration Using a Multi Agent Based Distribution Automation System (TG/2014/Tech-D/05)

The smart power unit is intelligent equipment which can be used for fault detection, isolation and restoration to overcome the issues pertaining to sudden power interruptions in the distribution network. It is developed using the Multi Agent Systems technology. The system has an online current and power monitoring device to monitor the real-time data. The proposed system can identify a fault in the distribution network in real time. Restoration can be achieved through the proposed system if the infrastructure of the distribution system permits. It has developed to achieve high reliability. Failure of one of the communication devices can be detected by the closest working meter. Developed system leads automatic data transfer of child devices to the closest parent meter.

Department of Electrical Engineering, University of Moratuwa is going to sign an MOU with LECO for implementation of Micro-grid Pilot Project and a Smart Grid Laboratory, as a result of success of this project.

- Technology Foresight Studies

The division conducts foresight surveys/ studies and awareness workshops in the field of S & T development in order to identify new development trends and innovations.

Facilitating Technology Transfer

a) Intellectual Property (IP) Management

Technology Division supports IP protection and builds awareness on IP among all categories (i.e., state sector, non-state sector and individual) of people in the country. Particularly, the "Patent Help Desk" provides information, consultancies and guidance on patenting process, patent drafting, patent information search, PCT filing and other IP related matters. In addition, NSF provides financial support to cover cost incurred in local patent filing and applying under Patatent Cooperation Treaty (PCT).

b) Technology Innovation Support Centre (TISC)

Technology and Innovation Support Centre (TISC) was established at the NSF in 2015 as a result of a MoU between National Intellectual Property Office (NIPO) and the NSF. This centre was established with a view to providing innovators to access to high quality technology information and related services, to create, protect and manage their intellectual property (IP) rights to commercially exploit IP. The aim of this project is to encourage/ stimulate innovation of the country by providing access to the patent and non patent databases and technological information.

c) Formulation and implementation of the University Industry – Institute Partnership (UI-IP) policy

d) Technological Information Dissemination

- Maintaining a "Technology Databank" for technological information and service providers
- Conduct collaborative activities with the "Vidatha Centres"
- Publication of booklets based on industry/technological importance
- Organize conferences, seminars and workshops

Building Knowledge Base

- Surveys and studies: Sri Lanka National Innovation Survey (SLNIS 1)
- Patent statistics / IP policy / IP usage
- Case studies on Industry – Institute Partnerships
- Impact assessment of technology transfer and commercialization

Awards for Excellence

a) NSF Technology Awards

The purpose of this award is to bestow on grantees from state sector, non state sector and individual categories for carrying out technology development related work and market driven innovations of outstanding merit under the NSF Technology Grant Scheme.

b) National Awards for Science & Technology Achievements (NASTA Awards)

National Awards for Science & Technology Achievements are destined to exclusively recognize the significant contributions made by Sri Lankan scientists, engineers, technologists and entrepreneurs towards the economic and social development of Sri Lanka through significant science & technology inputs. Transformation of knowledge into products, processes, services or solutions that add value across industry for maximum socio-economic benefit is one aspect promoted by this awards scheme. Secondly, it is designed to enhance innovative culture and capacity for economic advantage.

Future Direction

To be the leader in facilitation of technology development and transfer and to emerge as the eminent catalyst for RD&I commercialization

International Liaison Division

Mandate

To facilitate international liaison to foster the interchange of scientific information among scientists in Sri Lanka and abroad and maintain liaison with individuals, associations or institutions in other countries and promote the visibility of Sri Lankan scientists internationally.

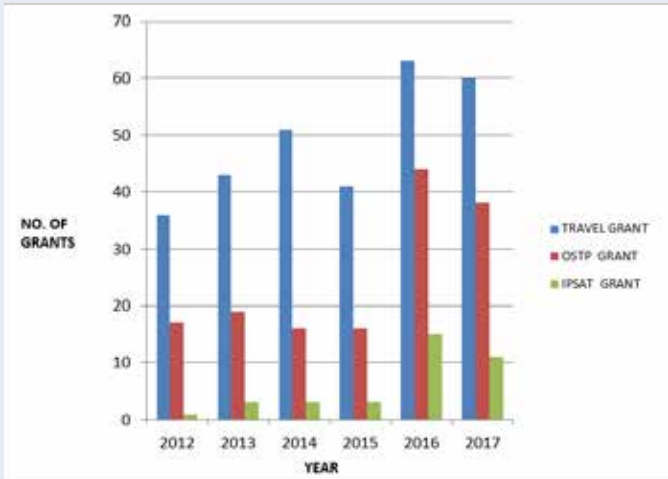
Objectives

- Assist Sri Lankan scientists to participate & present their research findings at foreign seminars & conferences.
- Provide a platform for capacity building.
- Ensure Sri Lanka's contribution towards International Science & Technology activities.
- Encourage Young Scientists to attain a high level of excellence in research work.
- Ensure that Sri Lankan Scientists are benefited from bilateral and multilateral collaborations.

International partnerships for Science and Technology (IPSAT)

- To arrange expatriate scientists and technologists to work in Sri Lanka on short term fellowship.
- To promote and facilitate, the return of Sri Lankan scientists and technologists of distinction working outside Sri Lanka.
- To award scholarship and fellowship for scientific study or scientific work at S & T institutions.

Year of Commencement: 2012



International Collaborative Research Programme (ICRP)

- To support Sri Lankan research-based institutions to develop collaborative relationships in research with well-established and recognized foreign institutions.
- To facilitate Sri Lankan researchers to be a part of collaborative research programmes of high quality and mutual concern.
- To facilitate knowledge/skill development, technology transfer and science communication internationally.
- To develop nationally significant programmes related to Science Technology and Innovation as well as research projects which address global challenges.

