

VIDYA



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EXPOSURE BEYOND BOUNDARIES

CERN Summer Student Programme



Participants of CERN Summer Student Programme 2018, CERN Geneva, Switzerland

The CERN Summer Student Programme offers a unique opportunity to undergraduate students in the fields of physics, computing and engineering to join with Research Teams at the European Organization for Nuclear Research (CERN) in Geneva, Switzerland. Top Scientists around the world join this programme to deliver lectures on a wide range of topics relating to theoretical and experimental particle physics and computing. During the entire period (8 – 13 weeks), based on the type of membership, the students take part in a variety of activities such as visiting accelerators & experimental areas, attending workshops & discussion sessions and making poster presentations.

The Government of Sri Lanka and CERN established this unique collaboration in 2015. Being a non-member, Sri Lanka can accommodate four students annually under the CERN Summer Student Programme on merit basis. Out of the four selected students, the National Science Foundation annually sponsors the participation of two students and the costs of the other two students are borne by the CERN. Since 2016, the NSF has sponsored six students for this programme.



*Ms Dhulakshi Kumari (left) and Ms Harshani Sri Kanthi (right)
- Participants from Sri Lanka in 2018*

Joint Workshop between NSF and JST

Having signed the Memorandum of Cooperation (MoC) between the Japan Science and Technology Agency (JST) and the NSF in October, 2017, the first Joint workshop was held on 10th October, 2018 at the Miraikan National Science Museum of Tokyo, Japan under the theme, “Strategy for Conservation and Utilization of Animal Genetic Resources in Asia”.

Evaluation of genetic diversity of native species/ varieties, methodology for conservation of genetic resources and utilization of genetic resources under current food systems were the main topics discussed at the workshop.

Under the “e-Asia Joint Research Programme” (e-Asia JRP) which is a Multilateral Joint Research Initiative of the JST, joint research collaboration among nations was discussed. Sri Lanka being a ‘Guest Partner’ of the e-Asia JRP, will connect with the programme partners to submit Multilateral Joint Research Project Proposals at an upcoming call early next year.

The proposed areas for Multilateral Research Collaboration:

- Elucidating the detailed genetic background of the resources by harmoniously using cutting-edge and conventional technologies
- Development of multi-faceted methods for the conservation of the genetic resources by developing novel technologies (molecular and reproductive biotechnologies *etc.*) and stakeholder participation
- Identifying genetic traits conferring tolerance to biotic/abiotic stresses, and nutritional/functional values as food, for utilizing the genetic resources to breeding
- Enhancing small farmers livelihood (food security, income)



Participants of the Joint Workshop between NSF and JST

in different production and market ecosystems through the utilization of genetic resources, which can lead to financial support by funding organizations

- Creating databases which store useful information on animal genetic bio-resources (phenotypic, genotypic, agronomic, *etc.*) in a manner to be shared by researchers in the region
- Establishing a genomic repository which can be freely accessible for countries in the Asian region leading to research and industry applications
- Educating all stakeholder groups including students and young

researchers on the importance of animal genetic resources and their sustainable utilization

Altogether, thirty seven participants representing Japan, Thailand and Sri Lanka attended this workshop.

Sixteen participants from Sri Lanka including three senior and ten young scientists from Universities of Peradeniya, Ruhuna, Wayamba, Sabaragamuwa, Uva Wellasa, Kelaniya and the Open university took part in this event together with two NSF officials Mr Wasantha Anuruddha/ Head International Liaison Division & Ms Thilina Kandanamulla/ Scientific Officer. The Sri Lankan group was led by Prof. Ananda Jayawardane, the Director General of the NSF.

NSF-DAAD Project based Personnel Exchange Programme (NSF-DAAD PPP)

NSF-DAAD Project based Personnel Exchange Programme is a joint mobility programme initiated under the Memorandum of Understanding (MoU) signed on 06th April, 2018 between the NSF and the German Academic Exchange Service (DAAD).

With the participation of DAAD officials, Ms Shikha Sinha, Senior Advisor/ International Cooperation/DAAD, New Delhi and Mr Nadeesha Palliyaguru, Information & Office Manager, DAAD Information Centre, German Embassy of Sri Lanka and around thirty five participants including academics and researchers from Universities and Research Institutes, a half-day session was conducted at the NSF on 03rd July, 2018. The purpose of the session was to create awareness on the background and the importance of the collaboration with DAAD. The session opened opportunities for strengthening the S & T capacity building and R & D in the country.



The DAAD Information Centre together with the NSF organized awareness sessions in the Universities of Moratuwa, Peradeniya and Colombo followed by the session held at the NSF.

The NSF-DAAD Joint Call for Proposals under PPP was opened on 14th June and closed on 30th August, 2018. Joint projects selected by both organizations will be funded by the NSF and DAAD.

