

# Annual Report 2012



**National Science Foundation**  
**47/5, Maitland Place**  
**Colombo 07**  
**Sri Lanka**  
**[www.nsf.ac.lk](http://www.nsf.ac.lk)**



**NATIONAL  
SCIENCE  
FOUNDATION**



# Annual Report 2012



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47/5, Maitland Place,  
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## Chairperson's message

I am indeed pleased to present the NSF Annual Report for the year 2012.

The NSF takes great pride and responsibility as a key stakeholder in driving Science, Technology and Innovation towards socio-economic development of the country, through a knowledge based economy. To achieve this objective the Foundation works with a network of eminent scientists in all scientific disciplines, including the natural sciences as well as humanities and social sciences. At the outset I thank these scientists for their invaluable service rendered to the NSF and look forward to their fullest cooperation in our future endeavors.

In 2012, the NSF guided by the Mahinda Chinthana – a vision for the future, which has set a clear mandate for Sri Lanka to become a knowledge based economy by the year 2016 and observing the key role for STI in development as spell out in the National Science, Technology and Innovation Strategy 2011-2015, the NSF redefined the objectives of the corporate plan along with a new activity plan.

A novel mission oriented multidisciplinary, collaborative research programme named National Thematic Research Programme (NTRP) was initiated where the themes based on nationally dominant themes. The themes identified as priority areas to start with are the Food Security, Water Security, Climate Change and Energy Security. Although there were budgetary constraints, I am happy to say that we managed to launch the 'Food Security' programme within the budget allocated to the NSF.

I am pleased to state that as an outcome of the "Global Forum" of scientists held in October 2011 we were able to initiate several collaborative programmes/activities between local researchers/ industrialists and Sri Lankan expatriate scientists as well as in training local scientists in advanced laboratories abroad leading to the development of National capacities in Science Technology and Innovation.

Noting the importance of a critical mass of researchers trained in research methodology and skills for the socio-economic development the NSF launched the Support Scheme for Supervision of Research Degrees (SUSRED) to motivate support and recognize the scientists/engineers engaged in supervising students conducting research in the areas of Science, Technology and Innovation leading to postgraduate degrees (MPhils and PhDs). I am happy to say that the first award ceremony under this scheme was held in 2012.

Further to funding research in various fields of Science, Technology and Innovation including Science Education and Social Sciences, the NSF plays a leading role in the dissemination of research results in all disciplines through the two journals published by the NSF, the Journal of the National Science Foundation of Sri Lanka (the only journal in the country cited in the science citation index expanded) and the Sri Lanka Journal of Social Sciences.

The NSF continued to play the role of the key government institution dedicated to popularize science among the general public and school children as well as in promoting science education in the country, working with multifaceted sectors of the community.

The seminars/ workshops/ conferences organized and supported by the NSF attracted large numbers of personnel from various sectors of the community strengthening its contribution to the society.

Improvement to grant administration and management, implementing improvements to workforce management, encouraging ethical conduct of research, managing programmes and resources in times of budget austerity were some of the challenges faced during the year.

Despite the challenges and constraints the NSF managed to achieve its goals while maintaining its values and standards towards its dedication to serve the scientific community and the people of Sri Lanka and reach excellence in standards for integrity, innovation and team work.

As a responsible organization depending mostly on state funds we shall continue to seek opportunities to leverage our resources through Science, Technology and Innovation for the maximum benefit of the country. At the same time we will continue to make long term investments in the people, research and infrastructure needed to advance the progress of Science, Technology and Innovation to secure our nations prosperity.

I express my gratitude to the Director Ms. Anusha Amarasinghe and the staff of NSF who took most of the responsibility of executing the activities under taken in achieving the mission of the NSF.

I am confident that our stakeholders will be able to look towards NSF with confidence in the years to come with improved and strengthened conditions in terms of the working environment and a qualified and trained human resource base.

I thank the members of the Board of Management, the NSF National Committees, Advisory Boards and the Research Panels for their leadership and commitment towards achieving our targets during the year.

## Director's Report

This review focuses on the performance of the National Science Foundation, during the year ended 31.12.2012.

### **Financial overview**

The NSF made a significant progress in line with the organizational objectives through various activities as stated under the different thrust areas. However we were able to fund only a few grants that were approved in December 2012 since the total budget recommended by the national budget under capital expenditure was not released.

The NSF received over Rs. 2 million from IDRC to develop a regulatory framework for Nanotechnology related activities in Sri Lanka.

### **Achieving the objectives**

Despite the challenges and constraints experienced the NSF managed to achieve its objectives through the adoption of various strategies. A significant progress was made in achieving the objectives of facilitating, promoting & supporting Research, Development and Innovation (RD&I), capacity building of scientists and their institutions, Technology Development and transfer, strengthening the Science & Technology information, implementing Science for all initiative, strengthen S,T & I culture and Science Education, promoting international collaboration and maintenance of scientific databases.

### **Facilitating Research**

Under the competitive research grants scheme established to harness independent, individual and intellectual capacity of scientists to conduct research directed towards socio-economic development of the country 26 new grants were awarded. Forty six research students were funded to facilitate the research activities of the ongoing projects. 28 research papers were published in both foreign and local journals as outputs of the research projects. The commitment towards the new projects for the year was Rs.33.6 million.

### **S&T infrastructure**

Assistance is provided under the equipment and spare parts grants to acquire equipment and spare parts for research that is in general too costly to be purchased by the individual organizations. Seven equipment grants worth of Rs.7.49M and four spare parts grants worth of Rs.1.65M were awarded within the year.

### **National Thematic Research Programme (NTRP)**

The National Thematic Research Programme intends to promote mission oriented multidisciplinary collaborative research to address national needs of the country. NSF has identified four themes under this programme, Food Security, Water Security, Energy Security and Climate Change as priority to start with under the NTRP.

The Food Security programme was launched in 2012. Under this programme it is expected to produce appropriate recommendations and development tools and methods for improving food production, health and nutrition and post harvest handling of food.

### ***Technology and Entrepreneurial Development***

The award of grants for Technology Development and Support for Start-up Business based on new technologies were continued. Twelve grants were awarded amounting to Rs.29.6M where eleven grants were for technology development and one grant for start-up business.

In order to promote and recognize innovations and innovators the NSF entered into a MoU with the National Chamber of Exporters.

### ***Intellectual Property Awareness***

The Programmes to promote Intellectual Property (IP)awareness, provide technical advice on drafting and filing of patent applications and patent information search were continued.

### ***Nanotechnology Initiative***

The NSF organized the first National Nanotechnology Conference in the country under the theme “Nanoscience and Nanotechnology in Sri Lanka”. Several key recommendations were made at the conference to be followed in the future.

The draft nanotechnology policy was finalized for submission to the approval of the cabinet.

A project on developing a Regulatory Framework for Nanotechnology related activities in Sri Lanka funded by International Development Research Centre (IDR) Canada was implemented in partnership with five local institutes.

- A workshop on Ethical and Moral challenges of Nanotechnology was held with the objective to address ethical aspects of Nanotechnology adequately in the Regulatory Framework for Nanotechnology activities in Sri Lanka.
- A regional meeting with counterpart countries was held with the participation of project teams from India and Pakistan which facilitated the progress review of the project by sharing experience and harmonization of the Sri lankan component with the regional project.
- A mobile condensation particle counter for Nanotechnology worth of Rs. 1.5M was purchased using IDRC funds.
- A survey was conducted on available occupational safety and health practices of handling nano material.
- Two awareness seminars were conducted for media personnel while the awareness programmes for school children continued.

### ***Statistics for Policy Makers and Academics***

The NSF maintains an S&T Management Information system to provide most up-to-date S&T data that facilitate the policy formulation towards socio-economic development of the country.

A detailed Technical Report on R&D survey was published in 2012 highlighting the Gross Expenditure on R&D.

A policy brief on women in Science and Technology was published based on the tracer study on women scientists in Sri Lanka.

A technical report highlighting the policy recommendations to improve the mushroom based industry was compiled in 2012 for the use of all stakeholders.

### ***International Collaborations***

International collaboration in Science and Technology was continued. 36 travel grants were awarded to Sri Lankan scientists to present their research findings at international fora and to acquire knowledge on latest developments. 17 grants were awarded under the Overseas Special Training Programme to enhance national capacities in Science, Technology and Innovation by providing opportunities for training at centres of excellence abroad in areas where such training facilities are not available in the country.

### ***Empowering Sri Lanka through networking and knowledge***

As a follow-up of the Global Forum of Sri Lankan Scientist held from 13 – 15 December 2011, several key projects discussed at the Forum were initiated and are being continued.

### ***Sustainable Utilization of Natural Resources***

Noting the importance of Ocean and Marine Resources for the Socio-economic development of the country the NSF conducted a brain storming session to identify the gaps and priority areas in Ocean and Marine Sciences Research. A report was prepared identifying the gaps, priorities and key recommendations for the sustainable utilization of the Marine and Ocean Resources.

The nomination of the Mannar Biosphere Reserve was initiated and the nomination dossier of Ussangoda Geo park was completed for submission to UNESCO to be considered for nomination as a Geo park.

The preparation of the periodic reviews of the four International Biosphere Reserves (IBRs) Sinharaja, Bundala, Hirula and KDN complex were initiated.

### ***Popularizing Science***

Popularizing and promotion of ST&I among the general public and specially among the younger generation is one of the mandatory functions of the NSF which is essential for Sri Lanka to prepare the people for a knowledge society. This is achieved through various programmes and activities conducted by the NSF such as the School Science Society Programme, World Science Day – Schools Programme, Science Camps for the school children, publication of the Vidurava Science Magazine and the Science Books Series, Nanotechnology Awareness Programmes, capacity building of science communicators etc.

Three two day orientation programmes for science teachers in three provinces were conducted to strengthen and empower them in popularizing science at school and community level. 53 new School Science Societies were registered with the NSF increasing its number to 675. Seven resource persons were provided to the Science Day Programmes conducted by the schools. 27 school science projects were funded and 15 were completed. The phase 11 of the Mihimandala video programme was initiated with the objective of creating awareness among the general public and school children in S &T and how it could be applied in developing life skills improving living standards and in economic development.

### ***Promoting Science Education***

Learning of science and scientific method of inquiry should commence at a very early age in primary school. The Vidunetha Programme launched by the NSF to enhance the investigative ability, creativity and innovativeness among the school children of age group 8 – 12 years. Two workshops were conducted under this programme to train the master trainers in the Western Province. The Science Research Project Competition and the Sri Lanka Science and Engineering Fair were conducted among the school children where 150 and 60 school children participated respectively. The winners of the Sri Lanka Science & Engineering Fair had the opportunity to compete at international level at the Intel International Science and Engineering Fair held in Pittsburg, USA. Capacity building of science teachers; family science programmes, establishment of links between schools, industries and scientific institutes were continued.

### ***NSF Publications***

The Journal of the National Science Foundation, the only journal in Sri Lanka currently cited in the Science Citation Index expanded continued its publication and the impact factor was increased from 0.134 in 2011 to 0.232 in 2012.

The publication of the following was continued

- Sri lanka Journal of Social sciences
- Vidurava Science Magazine
- The monthly e-newsletter
- Vidya newsletter

### ***Fulfilling the information needs***

The National Science Library and Resource provides comprehensive online information by maintaining and updating national level databases to cater to the scientific community of the country.

The phase one of the National Digitation Project covering 09 S&T libraries was initiated to provide online access to the full text of S&T literature through Institutional Repositories (IR). Virtual servers were developed for institutions to maintain their IRs.

Support for access to international data bases was continued.

In order to promote resource sharing among the scientific community online catalogues of other S&T organizations were listed in the NSF server. Various programmes were conducted during the year for capacity building of Library professions and the NSLRC received a special award from the Sri Lanka Library Association for the outstanding contribution made by the NSLRC towards promoting S&T information in the country.

### ***Staff Development***

Education/Training programmes were provided to the staff to build up a competent and skilled staff.

***IT integration***

The development of an integrated online software solutions to improve the performance of organizational business process was continued. The website of the Foundation was redesigned and launched.

***Quality Management system***

The Quality Management system (QMS) activities were continued. The documentation work related to the implementation of the QMS was completed.

***Performance Management System***

The Performance Management System developed to drive the employee performance towards the execution of business strategies of the NSF was continued.

I take this opportunity to thank the Board of Management for all the support given to me in the execution of my role as the chief executive. I would also like to thank the members of the Advisory Boards, NSF National Committees, Research Panels, Technology Panels and other bodies for their valuable contribution rendered to the NSF. I express my sincere gratitude to the staff at all levels for their hard work and commitment in achieving the mission of the NSF and look forward to their continuous support and cooperation in the future. THE NSF will carryout its mandated tasks more efficiently and effectively towards the socio- economic development of our country.



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## **OVERVIEW**

The National Science Foundation (NSF) was established in 1998 by the Science and Technology Development 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 (NSC) set up in 1968. In 2008, NSF celebrated the 40 years of dedicated services to Science and Technology in Sri Lanka. The National Science Foundation is presently operating under the purview of the Ministry of Technology and Research (MoTR).

## **VALUES**

While upholding the two principles: universality of science and the freedom in the pursuit of knowledge NSF is committed to observe and uphold the freedom of scientists, as individuals, to communicate and associate with other scientists, globally, in the furtherance of their science without discrimination on the grounds other than scientific merit. Furthermore, in pursuing its objectives in respect of the rights and responsibilities of scientists, the NSF opposes any discrimination based on age, ethnic origin, gender, language, physical disability, political stance and religion.

## **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, innovations 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.

## **MANDATE**

The NSF is mandated for functions as specified in the Science and Technology Development Act No. 11 of 1994 as follows:

- 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 provide a central clearing house for the collection, interpretation and analysis of data, on the availability of, and the current and projected need for, scientific and technical resources in Sri Lanka, and to provide a source of information for policy formulation on science, technology and other fields.
- To popularize science amongst the people by funding and executing programmes for the purpose.

Accordingly, five goals are designed to encompass major aspects of the NSF Mandate and sixth goal is designed to improve the capacity of the NSF so as to function as a premiere S&T organization in the country and discharge its duties and functions as are assigned by the Act No. 11 of 1994 of the Democratic Socialist Republic of Sri Lanka.

### **STRATEGIC GOALS**

- Goal 1: To be the premier organization to promote RD&I, S&T capacity building and be a partner in promoting natural resources conservation and utilization for sustainable development of the country
- Goal 2: To be the leader in facilitation of technology development and transfer and to emerge as the eminent catalyst for RD&I commercialization
- Goal 3: To be the focal point to collect, collate, analyze, interpret, store, disseminate and provide access to STI information
- Goal 4: To be the leader in popularization of STI amongst general public and partner in promoting science education
- Goal 5: To be the key gateway for the international liaison of STI community
- Goal 6: To be the leading RD&I funding organization with improved governance, management and competent scientific, administrative, technical and support staff

### **ORGANIZATIONAL STRUCTURE**

The Chairperson heads the Board of Management (BoM) of the National Science Foundation. The Director is the Chief Executive Officer. Five out of Six Scientific Divisions are headed by a Principal / Senior Scientific Officer while the National Science Library and Resource Centre (NSLRC) is headed by a Principal Information Officer.

Administration and Finance Divisions are responsible for the general administration and financial affairs at the Foundation.

Scientific Officers and other Support Staff assist in the scientific and associated functions of the Divisions.

Internal Auditing, Printing and the Information Technology activities are handled by the staff of the respective Units.

Research Assistants, Technical Assistants and Consultants are hired on *ad hoc* and need basis to carry out specialized tasks and assignments as required by the BoM.

**BOARD OF MANAGEMENT OF NSF**

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

**Prof. Sirimali Fernando**

Chairperson

National Science Foundation, 47/5 Maitland Place, Colombo 7.  
*chm@nsf.ac.lk*

**Ms Anusha Amarasinghe**

Director

National Science Foundation, 47/5 Maitland Place, Colombo 7.  
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**Prof. Uma Coomaraswamy**

Emeritus Professor of Botany, The Open University of Sri Lanka,

**Deshabandu Prof. Tuley D. De Silva**

Special Technical Advisor, UNIDO, Vienna

Visiting Professor, University of Sri Jayewardenepura, Nugegoda.

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Off Thalawathugoda Road, Madiwela,

**Prof. Jayantha Wijeyaratne**

Professor of Zoology, University of Kelaniya, Kelaniya  
Representative of SLAAS

**Prof. A.K.W. Jayawardane**

Vice Chancellor, University of Moratuwa, Katubeddha, Moratuwa.  
Representative of IESL

**Prof. Harischandra Abeygunawardena**

Member/University Grants Commission  
Faculty of Veterinary Medicine & Animal Science,  
University of Peradeniya, Peradeniya  
Representative of UGC

**Ms. S.W.C Jayamini (from April 2011 - July 2012)**

Asst. Director, Department of Fiscal Policy, General Treasury.  
Representative of the General Treasury

**Mr A. Galhena (from September 2012)**

Deputy Director, Department of Treasury Operations, General Treasury.  
Representative of the General Treasury

### **NSF NATIONAL COMMITTEES**

The NSF has established 18 National Committees and one Technical Committee to align with the Science, Technology and Innovation Strategy for Sri Lanka 2011-2015 and the members were selected according to their expertise in the relevant field. The main responsibility of the NSF National Committees is to advise the Board of Management (BoM) on development and implementation of its plans and programmes based on the NSF mandate while ensuring alignment with the Science, Technology and Innovation Strategy for Sri Lanka with an orientation towards National Development Objectives.