Year of Commencement: 2017

Man and the Biosphere (MAB) Programme

- To develop the basis, within the natural and the social sciences, for the conservation and rational use of nature and the resources in the biosphere.
- The Committee is responsible for the activities making up the national contribution of Sri Lanka to the International Programme on Man and the Biosphere (MAB) in the field of biodiversity conservation, sustainable development and capacity building and in particular in promoting the biosphere reserve concept.

Year of Commencement: 2012

Overseas Special Training Programme (OSTP)

- Enhance national capacities by providing opportunities for training to acquire advanced laboratory & research skills, industrial technical experience, science teaching and communication skills at centers of excellence.
- Through the training acquired add value to natural resources and promote industrialization, thereby contributing towards reducing poverty and improving the country's economic competitiveness.
- To create awareness and enthusiasm for emerging technologies by communicating factual, scientific information to the general public.

Year of Commencement: 2006

Joint activities under MoUs

- To build the capacities of the local scientists and scientific institutions by linking them with the foreign collaborating scientists and scientific institutions and facilitate collaborative research and capacity building.

Several Memoranda of Understanding (MoU)s were signed between the NSF and the following Research Funding Agencies on Bilateral Scientific Cooperation:

- Pakistan Science Foundation (PSF) – Signed on 05th January 2018. during the visit of H.E. the Prime Minister of Pakistan, to Sri Lanka. A joint research programme was initiated under this MoU.
- National Natural Science Foundation, China (NSFC) - Signed on 08th April, 2016 during the visit of the Hon. Prime Minister of Sri Lanka to China. A Joint Workshop was held from 4th to 7th July, 2017 in Beijing, China which was followed by a joint call for proposals.
- Japan Science and Technology Agency (JST) - Signed on 02nd October, 2017 during the period of the 'STS forum, Japan'. A Joint Workshop will be held between NSF & JST with the participation of scientists of both countries as per the signed MoC.
- German Academic Exchange Service (DAAD) - Signed on 06th April, 2018 between the two parties. Focused on Project based Personnel Exchange Programmes (PPPs).

Date of Commencement: 2016

International Travel Grants

- To assist Sri Lankan scientists and technologists to attend scientific meetings, conferences, symposia, to present their research findings at international fora as well as to gain insights into the latest scientific and technological trends in the global arena.

Year of Commencement: 1997

Multilateral Programmes

NSF is the Sri Lankan focal point of several international organizations;

- International Centre for Genetic Engineering and Biotechnology (ICGEB)
- International Science Council (ISC)
- Global Research Council (GRC)
- European Organization for Nuclear Research (CERN)
- International Union of Biochemistry and Molecular Biology (IUBMB)
- Federation of Asian Biotech Associations (FABA)
- Science and Technology Policy Asian Network (STEPAN)
- Science Council Asia (SCA)
- UNESCO – International Hydrology Programme (IHP)
- Management of Social Transformations (MoST)Programme

Bioethics Programme

The Committee shall produce guidelines of national importance listed below

- Guidelines for Research Ethics Review in Sri Lanka
- Guidelines for Research using Animals in Sri Lanka
- Guidelines for Stem Cell Research in Sri Lanka
- Guidelines for Genetics Research in Sri Lanka
- Bioethics Education-from Secondary Level
- Public Awareness on Bioethics through media
- Monitor collaborative Institutional Training Initiative Programme (CITI)

Year of Commencement: 2018

Science Popularization Division

Building Knowledge Base

This activity is to create awareness among the general public in science and technology and its practical applications in building life-skills, improving living standards and in socio-economic development. It involves a series of video programmes produced in "docudrama" format on current science and technology related topics to be telecast via National Channels.

Thirteen (13) video programmes on current topics of popular interest were produced and telecast in all three languages via national TV channel (Sinhala version- Independent Television Network, English and Tamil versions – Channel Eye) during 2006/7. Phase I of "Mihimandala", a very successful series won the following national and international awards during 2011.

"e" Swabhimani Special Merit Award from ICTaA

"e" Swabhimani Special Merit Award

The "Manthan" Award South Asia from Digital Empowerment Foundation, New Delhi, India

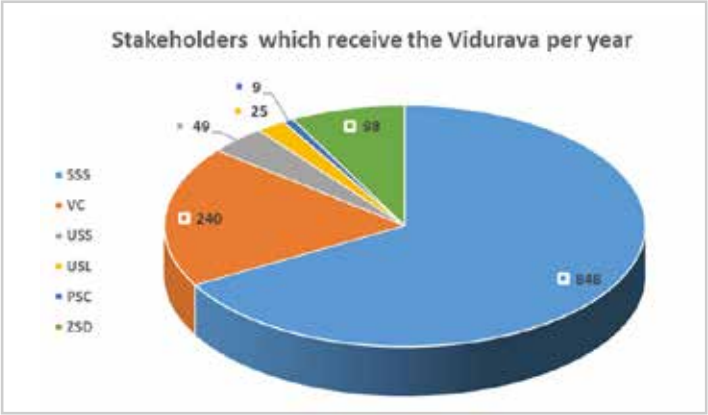
The "Manthan" Award South Asia

This is first international award for a programme organized by NSF in its history. Based on the success of Phase I, another series of 15 science video programmes have been produced in all three languages under Phase II. Telecasting of these Phase II videos commenced on 02 June 2018 via SLRC Channels (Sinhala version via Rupavahini on Saturdays, Tamil version via Nethra on Sundays, and English version via Channel Eye on Friday).