S & T contribution to achieve SDGs through strengthening partnerships



The strategic coordination meeting “Science to Enable and Empower Asia Pacific for Sustainable Development Goals” (SEEAP) organised by the UNESCO Office, Jakarta was held from 30 July – 1 August, 2018 in Jakarta, Indonesia. This meeting was well-attended by hundred participants from eighteen countries in Asia and the Pacific representing government organizations together with researchers, science practitioners, and representatives from UNESCO across Asia and the Pacific. Ms Mahesha Nadugala/ Senior Scientific Officer represented NSF at this meeting.

The discussion of the meeting was focussed on the UNESCO Science Programmes under six thematic areas.

1. Implementing Lima Action Plan to achieve Sustainable Development Goals (SDGs) in Asia and the Pacific
2. Disaster Risk Reduction (DRR): Ensuring a Resilient Future through Science
3. Science, Technology and Innovation (STI): building an enabling environment for the SDGs
4. International Hydrological Programme (IHP): Science for water security and sustainability in Asia and the Pacific
5. International Geoscience and Geoparks Programme (IGGP): Geoparks and geosciences in Asia and the Pacific: mobilizing science for geological heritage and sustainable development
6. Intergovernmental Oceanographic Commission (IOC): mobilizing ocean science we need for the ocean we want

Key issues of concern, inter alia, included;

- urban water issues
- balanced conservation of natural resources and local development
- threat of plastics pollution
- collaboration for ocean observations
- integrated disaster risk management
- importance of mobilizing young scientists
- science literacy and communication
- strengthening of UNESCO designated sites for enhanced delivery of SDGs.

Research at Bench and Beyond

Identifying Research Gaps in Ocean & Marine Sciences

Sri Lanka has a coastal belt of 1780 km and a continental shelf extending for around 30,000 km². The shallow water above the continental shelf, the coastal ocean, is biologically the richest area of the sea. Further, Sri Lanka has an Exclusive Economic Zone (EEZ), of 517,000 km².

The oceanographic knowledge on the Indian Ocean in general, is sparse compared to the rest of the oceans. This is attributed to the lack

of qualified oceanographers among the rim nations coupled with lack of financial resources. Marine research is immensely expensive and therefore, conducting such research has become difficult for countries such as Sri Lanka. Hence, most of the marine research is done by rich nations.

Nevertheless, a fair amount of research has been carried out on sea waters of Sri Lanka. However, the

available information is sporadic. In addition, the knowledge on the oceanographic conditions of the Sri Lankan marine waters is very little.

Increasing scientific knowledge, developing research capacity and transferring marine technology are some of the targets identified under the 14th Sustainable Development Goal (SDG), “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”.

In accordance with the above, the NSF Board of Management granted approval to initiate a National Thematic Research Programme under the theme “Ocean and Marine Sciences”.

With the objective to develop a Theme Paper and Programme documents needed for the Thematic Research Programme on ‘Ocean & Marine Sciences’, the NSF organized a Stakeholder meeting on 24th August, 2018 to identify Research Gaps in this area. The meeting was successfully held with the participation of 50 resource persons representing Universities, R & D Institutes and Private Sector, under the guidance and assistance of the NSF Working Committee on Oceanography & Marine Resources.



Group discussions on the way forward were held under 4 themes; Biological Resources and Mari-culture, Non-Biological Resources and Physical Aspects, Marine Pollution & Disaster Management and Climate Change: Impact on Ocean & Marine Resources and Socio-economic & Legal Aspects.

Research outputs of NTRP - Food Security

The last issue of our newsletter carried coverage of the successful completion of the National Thematic Research Programme on Food Security. In this issue, we wish to give some of the highlights of the research outputs of this programme.

Continuous mapping of agricultural production, marketing and supply

A Mobile based Agriculture Information System was developed by the University of Colombo School of Computing (UCSC) in collaboration with three foreign institutions.

This Mobile Application provides a unique opportunity to farmers on an individual basis, to cultivate and market the required crops in a cost-effective way in any desired geographical location. Installed on a smart phone, it can provide real-time information for selecting crop varieties suitable for a given location, estimate the cost of production based on information on fertilizer and pesticide requirements and their present market price, view prices being offered to a particular crop in and around the site of cultivation, and even get advice from relevant authorities in case of a pest or a disease outbreak. Lack of relevant information on a real-time basis has created many difficulties to farmers (e.g. over production and lack of a market for the product) as they have not been able to make the right decisions at the right time relating to their farming activities.



The App on a smart phone

Farm registration interphase

Crop selection interphase

The web-based crop forecasting system that has been developed by the Department of Agriculture with technical expertise from the UCSC was deployed by His Excellency the President in 2017. This system, based on its degree of operation, will provide timely and reliable information on extent of cultivation, expected production, marketable surplus *etc.* of various food crops grown in the country. The information accessible at Agrarian Service Centres, or any other point at District and National level, could be used for risk mitigation as well as in decision making for planning and implementing crop production programmes. The Ministry of Agriculture intends to use this programmes in the future for monitoring food production island-wide and implement the fertilizer subsidy and crop insurance schemes.