The Advanced Technology Initiatives are addressed by:

- NSF National Committee on Nanotechnology
- NSF National Committee on Biotechnology
- NSF National Committee on Electronics and ICT
- NSF National Committee on Robotics, Advanced Design and Manufacturing
- NSF National Committee on Advanced Material
- NSF National Committee on Engineering and Manufacturing

The Techno-entrepreneurship Initiative is addressed by:

- NSF National Committee on Innovation and Techno-Entrepreneurship

R&D Funding and Efficient Mechanism for S&T Governance are addressed by:

- NSF National Committee on Research and Development

The International Partnership in Promoting High End Technology and Research is addressed by:

- NSF National Committee on International Partnerships
- NSF National Committee on International Council for Science (ICSU)

The 'Science for All' Initiative is addressed by:

- NSF National Committee on Science Popularization
- NSF National Committee on Science, Mathematics and Engineering Education
- NSF National Committee on Library and Information Services
- Technical Committee on the Science Centre

The Sustainability Principles are addressed by:

- NSF National Committee on Ethics in Science and Technology
- NSF National Committee on Social Sciences
- NSF National Committee on MAB
- NSF National Committee on Ocean and Marine Sciences
- NSF National Committee on Sustainable Use of Mineral Resources

***DIVISIONS OF NSF***

Scientific Divisions

- Research Division (RD)
- Technology Division (TD)
- Science and Technology Policy Research Division (STPRD)
- Science Popularization Division (SPD)
- International Liaison Division (ILD)
- National Science Library and Resource Centre (NSLRC)

Supporting Divisions

- Administration Division
- Finance Division
- IT Unit
- Printing Unit
- Internal Audit Unit



RESEARCH,  
DEVELOPMENT &  
INNOVATION (RD&I)  
AND TECHNOLOGY  
TRANSFER



## Research, Development & Innovation (RD&I) and Technology Transfer

### NSF Competitive Research Grants Scheme

The NSF Competitive Research Grants Scheme intends to provide assistance to supplement the financial, physical and manpower resources available for scientific research by supporting basic and applied scientific research. It facilitates to harness independent, individual and intellectual capacity of scientists and encourages them to carry out research of high standard, directed towards socio-economic development of the country at their own institution.

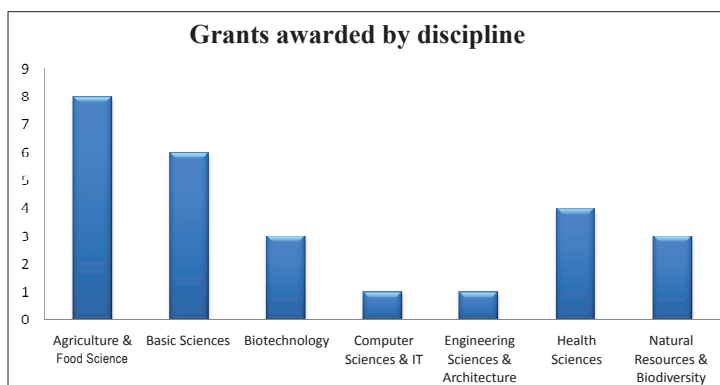
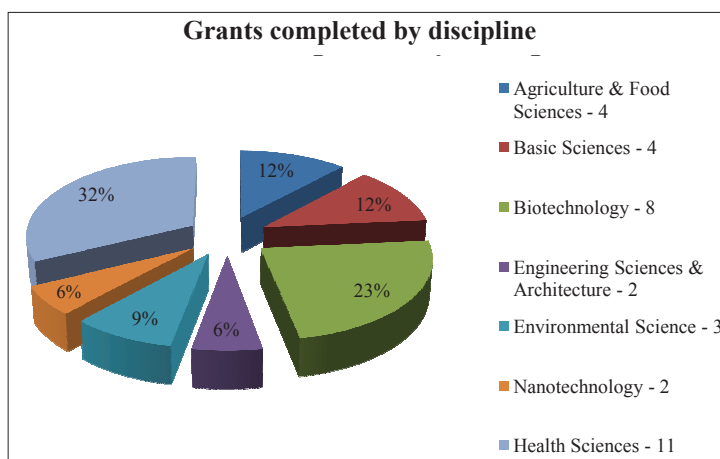
The first call of applications for Competitive Research Grants in all fields of Science & Technology was opened in June 2012. An Effective Proposal Writing Workshop was held on 19 June 2012 at

the ITI Auditorium with the participation of 150 prospective applicants to create awareness on submitting research proposals of high standard to the NSF Competitive Research Grants Scheme.

A total of 94 applications were received and processed according to the NSF approved procedure. 26 grants were awarded in 2012 amounting to a total of LKR 33.6 M for the first year. Details of the grants awarded are given in Annex 1.

Funds were released for 123 ongoing grants. Progress Review Seminars of ongoing research grants were held under nine Research Panels. A total of 34 grants awarded through the Competitive Research Grants Scheme were completed in 2012. Details of grants completed in 2012 are given in Annex 2.

Status of Competitive Research Grants as of 31.12.2012 is given in Annex 3.



**Summary of the Competitive Research Grant Scheme- 2012**

No. of Grants Awarded	26
No. of Grants Completed	34
No. of Ongoing Grants	123
No. of Research Students appointed	46
No. of Research Students registered for postgraduate degrees	39
No. of Postgraduate degrees completed	10
▪ PhD	01
▪ MPhil	07
▪ MSc	02
No. of Publications (Local/Foreign)	28
No. of Communications (Local/Foreign)	94

**Highlights of Completed Grants**

**Grant No.** : RG/2005/HS/01  
**Project Title** : Aetiological agents of bacteraemia and fungaemia in patients with neoplastic disease at cancer hospital Maharagama  
**Grantees** : Dr Kumudu Karunaratne, Dr A. A. D. Priyanthi, Microbiology Laboratory, Lady Ridgeway Hospital, Colombo 08

Patients with neoplastic disease are immunocompromised either because of cancer or due to its treatment. Therefore they are more prone to get infections. The common microorganisms encountered in cancer patients are bacteria and fungi. Since immunocompromised patients are at risk of life threatening sepsis they require immediate empirical antimicrobial therapy. Empirical antimicrobial therapy based on local reports of aetiology and drug susceptibility patterns is important. Changing pathogens responsible for infection, the emerging bacterial resistance and finding new antibiotics for treatment justify the need for research in this area on a continuous basis.

The study was conducted in order to determine the aetiological agents of bacteraemia and fungaemia in cancer patients in Sri Lanka and also to identify suitable antibiotics for the isolated organisms. There were 43 blood culture isolates from 41 (29%) patients. Methicillin resistant *Staphylococcus aureus* (20%) was the most frequently isolated organism, followed by Coagulase negative *Staphylococcus* (16.3%), *Pseudomonas* (11.6%) and Coliforms (6.9%). There was only one fungal isolate (2%). All Gram positive organisms were susceptible to vancomycin. *Pseudomonas* and *Acinetobacter* sp. had high susceptibility rates to a variety of antibiotics. There were no extended spectrum beta lactamase producing organisms, thereby enabling the treatment with penicillins and other related antibiotics.

**Grant No.** : RG/2005/HS/04  
**Project Title** : Risk analysis and prognostic factors of oral cancer in Sri Lanka  
**Grantees** : Prof. A.R. Wickremasinghe, Dr K.T.A.A. Kasturiratne, Dr A.A.P.S. Manamperi, Dept. of Community & Family Medicine, University of Kelaniya

The study was carried out with the objective of determining aetiological and prognostic factors of oral cancer. Information was gathered from patients treated at the National Cancer Institute, Maharagama. The study confirmed that betel chewing, illicit alcohol and smoking are important modifiable risk factors of oral cancer. Therefore, targeted preventive programmes are recommended in order to minimize the risk of developing oral cancer. According to the study, the importance of family history emphasizes the need for interventions on affected families. The study also suggests that the important prognostic factors such as the stage at diagnosis and waiting time for treatment can be modified by improving facilities for early detection and treatment.

**Grant No.** : RG/2006/AG/08  
**Project Title** : Biological control of vegetable pests by *Bacillus thuringiensis* (Bt)  
**Grantees** : Dr Radhika Samarasekara, Herbal Technology Section, Industrial Technology Institute Prof. D. Ahangama, Dept. of Agricultural Biology, University of Peradeniya

Several *Bacillus thuringiensis* (Bt) isolates were identified, which have the potential to be used as microbial bio-pesticides to control lepidopteran, dipteran and coleopteran pests of vegetable crops in Sri Lanka. Also Bt microbial pesticides were developed using two lepidopteran active Bt strains for crucifer vegetable pest control. In addition, some Bt strains isolated need to be evaluated (both laboratory and field) for their efficacy to control coleopteran pests and dipteran pests. The research team has made arrangements for commercialization of the identified pesticide with Bio Power Lanka (Pvt) Ltd.

**Grant No** : RG/2006/BT/01  
**Project Title** : Rapid and early detection of *Listeria monocytogenes* in milk and milk products  
**Grantees** : Ms. W.A.S. Wijendra, Ms K.A.K.C. Kulatunga, Dept. of Microbiology, Mr. R. Ramesh, Molecular Biology Unit, Medical Research Institute

The major human pathogen in the *Listeria* genus is *L. monocytogenes*. It is usually the causative agent of the bacterial disease, listeriosis, a serious infection caused by consuming food contaminated with the bacteria. The disease primarily affects pregnant women, newborns, adults with weakened immune systems, and the elderly. The study developed an early, rapid and cost effective PCR detection system and a more reliable molecular serotyping method. *Listeria monocytogenes* positive samples of dairy products were detected. Most of the isolates from raw milk samples represented the serotypes, which have previously been linked to multiple human listeriosis outbreaks. This study revealed the serotypes circulating in the country, which is of public health importance.

**Grant No.** : RG/2006/EB/08  
**Project Title** : Ecology of the Ussangoda serpentine flora  
**Grantees** : Dr M.C.M. Iqbal, Institute of Fundamental Studies  
Dr D.S.A. Wijesundera, Royal Botanical Gardens, Peradeniya.  
Dr G.W.A.R. Fernando, Dept. of Physics, The Open University of Sri Lanka

Plant species of Ussangoda have adapted and evolved on the serpentine soil to give a unique assemblage of plants with unusual morphological and physiological adaptations. Thirty one plant families were identified of which seven families with 10 species occurring on the serpentine plain. These were prostrate, dwarf or stunted, with small leaves, thick sclerenchymatous stems and extensive root systems. The other species are shrubs and trees occurring in isolated small patches. The prostrate species *Euphorbia*, *Evolvulus* and *Vernonia cinerea* were hyper-accumulators of Ni. Few of the shrub species accumulated Ni but tolerated high Mg content in their tissues. The results from this study demonstrate the plant adaptation under unfavourable soil and climatic conditions. As such this unique ecological habitat should be conserved. The nomination of Ussangoda as a Geo-park is under consideration.



**Grant No.** : RG/2007/BT/01  
**Project Title** : Expression of candidate genes for salt tolerance in Sri Lankan rice germplasm  
**Grantees** : Prof. W.A.J.M. De Costa, Dept. of Crop Science, Dr Devika M. De Costa, Dept. of Agricultural Biology, University of Peradeniya

The project aimed to identify candidate genes for salt tolerance from Sri Lankan rice germplasm. Six highly tolerant rice varieties at phase I and, ten tolerant varieties at phase II were identified. Up- and down- regulated genes of the known salt-tolerant Sri Lankan rice variety, At354, were identified. These genes could be used in developing new salt tolerant rice varieties.

**Grant No** : RG/2007/FR/07  
**Project Title** : Characterization of nanostructured polymer fullerence solar cells under direct sunlight  
**Grantee** : Dr P. Ravirajan, Dept. of Physics, University of Jaffna

One of the objectives of this study was to modify the interfaces within the active layer and top electrode of the solar cell with the view of enhancing the performance. In order to do so,  $\text{TiO}_2$  incorporated polymer solar cells and dye sensitized solar cells with natural (grape fruit dye) and synthesized sensitizers were made. The device structure adopted in connection with the hybrid  $\text{TiO}_2$ /polymer solar cells offered very high power conversion efficiency, however the reproducibility was found to be a problem due to the properties of the backing layer. As such, fabrication or modification of these solar cells will be done in future to improve the efficiency.

**Grant No** : RG/2007/FR/08  
**Project Title** : Hydrothermal synthesis and characterization of pure hydroxyapatite and hydroxyapatite-organic polymer nanocomposites for possible applications in dentistry and in artificial bones  
**Grantees** : Prof. R.M. Gamini Rajapakse, Prof. H.M.N. Bandara, Dept. of Chemistry, University of Peradeniya

The project aimed hydrothermal synthesis and polymer assisted synthesis of hydroxyapatite (HAP). In addition, biocompatible polymers such as polymethyl methacrylate and polyacrylic acid were synthesized. HAP organic polymer nanocomposites were also synthesized. Eppawala rock phosphate deposit was used to synthesize the nanocomposites. The HAP and nanocomposites have possible applications in dentistry and artificial bones. HAP is an osteoconductive material if used in stainless steel implant as a coating and it will add quality to the stainless steel implant.

### **NSF Research Awards**

The NSF Research Awards are made annually to researchers for research work of outstanding merit carried out on NSF supported grants. The purpose of the award is to bestow on researchers the recognition they deserve for the contribution made for the advancement of science. This award scheme is also meant to motivate recipients of research grants to conscientiously maintain high standards of scientific research while at the same time helping them to

enhance their own career prospects as recognized scientists.

NSF Research Awards for years 2010 and 2011 were processed and eight projects were shortlisted. Of these eight projects, three were recommended for NSF Research Awards under the disciplines of Basic Sciences and Engineering. Five Projects were recommended for Certificates of Commendation under the disciplines of Basic Sciences, Engineering and Health Sciences. The details of the award winners are given in Annex 4.

### **SUSRED Awards**

The Support Scheme for Supervision of Research Degrees (SUSRED) was initiated to motivate, support and recognize the scientists/ engineers engaged in supervising students conducting research in the areas of Science and Technology leading to postgraduate research degrees (MPhils and PhDs).

The first award ceremony of this scheme, *SUSRED Awards 2012* was held on 19 September 2012 at the National Science Foundation. Supervisory teams of eight PhDs and ten MPhils were rewarded at this ceremony. The details of the award winners are given in Annex 5.



### **Research Fellowship Grant Scheme**

The scheme supports to utilize the knowledge, experience and expertise of eminent senior scientists/ engineers for the national development needs of the country and to enhance the research conducted in the country to the international level through publishing research outputs in International/ indexed journals. One Research Fellowship was awarded to Prof. M. I. Thabrew of Institute of Biochemistry, Molecular Biology and Biotechnology (IBMBB), University of Colombo for the research titled *An in-vitro evaluation of the effects of a decoction prepared from Flueggea leucopyrus Wild., on the expression of heat shock proteins in breast cancer cell.*

### ***Institutionalize the concepts of benchmarking standards /good practices / quality enhancement within the NRIS and develop a Manual of Quality Enhancement System (QES) for NRIS***

The NSF National Committee on Research and Development prepared the format and identified the sections to be included in the Manual of Good Practice in Research and Innovations for Universities and Research Institutes. The relevant resource persons were invited to contribute to the identified sections.

### ***Sponsoring conferences/workshops/seminars***

The NSF encourages the organization of international, regional and national scientific meetings in Sri Lanka by offering financial assistance to the organizers of conferences, workshops, seminars and training programmes with a view to disseminate scientific findings and enhance opportunities for Sri Lankan scientists to interact with each other and with scientists abroad.

Sponsorships are offered for meetings in the fields covered under the purview of the NSF. Twenty sponsorships were provided in 2012 amounting upto LKR 6.91 M. The summary of sponsorships provided is given in Annex 6.

### **Key Scientific Meetings Sponsored by NSF**

#### **Workshop on current status in Thin Film Solar PV Technology – Institute of Fundamental Studies (IFS) and National Science Foundation, 28-29 June 2012**

The activity was a part of building-up a R&D potential in Sri Lanka on Solar PV technology, initiated through the Global Forum organized by the NSF. The two day workshop covered topics from basics of photovoltaic science and technology to applications largely focused on thin film solar cells. Special emphasis was made on the next generation of high efficiency and low cost Cadmium based thin film solar cells. It was highlighted the importance of providing training to young scientists and engineers on Solar PV technology as Sri Lanka will in the near future may embark on the utilization of solar energy.

#### **Sri Lanka Medical Association 125<sup>th</sup> Anniversary Annual Medical Congress – Sri Lanka Medical Association (SLMA), 2-6 July 2012**

244 research papers were presented. Symposia on a wide range of topics such as infectious diseases, respiratory diseases, stroke, cerebral palsy and workshops on e-health, reproductive health, birth defects etc. were held. Over 1200 participants consisting of professionals from medical and healthcare sectors participated at the Congress. A highlight of the forum was the Keynote Address on the National Strategy on Science, Technology and Innovation.

#### **4<sup>th</sup> Symposium on Plantation and Crop Research – Tea Research Institute (TRI), 20-21 September 2012**

The theme of this year's symposium was 'Technological Innovations for Sustainable Plantation Economy'. The event was organized by TRI in collaboration with Rubber, Coconut and Sugarcane Research Institutes. A total of 181 participants from four research institutes and 101 stakeholders attended the technical sessions during the two days. 31 papers were presented on five different sub themes covering new research findings in tea, coconut, rubber and sugarcane sectors.