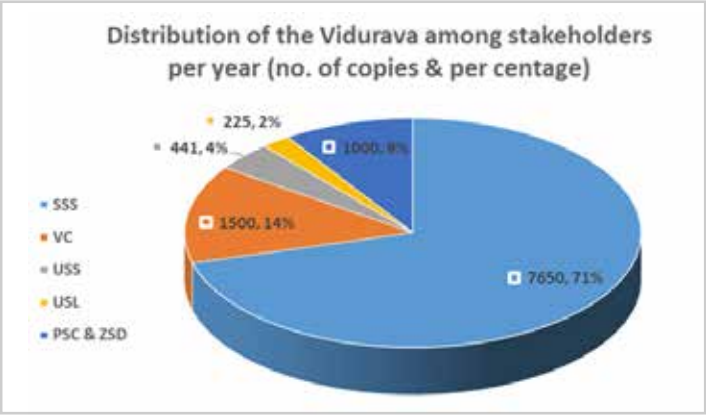
The "Vidurava" Science Magazine, which was initially published as the Science Bulletin of National Science Council since 1976 is one of the oldest Science Magazines in the arena. The objective of publishing this Magazine is to take science to people in order to improve their scientific knowledge and thereby, use the knowledge gained in their day to day life.

Three issues of the Magazine in all three languages (Sinhala, Tamil and English) were published as January, June and November (Special issue) each carrying a specific scientific theme until 2017. It is a quarterly publication from 2018 onwards. The Second quarter issue is now considered as the Special Issue, which will be published under the same theme of the NSF Science Day Schools Programme conducted in May (from 2018 onwards).

The Magazine consists of five to six invited scientific articles authored by scientists, researchers, and specialists in identified fields. Articles are written in simple language and with less scientific jargon for easy understanding.



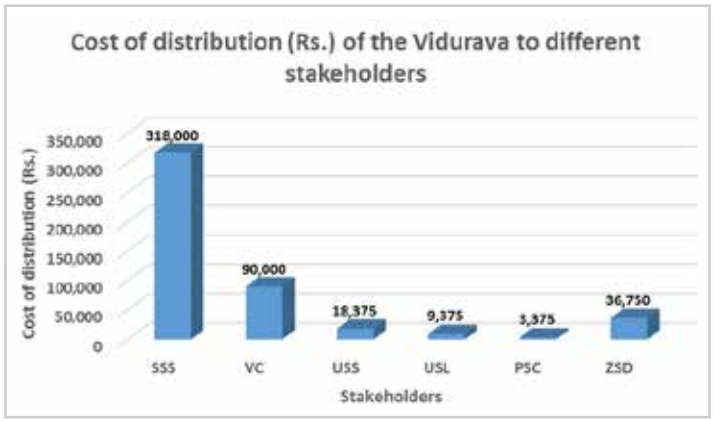
Distribution of the Vidurava among stakeholders per year



No. of copies distributed per year among the stakeholders

Each issue of the Magazine distributed among the stakeholders; School Science Societies registered with NSF (SSS;880), Vidatha Centres (VC;240), University Science Societies (USS;49), University Science Libraries (USL;25), Provincial Science Coordinators (PSC; 09), and Zonal Science Directors (ZSD;98) free of charge total numbering 1300. This will be gradually increased with the increase of the number of registered school science societies with NSF.

Around 7,650 copies are sent to schools, 1500 to Vidatha Centres, 450 to University Science Societies, 150 copies to University Science Libraries, 1,000 copies to Provincial Science Coordinators and Zonal Science Directors are distributed annually. In other words, a total of 11,166 copies of the Vidurava is received by the general public and hence the Vidurava does a great service to the people to improve science literacy among the public.



Cost of distribution of the Vidurava per year

National Science Foundation spends lot of money annually for publishing and distribution of the Vidurava Science Magazine. Average publishing cost for three issues is around Rs. 525,000 per year. Average cost of distribution of the Magazine among different stakeholders is also around Rs 475,000 per year . Therefore, one million rupees (Rs. 1,000,000) spent for publishing and distribution of three issues of the Vidurava Science Magazine per year.

Science Research Projects Competition (SRPC)

National Science Foundation organizes the Science Research Projects Competition (SRPC) as an annual event starting from 2008 with the objective of enhancing the innovative thinking, creativity and the investigative ability amongst the school children in the country.

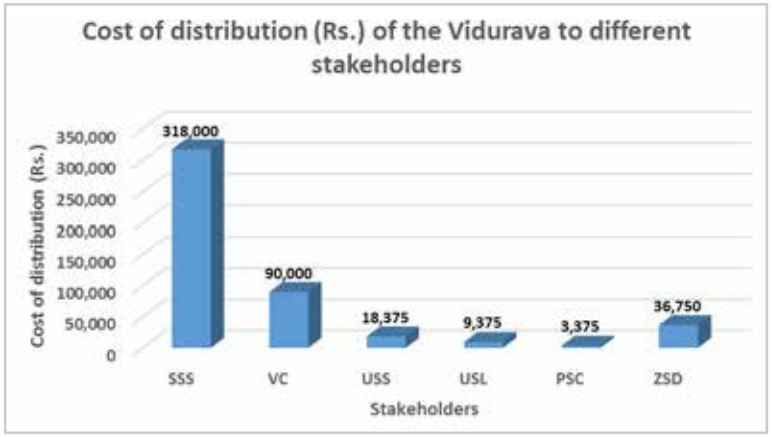
Schools registered with the National Science Foundation are entitled for this competition and school children from Grade 9-12 are eligible to participate at this competition. The SRPC is organized based on the rules and regulations of the Intel International Science and Engineering Fair (Intel ISEF) since this targets the above international fair.