Cages made out of palmyrah leaves and bicycle tyres for growing leafy vegetables

Integrated food production systems

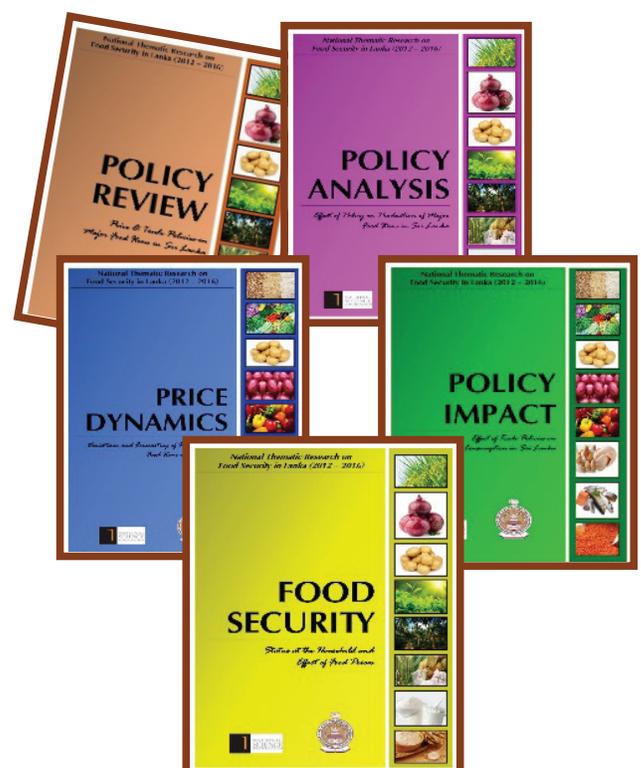
The project “Development of sustainable integrated food production systems to enhance household food and nutritional security, economic growth and livelihood of resource poor families in the Northern Region of Sri Lanka” was implemented successfully in selected five districts namely, Jaffna, Kilinochchi, Vavuniya, Mullaitivu and Mannar. Based on the population in resettled areas, families were selected and a survey was conducted to assess the livelihood of people especially with resource availability in terms of manpower, infrastructure, income generation, diets and living standards. After the survey, one home garden in each district was selected as a model and training programs were conducted periodically to educate the other families in the district of home gardening concept under this specific project to uplift their livelihoods.

Over the reporting period of 3 years, the livelihood of the resettled people improved immensely. The simple innovations, e.g. cages and baskets made of old bicycle rims, vehicle tyres, palmyrah leaf etc., and the use of household

waste to enrich the sandy soils, allowed the families to grow leafy vegetables and other vegetable crops in their home gardens improving their nutritional status. The home gardens also provided fresh fruit such as mango, guava and banana and vegetables such as onions, moringa and brinjals for home consumption. These became supplementary sources of food and in many cases brought-in an additional income too to the families. It is reported that some families earned as much as Rs. 10,000/- per month as additional income from their home gardens.

Internal and external trade policies

The outcomes of analysis, which were reported in the form of 5 specific reports to provide specific details and facilitate data visualization, suggest more specifically, that the trade policies in Sri Lanka from 1970s to date are in the form of “protectionist” policies either as tariff measures or non-tariff measures. The level of protectionism has, however, been “varied” over the years in most agricultural commodities showing inconsistencies in policy. The previous policies have led to an increase in local production in most cases (i.e. increases the ‘availability’ – a key facet of food security), but they could not bring the nation to self-sufficiency. Further, the behavior of prices (i.e. economic accessibility) can be attributed to three broad conclusions, i.e. ‘real’ price reductions, ‘nominal’ price increases, and the ‘variability’ of price increases. Economy wide simulations of trade liberalizing policies show that liberalization policies increase ‘food consumption/utilization’, which is also considered a key facet in food security. It is recommended that government policy be aimed towards long-run increases in supply, which would keep retail prices at bay assisting local producers. The policies practiced hitherto have been able to achieve this objective to a considerable level and hence, should be retained.



Software package to translate Sinhala to Sign Language real time

A person who is born with aural disability does not have the capability to communicate with others as the mother tongue of a deaf person is the sign language. In contrast, a visually handicapped person may be able to convert information obtained from outside more effectively than a deaf person. Due to this reason, a visually handicapped person is in a better situation to grasp information than an aurally handicapped person as the teachers in schools for handicapped people are often not fluent in the sign language. This has resulted in the requirement for a human interpreter whenever a deaf person wants to convey a message to another healthy person or *vice-versa*.