#### **68<sup>th</sup> Annual Session of the Sri Lanka Association for the Advancement of Science (SLAAS) – SLAAS, 10-12 December 2012**

A seminar on the theme "Science for Sustainable Development and Prosperity" was held. Several important aspects related to the theme were covered by a group of scholars who are highly recognized for their contribution to the field. At the technical sessions, a total of 100 papers and posters on various important aspects of science and its applications were presented and discussed. An important highlight of the technical sessions was the Presidential Addresses delivered by the seven sectional presidents. Another highlight of the activities held was the Young Inventors Exhibition, where more than 1000 school children from various parts of the country, including North and North-East participated.

## Special Programmes Undertaken

### **National Thematic Research Programme**

The NSF initiated a novel contract research programme named National Thematic Research Programme (NTRP), where the themes are decided as per the national priorities. The NSF has identified 'Food Security', 'Water Security', 'Climate Change' and 'Energy Security', as the priority areas to start with under the NTRP.

The main objectives of this programme are

- Identifying the real gaps that lead to the issues in key priority areas.
- launching key research projects addressing those issues, so that the research outputs can be brought forward to the applicable level.

### **Food Security**

The programme is expected to produce appropriate recommendations and develop tools and methods for improving food production, health and nutrition and post-harvest handling of food. Further, it will address trade and new markets, delivering healthy and nutritious food to the entire population throughout the year, improving access to information. Essentially these efforts will lead towards national food programme, which will improve the resilience of the nation in relation to food and improve the ability to withstand expected and unexpected challenges such as economic crisis and climatic change effects.

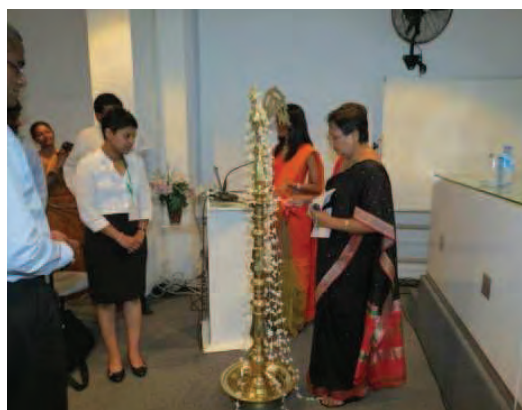
Expressions of Interest were invited from interested researchers in the five programmes under the theme Food Security, by an open advertisement. Three Planning Workshops were held with the participation of invited End-Users, Stakeholders, Steering Committee, Board Members and Board Sub-Committee on NTRP.

Seven grants were awarded under the theme Food Security. The details of the NTRP grants awarded in 2012 are given in Annex 7.

### **Other Related Activities**

#### ***Workshop on "Biosafety of Genetically Engineered Crops: Best Practices from Laboratory to the Farmers' Fields"***

Recognizing the need to enhance the understanding on biotechnology and biosafety issues among regulators and scientists in Sri Lanka, the workshop was organized by Genetech in collaboration with the NSF and with financial assistance from the International Centre for Genetic Engineering and Biotechnology (ICGEB). The workshop topics broadly discussed the introduction to biosafety, overview of approaches to biosafety in laboratory, greenhouse and field-testing relevant to the development and use of genetically engineered crops. These topics were presented in the context of regional and international treaties and regulations that Sri Lanka is a part of. In addition, the workshop focused on broader socioeconomic and ethical considerations that are part of the regulatory decision-making process. The main expected outcome of this workshop was, the close coordination between scientists and regulators, the lack of which has greatly hindered the progress of biotechnology in Sri Lanka. Two resource persons from the United States of America, two resource persons from India and 25 participants attended the workshop including two international participants.



### ***Draft Biosafety Act : A Dialogue with Scientists***

The NSF is committed to fostering the safe and effective use of a wide variety of new technologies that enable environmental sustainability and development in the country. Sri Lanka being a signatory to the Cartagena Protocol and the Ministry of Environment having developed the National Biosafety Policy, the Draft Biosafety Act, focuses towards biosafety in the country while facilitating research to progress. Considering the importance of the Biosafety Act to the country, NSF organized the workshop on “Draft Biosafety Act : A Dialogue with Scientists” on 31 July 2012, to give an opportunity for the scientific/stakeholder community to review and make comments to cater to the needs of the country. Two resource persons from India and 80 participants attended the workshop.

Based on the discussions at the workshop, a report was prepared proposing suggestions and giving comments/views of the scientific stakeholders and was submitted to the Ministry of Environment for consideration and revision of the Act.



### ***Prequalification of Diagnostic Assessment Process for Sri Lanka***

As requested by the scientists working in the field of Molecular Biology, in seeking assistance for validation of molecular diagnostic kits, the work

shop on “A Dialogue with Scientists: Prequalification of Diagnostic Assessment Process for Sri Lanka” was organized. The activity was co-organized by the Office for Science, Technology and Innovation (OSTI), World Health Organization (WHO) and National Science Foundation. The Consultant, Dr Ravi Kumar from India was sponsored by the WHO, Sri Lanka. Discussions were held at length to draft a procedure for Sri Lanka and the views of the stakeholders were considered when preparing the report to bring up a workable procedure for Sri Lankan scientists.



### ***Research, Development & Innovation Policy***

The preliminary draft of the RD&I Policy was developed. Comments were received from the members of the NSF National Committee on R&D for the preliminary draft and accordingly the draft was being revised for further improvement, in preparation for the stakeholder workshop.

## **Technology Transfer**

### ***Technology Grant Schemes***

- (a) Support for Technology Development**
- (b) Support for Start-up Business based on new technologies**

Applications were invited for consideration under the two Technology Grant Schemes in January 2012. A workshop on Effective Proposal Writing was held on 31 January 2012 at the NSF Auditorium

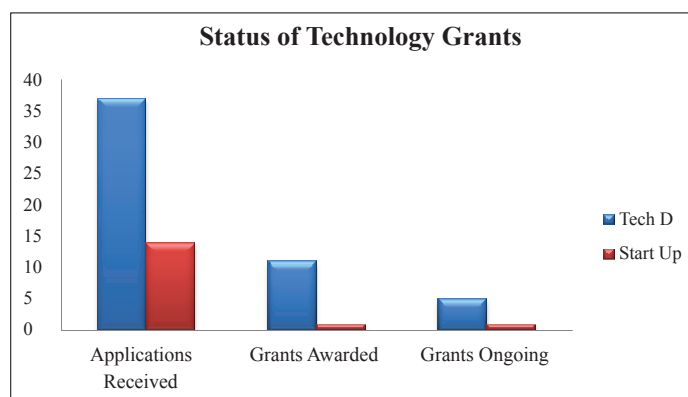
with a view to support prospective applicants to formulate good quality proposals according to the NSF prescribed format. There were 65 participants at this workshop from state and non state sector organizations as well as prospects under individual category.

Fifty one applications were received in total. 37 applications were under the scheme “Support for Technology Development” and 14 were under the scheme “Support for Start- up Businesses based on new technologies”.

Grant applications were processed according to the approved NSF procedures.

Twelve Technology Grants amounting to LKR 29.6 M were awarded in 2012. Status and details of Technology Grants awarded in 2012 are given in Annex 8.

An “Orientation Seminar for Grantees” – for Technology Grants recipients of 2012 was held on 18 December 2012. All 12 project teams including team leaders, team members and collaborators participated at this seminar. The aim was to make aware the grantees on NSF grant operating procedure, project management and evaluation aiming at delivering outputs as planned and protecting IP arising from the project work.



### Ongoing Technology Grants with Tangible Outputs

**Grant No.** : TG/2011/Tech-D/01  
**Project Title** : Quality improvement of Diesel Fuel Pump Test Bench  
**Grantee** : Mr Sarath Uyanhewa  
**Category** : Individual  
**Allocation** : LKR 402,640.00



Machine frame, machine beds, flywheel and drive head have been developed.

**Grant No.** : TG/2011/Tech-D/02  
**Project Title** : Improvement and field testing of a solar powered lift and carry type milking machine  
**Grantees** : Dr K.S.P. Amaratunga and Dr K.F.T. Silva  
**Category** : State Sector  
**Allocation** : LKR 1,545,500.00

Improvements were made to the existing prototype milking machine in terms of durability of parts and vacuum mechanism. Teat cups and pulsation mechanism were also improved for easy production of milk and less power consumption.

Three milking machines with different power supply mechanisms were developed based on wear and tear and ergonomics of improved prototype for field testing to come up with a marketable model. They are;

Model-1 Milking machine with batteries inside and charging with a solar panel.

Model-2 Milking machine without batteries inside. Powered by a solar charged external battery.

Model-3 Milking machine working on mains supply (12V DC stepped down).



**Grant No.** : TG/2011/Tech-D/03  
**Project Title** : COP Sayura : The three dimensional coastal surveillance system for Sri Lanka Navy High Command  
**Grantees** : Prof. N.D. Kodikara, Rear Admiral (L) K.R. Senadheera, Dr S.R.D. Rosa, Mr Kapila Dias, Dr C.I. Keppetiyagama, Mr K.D. Sandaruwan  
**Category** : State Sector  
**Allocation** : LKR 2,078,000.00

Cop Sayura is a visualization tool to depict the objects in the Sri Lankan territorial waters to enhance the decision making capabilities of relevant authorities. This visualization tool can be operated under 2D or 3D mode. Hence, there is the capability to three dimensionally view the movements of objects in strategic locations in real time. Decision makers would be able to navigate an Observation Ship in the environment and be able to observe the objects from any desired angle. In addition it is also possible to allow the observers to view the objects from the air.



***Follow up on outcome of research performed by Universities and Research Institutes***

A contractual assignment for a period of 3 months was given to Ms Sewwandi Alwis, Research Assistant to study/review the research publications/abstracts (2010-2011) for mining of research outputs with potential commercial value. Assignment included;

- Carrying out of a literature survey and a preliminary questionnaire survey, followed by interviews with researchers.

- Providing lists of reviewed theses, journals, conference proceedings etc. and research outputs with potential commercial value under different disciplines.
- Screening research outputs with potential commercial value for further consideration by NSF.

1658 publications were studied and a report was submitted recommending a few publications with R&D outputs of potential commercial value.

***Follow up on R&D outputs of NSF funded research grants and others with a view to further develop the outputs to the level of commercialization***

Forty one final reports of completed research grants in 2010 were reviewed for follow up. Nine projects were identified as having potential outputs for follow-up. These grantees were invited for discussions and were encouraged to apply under Technology Grant Schemes. As a result, two project proposals were received for consideration under Technology Grant Schemes in 2012. After a thorough evaluation, one application was approved for funding under the grant scheme "Support for Start-up Businesses Based on Novel Technologies" for Prof. K.K.Y.W. Perera (Grant No: TG/2012/Start-Ups/01).

Seventeen summary reports of completed research grants in 2011 were studied and eight projects were selected for further study and follow-up.

***Formulation of a policy and regulatory operational system conducive for encouraging and establishing partnerships***

A committee was setup to review the work related to the policy formulation on University-Industry-Institute Partnership (UIIP). A ToR was finalized. Methodology for formulation of the policy was discussed and the proposal prepared. Policy formulation would be initiated in 2013 as per the proposal.

***Conduct industry surveys and update the information***

Scientific Officers visited 20 selected companies relating to Light Engineering sector with Mr S.W.P. Wijekoon, Consultant/Small & Medium Enterprise Development (SMED), who was assigned to carry out the Survey on Current Status of Light Engineering Sector in Sri Lanka. Information on industry needs and gaps were identified. A report was prepared. The industry database was continuously updated

with the information gathered during the visits.

***National S&T Awards and NSF Technology Awards for inventors and entrepreneurs***

S&T award categories were revised and 15 categories were identified under which the next set of applications will be called. Improvements to the scheme are being done based on the recommendations given in the assessment on the S&T awards scheme report.

***IP awareness programmes***

- Conducted a seminar on Inventions for Ordinary Level and Advanced Level students at Biyagama Central College on 2 April 2012. 60 students participated at the seminar which facilitated enhancing knowledge about requirements of an invention (*i.e.* novelty, inventive step, and industrial applicability) at school level. Some of the national level award winning inventions were cited at this seminar with a view to encourage students towards inventions.
- A presentation was made on Patent Information for Researchers and Information Professionals at the workshop on "Empowering Researchers with Information" held on 24 August 2012 at the NSF auditorium. There were 54 participants from R&D institutions.
- Two presentations on IP awareness and protection were made at the technical sessions held on 10 & 11 December, 2012 in Jaffna at the event of "Reconciliation through Technology & Research", organized by the Ministry of Technology & Research.

***Technical advice for drafting and filing patent applications/Patent information search***

NSF provided consultancy to 20 inventors on patentability of inventions and filing patent applications. These inventors were school children, university researches, university graduates as well as inventors directed to the NSF by the Ministry of Technology & Research.

Technical support was given to one inventor to file a PCT application electronically through the PCT-SAFE software.

- Title of the invention : Movable Balloon Prosthesis for Endoscopes  
Application No. : PCT/IB2012/055014  
Filing Date : 21 September 2012  
Inventor : Dr A.H.M.P. Anuruddha

### ***Establishing Vidatha Centres - centered IP facilitation centers***

Following Vidatha centres were identified for the next phase and informed to the Ministry of Technology & Research.

- Bandaragama Vidatha Resource Centre (Western Province)
- Kuruwita Vidatha Resource Centre (Sabaragamuwa Province)

However the National Intellectual Property Office (NIPO) informed that the project was taken over by the Ministry of Industry and Commerce, hence was not continued.

### ***Skill development of scientists on technological aspects of IPR documentation***

Preparatory work on the workshop on "Patent Drafting" which is to be held in January 2013 was being progressed. The objectives are to develop a competent resource pool capable of drafting patents to share knowledge with fellow scientists and researchers in their institutions and to make an effective contribution in drafting patents.

### ***Survey on Advanced Material***

On the recommendation of the National Committee on Advanced Material, information related to Advanced Materials based on research grants funded by the NSF, NRC and IFS were collected. A

survey on Advanced Material was being planned, to identify Advanced Materials produced in Sri Lanka. Survey questionnaire was finalized and relevant companies were identified. Applications were called for selecting a suitable consultant to conduct the survey. Four applications were shortlisted and applicants were interviewed. A special meeting was held with a Board Member and Chairman of the Committee to discuss about the scope of the survey.

### ***Recognizing and promoting innovations***

On the recommendation of the National Committee on Innovation and Techno-Entrepreneurship and with a view to promote and recognize innovations and innovators in enterprise community, the NSF entered into a MoU with the National Chamber of Exporters (NCE) on 19 December, 2012 at a ceremony held at the Galadari Hotel.

The NSF co-opted the Director Member Services of the NCE to its National Committee on Innovation and Techno-Entrepreneurship. The Chamber co-opted the Director of NSF to serve as an advisor in its Council. Further a representative of NSF was also appointed as a member of the Panel of Judges to evaluate and select award winners, who excel in their efforts at innovating.



***Enhance innovation and techno-entrepreneurial knowledge and skills among secondary to postgraduate level students***

A study/ review of R&D outputs with potential commercial value, emanated from Universities and public R&D institutions during the year 2010 – 2011 was completed. Accordingly a report based on stock of innovations (research outputs with potential commercial value) added during 2010/2011 was compiled.

Review of award winning school inventions/ projects was done. Activities were identified for follow up work. Concurrence of the Institute of Engineers Sri Lanka (IESL) was obtained to follow up with award winning projects of the Junior Inventor of the Year competition, which have the potential for commercialization.

**Activities conducted on Nanotechnology**

***National Nanotechnology conference***

A landmark event to facilitate commercialization and adoption of nanotechnology across different sectors, NSF organized the country's first National Nanotechnology Conference under the theme "Nanoscience and Nanotechnology in Sri Lanka: from Science to Commercialization" held on 24-25 August 2012 at the Mount Lavinia Hotel. The conference was arranged under the guidance of the National Committee on Nanotechnology.



The two- day conference featured a line-up of distinguished academics, industry representatives and stakeholders who debated and discussed various aspects of nanotechnology from R&D to commercialization. 150 participants participated at the conference. Recommendations drawn up at this conference is given in Annex 9.



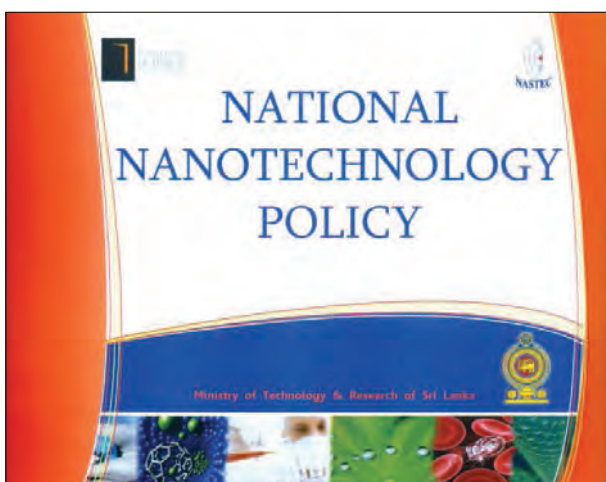
Follow-up actions on recommendations will be carried out together with the NSF National Committee on Nanotechnology.

**Key Recommendations of the National Nanotechnology Conference**

- Establish and enhance mechanisms for linking research and commercialization.
- National level solid R&D strategic plan with clearly defined time bound milestones.
- Establishing a Technology Development Fund.
- Government support to ensure liquidity for banks to support innovations/ technology development.
- Researchers shall undertake research projects originated from demand side/industry needs.
- State should invest in HR and R&D infrastructure development and long term research.
- Research focused on economically important sectors having national importance i.e. textile, rubber etc.