The final evaluation of the SRPC is conducted in two steps (Step I: Selection of 20 science projects based on Multi Media Presentations, and Step II: Selection of Top Ten (10) projects out of 20 selected from the Step I based on Poster Presentations) from 2015.

In this Competition, school children (applicants) have to conduct a science research project within 04-05 months applying scientific method.

NSF takes maximum effort to improve the standard of science research projects conducted by the school children by organizing several Introductory Workshops for the applicants, appointing of Principal Supervisors for their projects from the beginning, organizing two Progress Review Workshops during the project period and providing financial support up to Rs. 50,000/- per project on reimbursement basis.

This Competition is linked with the Sri Lanka Science and Engineering Fair (SLSEF) which is jointly organized by NSF, Institution of Engineers Sri Lanka (IESL), Ministry of Education and Intel Education, and with the Intel International Fair organized in USA annually.



No. of applications received for the SRPC

The Top Ten Winners of the SRPC are eligible to participate at the SLSEF along with the Top Ten Winners of the Junior Inventor of the Year (organized by IESL). Three winning projects selected at the SLSEF are eligible to represent Sri Lanka at the Intel ISEF.

Following school children trained by NSF under SRPC were able to bring fame to the country by winning international awards at the Intel ISEF in 2016 and 2017.

Lochana Piyumantha Fernando, Senanayake National School, Madampe – won a special Award worth US $ 1,000/- for his project on "Anti Proliferative and Apoptotic Effects of Ellagic Acid Functionalyzed Iron Oxide Nano Particles on Endometrial Cancer (AN3CA) Cells" in 2016 at the Special Award Ceremony, Intel ISEF, Arizona, USA. Dr Rohini De Silva and Dr Sameera Samarakon served as the Principal Supervisor and Supervisor of the project respectively.

Lochana Piyumantha Fernando – the first international winner (Special Award) at the Intel ISEF (2016) representing the SRPC

Shehan Kavishka and Sankalpa Perera, S. De S. Jayasinghe Maha Vidyalaya, Dehiwala) – won a Special Award worth US$ 1,000/-at the Special Awards Ceremony and a Grand Award (Fourth Place; US$ 500/-) at the Grand Award Ceremony of the Intel International Science & Engineering Fair 2017, held in Los Angeles, California for their project on "Micro and Nano engineering for wastewater: magnetized bio-char and nanoparticle composite for toxic Cr (VI) removal". Dr Meththika Vithanage served as the Principal Supervisor of the Project.

Shehan and Sankalpa at the Intel ISEF 2017, Pittsburgh, Pennsylvania, USA

Arrival of Induwara (second from the left) from USA after the Intel ISEF 2018

Shehan Kavishka and Sankalpa Perera, S. De S. Jayasinghe Maha Vidyalaya, Dehiwala) – won a Special Award worth US$ 1,000/-at the Special Awards Ceremony and a Grand Award (Fourth Place; US$ 500/-) at the Grand Award Ceremony of the Intel International Science & Engineering Fair 2017, held in Los Angeles, California for their project on "Micro and Nano engineering for wastewater: magnetized bio-char and nanoparticle composite for toxic Cr (VI) removal". Dr Meththika Vithanage served as the Principal Supervisor of the Project.

Medal received by Induwara at the Grand Award Ceremony on 18 May 2018 at the Intel ISEF 2018

World Science Day Schools Programme

National Science Foundation was requested by the National Commission of UNESCO to be the focal point of celebrating the Word Science Day for Peace and Development on 10th November which was nominated by UNESCO at its General Meeting in 2001. After organizing two seminars in 2002 and 2003 for academic people, a policy decision was taken to organize the celebration with school children and the programme was named as 'World Science Day Schools Programme" in 2004, and the first schools programme was conducted at "Navarangahala", Royal College on 10th November 2004 with a participation of around 1000 school children. The Chief Guest was Prof. Tissa Vitharana, Minister of Science and Technology, Keynote Speaker was Prof. Carlo Fonseka while the programme was compeered by Dr Jayantha Watthavidanage. Thereafter, this event was organized as an annual event under a scientific theme at the Main Hall of BMICH in November with a participation of around 1300 school children invited from the school science societies registered with NSF. This programme became the biggest event which was organized by NSF and was very popular among school children. It helped to disseminate scientific knowledge since it was organized under different scientific themes. This was internationally aligned by organizing of Inter School Science Society Competition under the same scientific theme of the World Science Day.

In 2012, the event was organized in January (due to postponement of the 2011 programme), Dr Abdul Kalam, then the President of India participated at the programme and delivered a 20-minute speech inspiring the school children participated at the event.

Arrival of Dr Abdul Kalam along with Prof. Tissa Vitharana at the Science Day 2012

Dr Abdul Kalam, President of India addresses the gathering at the Science Day 2012 at BMICH

Basically this event is meant to motivate and attract students to join the science stream, and to felicitate the award winners of several competitions including the Inter School Science Society Competition, Teachers Award for Promoting Science among School Children, Best Performing school science societies (Star Rating), Science Research Project Competition, Sri Lanka Science and Engineering Fair, Prof. M.T.M. Jiffry Memorial Award for Science Popularization organized by NSF.