To fill this void, a Sinhala to Sinhala Sign Language (SSL) translation software was developed. The software translates Sinhala voice/ Sinhala text to a group of Sinhala Sign Language gestures via 3D virtual human (3D avatar) appearing on a computer. Moreover, the software can translate numbers and basic mathematical equations into SSL. Along with the capability of adding new SSL signs within minutes, software is also capable of translating

some of the Sinhala grammatical notions to SSL. The real benefit of the outcome of the project can be reaped by this marginalized community as the system can be used to establish a communication link between a deaf person and a healthy person in real time. Thus, the benefit to the society offered by the project is clearly evident. As such, the system, if implemented successfully, will allow aurally handicapped people to communicate with others using the sign language and thus, enjoy equal rights in education and in employment in the society thereby, contributing to the socio-economic development of the country.

It is intended to extend the project to support Tamil Sign Language.

Financial support for the project was provided under the Technology Grant scheme of the NSF and the project was lead by Prof. R G M Meegama of University of Sri Jayewardenapura and Dr M Punchimudiyanse of the Open University of Sri Lanka.

Smart grid research initiative supported by the NSF has resulted in setting up micro grid pilot project at University of Moratuwa



Interruption of power supply for a second may end up with great financial losses in the business. This phenomenon is inevitable when power distribution occurs through a central distribution system, the system currently in execution in Sri Lanka. The plausible way to overcome this is to use a decentralized system. Smart Grid Research Team at the University of Moratuwa secured a grant from the NSF way back in 2011 and initiated the smart grid research project. They proposed a decentralized system instead of the central distribution system using small scale micro grids. The research phase 1 was culminated with the system architecture to convert the existing distribution network to Multi Agent System (MAS) which breaks down the complex controlling task into several smaller tasks assigned to a team of agents. The second phase of the work was focused on developing a smart device for fault detection, isolation and restoration which was supported further through a Technology Grant of the NSF in 2014. Lanka Electricity Company (LECO) has become the industrial partner to this project.

The success of the project encouraged LECO to extend their continued support towards this endeavor earmarking future prospects for the power and energy sector in the country.

Accordingly, LECO has selected the University of Moratuwa as the site for the development of a micro grid pilot project (350 kW) and entered into a MoU between two parties for research and development in smart grid research. The ADB is the funding partner in this exercise.

According to Dr Udayanga Hemapala, the Research Team Leader of the University of Moratuwa, the MoUs are to be signed with foreign Universities to carry out further research in this direction. The main focus of this research is to contribute to the Sri Lankan economy through public-private partnerships.

The work of Smart Grid Research Team at the University of Moratuwa for their success and initiative taken to expand the research wings for national development is remarkable. The NSF being the grant supporter from the conceptualization to product development, congratulates the Team for successful completion of the project.



Labour Market Issues in Sri Lanka

Labour market plays a significant role in the economy as its quality and quantity affect its growth. Considering the importance, the NSF conducted a series of discourses among experts on current status, problems and future prospects of labour issues in Sri Lanka with the help of the NSF Working Committee on Social Sciences. A Policy Dialogue was initiated subsequently on 'Labour Market Issues in Sri Lanka' on 27th October, 2017 and this discussion was carried out continuously to arrive at some policy recommendations to address important issues. Accordingly, Science and Technology Policy Research Division is planning to publish the final report with policy recommendations based on these discussions and dialogues in December 2018.

Some of the policy recommendations discussed in this report are indicated below:

- ❖ Data on labour demand is lacking. Therefore, need assessment surveys of industry sector should be carried out and updated data should be available for decision making.
- ❖ Skill surveys of the labour force need to be done and updated regularly.
- ❖ Employability surveys need to be carried out for each educational/vocational programme at institutional level which give career education and training.
- ❖ Different employment paths and novel opportunities available in the job market should be made known to the school leavers and undergraduates at institutional level.
- ❖ Improve methods and processes linking job information and job seekers.
- ❖ Training programme should be developed to enhance job skills of graduates, school leavers or vocational training leavers with the cooperation of employers.
- ❖ In order to increase female labour force participation, new policies should be implemented.
- ❖ The bulk of the informal labour force is engaged in agriculture related activities. Therefore, policies need to be geared to enhance the productivity. Implement a manufacturing sector policy framework which links local and international value chains enabling our productions to go for the internal or external markets.
- ❖ Change the social attitude towards seeking white collar jobs or pensionable jobs.
- ❖ Increase availability of part-time jobs mainly for undergraduates and new entrants to the job market to acquire employability skills and give social acceptance for such initiatives.
- ❖ Provide micro-credit facilities and necessary training and skill development for rural women to rise-up as entrepreneurs.
- ❖ Implement conducive and consistent policy environment to expand economic activities of the country to promote local and foreign investments, so as to create more employment opportunities.
- ❖ New investments for medium or small scale industries should be established away from the metropolitan areas to capture the rural unemployed workforce.