### **National Nanotechnology Policy**

Formulation of the draft National Nanotechnology Policy was finalized. Translation into Sinhala and Tamil languages was in progress to be submitted for the approval of the Cabinet. The draft policy document is available at <http://www.nsf.ac.lk/images/stories/TD/Version12.pdf>



### **Developing a regulatory framework for Nanotechnology related activities in Sri Lanka**

The Project titled “Developing a regulatory framework for nanotechnology related activities in Sri Lanka” funded by International Development Research Centre (IDRC), Canada is the Sri Lankan component of the regional project titled “Nanotechnology in South Asia – Building Capabilities and Governing the Technology”. The regional project is jointly implemented by Sri Lanka (National Science Foundation), India (The Energy and Resources Institute) and Pakistan (Preston University).

The project is implemented by NSF together with five local partner institutions, namely, Sri Lanka Standards Institution (SLSI), Institute of Policy Studies (IPS), National Institute for Occupational Safety and Health (NIOSH), Practical Action, Sri Lanka Institute of Nanotechnology (SLINTEC) and a

team lead by Prof. Anoja Fernando. Memorandum of Understanding was signed between each of the partner institution and NSF in May 2011. The project is expected to be completed by March 2013 and the expected output is a document on procedures, guidelines and regulations for handling nanotechnology related activities. Work of the project was in progress as mentioned below.

- *Workshop on Ethics in Nanotechnology*

To enhance awareness among ethics in Nanoscience and Nanotechnology under the IDRC project work package 4, the team led by Prof. Anoja Fernando organized a workshop on “Ethical and Moral Challenges of Nanotechnology” in September 2012 at Colombo City Hotel. The overall objective of this workshop was to address ethical aspects of Nanotechnology adequately in the regulatory framework for nanotechnology related activities in Sri Lanka.

Resource persons included Prof. Soraj Hongladaram (Director, Centre for Ethics of Science & Technology, Chulalongkorn University, Thailand) who is one of the world’s leading thinkers in the field of Ethics of Science and Technology with Prof. Anoja Fernando (President, Asian Bioethics Association), Dr Enoke Corea and Dr Deepthi de Silva. There were 95 participants for the workshop including foreign distinguished scientists, academics, industry representatives, stakeholders and representatives



from NGO's. Additionally, two project teams from India and Pakistan also participated at this event with a view to share their experience on the topics discussed.

The workshop facilitated a floor to debate and discuss ethics in research, ethical

issues in nanotechnology and national and international guidelines on Nanoethics. Further, group discussions focusing on "Developing guidelines for Sri Lanka" were effectively carried out and discussions were extended towards identification of gaps in the field of Nanoethics and remedies.

#### **Recommendations made at the Workshop on Ethics in Nanotechnology**

- Policy makers shall formulate policies to cover entire life cycle of the product.
- Policies and regulatory guidelines should facilitate industry product development, commercialization and social benefits.
- Journalists are responsible for giving balanced accurate information to the public.
- Reports with regard to benefits and risks of nanotechnology should be evidence based.
- Training of journalists as effective science communicators will facilitate reporting balanced and accurate information to the public.
- Methods for standard labelling mechanism for nanotechnology products.
- Establishing a revolving fund with contribution from both private and public sector to facilitate research towards said toxicological analysis.

Follow-up actions on recommendations drawn related to gaps in the field of Nanoethics and possible remedies would be carried out in 2013.

- *IDRC project regional meeting*

A regional meeting with counterpart countries was held on 12 - 13 September 2012 at Hotel Renuka with the participation of project teams from India and Pakistan. There were 35 participants from three countries representing academia, industry and the non-state sector. Overall objective of this meeting was to set up realistic procedures and regulatory guidelines for nanotechnology related activities in Sri Lanka in coherent with the region. The meeting facilitated progress review, sharing experience and harmonization of Sri Lankan component of the project with the regional project.



- *A global survey of National Nanotechnology Initiatives*

An Internet based global survey of National Nanotechnology Initiatives by 60 countries was carried out with a view to understand regulatory

mechanisms established by those countries for nanotechnology governance. In-depth analysis of nanotechnology regulatory regimes of top ten countries selected from the above survey was completed. Crucial elements of regulatory frameworks and their interaction were identified and a schematic diagram of the same was drafted.

- *Survey on occupational safety and health practices*

A survey on available occupational safety and health practices of handling nano material was carried out. Development of a manual on Good Laboratory Practices (GLP) was in progress.

- *Purchase of equipment*

A Mobile Condensation Particle Counter for Nanotechnology worth of LKR 1.5 M was purchased utilizing IDRC project funds. Work was in progress to purchase an office container to NSF utilizing project funds.

- *A National Mirror Committee (NMC)*

A National Mirror Committee (NMC) was established to identify and recommend standards published by ISO where relevant and applicable to Sri Lanka.

- *Awareness seminars for media personnel*

Media personnel are crucial elements in dissemination of accurate information on benefits and risks of nanotechnology to the public at large. Accordingly, two awareness seminars were conducted for print and electronic media personnel to enhance their knowledge on Nanotechnology.

- *Progress review meeting*

A progress review meeting was held on 15 November 2012 with partner institutions. A Regulatory Framework was developed with the identification of crucial elements of such a framework and the draft was disseminated to the relevant stakeholders for comments/inputs.

S&T POLICY  
RESEARCH AND  
STRATEGY  
FORMULATION



## S&T Policy Research and Strategy Formulation

### *National Research and Development Survey*

NSF has been conducting the regular National Research and Development Surveys once in 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 and expenditure for Research and Development, availability of Human Resources and the Outputs of the S&T sector.

Based on the analysis of data and other related information collected by the National R&D Survey 2008, the aforementioned indicators of Science, Technology and Innovation were developed and the book titled “*Sri Lanka Science, Technology and Innovation Statistical Handbook 2008*” was published in 2010. The detailed Technical Report on R&D survey 2008 was published in 2012. Both books are being used by the stakeholders viz, the treasury, ministries, policymakers, planners, researchers, scientists and technologists, foreign and local donor agencies etc.

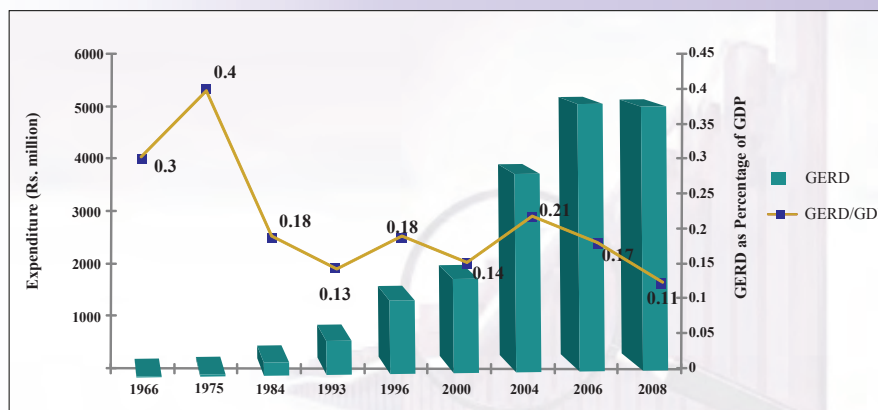
The subsequent fourth survey, the *National Research and Development Survey 2010* was

commenced in 2011, which collected the data pertaining to the year 2010. The data collection was continued in 2012 covering the higher education sector, S&T institutions, R&D institutions and the local and foreign non government organizations (NGOs). The data collection in the Industrial sector was also completed in collaboration with the Department of Census and Statistics in the year 2012. The respective “*Sri Lanka Science, Technology and Innovation Statistical Handbook 2010*” would be published by May 2013.



### Highlights of National R&D survey - 2008

- Sri Lanka spent a total of LKR 5,047.73 M (USD 46.1 M) on R&D corresponding to 0.11% of the GDP of the country.
- Gross expenditure on R&D in Sri Lanka

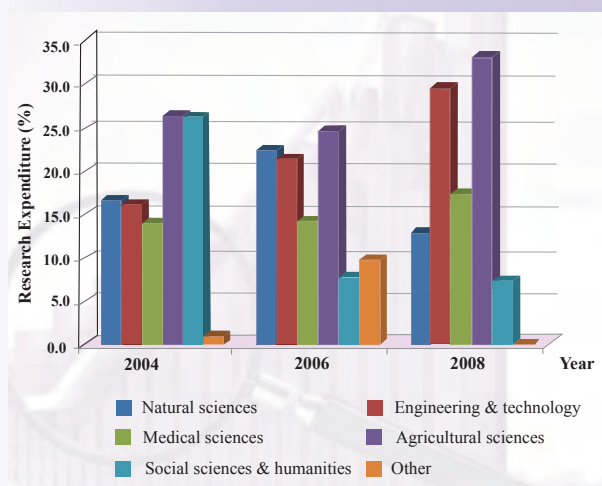


- The private sector (business sector enterprises) contribution for R&D increased to LKR 1,004.01 M, which was 19.9% of the total R&D expenditure.
- Foreign sector contribution to R&D decreased to LKR 215.58 M, which was 4.3% of the total R&D expenditure.
- Gross expenditure on R&D (GERD) by source of funding in selected countries

Country	Year	GERD					
		% GDP	% Business enterprise	% Government	% Higher education	% Private non-profit	% Not specified
Australia	2006	2.17	57.31	14.07	25.73	2.89	-
China	2007	1.49	72.29	19.23	8.48	-	-
Indonesia	2005	0.05	3.74	96.26	-	-	-
Iran	2006	0.67	14.21	55.34	30.45	-	-
Israel	2007	4.74	78.70	5.14	12.56	3.60	-
Japan	2007	3.44	77.89	7.77	12.59	1.75	-
Malaysia	2007	0.64	84.92	5.18	9.90	-	-
Pakistan	2007	0.67	73.25	26.75	-	-	-
Republic of Korea	2007	3.47	76.25	11.65	10.65	1.45	-
Russian Federation	2007	1.12	64.24	29.10	6.33	0.33	-
Singapore	2007	2.61	66.81	12.16	21.03	-	-
South Africa	2006	0.96	55.94	22.80	19.97	1.29	-
Sri Lanka	2008	0.11	19.90	71.80	-	-	8.3
Thailand	2006	0.25	40.92	-	-	-	59.08
United Kingdom	2007	1.84	64.10	9.22	24.54	2.14	-
United States	2007	2.67	71.91	10.67	13.26	4.16	-

Source : UNESCO Statistics 2009

- National expenditure on R&D (GERD) by discipline 2004 - 2008



- In 2008, Sri Lanka had a total work force of 44,655 in the S&T related organizations.
- Science and technology personnel (STP) by category 2006 & 2008

STP Category	2006			2008		
	Total number	Per cent of STP	Per million inhabitants	Total number	Per cent of STP	Per million inhabitants
S&T scientists	7,907	17.9	399.3	10,222	22.9	506.0
Technicians	9,803	22.2	495.1	7,978	17.9	395.0
Other supporting staff	26,358	59.9	1,331.2	26,455	59.2	1,309.6
Total STP	44,068	100.0	2,225.6	44,655	100.0	2,210.6

Source : National R&D Surveys Sri Lanka 2006 & 2008 (NSF)  
NOTE : Total STP includes all researchers, other scientists & engineers in the service sector institutions, plus technicians and supporting staff

- In 2008, 1,292 completed postgraduate degrees, which included 24-Ph.D; 235-MS/MD; 73-M. Phil; 617-M.Sc/M. Eng and 343-Postgraduate Diploma.
- Number of patents registered by residents by sector 2002- 2008

Category	2002	2004	2006	2008
S&T institutes	5	5	3	10
Higher education institutes	1	4	1	4
Private institutes	4	13	4	6
Individuals	52	77	60	69
Total	62	99	68	89

Source : Adapted from information of the National Intellectual Property Office of Sri Lanka

### **Science, Technology and Innovation Policy Research Projects**

#### **Tracer Study on Women Scientists in Sri Lanka**

The survey was conducted to study the distribution of women scientists in various sectors in Sri Lanka and the problems and constraints faced by them. The data collection and analysis were completed and

the technical report with policy recommendations was submitted to the Board of Management in 2012. Based on the data, a Policy Brief on "Women in Science and Technology" was published by the NSF and the findings and recommendations given in the report will be useful to policy planners and relevant authorities to be aware of the evidence based scenario.

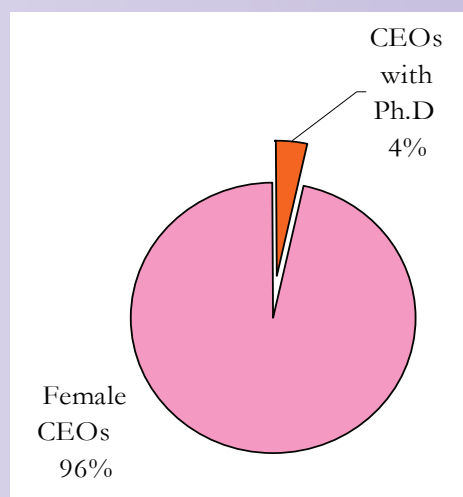
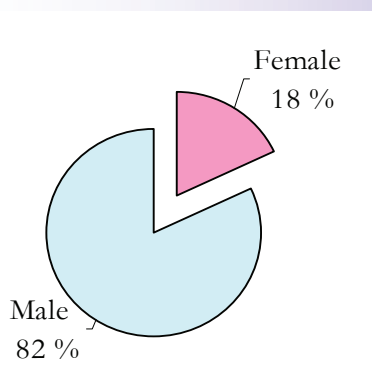
**Key Findings and Recommendations of the Policy brief.**

- Distribution of R&D scientists by sex and sector 2004-2006

Sector	Year		2006	
	Total	Female%	Total	Female%
Higher Education	2,920	40	2,839	43
State	1,413	36	1,479	42
Private	269	26	202	22
Total	4,602	39	4,520	41

National R&D Surveys 2004<sup>9</sup> and 2006<sup>8</sup>

- Women doctoral degree holders in higher administrative positions such as VC/ Dean/Director/ Chairman/CEO



- Policy initiatives should be taken to eliminate any barriers that prevent women scientists entering into high level administration positions.
- A few places should be kept reserved for women scientists in these government and professional bodies and they should be encouraged to assume such positions.
- Family-friendly policies geared towards supporting women scientists in child bearing and caring, such as having flexibility in working conditions, can be adopted at the institution level.

### **Tracer Study of Science and Technology Doctoral Degree Holders**

First draft of the Technical Report on “Tracer Study of Science and Technology Doctoral degree holders” was completed. A Science & Technology Officer, completed a MSc degree in statistics, based on this study. The findings and recommendations given in the report will be useful to policy planners and authorities of universities, R&D Institutions and S&T sector stakeholders.

### **Small and Medium Industrial (SME) Cluster Studies**

#### *a) Case study on Mushroom based Industry*

This study was initiated in 2010 to investigate and understand the innovation process and their institutional context pertaining to mushroom

farming and the mushroom based industries in the country. The study looked into the role and involvement of the government institutions, ministries, R&D institutions, SME promoting policy planning bodies, universities, non-government organizations, exporters, farmers and all the other actors that have networked into the proper functioning of the existing system. Data were analyzed to measure:

- (a) strengths & weaknesses of the linkages,
- (b) barriers & problems in the system and
- (c) research and technology gaps.

The study was completed in 2011 and the relevant Technical Report highlighting the policy recommendations to improve the mushroom based industry was compiled in 2012 for the use of all stakeholders.

#### Recommendations of the case study

- It is necessary to have an effective interaction between farmers and government extension officers in regard to advice, guidance and knowledge in new technologies.
- Availability of better and low cost substrates, methods of maintaining hygienic conditions in the culturing sheds, effective disease controlling methods, introduction of new edible mushroom types etc. to the farmers are essential along with dissemination of research findings of the R&D institutions to mushroom growers.
- Establishment of mushroom producing farmer clusters all over the country will help sustainability of small and medium mushroom enterprise.

#### *b) Case study on the Rattan (Cane) based Industry*

The study was commenced to understand the distribution, linkages, actors involved in the rattan based small and medium industry in Sri Lanka and to find out the problems, constraints, gaps etc. existed in the network. The data collection was

started in May 2011 and was continued in 2012 as well. The technical report preparation was in progress. The report, once completed, would identify the policy recommendations targeted on the development and sustainability of the small and medium enterprises of cane industry. This would be of use to the relevant authorities.

**Assessment of NSF Research grants during 1998-2008: Process, output, outcome and socio-economic impact**

This research project was initiated at the end of 2011 aiming at performing a comprehensive assessment of the NSF Research Grants Scheme in the direction of

- i) knowledge creation and technology generation,
- ii) S&T capacity building and in sustaining national research system to engage in research, development and innovation thrust,
- iii) national productivity, product development and quality improvement and
- iv) S&T information generation, collation, processing and dissemination.

A pilot study was conducted by the Science & Technology Policy Research Division (STPRD) in 2011. Based on the information received from the pilot study, a comprehensive research project was developed in 2012 under the guidance of a Sub-Committee of the Board of Management (BoM), which is still ongoing. The findings will be of use to the NSF management to improve the existing Research Grants Scheme.

**Impact assessment of equipment grants awarded by NSF**

As requested by the BoM, a study on impact assessment of Equipment Grants awarded by the NSF during 2007-2011 was undertaken in July 2012. A pre-tested questionnaire was employed for the data collection and all the institutes that received equipment grants were visited by the research team. The data collection was completed by the end of 2012, which is to be analyzed and completed with recommendations that will be of use to the NSF management to improve the Equipment Grant Scheme at NSF.

**Other S&T related databases:**

The STPRD develops various databases relevant to the S&T sector. Such information will be of use to many stakeholders. i.e.