Winners of the Inter School Science Society Competition performed at the event

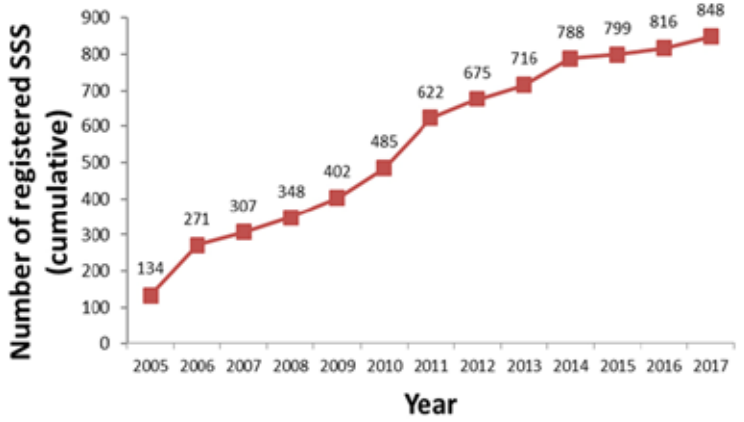
NSF took a policy decision in 2017 to shift the Schools Programme from November to May considering the requests made by schools and Ministry of Education, and the above event will be organized in May starting from 2018

School Science Society Programme (SSSP)

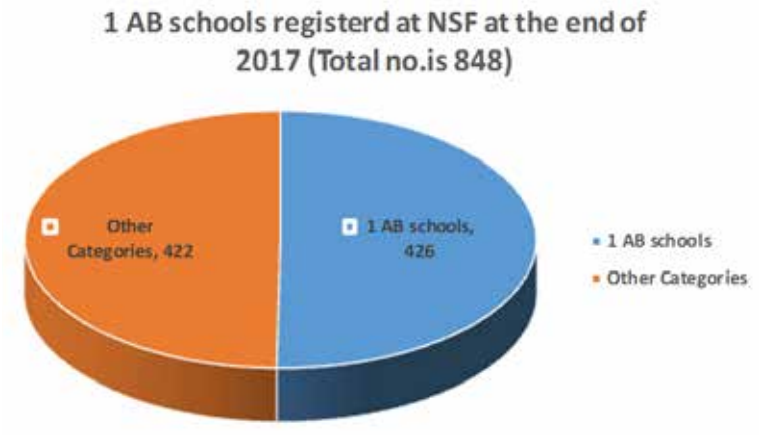
Map showing the district-wise registration of the schools with NSF as at 31 December 2017

School Science Society Programe was started in 2005 to register school science societies with NSF with the objective of fostering school children to acquire knowledge on latest developments in various fields of Science and Technology, and to make them aware of the application of scientific knowledge in day-to-day activities.

Initially, 1 AB schools were requested to be registered with NSF, and at the end of 2005, there were 134 schools (1 AB category) had been registered.



Total number of schools registered with NSF at the end of each year till 2017 since the establishment of the Programme in 2005



Total no. of 1 AB schools registered with NSF at the end of 2017

Based on the requests received from the other school categories, it was started registering Type 2, One (1) C and private schools with NSF. At the end of the year 2017, NSF was able to register 848 schools representing all the districts of the country and among them 627 were Sinhala medium schools, 212 were Tamil medium and 09 English medium schools. When the Programme was established in 2005, only 134 schools were registered. This was gradually increased up to 848 at the end of 2017.

Out of 848 schools registered with NSF as at 31 December 2017, there were 426 schools in 1 AB category (42% of the total number of I AB schools in the country).

These societies are fostered by NSF to popularize and promote science within and outside of their schools by providing the service of local scientists for their science days (cost is borne by NSF), sending the Vidurava Science Magazine free of charge, inviting them to participate at the competitions (SRPC, SLSEF etc.) and programmes (NSF Science Day, workshops etc.).

University Science Society Programme (USSP)

This programme was established in 2014 with the objectives of creating a platform for science undergraduates, developing their knowledge and skills in national activities, enhancing scientific communication and writing skills of the undergraduates, and utilizing the knowledge of science undergraduates to popularize science for the well-being of the citizens in Sri Lanka. As at 31st of December 2017, there were 49 University Science Societies registered with NSF.

Science Education and Popularization Programme (SEPP) Grant Scheme

This activity is meant to uplift and support the standard of science education and popularization in the country, as well as to enhance knowledge and skills of the general public on latest science and technology development. This programme which began in 2016 is facilitated through financial support in two categories; 1. up to Rs. 200,000/- for science popularization programmes, 2. up to Rs. 1,000,000/- for science education programmes, provided by NSF.

Overseas Science Education Programme (OSEP) Grant Scheme

The objective of this programme is to provide an international exposure on trends in modern science, technology, research and innovation, to Sri Lankan school children, teachers and university undergraduates in order to upgrade and improve their knowledge base in these areas to face challenges of the modern world.

Activities under the programme include grant awards for selected participants to participate in international competitions such as Intel International Science and Technology Fair, the International Olympaid, as well as seminars and training programmes related to science popularization and science education.

NSF Grant Scheme for Promoting Science and Technology Publications

The objective of this programme is to encourage and promote financial support to writers/ authors to contribute written material for publication as books or monographs on a range of topics on science and technology for the benefit of the scientific community as well as the general public. This is a scheme of author publications since authors have to reimburse their printing cost. Financial support will be granted to a maximum ceiling of Rs. 500,000/- and the minimum no. of copies should be 200.

STEM Education Programme

This programme is meant for supporting to take policy decisions on STEM Education in the country. Action Plan for STEM Education, and Interim Report on STEM Education were prepared and sent to the Ministries of Education and Science, Technology & Research for its promotion.

S&T Policy Research Division (STPRD)

This division undertakes activities pertaining to Science and Technology (S&T) policy research and strategy formulation, The Science and Technology Policy Research Division (STPRD) was established at the NSF in January 2005 with a view to establishing a research arm in the areas of S&T policy for providing evidence based policy recommendations and S&T indicators necessary for policy planning & formulation.

The mission of this Division is to provide research based information on science, technology, innovation, education and other related fields to the relevant policy planners and authorities to come up with necessary policy initiatives to address national issues. The Division also creates dialogue with relevant stakeholders and general public to identify important issued that needs policy interventions.