Information Gateway

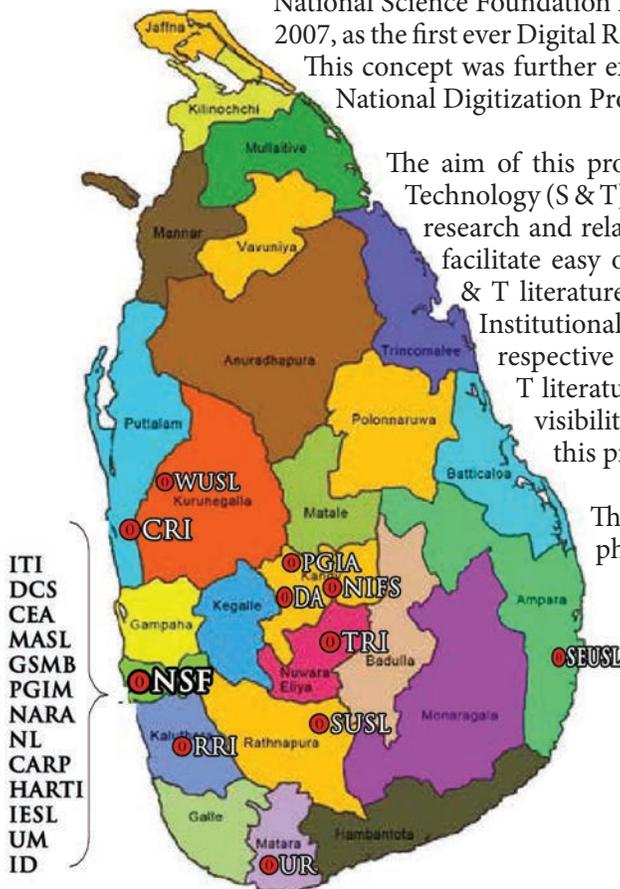
National Digitization Project (NDP)

National Science Foundation launched its Digital Repository in 2007, as the first ever Digital Repository established in Sri Lanka. This concept was further expanded and implemented as the National Digitization Project (NDP) in 2011.

The aim of this project was to digitize Science and Technology (S & T) literature generated by academic, research and related institutions in the country to facilitate easy online access to the full text of S & T literature through a National Network of Institutional Repositories operated by the respective institutions. Preserving local S & T literature and bringing them into global visibility are the other main objectives of this project.

The project was executed in three phases, digitizing approximately 3 million pages of S & T literature collections of twenty five key institutions in Sri Lanka. Phase I & Phase II of the NDP were successfully completed, covering seventeen institutions in 2013 & 2015 respectively. Phase III that commenced in 2016 (covering fifteen institutions) is currently in progress. It is expected to expand this national programme in 2019 with the coverage of about 100 S & T institutions in the country.

Developing digital repositories is one of the major tasks of the project. The NSF provides assistance to the participating institutions of the NDP in developing their repositories in numerous ways such as establishing repositories with continuous technical support and providing provisions for hosting facilities in the NSF server. DSpace, a Free and Open Source Software is used to develop the repositories. Twenty five digital repositories have been established since the inception of the project and eleven repositories out of them have been integrated to the NSF digital repository through a central portal, <http://dl.nsf.ac.lk/ohs/> enabling searches through all the repositories connected to the NSF digital repository via one single window paving the way for a wider access to S & T literature of the country.



Repositories established under the NDP



Digitization Process at Department of Agriculture

- DSC - Department of Census & Statistics
- ID - Irrigation Department
- NSF - National Science Foundation
- CEA - Central Environmental Authority
- GSMB - Geological Survey & Mines Bureau
- ITI - Industrial Technology Institute
- MASL - Mahaweli Authority of Sri Lanka
- NL - National Library
- CARP - Sri Lanka Council of Agricultural Research Policy
- IESL - Institution of Engineers of Sri Lanka
- CRI - Coconut Research Institute

- HARTI - Hector Kobbekaduwa Agrarian Research & Training Institute
- NARA - National Aquatic Resources Research & Development Agency
- NIFS - National Institute of Fundamental Studies
- RRI - Rubber Research Institute
- TRI - Tea Research Institute
- PGIA - Postgraduate Institute of Agriculture
- PGIM - Postgraduate Institute of Medicine
- SUSL - University of Sabaragamuwa
- SEUSL - Southeastern University
- UM - University of Moratuwa
- UR - University of Ruhuna

Open Source Digital Library Software ‘DSpace’



Transformation of traditional library services into digital platform is the modern trend of Library & Information Services in today's world. This low cost, economical and technically advanced solution provides distance learning facility to all Sri Lankans through a network. Sri Lanka Scientific Technical & Information Network (SLSTINET) was serving this purpose for many years. The National Science Library & Resource Centre (NSLRC) of the NSF is also in this network developing e-repositories for SLSTINET. The digital library is open 24 hours a day providing unlimited access to library sources for a wider spectrum of the society including school children, undergraduates, researchers, scientists and the general public. Aiming at enhancing digital library development skills of library & IT professionals of the SLSTINET libraries, the NSLRC organized a two-day workshop on “Open Source Digital Library Software ‘DSpace’ for the development of e-repositories” for SLSTINET libraries from 26th - 27th July, 2018. Mr Buddhin Kumara/ Senior Assistant Librarian of University of Moratuwa, Ms Thasneem Nias/Information Officer and Mr Chanaka A. B. Wickramasinghe/Library Assistant of the NSF were the resource persons. Around 30 library and IT professionals from SLSTINET libraries gained extensive practical knowledge on developing digital library repositories using ‘DSpace’ software at this workshop.