- Database on Sri Lankan Expatriates – ongoing project and data collection continued throughout the year.
- Database on Technical Persons – data collection was commenced in 2011 and continued throughout 2012.
- Database on A/L science graduate teachers – data collection commenced in 2011 and continued throughout 2012.
- Database on inventors in Sri Lanka – ongoing project and routine data was updated.

**Activities conducted in Social Sciences**

- Identifying the importance of training young scientists/social scientists in conducting the social sciences research, the National Committee on Social Sciences recommended a two day training workshop on “Social Sciences Research and Comprehensive Research Proposal Development”, which was held from 24 - 25 February 2012. Thirty young scientists/social scientists were trained in this direction.
- Identifying the importance of the topic at the present time, the National Committee on Social Sciences recommended organizing a seminar on “Development Induced Resettlement”, which was held on 15 November 2012 at the NSF Auditorium. The senior officials of the relevant ministries, researchers and academics working in the area and officers of local and foreign Non-Government Organizations were brought together on one platform to share their experience, knowledge and research data etc., along with recommendations. A technical report is being compiled, which will be made available for the use of all stakeholders including the general public.

- Identifying the non-availability of an information network on local Social Scientists, the National Committee on Social Sciences recommended compiling an online directory on social scientists. Initial work such as the preparation of registration forms and the media advertisements were completed in 2012. An online directory of social scientists will be immensely useful for finding expertise and their services; for introducing social scientists and widening their fields of research and for linking them into relevant organizations that need their services.

***International Conference on Migration: Sri Lankans on the Move - 23-25 January 2013***

Preparatory work of the International Conference on “Sri Lankans on the Move” was carried out during the year 2012. Calling for paper submission, evaluation of papers received, editing and completion of draft proceedings were carried out during the latter part of the year 2012. The outcome of the Conference will be:

- a) book of proceedings with Abstracts published,
- b) selected full papers suitable for publication in a journal and
- c) report with the recommendations highlighted at the policy dialogue session on migration.



S&T  
INFRASTRUCTURE,  
CAPACITY AND  
PARTNERSHIP  
BUILDING

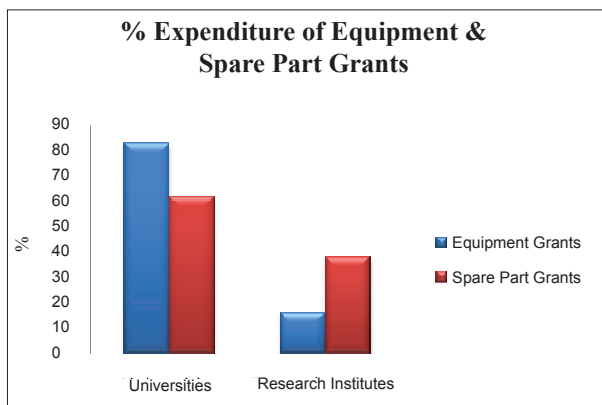


## S&T Infrastructure, Capacity and Partnership Building

### *Equipment Grants and Spare Parts Grants*

Laboratories with modern infrastructure facilities are needed for research to be in par with the global S&T research. These schemes intend to assist the acquisition of equipment and spare parts for research, that is in general too costly to be purchased by the Research Institutions and Universities. It facilitates and supports infrastructure development of research laboratories in order to create a sustainable research culture.

Seven equipment grants worth LKR 7.49 M and four spare parts grants worth LKR 1.65 M have been awarded in 2012. A metal sticker was provided to the grant recipients to be pasted on the equipment for identification as a NSF supported equipment. The details of these grants are given in Annex 10.



### *National Scientific Equipment and Repair Centre*

The proposed National Scientific Equipment Centre and Repair Facility, is to house high tech, highly expensive equipment, which are not economical to be maintained by a single institution due to heavy maintenance costs. Further, these equipment would require highly skilled, dedicated personnel for the best operation of the Centre.

The Universities and Research Institutes were requested to identify the equipments required for research, which are too expensive to be purchased and maintained by the relevant institutes.

Based on the responses received from Universities and Research Institutes, the equipments were shortlisted. An expert group of members was selected and the instruments were revisited and finalized as follows;

- NMR Spectrophotometer
- Transmission Electron Microscope
- Laser capture micro dissector
- 16 colour FACS machine with a sorter

The proposal was prepared with justifications, budgets and mode of operation.

### *Research Scholarship/Research Studentship/Research Scientist Awards*

At present, there is very low output of postgraduate research degrees by the Sri Lankan Universities. It is important to attract and encourage science/engineering graduates to conduct fulltime research leading to research degrees. This programme provides the financial support to science and engineering graduates to conduct fulltime research (within Sri Lanka) leading to MPhils and PhDs. Six scholarships were awarded in 2012, details of which are given in Annex 11.

Two Research Scientist Awards were made through the Competitive Research Grants Scheme.

### *Postdoctoral Research Scientist Awards*

These grants were awarded to outstanding postdoctoral scientists /engineers and those with equivalent postgraduate qualifications with a good record of publications in peer reviewed/indexed journals, to carry out fulltime research up to three years within Sri Lanka. These grants cover all fields of Science & Technology. One application was received and processed during the year.

**NSF Lankem Research Scholarships**

The Lankem Ceylon PLC expressed interest to co-partner with NSF to support NSF Research Scholars. They agreed to provide the monthly stipend of the research scholars who are eligible to receive the NSF Lankem Research Scholarships. A Memorandum of Understanding was prepared by the NSF and discussions were in progress.

**NSF Travel Grants**

The objectives of this programme are to provide an opportunity to Sri Lankan scientists and technologists to present their research findings at International fora and to acquire scientific knowledge on new discoveries, achievements, and developments in order to experience global efforts. Grantees have the opportunity to participate at international conferences to share their research findings, upgrade knowledge and establish linkages with scientists working in similar areas across the globe for future collaborative activities. The details of the Travel Grants awarded in 2012 are given in Annex 12.

**Overseas Special Training Programme (OSTP)**

This programme was initiated in the latter part of year 2006. The main objective of the OSTP is to enhance national capacities in Science, Technology and Innovation by providing opportunities for training to obtain advanced laboratory and research skills, industrial and technical experience, S&T skills and science teaching and communication skills at

centers of excellence abroad in areas where such training facilities are not available in the country.

The participating scientists & technical personnel in academia, research institutions, government body or industry and media personnel in relevant institutions were able to develop their skills in new technologies leading to capacity building of personnel and the institutions where they are attached to. The details of the awarded grants are given in Annex 13.

**International Partnerships for Science and Technology (IPSAT)**

The International Partnerships for Science and Technology (IPSAT), is a programme to obtain services of high caliber scientists and technologists working abroad. It is directed at promoting international research collaborations, technology transfer, and at obtaining expertise towards developing a globally-engaged community of scientists and technologists in Sri Lanka.

This programme was initiated in year 2012. One IPSAT grant was awarded to the Industrial Technology Institute (ITI). Prof. Roshan Perera of University of Texas, Arlington visited the ITI in 2012 for a period of three months from June to August. Ten local scientists were trained for the establishment of a proteomics assisted drug lead discovery programme at the ITI and collaborative research programmes were established between the ITI and the University of Texas, Arlington, USA.

Scheme	Applications Processed	Grants Awarded	Amount (LKR/M)
Travel Grants	108	36	6.91
OSTP	28	17	4.13
IPSAT	02	01	0.74

### **Global Forum of Sri Lankan Scientists - Progress after 1 year**

Recommendations of the Global Forum were

published and necessary actions were initiated through the 'NSF Global Forum Cell' for implementation of those recommendations. 16 Projects that were initiated are given in Annex 14.

#### **Key Projects Initiated via the Global Forum**

- Establishment of a high throughput genomics facility.
- Establishment of a Master of Science (M.Sc.) course in Stem Cell Biology at the University of Colombo.
- Development of advanced ceramic materials using local raw materials.
- Establishment of a Joint Research and Development venture on solar energy.
- Establishment of a Cord Blood Stem Cell Bank in Sri Lanka.
- Establishment of a programme to monitor adaptation of plants to climate change.
- Establishment of a Webinar series on the use of remote sensing in coastal eco-system monitoring.
- Introduction of Sri Lankan skincare products to Australian and New Zealand markets.

### **New Initiatives in International Collaborations**

Often, the best results came from collaborations and the activities of NSF contributed extensively to the broader scientific community, nationally and internationally.

#### *Science Council of Asia*

NSF obtained the membership of the Science Council of Asia in 2012. This will provide an opportunity for the local scientists to identify suitable counterparts in Japan to conduct collaborative research activities.

#### *Memorandum of Understanding (MoU) between Pakistan Science Foundation (PSF) and NSF*

A memorandum of understanding was prepared to be signed between the Pakistan Science Foundation and the NSF. Arrangements were made to obtain the approval of the relevant authorities prior to signing of the MoU. This will provide an

opportunity for local scientists/ technologists to obtain expertise, establish collaborative activities in various fields of Science and Technology as well as in popularizing science.

#### *Global Research Alliance on Agricultural Green House Gases*

The Board of Management has granted approval to obtain the membership of Global Research Alliance on Agricultural Green House Gases Necessary action has been taken through the Ministry of External Affairs towards obtaining the membership.

#### **Annual TWAS/NSF Prize for Young Scientists**

The NSF in concord with the Third World Academy of Sciences (TWAS) has instituted a scheme for the annual award of prizes for talented young scientists who have attained a high level of excellence in research work, in the fields of Biology, Chemistry, Mathematics and Physics. All awards consist of a cash prize of the equivalent of US\$ 2000 granted by

the Third World Academy of Sciences (TWAS) and a certificate from the NSF.

The prizes are intended to provide an incentive to talented young scientists to attain high levels of excellence in their research work and to reward such attainments. The NSF received seven applications for the 2012 award. The two applicants successful in receiving the annual TWAS/NSF Prize for Young Scientists 2012 were Dr Nilwala Kottegoda of Sri Lanka Institute of Nanotechnology from the field of Chemistry and Dr G.N. Malavige of University of Sri Jayewardenapura from the field of Biology.

#### ***International Council for Scientific Union (ICSU)***

Sponsorship was provided by the International Programme Office of Integrated Research on Disaster Risk (IRDR), China for the participation of two local experts at the workshop on "Building Capacity for Psychological Intervention after Disasters in the Asia Pacific Region" held in Beijing, China. As a follow-up, a workshop on "Psycho Social Interventions in Disaster Situation" was conducted at the NSF to train 25 personnel involved in Disaster Management by the two participants and a resource person Dr Jianxia Zhang from the Institute of Psychology, Chinese Academy of Sciences whose participation was sponsored by the Chinese Academy of Sciences.

#### ***ICSU Scientific Programme in Urban Health & Well Being***

Out of the three nominations made by the NSF, Prof. Saroj Jayasinghe of the Faculty of Medicine, University of Colombo was appointed by ICSU to the Scientific Committee on Urban Health and Well Being Programme for the period 2012-2015.

#### ***Federation of Asian Biotech Association (FABA)-BioAsia 2012***

Sri Lanka became the country partner at BioAsia 2012 held at Hyderabad from Feb 9-11, 2012. A Sri Lankan delegation consisted of Prof. Tissa Vitharana (Hon. Senior Minister of Scientific Affairs), Prof. Sirimali Fennando (Chairperson, NSF), Ms Anusha Amarasinghe, Dr Gowry Moorthy (NSF), Dr Radhika Samarasekara (ITI), Dr Jagath Weerasena, Dr Ranil Dissanayake [Ceygen Biotech (Pvt) Ltd,] and Ms Arudhathi Wijesekara (CIC Agribusiness) participated at this event.

#### ***International Centre for Genetic Engineering and Biotechnology (ICGEB)***

NSF is the focal point for ICGEB. As recommended by the NSF, Ms Pannilage Shiromi Perera of University of Kelaniya was awarded a ICGEB Fellowship to follow a training programme at the Molecular Haematology Unit, ICGEB, Moterotondo, Scalo, Italy.

**SUSTAINABLE  
UTILIZATION  
OF NATURAL  
RESOURCES**



## Sustainable Utilization of Natural Resources

### *Ocean and Marine Resources*

In order to identify the gaps and priority areas in Ocean and Marine Sciences research, the NSF organized a Brain Storming session on 9 February 2012. 40 personnel from various sectors of Ocean and Marine Sciences participated.

At this meeting five separate groups brainstormed on the following areas:

- Biological Resources and Mari -Culture
- Non-Biological Resources and physical aspects
- Marine Pollution
- Disaster Management and Climate Change
- Socio Economic and Legal Aspects

A report containing the gaps, priorities and suitable recommendations was prepared to focus on developing multidisciplinary Thematic Research programmes, which are specific to the identified areas.



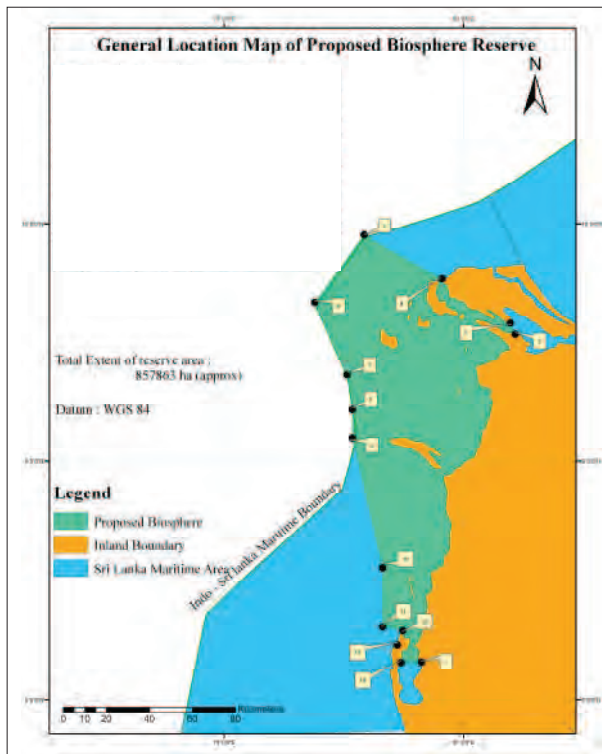
### Key Recommendations of the Marine Science Research Report

- Promotion of Sustainable Mari-culture.
- Sustainable utilization of fishery resources and harvesting untapped fishery resources that promotes export earnings.
- Policy related marine research for Socio Economic development.
- Research to assess marine pollution and its impact on marine resources.
- Prediction of coastal and marine dynamics.
- Climatic change adaptations and disaster management research.

### *Establishment of Mannar Biosphere Reserve*

Preparatory work was carried out to establish the Gulf of Mannar Biosphere Reserve, and possibilities were explored for the creation of an Adam's Bridge Archaeological Site in Palk Strait Ocean between India and Sri Lanka. A Sub-Committee consisting of ten members chaired by Prof. Mala Amarasinghe was appointed to work on the Mannar Biosphere Reserve (BR) nomination.

Two workshops were conducted to make the local authorities and the community in Mannar aware of the importance of the Mannar BR nomination and their feedback was obtained. A stakeholders meeting was held on 21 September 2012, to gather further information on studies that have been conducted in the area by different stakeholders. Prof. Mala Amarasinghe was assigned the task of working on the nomination with the inputs from the relevant stakeholders and the members of the Sub-Committee.



### **Periodic Reviews of International Biosphere Reserves of Sri Lanka**

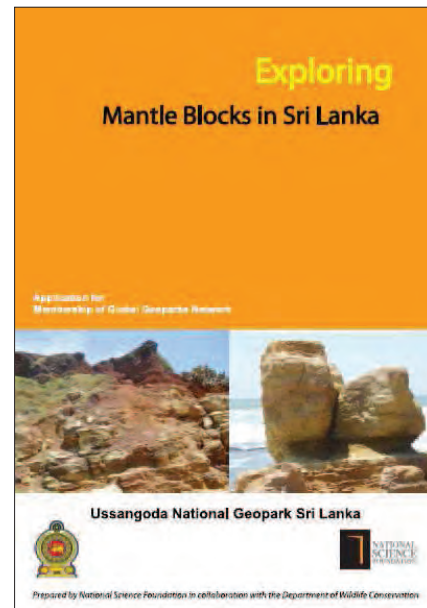
Work on Periodic Reviews of the four International Biosphere Reserves (IBRs) in Sri Lanka, namely, Sinharaja, Bundala, Hurulu and KDN Complex was initiated. Dr Jinie Dela, Mr H.G. Gunewardena and Mr K.W.P. Tillekerathna have been appointed as Consultants to complete the Reviews for submission to UNESCO, Paris by December, 2013.

Initial meetings regarding mapping of the IBRs were held at the Forest Department and the Department of Wildlife Conservation.

### **Nomination of Ussangoda as a Geopark**

Stakeholder discussions were held at the Ministry of Environment and Natural Resources and field visits

to Ussangoda were made to obtain final data for the nomination. The Ussangoda area was Gazetted as a National Park. The Sub-Committee working on the nomination finalized the nomination dossier for submission to UNESCO to be considered for nomination as a Geopark .



### **Awareness programmes on the Man and Biosphere (MAB) Concepts**

An awareness programme was held at Mahausakande to aware the field staff of the Forest Department and the Department of Wildlife Conservation on MAB concepts.

### **New Publication under MAB Checklist and Handbook Series**

A manuscript titled, "An Annotated Checklist of Termites (Isoptera) of Sri Lanka" by Prof. J.P. Edirisinghe, Dr I.I. Hemachandra and Prof. C.V.S. Gunatilleke was published under the MAB Checklist and Handbook Series.