The main focuses made on these directions are:

1. Undertaking science, technology and innovation (STI) policy research in the areas of importance to make recommendations towards policy formulation.
2. Maintaining Science and Technology Management Information System (STMIS)
3. Developing various other databases relevant to all sectors of STI that will be useful for decision making.
4. Undertaking public awareness programmes, public discourses on nationally important issues related to the areas of STI.
5. Investigating, collecting and securing Indigenous Knowledge (IK) exists and practices in Sri Lanka.
6. Undertaking capacity building of human resources especially in the areas of Social Sciences and Indigenous Knowledge.

Science, technology and innovation (STI) policy research

National Research Development and Innovation (RDI) Survey

NSF has been conducting the regular National Research, Development and Innovation (RDI) Surveys once in every two years since the year 2004. This survey measures and reports the status of science and technology sector in the country in terms of investment on RDI, engagement of Human Resources in STI sector, and the Outputs of the STI sector in spears of publications, patents, technologies, innovations etc.

The survey is conducted following international standard laid out by the UNESCO and OECD. The scope of the survey encompasses higher education sector, S&T institutions, R&D institutions, industrial sector and the local and foreign non-government organizations (NGOs).

Starting from 2004 National R&D survey seven surveys have been completed up to 2017 and currently two surveys are on ongoing. Since 2014, STPRD continued to conduct the survey annually. The NSF acts as focal point in providing STI indicators to UIS statistics.

Other Policy Studies

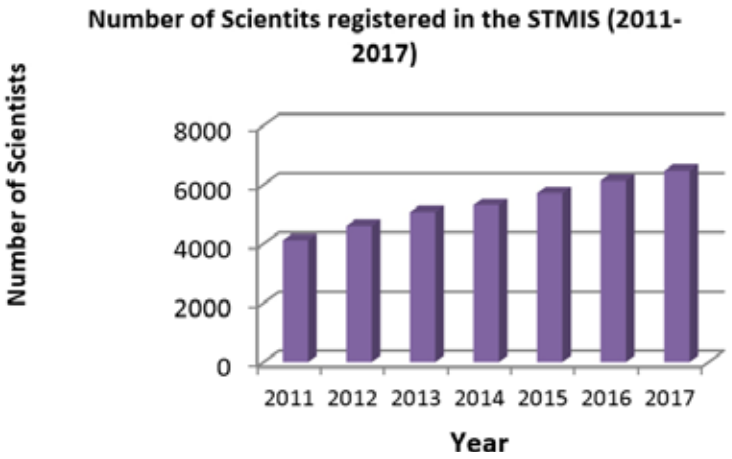
1. Tracer Study of Graduates and Postgraduates
2. Study on factors affecting Social Science research in Sri Lanka
3. Study on factors affecting Ayurveda sector research in Sri Lanka
4. Women Scientists in Sri Lanka
5. Small and Medium Industrial (SME) Cluster Studies and Innovation System Studies
6. National Survey to measure the scientific literacy of General Public of Sri Lanka
7. Use of big data on evidence based policy formulation

Developing various databases relevant to all sectors of STI that will be useful for decision making

Science and Technology Management Information System (STMIS)

A computer based information system for S&T - "Science & Technology Management Information System – STMIS" has been developed, to facilitate data collection, storage and for the dissemination of information on S&T. The STMIS database contains information on: S&T related institutions; S&T Personnel; Technical Personnel; advanced scientific equipment available in the institutions; ongoing research activities; technologies developed and transferred by the institutions; services and training programmes offered by the S&T institutions for the general public and research

publications done by the individual scientists and S&T Institutions. The STMIS database provides the online facilities to enter and update the information on individuals related to S&T sector. It also provides user friendly search facility for easy and quick access to the parameters such as Scientists in Sri Lanka, including their disciplines, area of expertise, qualifications, consultancies undertaken, and research conducted. The online search and registration into the STMIS Scientists database is available on the website: www.nsf.mis.gov.lk



Other Databases

1. Expatriate Scientists Databases
2. Directory of Social Scientists

Undertaking public discourses on nationally important issues related to the areas of STI

A series of workshops/seminars / policy dialogues and panel discussions were conducted on various nationally important issues to identify policy needed, gaps in existing policies, and constraints in implementation of policies. Accordingly, following programmes were conducted.

1. Social and Economic Changes towards Sustainable Development Goals (SDGs)
2. Social and Public Health Implications of Solid Waste Management in Sri Lanka
3. Transition from non-biodegradable to Bio-degradable
4. Social Implications of Recent Demographic Shifts in Sri Lanka
5. Labour Market Issues in Sri Lanka
6. International Conference on 'Social and Cultural Nexus of S&T Development' (Planning underway to conduct the Conference on March 2019)

Investigating, collecting and securing Indigenous Knowledge (IK) and practices in Sri Lanka

The indigenous knowledge pertaining to following are being collected

1. Ancient agriculture practices
2. Ancient Food Technologies in Sri Lanka
3. Indigenous medical practices
4. Indigenous Building and Architecture
5. Ancient Hydraulic Civilization of Sri Lanka

Other Areas under discussion related to IK

1. UN Sustainable Development Goals and Indigenous Knowledge
2. Epistemology of Indigenous Knowledge of Sri Lanka
3. Protection of Intellectual Property Rights (IPR) of Indigenous knowledge
4. Research Methodology for IK research

Undertaking capacity building of human resources especially in the areas of Social Sciences and Indigenous Knowledge

- Establishment of Young Social Scientists Forum (YSSF)
- Establishment of Senior Social Scientists Forum (SSSF)
- Conducting training programme for young scientists
- Conducting training programmes for scientists in the areas of data analysis, field sampling techniques, writing research proposals, writing, scientific articles, research ethics etc. to educate young scientists.
- Training programme for media personnel