The NSLRC regularly conducts training sessions and workshops for SLSTINET and other libraries facilitating effective use of this national network of institutional repositories of worldwide S&T information through a single window.

Sri Lanka Journal of Social Sciences (SLJSS)

Volume 41; Issue 01 of June 2018 of SLJSS contains 5 articles in the fields of Political Science, Sociology and Education. These include two Review Articles, two Research Articles and one Book Review.

The Review Article ‘Liberal peace and peacebuilding: global and local debates in the context of Sri Lanka’, authored by Ramya Chamalie Jirasinghe, focuses on major global debates in peacebuilding and their application in the Sri Lankan conflict. K. Tennakone, in his Review Article ‘Historical and social aspects of solar eclipse occurrences’ discusses the history of solar eclipses and their social context, with special reference to situations in Sri Lanka.

‘Stroke and gender identity in teacher success: from learners’ viewpoints’, a Research Article by Zahra Noorbakhsh, Reza Pishghadam and Fahime Saboori, examines two traits of teachers which affect the success of their profession. Dhammika Herath’s Research Article ‘Social capital under conditions of ethnic conflict: how does social capital impact on development in

micro settings?’ discusses the relationship between development and social capital of six selected villages, in the time of conflict.

SLJSS June 2018 issue also contains a Book Review done by C. R. de Silva on “Confrontations with Colonialism: Resistance, Revivalism and Reform under British Rule in Sri Lanka 1796-1920”, (Volume 1), authored by P. V. J. Jayasekera.

Sri Lanka Journal of Social Sciences (SLJSS) has stepped up on indexing by being included in the Clarivate Analytics (Former Thomson Reuters) Emerging Sources Citation Index (ESCI) since July 2018, beginning with Volume 41 Issue 01. Criteria such as English-language requirements, electronic format, evidence of peer review, evidence of ethical publishing practices and timely publication were considered for being indexed in the ESCI. The Journal Publication Unit of the NSF is working towards SLJSS’s next step, which is to reach the Social Sciences Citation Index (SSCI). SLJSS is already indexed in Elsevier SCOPUS database.

Events

“Fake or Predatory Journals: The impact on research and development”



Prof. W G D Dharmaratne, Chairman/ Working Committee on Basic Sciences, Prof. L P Jayatissa, Department of Botany, University of Ruhuna, Prof. Jayantha Wijeyaratne, Chairman, NSF Research Advisory Board and Prof. Vijay Kumar, Chairman/ National Institute of Fundamental Studies delivering speeches.



The accepted procedure of dissemination and validation of research outcomes is the publication through peer reviewed journals or presentations at well-recognized conferences. With the development of information and communication technology (ICT), ‘Online Journals’

are becoming more convenient and effective in dissemination of knowledge. However, this has created an avenue for online fake or predatory journals, which are not following standard reviewing processes. Some Sri Lankan researchers, knowingly or unknowingly, have published research findings in such journals.

The NSF with the Working Committee on Basic Sciences initiated a discussion on this matter with the Heads of relevant Research Institutes and Universities in Sri Lanka with the objective of making the Sri Lankan researchers aware of these Journals and the harm they cause to our research. Setting up a mechanism to educate

young researchers in Sri Lanka on this issue and to take precautionary actions to protect them in their career advancement was another objective of this discussion.

The seminar was successfully held on 16th November, 2018 at the NSF with the participation of 35 Senior Scientists and Academics including Vice Chancellors.

The timely discussion was commended by all participants.

Converting a draft to a ‘Ready to Publish’ manuscript

Disseminating research results through publications is part and parcel of a research project. However, it was noted that only few completed NSF grants produce publications in peer reviewed journals. Considering the importance of publishing research results, the NSF organized an interactive workshop on “Converting a draft manuscript to a ‘Ready to Publish’ manuscript” in collaboration with the Research Promotion and Facilitation Centre (RPFC) of the Faculty of Medicine, University of Colombo from 19 - 23 October, 2018 at the NSF. The aim of this exercise was to support Research Students of NSF funded research projects and some of the young academics, developing scientific research writing skills to prepare manuscripts ready for publication. About 24 graduate students of NSF grants and young academics were mentored on their draft manuscripts during the workshop. This exercise was further assisted by the NSF Working Committee on Biotechnology. By the end of the second day of the workshop, the students were able to conclude the exercise, converting drafts to much improved manuscripts.