**SCIENCE  
EDUCATION AND  
POPULARIZATION**



## Science Education and Popularization

### Implementing “Science for All” initiative

#### ***Production of Mihimandala Video Programmes and telecast over TV channels***

The objective of the above programme is to create awareness among the general public/school children in Science and Technology and how it could be applied in developing life skills, improving the living standards and in economic development.

Under the phase I of the Mihimandala, 13 Video Programmes were produced on different scientific topics in all three languages and were telecast *via* the National TV channels (Independent Television Network, Sri Lanka Rupavahini Corporation, Teleshan Network Limited, and Derana TV).

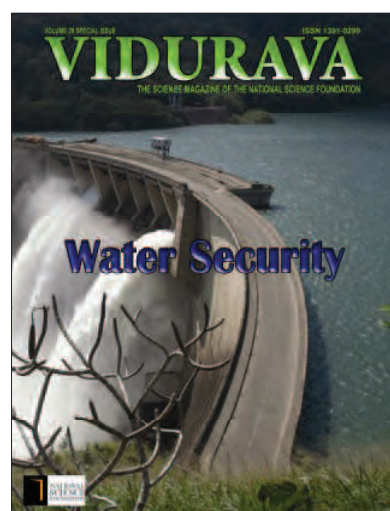
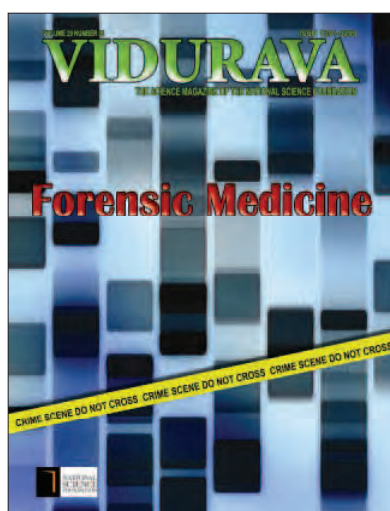
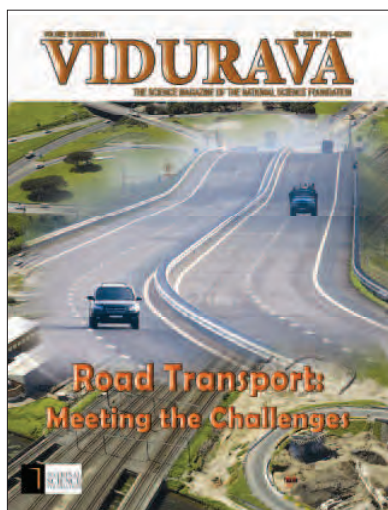
The Mihimandala Video Series won a National Award; e-Swabimani Special Merit Award organized by the Information Communications Agency (ICTA), and an International Award; The Manthan

Award South-Asia 2011, organized by the Digital Empowerment Foundation, India.

Based on the success of the first phase, the second phase to produce another series of video programmes (duration; 20 minutes – 15 nos.) in all three languages (Sinhala, Tamil, and English), was launched in 2012.

#### ***Publication and dissemination of the Vidurava Science Magazine***

The Vidurava Science Magazine publishes articles written on topics related to Science and Technology. It is published targeting the school children of G.C.E. O/L and A/L grades. Articles written on the themes related to Science and Technology, which will help to enhance the scientific knowledge and their practical applications are published. One volume of the Magazine consisting of three issues was published in 2012 in all three languages and a total of 6,413 copies were distributed to the School Science Societies registered with the NSF, Vidatha Centres and University Science Libraries.



### **Publication of the JNSF**

The Journal of the National Science Foundation of Sri Lanka (JNSF) publishes the results of research and other information in all aspects of Science and Technology. It is currently indexed by the Science Citation Index Expanded, Biological Abstracts, Zoological Record, BIOSIS Previews and Scopus. The Journal is accessible through the Sri Lanka Journals Online (SLJOL) forum supported by the International Network for the Availability of Scientific Publication (INASP).

Four issues of the JNSF were timely published consisting of 30 Research Articles and circulated among nearly 170 scientists, universities and other S & T institutes. The JNSF Impact factor, which was 0.134 in 2011, was increased up to 0.232 in 2012.



### **Publication of SLJSS**

The Sri Lanka Journal of Social Sciences (SLJSS) is published twice a year (June and December). The journal publishes papers in Sinhala, Tamil and English languages covering the entire range of Social Sciences, focusing in Sri Lanka and other South Asian countries. All papers are peer-reviewed.

Volume 33/34 Nos. 1 & 2 of the Sri Lanka Journal of Social Sciences (SLJSS) were published in 2012.



### **Publication of Vidya Newsletters**

The NSF Newsletter “Vidya” is a quarterly publication. It mainly consists of activities/programmes carried out by the NSF within the quarter. The 4 issues of Volume 14 of the Newsletter were published and distributed among the members of the NSF Committees, University libraries and R&D institutions.

### **Publication of Policy Briefs**

The NSF Policy Brief, which is published since 2009, is intended to bridge the gap that exists in communicating evidence based research to policy makers, thereby serving as an impetus for action. It is based on NSF funded research as well as other available literature. The Brief is an occasional publication of the NSF and is circulated among relevant ministries, institutions, and libraries.

One issue of the NSF Policy Brief on ‘Biotechnology to enhance industries in Sri Lanka’ was published and distributed.

### **Publication of online / printed science related articles**

The publication of the monograph on “Introduction to the Nuclear Technology” by Dr Prinath Dias was sponsored. Three hundred copies were printed to be distributed among the relevant organizations.

### **Implement the School Science Society (SSS) Programme**

Established in 2005 with the objective of fostering students to acquire knowledge on latest developments in various fields of Science and Technology and make them aware of the application of scientific knowledge in day to day activities and for the improvement of the standard of living.

School Science Societies are provided with the Vidurava Science Magazine (free of charge) three issues per year, service of local scientists as resource persons for the Science Days organized by the Science Societies, an opportunity to participate in various competitions, and the World Science Day - Schools Programme organized by the NSF.

Including the fifty three (53) new Science Societies of Schools registered with the NSF in 2012, there were 667 School Science Societies registered with the NSF by the end of 2012.

Eleven schools were provided with resource persons for their School Science Day programmes.

The School Science Societies were clustered in order to provide them with a more effective and efficient service.

#### **Workshops to empower School Science Societies**

Orientation Workshops were organized to strengthen the School Science Societies at Provincial level with the objectives to:

- Introduce power of science, scientific thinking, technology and innovation,
- Emphasize the importance of using creative approaches in dissemination of science,
- Motivate and empower teachers / students involved in School Science Societies as leaders in science popularization and
- Increase active participation of the members of the School Science Societies in NSF activities.

The active participation of School Science Societies in scientific programmes organized by the NSF needs continuous motivation and empowerment. In addition to the current communication *via* mail/e-mail/telephone, it was decided that a face to face interaction would be more effective to strengthen and empower the School Science Societies.

Three Orientation Workshops were held in three Provinces; North Central (Anuradhapura Education Development Centre), Uva (Badulla Education Development Centre), and Southern (Sujatha Balika Vidyalaya, Matara) on 29 & 30 June, 6 & 7 July, and 12 & 13 September, 2012 respectively.

#### **Inter School Science Society Competitions**

Inter School Science Society Competitions were organized among the School Science Societies registered with the NSF in parallel to the World Science Day Schools Programme.

The competitions conducted are Short Science Drama, Manual Poster, Digital Story Telling, Role Play, and Science Fiction. The winners of the Inter School Science Society Competitions were felicitated at the "Science Day 2012" Schools Programme held on 24 January 2012 at the BMICH.

### ***“World Science Day” Schools Programme***

The “Science Day 2012” Schools Programme was held on 24 January 2012 at the BMICH. About 1650 school children participated at this event. The Chief Guest of the function was Hon. Pavithra Wanniarachchi, Minister of Technology and Research. Prof. Tissa Vitarana, Hon. Senior Minister of Scientific Affairs, participated as a Special Guest. Highlight of the event was the participation of Hon. Abdul Kalam, former President of India, a renowned scientist in the world, whose while address inspired the young minds of the school children.



The winners of the following competitions were felicitated.

- Inter School Science Society Competitions
- National Olympiad Competitions
- Science Research Projects Competition

The following Awards were distributed.

- Teachers’ Award for Promoting Science Among the School Children
- Prof. M.T.M. Jiffry Memorial Award for Science Popularization
- Star Rating Awards for School Science Societies



### ***Adoption of ICT based new technologies***

Several meetings were held with Sri Lanka Telecom, Mobitel to organize video conferencing through webex.

### ***Strengthen STI culture and Science Education in Schools***

#### ***Design and support Application Based Science Projects***

Twenty seven application based science projects from 17 schools were funded under the above programme and 15 projects were completed in 2012.

#### ***Support Sri Lanka Olympiad Federation (SLOF) and provide grants for International Olympiad Participation***

Participants of the following International Olympiad Competitions were sponsored for registration, airfare/accommodation.

- 13<sup>th</sup> Asian Physics Olympiad held in New Delhi.
- 9<sup>th</sup> International Junior Science Olympiad held in Tehran.
- International Biology Olympiad held in Singapore.

#### ***Science Camps***

Organizing Science Camps in the country has been identified as a suitable strategy to attract students at all levels to science. Planning of the first science camp to be held at the Aluthgama National School on 21 January 2013 was completed.

Five meetings of the resource group were organized to plan the preparation of science exhibits / experiments / models for the science camp. Designing of science exhibits / models were initiated at the University of Colombo and the Open University of Sri Lanka.

### **Sri Lanka Science & Engineering Fair**

Sri Lanka Science & Engineering Fair (SLSEF) 2012 was held on 02 March 2012 with the participation of 10 inventions selected from the Junior Inventor of the Year (JIY) competition, and the finalists (10 projects) of the Science Research Project Competition. Two individual projects and one group project were selected as winners of the SLSEF 2012. They were given the opportunity to represent Sri Lanka at the Intel International Science & Engineering Fair 2012 (Intel ISEF 2012) held from 14-18 May 2012 in Pittsburgh, USA. Of the three projects, one project won a special award and one project was selected as one of the 50 creative projects at the Intel ISEF 2012.



### **Science Research Projects Competition (SRPC)**

These competitions are organized with the aim to enhance the innovative thinking, creativity and the investigative ability of the school children of 9-12 grades. Four workshops were organized to guide the school children and teachers on conducting science research projects following the scientific methodology. SRPC was successfully held on 31 January & 01 February 2012 at the NSF. 40 projects were presented by the school children from 20 schools. Ten projects were selected to participate at the SLSEF 2012.

The Awards Ceremony of the SRPC was held on 07 November 2012 at the Sri Lanka Foundation Institute.



### **Vidunetha programme**

Vidunetha science projects competition was conducted in Hanwella Educational Zone on 9 February 2012. 15 projects were presented and 70 students and teachers participated.

Two workshops were conducted to train 63 Master Trainers representing Science Directors, Assistant Science Directors, In-service Advisors and teachers in all 11 zones of the Western Province on 14 and 27 September 2012 at the NSF. The trained Master Trainers will be facilitated to carry out training programmes for grades 6-9 science teachers at zonal level.

### **Awareness campaign on Nanotechnology**

The Nanotechnology Awareness Programmes were organized to disseminate the beauty and the fascination of nanotechnology among the younger generation, which will lead to an attitudinal change and inculcate the importance of Nanotechnology in the minds of younger generation.

Two awareness programmes for the school children in the Eastern Province and for the teachers in the Homagama Education Zone were held in 2012.

A document consisting of a series of activities/ programmes for Nanotechnology Awareness was prepared for the training of Master Trainers, (Teachers, In-service Advisers, Zonal Science

Directors, and Assistant Science Directors) at Provincial Level (50 from each province) by the resource persons from the Universities in the relevant province.

KNOWLEDGE  
CREATION,  
COLLATION,  
PROCESSING  
AND SHARING



## Knowledge Creation, Collation, Processing and Sharing

### Science and Technology Management Information System (STMIS)

- The Science and Technology Management Information System (STMIS) is a computerized information system.
- The STMIS database contains updated information of scientists, S&T related R&D institutions, service providing institutions, higher education institutions, advanced scientific equipment available in the institutions, information on services and training programmes offered by the S&T institutions, research publications and information on the ongoing research in the country.
- Identity Cards are issued to registered scientists, which indicate the STMIS registration number and an electronic barcode giving modern security facilities to the same.



By the end of 2012, the total number of scientists registered in the database was 4,452. Total number of Institutions that provided information to the database were 191 and this included 37 S&T faculties of the state universities and 46 institutions in the S&T sector including R&D institutions and service providing institutions.

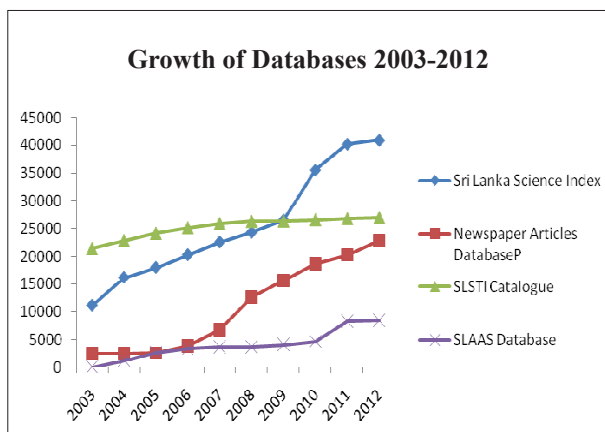
### Strengthen the National Science Library & Resource Centre (NSLRC)

#### Database Development

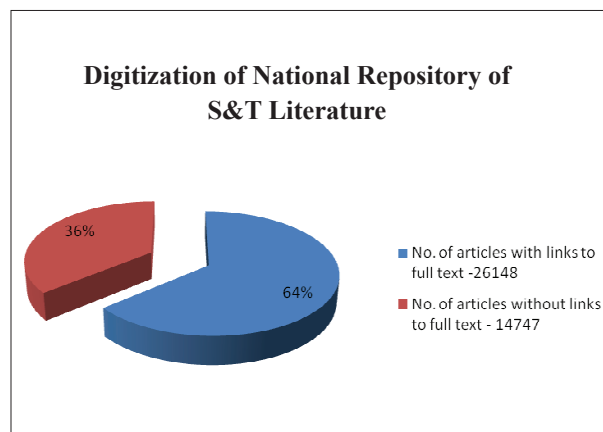
Access to comprehensive information on current and past research conducted in the country is of vital importance for scientists to build upon

new research and to ensure that research is not duplicated. The NSLRC by mandate maintains several national level databases to cater to this crucial national need. The Sri Lanka Science Index (SLSI); database on Sri Lanka Association for the Advancement of Science (SLAAS); Research Grants Database (RGRA) and National e-repository database during the year under review, continued to provide comprehensive online information on past and current research conducted in the country. Details of new records added and the usage statistics on each database during 2012 are provided in Annex 15. During the year under review, the SLSI database showed significant development with the availability of 26,148 documents in digital form (full text) for online consultation within NSF

LAN as at 31 December 2012. This contributed to 63.9% of the total number of records in the database. This further included full text of 23 local journals which were given free remote access with



due permission of the respective publishers. A new database on Chronic Kidney Disease of unknown etiology (CKDu) was established with 81 full text documents.



### National e-repository

It is of vital importance to provide the best possible services to the local scientific community keeping in par with the latest information dissemination technologies. Accordingly, transferring the contents in the conventional SLSI database to the National e-repository launched in 2009 on State of the Art DSpace software was further continued. In 2012, full text of 12 local scientific journals were transferred to the National e-repository. The National e-repository on Dspace software recorded 4153 items as at 31 December 2012.

### Current Awareness Services (CAS)

A monthly current awareness service was provided through the *ScinnoTech e-newsletter* to reach the desktops of over 4000 researchers in the country. Information on around 40 new items added to the NSLRC collection every month was disseminated through this service.

### National Digitization Project (NDP)

The objective of the National Digitization Project (NDP) is to promote providing online access

to the full text of the digitized S&T literature through Institutional Repositories (IR). Phase I of the National Digitization Project (NDP) was commenced covering nine libraries. The target for 2012 was to complete digitizing of 750,000 pages of local literature available in the form of monographs, journals/articles; conference proceedings, theses, manuscripts and newspaper articles. The digitization work in six libraries were completed – namely, Rubber Research Institute, Council for Agriculture Research Policy, University of Moratuwa, Industrial Technology Institute, Hector Kobbekaduwa Agricultural Training and Research Institute and the Central Environmental Authority. The number of pages digitized as at 31 December 2012 was 471,274.

As step two of phase I of the project, Institutional Repositories (IR) were established in four participating institutions to accommodate the digital files. Following this, 19 staff members of participating libraries were trained on IR management on DSpace software which is a mandatory requirement of the project.

### National Network of Institutional e-Repositories

The National Network of Institutionale-Repositories

provides a Cross Archival Search Service for Sri Lankan Research Information. The network was strengthened during the year under review. The total number of IRs recorded in the country in 2012 was 17. In order to cut down the cost involved in providing hardware to maintain IRs at each participating library, virtual servers were developed within the NSF server for four Research Institutions participating in NDP. These will function as the respective IR of each institution.

Federated searching facility was strengthened to search across more local Institutional Repositories (IR) and journals through one search window.

#### ***Union List of Periodicals database***

The Union List of Periodicals database helps finding the availability of specific journal titles in local

libraries. A programme was launched in 2012 to update and fill gaps in the existing database. The programme covers two phases. Phase I of the programme was completed during 2012, under which fresh information on periodical holdings in 41 major libraries in Colombo and Kandy regions covering 5241 periodical titles were collected and information was recorded. Phase II will be continued in year 2013.