Publications

- Sri Lanka Science Technology and Innovation Statistical Hand books
- Book on 'ගොවිතැනෙහි හෙළ දැනුම'
- Technical Report on Social and Public Health Implications of solid Waste Management
- Policy Briefs on
    a. Women in science
    b. Outbound migration from Sri Lanka: the way forward
    c. Sustainable Development goals : Way Forward Through Indigenous Knowledge Based Traditional Wisdom

National Science Library and Resources Center (NSLRC)

National Science Foundation provides knowledge base services to scientific community through National Science Library & Resources Center (NSLRC). There are several segments eligible to interact with NSF to enhance their knowledge. Those are namely scientific researchers, industry professionals, under-graduates and school children. NSLRC serve, as a National Focal Point to provide more relevant scientific data through in-house publications, Sri Lanka scientific research and international research data bases.

NSLRC Services to Target Groups

Target Groups – Researches, Scientists, Publishers, Undergraduates and School Children.

- NSLRC contains collection of worldwide publications of innovative research and technical reports.
- Maintains physical & digital collection of theses, articles, presented conference papers as scholarly literature.
- Physically maintains collection of NSF facilitated high end scientific, social research publications and science magazines.
- Provides facility to viewers of locally published printed and on-line journals through NSLRC website and Sri Lanka Journal Online (SLJOL) website. NSLRC acts as an intermediate consultant and facilitator to quality control of the research publications. SLJOL provides agricultural, engineering, medicine and social science information to scientific community and general public. Free materials,

way of easy access, user friendly tools and reminder services are some of the useful tips for academic and post graduate students. Further, NSLRC organize workshops by professional organizations to educate journal editors to enhance quality of journal publishing and minimize plagiarism and writing errors.

- Organize workshops and training programmes time-to-time for use of library software, development of Digital Library (DL) facilities, awareness on Open Access (OA) policies.

Provide easy access to other Sri Lankan scientific literature, collaborates with other scientific libraries through online resources.

1. Sri Lanka science index
2. National research repository
3. Institutional digital repository network of Sri Lanka
4. Sri Lanka journals online(SLJOL)
5. Other Sri Lankan journals
6. Sri Lanka medical index
7. Theses collections of research institutes and universities
8. National conference index
9. Sri Lanka association for the advancement of science(SLAAS)
10. National newspaper articles index

Facilitate access to international databases containing highly important limited access research, journals and open access literature.

1. SCOUPS provides information about Science, Technology, Medicine, Social Sciences, and Arts & Humanities
2. CiteSeerx facilitates Computer and Information Science facts
3. Citebase Search distributes Physics, Mathematics, Information Science details
4. HINARI contains Health sector research information. This is relevant to Medicine, Nursing, Pharmacy, Public Health, Dentistry hospitals, Institutes and Teaching Hospitals.
5. AGORA (Access to Global Online Research Information in Agriculture) contains rich information in Agricultural researches
6. AORE (Online Access to Research in the Environment) facilitate most relevant information of environmental science
7. ARDI (Access to Research for Development and Innovation)
8. TEEL(The Essential Agricultural Library) provides digitally collection of agricultural researches

Further, NSLRC provides 365 days *24*7 science base information services to general public through literature searching, building awareness, document supply services and training of library professionals.

Furthermore, NSLRC maintains digital repositories through National Digitization Project (NDP) among academic and research related organizations. This is a support to enhance easy accessibility through national network of e-repositories island wide. According to NDP, NSF provides additional facilities to participants such as technical and user level assistance.

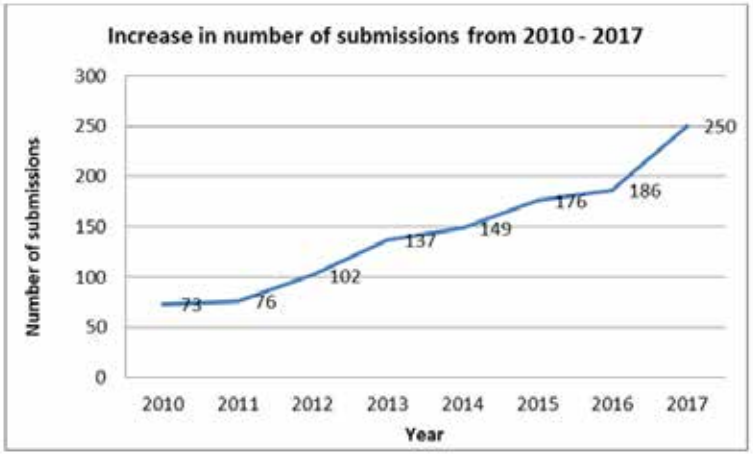
Sri Lanka Scientific & Technical Information Network (SLSTINET) named NSF as a hub of science information and coordination part of the scientific information network within the local and international arena.

NSLRC is identified as the principal science, technology and research information center in Sri Lanka.