The success of a similar workshop held in August 2017 with 27 Research Students and young academics has resulted in publishing 05 research papers and 06 manuscripts pending publication.



Operational Guidelines for Ethics Review Committees



A recommendation to consider FERCSL guidelines as consensus guidelines for operationalizing the Ethics Review Committee in the Country was made at the stakeholder meeting to review the Operational Guidelines for Ethics Review Committees (ERC) held on 16th August, 2018 at the NSF. With the assistance of the Working Committee on Bioethics, the NSF initiated the discussion at this meeting. The discussion forum was composed of participants from Ethics Review Committees of Universities (both Government and Private), Research Institutes, Hospitals and National Health Research Council (NHRC) of the Ministry of Health, Nutrition and Indigenous Medicine.

Prof. Chandanie Wanigatunge the Chairperson of both the Forum for Ethics Review Committees in Sri Lanka

and Ethics Review Committee of the Sri Lanka Medical Association presented FERCSL- Guidelines during the discussion. Subsequently, Dr Sudath Samaraweera, Act. Deputy Director General, Education, Training and Research of the Ministry of Health, Nutrition and Indigenous Medicine presented the National Guidelines for the Establishment and Functioning of Ethical Review Committees in Health Care Institutions Prof. Rohini Senevirathne/Chairperson, NHRC, presented the NHRC Act and the ERCs.

Solid discussions took place and were moderated by the Co-chairs of the NSF Working Committee on Bioethics, Prof Anoja Fernando and Prof. Vajira Dissanayake.

Stakeholder Workshop for idea stimulation for the NSF Corporate Plan

As every business needs to understand its market and its ambitions, the NSF also needs to have a clear set of goals that will drive operations to help the outcome of its activities become more beneficial for socio-economic development. A corporate plan sets out a clear vision aiming at achieving this purpose and specifies actions required, and identifies the resources available to deliver the stated aims and objectives. As the NSF corporate plan is one of the important documents in the S & T sector that should continually derive innovations, a workshop with the participation of key external stakeholders was arranged to obtain specific inputs for preparation of a new plan for the next five years.



**International Conference on
“Social and Cultural Nexus of Science and
Technology Development (SCST)”
Colombo, Sri Lanka
August, 2019**



The NSF is organizing an International conference on ‘**Social and Cultural Nexus of Science and Technology Development (SCST)**’ to be held in August, 2019 in Colombo. The Conference aims at bringing in a corpus of multidisciplinary scholars to present their work on social and cultural aspects of science and technology development with a multifaceted landscape. The

outcomes of the Conference will feed into the discourse on S&T development, policy analysis and programme development.

Conference themes

1. Social and economic context of S&T development
2. Cultural factors influencing S&T development
3. Gender perspectives on S&T
4. Role of the private sector in S&T development
5. Public understanding of science and scientific literacy
6. Risks and benefits of modern technology
7. Education and S & T development
8. Media and S&T development
9. Traditional knowledge and S&T
10. State policy and S&T development
11. Science and Technology Diplomacy
12. Ethics in S&T

For more information visit <http://scst.nsf.gov.lk> or contact Mrs Dilushi Munasinghe/ Scientific Officer at +94 11 2696771-3 ext 167.

Feature update for the year

Prof. Ananda Jayawardane, Director General of the NSF, has been appointed as a member of the first Sri Lanka Engineering Council by His Excellency the President Maithreepala Sirisena in his capacity as the Minister of Mahaweli Development and Environment in accordance with the Sri Lanka Engineering Council Act. No 4 of 2017, for a period of two years. The aim of this Act is to maintain the standards and regulate the practice of engineering in Sri Lanka by registering different categories of engineering professionals such as Chartered Engineers, Associate Engineers, Affiliate Engineers, Incorporated Engineers, Engineering Diplomates and Engineering Technicians and handle related matters.



Feature update for the year

Completion of PhD degrees by NSF Staff Members

NSF Congratulates All PhD recipients and extends good wishes for brilliant careers!



Dr Mahesha Sigera Nadugala, Senior Scientific Officer attached to the International Liaison Division being conferred her Ph.D degree in Biomedical Sciences.

Dr Mahesha Nadugala was the first registered graduate student under Windows II category at General Sir John Kotelawala Defence University. Her research project was on the “Development of a vaccine candidate with a broadly reactive neutralizing immune response against Dengue”. She has identified several b-cell epitopes from dengue structural proteins, which have the potential to be developed as universal vaccine candidates, as well as genotype and serotype specific markers for the diagnosis of dengue. The findings have resulted in two national patent applications, three research publications in peer reviewed indexed journals and nine local and international scientific communications.