#### ***Strengthening access to global literature***

Access to the following international databases, a prime requirement of the research community was enabled within the NSF premises to support productive research. The databases were utilized by academics and researchers for literature searches and for citation information on their publications. It was also used for analysis of research output in the country.

- ***SCOPUS Citation & Abstracting Database:*** Access was provided within NSF premises to SCOPUS Citation and Abstracting Database. SCOPUS is a comprehensive information source for literature searches. It covers peer-reviewed literature in over 20500 journals from 5000 publishers with smart tools that track, analyze and visualize research.
- ***TEEAL (The Essential Agricultural Library):*** TEEAL provides access to the full text articles in 200 essential Agriculture journals by leading publishers.
- ***HINARI full text journal database:*** Access to HINARI Programme was offered through the sponsorship of WHO. HINARI together with major publishers provides online access to the major journals (8,500 titles and 7000 e-books) in the fields of biomedical and related social sciences.
- ***AGORA full text database:*** The AGORA programme, set up by the Food and Agriculture Organization of the UN (FAO) together with major publishers, enables access to an outstanding digital library collection in the fields of food, agriculture, environmental science and related social sciences. Access to the contents of a collection of 1900 journal titles was provided.
- ***Free resources:*** A number of other free resources including full text databases on the internet were identified and linked to the central NSLRC website to facilitate literature searching and downloading of full text documents.
- ***NSLRC Web site:*** The NSLRC website continued to serve as a central gateway to all local library catalogues, network catalogues and special databases online. Several more useful links to both local and international resources were added for the benefit of researchers.

### **Promote and support the development of databases and institutional e-repositories in Universities and S&T libraries for effective resource sharing**

Provision of technical support for IT based services in other libraries and training library professionals are two responsibilities vested on the NSLRC. During the year under review the following services were provided based on requests made by the respective libraries.

#### ***Hosting of Library Catalogues***

The online catalogues of the following institutions were hosted in the NSF server to provide high visibility to their collections to promote resource sharing among the scientific community.

- Postgraduate Institute of Archaeology (01 database)
- International Centre for Ethnic Studies (01 database)
- National Museum (7 databases)

The total number of library catalogues hosted within the NSF server as at 31 December 2012 was 23.

Virtual servers were developed within the NSF server for the following institutions to maintain their Institutional Repositories (IR) enabling effective participation in the National IR network.

- Coconut Research Institute
- Rubber Research Institute
- Hector Kobbekaduwa Agricultural Research and Training Institute
- Tea Research Institute

### **Capacity building of library professionals in other S&T libraries for effective dissemination of information services.**

In order to provide efficient information services to the scholarly community, it is essential to improve

the skills and knowledge of library and information professionals on new information dissemination technologies. In 2012 the following services were provided:

- On request of 14 individual libraries, copies of the CDS/ISIS (windows version) Library management software were distributed to establish computer catalogues and special library databases. This has resulted in the conversion of current manual library operating systems based on traditional card catalogues into computer based systems.
- A three member national team on DSpace State of the Art Digital Library Software was established to assist the participating librarians in the National IR network. The libraries will be given necessary support to develop their own IRs at their library sites. The national team will also be responsible to train librarians on the maintenance of IRs and to attend to trouble-shooting requirements.

#### ***WINISIS Workshops***

Conducting of WINISIS workshops are demand based. Three (03) workshops on the basic application of WINISIS software were conducted during the year to train 26 library professionals. This has led to improved and more efficient library services within institutions.

#### ***Workshop on DSpace Software for developing open archives***

A workshop was organized from 28-30 November for 19 librarians of the participating institutions to provide necessary knowledge and training on the maintenance of Institutional Repositories. The workshop was exclusively for staff of libraries participating in the National Digitization Project. The knowledge gained will be beneficially utilized for the development of a Cross Archival Search Service for Sri Lankan Research Information.

### **SLSTINET Seminars**

Three (03) seminars were organized during the year. Information disseminated through the seminars will help to keep the library and information professionals abreast of the new developments in the field of Information Dissemination.

- Demonstration / Training programme  
- SCOPUS & Science Direct full text database  
- 10 May 2012 (50 scientists/librarians participated)
- Empowering Researchers with Information  
- 24 August 2012 (26 librarians and 28

scientists participated)

- Exploring National Collections & Information Services of Sri Lanka - 03 December 2012 (35 librarians participated)

### **Award from the Sri Lanka Library Association**

The NSF National Science Library, Resource Centre (NSLRC) received a special award from the Sri Lanka Library Association to mark the outstanding contribution made by the NSLRC towards promoting Science & Technology Information in Sri Lanka.



OPTIMIZING  
PHYSICAL & HUMAN  
RESOURCES AND  
PROCESSES AT NSF



## Optimizing Physical & Human Resources and Processes at NSF

The NSF strives to strengthen the linkages and communication between the relevant government and statutory bodies in the external environment. An effort was made to develop the ability and productivity of our staff and maintained a result oriented open culture, which helped to uplift employee contribution effectively in order to achieve the mission of the NSF. Supporting Divisions liaise with the Scientific Divisions in executing its core functions for the smooth functioning of the organization.

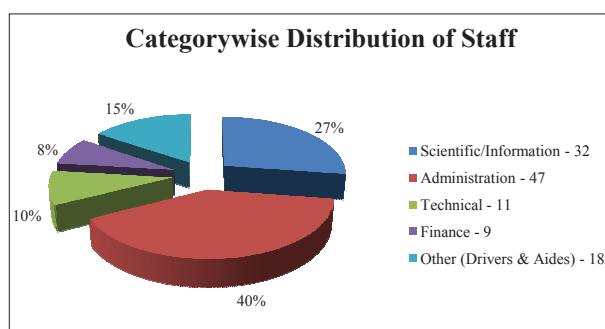
### Administration Division

For the purpose of providing the services required to fulfill the core functions of NSF at optimum level, the Administration Division discharged the following key functions;

- General Administration
- Human Resource Management
- Asset Management
- Logistical Requirements of NSF

The NSF has a staff strength of 117 including 27 Scientific Officers.

During the year 2012, thirty one new staff members were recruited, four members resigned and three retired.



To build up competent, skilled and efficient staff, the NSF provided education / training (foreign / local) programmes for improvement of the performance of the employees. The staff represented NSF at 23 local and 13 foreign meetings / workshops / seminars. The details are given in Annex 16. The staff also participated in seminars, conferences and workshops organized locally. The National and Institutional Committees were also represented by the NSF staff.

A list of the principal staff as at 31.12.2012 is given in Annex 17.

### Finance Division

Finance Division administers all the financial activities, to provide an efficient financial service ensuring prompt and timely action relating to all financial activities of the Foundation, within the prevailing Financial Regulations. Main functions of the Finance Division are,

- Maintenance of Books of Accounts e.g. Fixed Asset Register, General Ledger, Grant Ledger, Stock books etc.
- Preparation of all financial reports including annual financial statements, estimates etc., and submitting them to the relevant authorities on due dates.
- To make payments in relation to all activities conducted by the Divisions of the Institution.
- To make general payments such as salaries, overtime etc.
- Maintenance of the stores.
- Maintenance of publication stores and sale of publications, while organizing publication sales outlets at exhibitions, book fairs and sales desks at workshops.
- Liaise with the Finance Ministry and line Ministry Officials for obtaining funds for the Institution.

### **Printing Unit**

The Printing Unit continued to support the activities of all the Divisions of the NSF. It undertook the printing of 18 publications, namely books, journals and 64 other printing works in 2012.

### **Information and Communication Technology Unit**

The Information and Communication Technology Unit continue to harness the technological advancement and manage all ICT facilities to support the organization activities.

This Unit serves the NSF Secretariat with Internet facilities, web/database hosting facilities, end user IT support and electronic communication of the organization. The Unit is responsible to evaluate and upgrade existing ICT infrastructure and forecast future needs.

The project to develop an integrated online Software Solutions to improve the performance of organizational business process by integrating major activities of the Finance, Administration and Scientific Divisions was continued in 2012. The website of the foundation was also redesigned and re-launched as a part of the project. The project is scheduled to be finalized at the end of 2013.

### **Internal Audit Unit**

The main objective of the Internal Audit Unit is to maintain the internal control of the organization leading to good governance. Its activities are designed to add value and improve the organization's operations. Internal Auditor directly report to the Board of Management / Chairperson of the NSF. The Internal Auditor, Internal Audit Officer and Internal Audit Clerk are the manpower of the Internal Audit Unit.

To achieve the above objective, the Internal Audit Unit has been engaged in its duties during the year with special emphasis on the following.

- Continuous checking on soundness and adequacy of internal control system of the organization.
- Review the progress of the scientific activities.
- Regular checking on financial and administrative activities.
- Checking on adherence to procurement guidelines and manual.
- Examine the implementation of the stores procedure.

### **Quality Management System (QMS)**

QMS activities were continued during the year showing moderate progress under the leadership of a Management Representative. Several new members representing all the divisions also joined to enforce the QMS core group. Main activities completed by the core group during the year are as follows.

- The documentation work required for implementation of the Quality Management System was successfully completed. Documentation work covered the revision of the Quality Manual, preparation of the Standard Operational Procedures (SOP), preparation of the Master List of Documents and the introduction of a new activity based coding system for easy identification of documents/records.

- Criteria were developed for evaluation of services provided to the NSF by various service provider categories.
- A short refreshing session on implementing the QMS was successfully conducted for NSF staff members.
- A feedback form was prepared (*in all three languages*) to obtain customer views on the quality of the NSF services. The contents are to be used for evaluation of NSF services and their continual improvement.
- Implementation of “Thought for the Week” programme to improve quality related thoughts among the NSF staff
- Training on standard and the preparation of quality manual and internal auditing as per ISO 9001:2008 quality management system was provided to several core group members.



# FINANCIAL STATEMENTS



### Observations of the Accounting Officer on Performance 2012

Recurrent Expenditure	Rs. '000	
	Estimate	Expenditure
Personal Emoluments	50,450	50,561
Other recurrent	33,550	23,228
	-----	-----
	84,000	73,389

Funds received from the Treasury for Recurrent Expenditure Rs. 75,252

Capital Expenditure	Estimate	Funds Received from the Treasury	Expenditure
Object Code – 133-02-05-3-2201	<b>283,010</b>	<b>157,383</b>	<b>168,303</b>
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#### Supplementary Allocations

IDRC 2,003

Revenue 279

#### Details of Capital Expenditure as against the funds received during the year

Rs 000'

	Description	2012 Expenditure
1	Grants for Research & Other Scientific Work	117,636
2	Science & Technology Policy Research Division	2,218
3	Technology Division	8,413
4	National Science Library & Resource Centre	3,793
5	Science Popularization Division	9,770
6	International Liaison Division	10,311
7	Information Technology Division	972
8	Office Furniture fittings & Equipment	3,892
9	Rehabilitation of Capital Assets	883
10	Director's Office Vote	6,647
11	Overseas Special Training Programme	3,768
	<b>Total</b>	<b>168,303</b>

#### Financial Issues

NSF is a funding organization which is solely dependent on government funds. During year 2012 Department of National Budget recommended to release Rs.75,252,000 for Recurrent expenditure & Rs. 228,426,870 for Capital expenditure. Department of Treasury Operations released the Rs. 75,252,000 recommended for Recurrent expenditure. But only Rs.157,383,718 was released for Capital expenditure. As such NSF was able to fund only few grants which were approved during the month of December.

Nonetheless, NSF has achieved significant success over the programs which were continued and newly started in line with organizational objectives as given in the respective divisional activities.

NSF was able to obtain Rs.2,002,599 from IDRC to develop a regulatory frame work for Nanotechnology related activities in Sri Lanka.

Year	Approved Budget	Revised Budget	Funds Received	% of approved budget	% of revised budget
Rupees '000					
2007	307,500	257,500	153,999	50.08	59.80
2008	320,000	297,600	138,653	43.33	46.59
2009	217,192	184,613	68,350	31.47	37.00
2010	238,000	238,000	107,000	44.96	44.96
2011	300,000	300,000	110,710	36.90	36.90
2012	311,000	283,010	157,384	50.61	55.61

### Management Issues

- The beneficiaries of research grants were basically those in academia and research institutes and NSF does not have direct control over them while research is carried out under the supervision of the respective Heads of Departments of those research institutions. In spite of strong grant scheme conditions, timely implementation of projects is affected due to this and to some extent due to procedures and systems within the grantee's institution. We are improving our systems on an ongoing basis to address this.
- Although there is potential for obtaining foreign funds by the NSF, the delays caused by stringent procedures have led to the loss of such opportunities.

### Financial Statements

#### Statement of Comprehensive Income for the year ended 31st December 2012

	2012	2011	Rs.000
<b>Revenue</b>			
Government Grant	75,252	68,951	
<b>Other Income</b>			
Interest received	206	201	
Sundry Income	49	53	
Sale of Publications	(1,933)	(1,127)	
Photocopy receipts	12	18	
Internet membership fees	-	24	
NSLRC Income	11	39	
Profit from sale of Fixed Assets	-	3	
Excess provisions	-	123	
Receipts from outside printing	-	42	
Differed Revenue	10,421	8,855	
	84,019	77,182	

**Expenditure****Personal Emoluments**

Salaries & allowances	43,239		38,559	
Employees Provident Fund	5,177		4,211	
Employees Trust Fund	1,034		842	
Provision for retiring gratuity	6,393		2,983	
Overtime	728		709	
Holiday payment	43		43	
Uniforms	152		108	
	188		185	
Sraff training				
	<b>56,954</b>		<b>47,640</b>	
Travelling	412		496	
Supplies	2,473		2,697	
Maintenance	1,931		1,618	
Contractual Service	8,442		8,235	
Others	10,024		10,315	
Depreciation	12,030		10,840	
	<b>35,312</b>	92,266	<b>34,201</b>	81,841
Surplus/ Deficit over the income				
before extraordinary items		(8,247)		(4,659)
Extraordinary items (Net Profit or loss)		-		-
Net Surplus/ Deficit for the period		<b>(8,247)</b>		<b>(4,659)</b>

Statement of Financial Position as at 31st December 2012

				Rs.'000
	2012	2011	2010	
<b>ASSETS</b>				
<b>Non Current Assets</b>				
Property Plant and Equipment	445,069	442,743	335,553	
	445,069	442,743	335,553	335,553
Investments	632,000	661,522	631,522	631,522
<b>Current Assets</b>				
Inventories/ Stock	4,263	4,096	5,214	
Trade and other receivables	3,913	17,246	10,528	
Prepayments	661	1,024	7,379	
Cash and cash equivalents	12,481	13,351	33,811	
	31,318	35,717	66,932	
<b>Total assets</b>	<b>1,108,387</b>	<b>1,139,982</b>	<b>1,034,007</b>	
<b>Net assets &amp; Liabilities</b>				
<b>Capital and Reserves</b>				
Accumulated Fund	(8,819)	6,256	21,476	
Reserves - Revaluation Reserve	422,549	422,549	316,061	
Government Grant	632,000	661,522	631,522	
	1,045,730	1,090,327	969,059	969,059
<b>Non current liabilities</b>				
Provision for gratuity	23,085	19,178	17,294	
Differed revenue	27,539	21,074	37,811	
	50,624	40,252	55,105	55,105
<b>Current liabilities</b>				
Payables	2,764	2,835	6,676	
Accrued Expenses	9,269	6,568	3,167	
	12,033	9,403	9,843	
	<b>1,108,387</b>	<b>1,139,982</b>	<b>1,034,007</b>	

**Statement of Cash Flow**

	2012	2011	Rs'000
<b><u>Cash flows from operating Activities</u></b>			
Net excess of expenditure over income	(8,247)	(4,659)	
Add; NSF fund prior year adjustments	1,168	(270)	
	<b>(7,079)</b>	<b>(4,929)</b>	
<b><u>Adjustments for</u></b>			
Depreciation	(12,030)	(10,840)	
Loss from publications	(1,933)	(1,127)	
Gratuity paid during the year	2,485	1,099	
Provision for Gratuity	(6,392)	(2,983)	
Provision for doubtful debts	-	123	
Excess provisions	-	-	
Books written off	(6)	-	
Profit on sale of fixed assets	-	3	
Fixed Assets written off	(36)	-	
Deffered Revenue	10,421	8,855	
Stock of Magazines & Journals written off	(412)	(1,301)	
Operating profit/loss before working capital changes	<b>824</b>	<b>1,242</b>	
Net increase/decrease in trade other receivables	3,696	9,761	
Decrease in inventories	(167)	1,117	
Net decrease/increase in trade payables	2,630	(440)	
Cash generated from operations	6,159	10,438	
Net cash from operating activities	<b>6,983</b>	<b>11,680</b>	
<b><u>Cash flows from Investing Activities</u></b>			
Outflow from activities	(163,672)	(143,575)	
Purchase of assets	(3,892)	(4,482)	
Investments	-	(30,000)	
Proceeds from sale of equipments	-	5	
Proceeds from sale of books	325	404	
Net cash used in investing activities	<b>(167,239)</b>	<b>(177,648)</b>	
<b><u>Cash Flows from Financial Activities</u></b>			

Contribution from Government	157,383	110,710
Government Grant	-	30,000
Foreign Aid	<u>2,003</u>	<u>4,797</u>
	<b>159,386</b>	<b>145,507</b>
Net cash from financing activities	(870)	(20,461)
Cash & cash equivalent at beginning period	<u>13,351</u>	<u>33,812</u>
Cash & cash equivalent at end of period	<b><u>12,481</u></b>	<b><u>13,351</u></b>

**Notes on Accounts****1 General Accounting**

The Financial Statements have been prepared in accordance with generally accepted accounting principles on a historical cost basis and presented in accordance to Sri Lanka Accounting Standards LKAS 01 Presentation of Financial Statements.