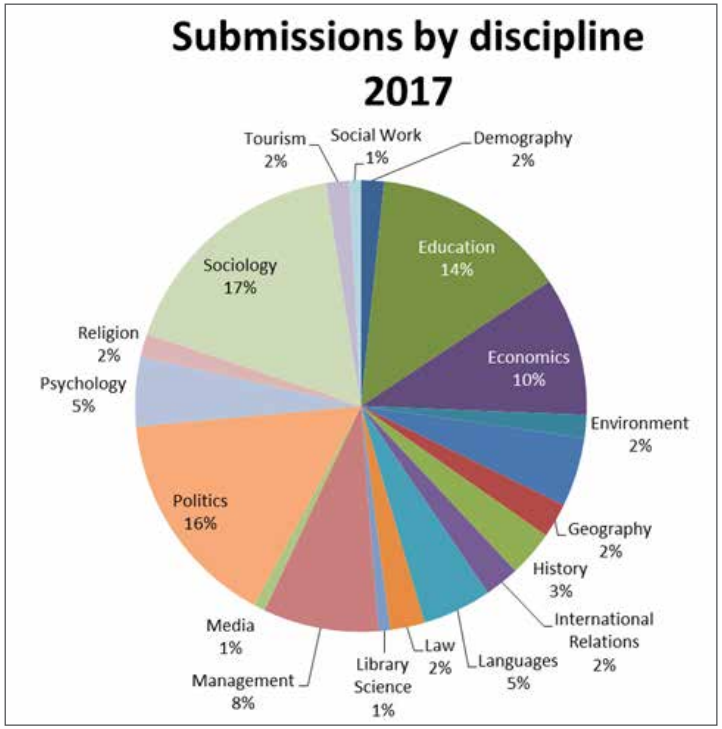
Journal of the National Science Foundation (JNSF)

The JNSF is the only journal in Sri Lanka to be indexed by Science Citation Index Expanded having an impact factor of 0.42. The JNSF publishes Research Articles in a large number of science, technology and related areas and specifically serves researchers, academics and other experts to provide a medium for quick dissemination of research findings and views. The Journal was established in 1973. Four issues of the journal are published per year in March, June, September and December. Contents of the journal are peer reviewed and are currently indexed in Clarivate Analytics Science Citation Index Expanded, Chemical & Biological Abstracts, BIOSIS Previews, Zoological Records, SCOPUS, TEEAL, Ulrich's, AGRICOLA and EBSCOhost . The journal is published both online and in print form. The Journal has a wide circulation both locally and overseas and the full text of JNSF can be accessed through the Sri Lanka Journals Online (SLJOL) website http://jnsfsl.sljol.info/free of charge. During 2017 JNSF published volume 45 (issues 1, 2, 3, 4).

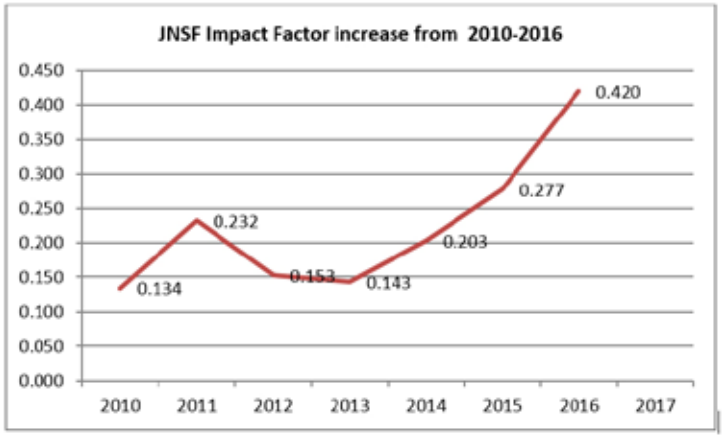
The number of submissions for the journal has increased in 2017 (34%) when compared with the previous year.



The submissions to JNSF during 2017 cover a wide range of disciplines in Science and Technology.



The Impact Factor of JNSF has increased since 2013



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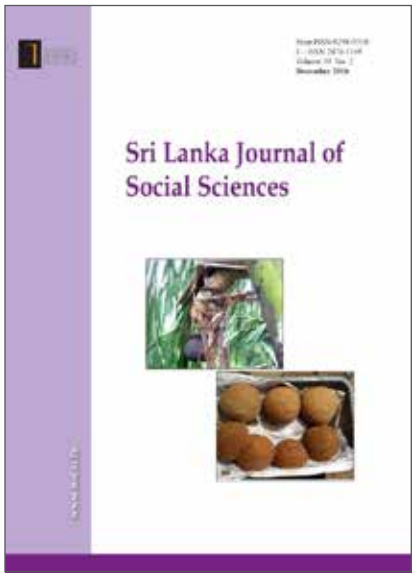
- E-mail alerts to authors displaying contents of latest issues

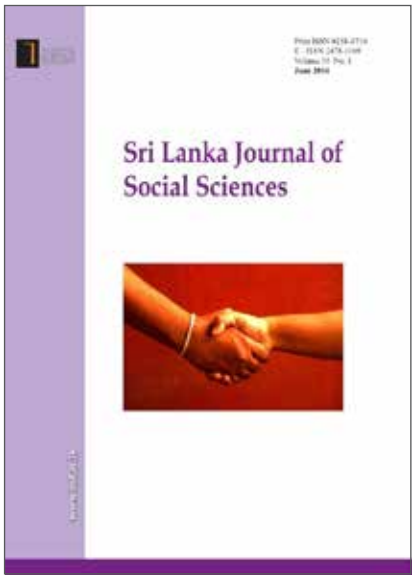
Visit www.nsf.ac.lk/index.php/nsf-science-magazine for more information.

Sri Lanka Journal of Social Sciences (SLJSS)

The Sri Lanka Journal of Social Sciences (SLJSS) is published twice a year in June and December. The journal publishes articles in Sinhala, Tamil and English languages covering the entire range of Social Sciences, focusing on Sri Lanka and other South Asian countries. All papers are peer-reviewed. The full text of the journal articles are accessible through the Sri Lanka Journals Online (SLJOL) website https://sljss.sljol.info/ . The journal is currently indexed in SCOPUS.

Sri Lanka Journal of Social Sciences published its 40th Volume (Issues 1 & 2) in 2017.





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