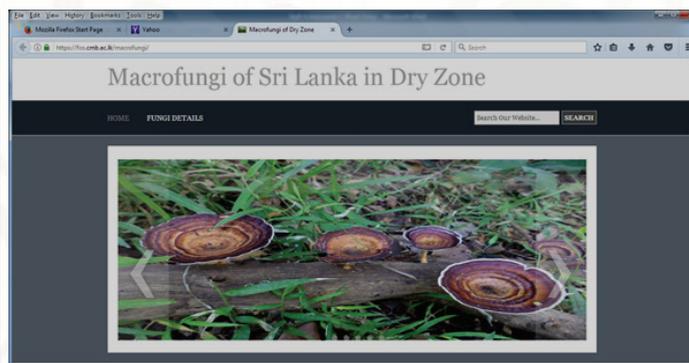
Dr Surani Ediriweera completed her Doctoral degree at the Department of Plant Sciences, University of Colombo. Her research project was on the “Morphological and molecular diversity of macrofungi in selected dry zone forest reserves in Sri Lanka and optimization of culture conditions of the edible counterparts”.

Her research work resulted in reporting several new records of macrofungi from Sri Lanka. The findings have resulted in four research publications in peer reviewed indexed journals, five local and international scientific communications and a pictorial guide on “Macrofungi of dry zone of Sri Lanka”.

Further, the findings were published as a database and are hosted at the website of Faculty of Science, Media (FOS Media) which can be accessed through <https://fos.cmb.ac.lk/macrofungi/>.



Dr Surani Saddha Ediriweera, Scientific Officer attached to the Research Division was conferred her Doctoral degree in Mycology at the Postgraduate Convocation of University of Colombo held on 13th November, 2018 at BMICH.



Dr Priyanwada Warakagoda received her PhD in the field of Plant Biotechnology from Department of Crop Science, Faculty of Agriculture, University of Ruhuna. The title of her thesis is “Efficient plant regeneration and enhancement of secondary metabolite production through callus and cell suspension cultures of *Coscinium fenestratum* (Gaertn.) Colebr.” This is a red-listed medicinal liana (common name: Weniwel) widely used in ayurvedic medicine and cosmetic industry which is long being harvested from the wild making diminished population. The findings of her research have resulted in 04 research publications in peer-reviewed indexed journals and 03 local & international scientific communications. The developed techniques are being applied by the Link Natural Products (Pvt) Ltd in their mass cultivation and productivity improvement programmes.



Dr (Ms) Priyanwada Warakagoda, Scientific Officer attached to the Technology Division was conferred her Ph.D degree in the field of Plant Biotechnology.



Dr Thamara F. Dias delivering the presentation on “IPR & Commercialization: The Global Trend & Current Status in Sri Lanka”

The 2nd International Research Symposium (IRSUWU-2018) of Uva Wellassa University was held from 01-02 February, 2018. Dr Thamara F. Dias/ Additional Director of the NSF was invited to conduct the session on “Market your Research Outputs through IPR & Commercialization” on the 2nd day of the Symposium.



Discussion at Q&A



The NSF acknowledges the work of Mr W Ajantha Sanjeewa/ Graphic Design Assistant in preparation of the “Vidya” Volume 20; issues No 1 - 4.

Staff Felicitation

As a part of the Golden Jubilee Celebrations held throughout the year, the NSF Staff was felicitated at a special ceremony held on 14th September, 2018 at NSF. This event was organized under the patronage of Prof. Sirimali Fernando/Chairperson & the Board of Management and Prof. Ananda Jayawardane/Director General of the NSF. The service provided by the Staff for 15 years and more were recognized offering special gifts to them. In addition, the hard work of each Staff Member was commended by offering gift packs. The Staff demonstrated their talents at the musical show which followed the felicitation ceremony. The entire ceremony was generously sponsored by several esteemed organizations at different scales. The Staff of the NSF honoured the efforts of Prof. Ananda Jayawardane, the Director General of the NSF for having obtained the sponsorships without which holding the ceremony was not possible. The Principal Sponsors of the event were; Mobitel and

Commercial Bank and the other sponsors of the event were; Bank of Ceylon, Sri Lanka Technological Campus (SLTC), Sri Lanka Insurance, National Institute of Business Management (NIBM), BOC Travels, People's Travel, Expographics and Analytical Instruments. The staff of the NSF deeply appreciates the sponsors for backing the NSF with their support.



Prof. Sirimali Fernando, Chairperson and Prof. Ananda Jayawardane, Director General addressing the staff

*Dr Geethika Yapa/
Head, Research Division
delivering a speech*



*Mr Anurasiri Dias &
Mr M D Vajira Staff member
of PL category with 31 years of
service are being felicitated by the
Chairperson /NSF*



*Ms Ayomi Palihawadana, Confidential Secretary, the employee
with the longest duration of service (36 years)*



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