The treatment of depreciation related to assets have been treated as deferred income which is recognized as income on a systematic and rational basis over the useful life of the asset in accordance to LKAS 20

**1.1 Documentation Unit Capital Fund Expenditure**

	<b>2012</b>	<b>2011</b>
	Rs.	Rs.
1 NSLRC Equipment (Library)	-	491,571.00
2 NSLRC Books	511,254.14	398,870.30
3 National Digitization Project	862,208.51	669,801.53
4 Advisory Board	796.00	13,065.00
5 NSLRC staff training	-	11,500.00
6 International Database	2,147,998.25	637,370.00
7 NSLRC workshops & Seminars	(29,088.83)	157,365.02
8 Union List Data Base	130,041.17	273,688.29
9 National Repository S & T Literature	54,191.67	-
10 Seminars Workshops & Other Support to Library	111,381.00	-
11 Prepare promotional Materials	3,946.34	-
	<b>3,792,728.25</b>	<b>2,653,231.14</b>

**1.2 Grants for Research & Other Scientific Work**

Our policy in funding research grants as formulated in the Research Grants contractual agreement is to transfer the funds to the Institution where the grantee is employed in installments. If there is an unused balance of funds with the relevant Institution, after completion of the project, the balance has to be refunded to NSF. Hence we treat the funds transferred to the Institution as expenditure. At the end of the project if there remain unutilized funds, we create a debtor.

	<b>2012</b>	<b>2011</b>
	Rs.	Rs.
Research Grants & Other Scientific work expenditure	110,186,376.33	41,752,302.07
Research Scholarships & Fellowships	7,378,086.12	3,629,410.00
Chronic Kidney Disease Project	-	46,000,000.00
Actual expenditure for the year	117,564,462.45	91,381,712.07
Accrued expenditure	71,266.29	741,254.63
	<b>117,635,728.74</b>	<b>92,122,966.70</b>

1.3 **Miscellaneous Fund Expenditure**

	<b>2012</b>	<b>2011</b>
	Rs.	Rs.
1 International contacts	7,532,570.48	7,639,644.72
2 Science Popularization Division	9,769,918.27	5,118,156.39
3 Information Technology Unit	972,365.54	2,004,157.18
4 Rehabilitation & Improvements for assets	883,071.84	885,265.84
5 Director's Office Vote	6,647,189.69	4,985,987.95
6 Science & Technology Policy Research Division	2,218,203.90	1,412,278.02
7 Technology Division	7,124,881.19	7,956,202.99
8 International Liasion Division	2,667,604.05	4,493,860.94
9 Global Forum Follow UP	110,912.76	-
10 Global Forum	-	6,926,145.00
11 IDRC NSF Expenditure	1,287,752.97	347,140.00
12 Intergrated Software Programme	-	2,999,000.00
13 International Contacts OSTP	3,768,235.40	1,811,766.69
14 National Science Centre	-	4,303,443.04
	<b>42,982,706.09</b>	<b>50,883,048.76</b>

2 **Assets & the basis of their valuation**

**Depreciable assets & Depreciation**

Depreciation has been provided on original cost or at valuation on a straight line basis from the date of purchase of the assets and is calculated to write off the assets over their estimated useful lives.

**Depreciation Rates as Follows**

Building	5%
Office Equipment & Furniture	20%
Motor Vehicles	20%
Accessories & Miscellaneous	20%
Library Books	5%
Scientific & Laboratory Equipment out on loan	10%
Documentation Equipment	10%

3 <b><u>Debtors</u></b>	<b>2012</b>	<b>2011</b>
	Rs.	Rs.
Total debtors	10,438,427.26	10,722,754.68
Less: Provision for doubtful debts	-	-
	<b>10,438,427.26</b>	<b>10,722,754.68</b>

NSF provides doubtful debts for debts which are outstanding for more than 3 years

#### 4 **Liabilities**

##### **Creditors**

Creditors amounting to Rs. 2,764,444.96 represents monies held by NSF as given below,

	<b>2012</b>	<b>2011</b>
	Rs.	Rs.
1 European Union Workshop	-	9,804.00
2 SIDA/RFC A/c	11,190.47	9,795.79
3 SIDA	608.05	608.05
4 Sundry Creditors	752,846.66	869,146.66
5 Staff Creditors	109.32	-
6 INASP A/C (2010)	-	76,800.42
7 Research Project on Energy	24,476.05	24,476.05
8 LOICZ/RFC	-	1,501,109.86
9 LOICZ	-	91,387.49
10 National Symposium on Social Protection Policy	-	39,357.41
11 Identifying Priority Water Sector Research in Sri Lanka	-	68,047.52
12 Study on the Bundala National Park- 2003	-	37,300.76
13 IFAP Committee (2008)	-	104,753.90
14 Stephan Workshop	1,975,214.41	-
	<b>2,764,444.96</b>	<b>2,832,587.91</b>

#### 5 (a) **Publications**

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

Therefore in many occasions publications have to be given free of charge to schools & other relevant various organisations specially as prizes/ awards for science related activities.

Eg. Competitions. Such releases are effected always with Director's approval.

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

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

(b) <u>Sale of Publications</u>		2012	2011
		Rs.	Rs.
1	NSF Journal	2,790.00	1,430.00
2	Other Publications	16,787.50	36,007.50
3	Sri Lanka Journal of Social Sciences	855.00	1,700.00
4	MAB Publication	1,345.00	2,395.00
5	Vidurawa	8,780.00	32,035.00
6	Food Security	1,580.00	2,640.00
7	Noise Pollution	845.00	400.00
8	Natural Resources of Sri Lanka (2000)	3,825.00	8,689.19
9	Waders of Sri Lanka	3,160.00	4,465.64
10	Ficus Bengalensis	295.00	312.87
11	Lankawe Swabhavika Vipath	(60.68)	2,691.28
12	Sustainable Agriculture	(2,496.96)	1,627.56
13	Sale of Muhuda Kalu Una	-	200.00
14	Medicinal Plants used in Sri Lanka	11,717.00	23,499.00
15	VCDs	6,950.00	675.00
16	Vidyathmaka Elawalu Vagawa	(1,816.70)	4,847.60
17	Sithiyam Vidyawa	(6,263.12)	3,970.40
18	JNSF Vol. 35	130.00	260.00
19	Sri Lanka Medicinal Plants & Monographs	(6,260.00)	(210.00)
20	Atoms for Peace	(5,032.55)	(201.55)
21	Guide to Research & Scientific Institutions	226.66	(6,361.72)
22	JNSF Vol. 36	230.00	1,730.00
23	JNSF Vol. 37	230.00	230.00
24	Agantuka shaka vishesha	(46,485.00)	(5,863.80)
25	Alternative Energy	(2,207.24)	1,593.34
26	Ecosystems Based Indiginous Water Management	(432.00)	2,146.00
27	Ground Water Conditions in Sri Lanka	(3,120.00)	(5,722.50)
28	JNSF Vol. 38	1,380.00	(47,160.00)
29	Infant & Young Child Nutrition	(2,712.00)	(1,718.00)
30	Sale of Medicinal & Aromatic Plants	-	2,530.00
31	Rubber Diseases	4,840.00	5,340.00
32	Some Elementary Hints	2,400.00	2,300.00
33	Sri Lankawe Kanija Sampath	(16,737.32)	3,045.57
34	Tradition & Livelyhood	(4,850.00)	(2,590.00)

35	Sri Lanka Science & Technology Innovation Statistical Indicator 2008	(41,835.00)	395.00
36	Sri Lanka Journal of Social Sciences 29/30	265.00	929.94
37	DVD's	4,295.00	590.00
38	JNSF Vol. 39	(263,960.31)	(221,124.14)
39	Ritipanna	(49.80)	1,190.24
40	Kadukaraya saha Nayayam	(1,310.10)	1,429.40
41	Sri Lanka Journal of Social Sciences - Vol.31-32	715.00	(50,881.62)
42	Sri Lanka Journal of Social Sciences - Vol.33-34	(32,197.43)	-
43	Sale of Vidurawa - Vol. 27-2 (T)	-	(60,207.77)
44	Vidurawa - Vol. 27 Special Issue (E)	(1,190.00)	(88,515.61)
45	Vidurawa - Vol. 28 - 1 (E)	320.00	(87,522.64)
46	Vidurawa - Vol. 28-1 (T)	(75.00)	(115,483.11)
47	Vidurawa - Vol. 28 Special - (S)	(213,406.30)	65.00
48	Vidurawa - Vol. 28 Special - (T)	(120,589.97)	-
49	Sale of Vidurawa - Vol. 26-1 (T)	-	470.00
50	Vidurawa Vol. 26 (Special Issue) (T)	195.00	520.00
51	Vidurawa Vol.27 I (E)	490.00	1,290.00
52	Vidurawa Vol.27 I (S)	1,140.00	2,565.00
53	Vidurawa Vol.27 I (T)	165.00	285.00
54	Vidurawa Vol.27- 2 (E)	975.00	1,185.00
55	Vidurawa Vol.27- 2 (S)	780.00	1,819.43
56	Vidurawa Vol. 27 (Special Issue) (S)	-	(85,948.96)
57	Vidurawa Vol. 27 (Special Issue) (T)	-	(28,420.00)
58	Vidurawa Vol. 28-2 (E)	(175.00)	(108,635.61)
59	Vidurawa Vol. 28-2 (S)	(5,220.00)	(128,792.75)
60	Vidurawa Vol. 28-1 (S)	475.00	(127,248.60)
61	Vidurawa Vol. 29-1 (S)	(123,716.66)	-
62	Vidurawa Vol. 29-1 (E)	(128,128.50)	-
63	Vidurawa Vol. 29-1 (T)	(118,747.04)	-
64	Zoonotic Diseases in Sri Lanka	(1,779.92)	(32.48)
65	Statistical Hand Book 2004	(304.00)	-
66	Statistical Hand Book 2006	(263.00)	-
67	JNSF 40	(543,877.64)	-
68	Vidurawa - Vol. 28 Special - (E)	(119,103.47)	-
69	Vidurawa Vol. 29-2 (S)	(126,413.24)	-
70	Vidurawa Vol. 29-2 (E)	(70,778.62)	-
		<b>(1,933,413.41)</b>	<b>(1,127,145.55)</b>

5.1 <b><u>National Committee Expenditure</u></b>		<b>2012</b>	<b>2011</b>
		<b>Rs.</b>	<b>Rs.</b>
1	National Committee on the MAB Programme	93,429.88	45,378.00
2	National Committee on Sustainable Use of Mineral Resources	52,000.00	17,500.00
3	National Committee on Innovation & Techno-Entrepreneurship	32,000.00	35,500.00
4	National Committee on Robotics, Advanced Design & Manufacturing	39,000.00	12,000.00
5	National Committee on Advance Material	26,000.00	40,000.00
6	National Committee on Electronic & ICT	35,937.29	14,000.00
7	National Committee on ICSU	23,718.37	17,500.00
8	National Committee on International Partnerships	82,695.58	24,993.21
9	National Committee on Basic Sciences	8,000.00	9,000.00
10	National Committee on Ethics & S & T	53,874.00	35,500.00
11	National Committee on Nanotechnology	27,000.00	18,000.00
12	National Committee on Research & Development	10,000.00	18,500.00
13	National Committee on Library & Information Services	33,000.00	11,000.00
14	RGB/GEN	-	36,677.88
15	National Committee on Science & Technology Mathematics Education	85,980.14	78,058.65
16	National Committee on Social Sciences	103,200.00	105,917.62
18	National Committee on Agriculture & Food Science Research	9,000.00	28,000.00
19	Research Committee on Water & Energy	-	3,000.00
20	Research Committee on Environment & Biodiversity	-	47,000.00
21	National Committee on Ocean & Marine Sciences	31,660.91	29,000.00
22	National Committee on Science Popularization	55,000.00	38,500.00
23	Research Committee on Health Science	-	35,000.00
24	Editorial Board of JNSF	82,838.31	90,067.07
25	National Committee on Biotechnology	89,000.00	90,000.00
26	National Committee on Engineering & Manufacturing	15,000.00	19,000.00
		<b>988,334.48</b>	<b>929,092.43</b>

5.2	<b><u>National Science Library &amp; Resource Centre</u></b>	<b>2012</b>	<b>2011</b>
		Rs.	Rs.
1	Maintenance & Repairs	-	10,152.74
2	Periodicals Local & Foreign	814,334.98	636,279.38
3	Paper & Board	-	7,466.00
4	Consumables	126,587.00	17,564.25
5	Miscellaneous	19,355.22	49,540.42
6	Document delivery services	-	3,000.00
		<b>960,277.20</b>	<b>724,002.79</b>

5.3	<b><u>Printing Unit</u></b>	<b>2012</b>	<b>2011</b>
		Rs.	Rs.
1	Consumables & Chemicals	515,272.47	348,708.74
2	Paper & Boards	(75,653.80)	64,710.05
3	Maintenance & Repairs	185,106.83	71,490.20
		<b>624,725.50</b>	<b>484,908.99</b>

6 **INVESTMENT** - Investment of Rs. 632,000,000 represents the NSF investment in NANCO (Pvt) Ltd.

7 **Employees Benefit**

All employees are covered by EPF & ETF. An approved Medical Scheme is provided in

8 **Retiring Gratuity**

Provisions have been made in the accounts in respect of liability for retiring gratuity for the employees who has completed one year of Service.

	Rs.
Amount paid for the year	2,485,537.50
Provision for the year	6,392,531.50

9 The publication stock out on consignment basis is Rs. 77,380/-

10 NSF owns 07 vehicles.

11 **Funds Drawn from the Treasury during - 2012**

		Rs.	
Consolidated Funds	Rs.	157,382,718.00	
Recurrent Funds	Rs.	75,252,000.00	
Foreign Aid- IDRC	Rs.	2,002,599.00	
Treasury Deposit	Rs.	1,000,000.00	( IDRC)
	Rs.	2,048,886.50	(Global Form)

**Funds drawn from the Treasury from 1968 to 2012**

		Rs.
Consolidated funds	Rs.	1,299,215,629.45
Foreign Aids	Rs.	338,908,549.60

12 Prior period adjustments : Following adjustments have been made to the fund accounts.

1	<b>Documentation Unit Capital Fund</b>	<b>2012</b>	<b>2011</b>
		Rs.	Rs.
	Balance as at 01.01.2012	3,824,628.84	4,479,261.10
	Less; Prior year Adjustments	169,620.71	1,401.12
		<hr/>	<hr/>
2	<b>Research Grant Fund</b>		
	Balance as at 01.01.2012	8,196,107.32	31,509,306.79
	Add: Prior year adjustments	3,922,924.15	7,809,767.23
		<hr/>	<hr/>
		12,119,031.47	39,319,074.02
3	<b>Man &amp; the Biosphere Fund</b>		
	Balance as at 01.01.2012	1,829,977.19	1,837,977.19
	Less; Net prior year adjustments	-	8,000.00
		<hr/>	<hr/>
		1,829,977.19	1,829,977.19
4	<b>Miscellaneous Fund</b>		
	Balance as at 01.01.2012	2,667,266.22	11,243,200.43
	Less: Net Prior year Adjustment	1,106,070.43	920,280.37
		<hr/>	<hr/>
		1,561,195.79	10,322,920.06

5	<b><u>Scientific Reserve Fund</u></b>	<b>2012</b>	<b>2011</b>
		Rs.	Rs.
	Balance as at 01.01.2012	6,747,380.02	4,624,384.31
	Add; Net prior year adjustments	-	-
		<hr/> 6,747,380.02	<hr/> 4,624,384.31
6	<b><u>Foreign Aid</u></b>		
	Balance as at 01.01.2012	10,532,924.10	15,561,559.59
	Less: Net Prior Year Adjustments	1,498,017.00	6,095,395.49
		<hr/> 9,034,907.10	<hr/> 9,466,164.10
7	<b><u>NSF Fund</u></b>		
	Balance as at 01.01.2012	(25,419,249.06)	(47,779,330.09)
	Add: Net Prior Year Adjustments	1,168,407.22	27,018,766.26
		<hr/> (24,250,841.84)	<hr/> (20,760,563.83)



# REPORT OF THE AUDITOR GENERAL





**විගණකාධිපති දෙපාර්තමේන්තුව**  
**கணக்காய்வாளர் தலைமை அபிப்பிதி திணைக்களம்**  
**AUDITOR GENERAL'S DEPARTMENT**



මගේ අංකය }  
 எனது இல } LS/F/NSF/FA/2012  
 My No }

මගේ අංකය }  
 உமது இல }  
 Your No. }

දිනය }  
 திகதி } 10 October 2013  
 Date }

The Chairperson  
 National Science Foundation

Report of the Auditor General on the Financial Statements of the National Science Foundation for the year ended 31 December 2012 in terms of Section 14(2)(c) of the Finance Act, No. 38 of 1971.

The audit of financial statements of the National Science Foundation for the year ended 31 December 2012 comprising the statement of financial position as at 31 December 2012 and the comprehensive statement of income and cash flow statement for the year then ended and a summary of significant accounting policies and other explanatory information was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with Section 13(1) of the Finance Act, No. 38 of 1971 and Section 40 of the Science and Technology Development Act, No. 11 of 1994. My comments and observations which I consider should be published with the Annual Report of the Foundation in terms of Section 14(2)(c) of the Finance Act appear in this report. A detailed Report in terms of Section 13(7)(a) of the Finance Act was furnished to the Chairperson of the Foundation on 08 May 2013.

#### 1:2 Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Generally Accepted Accounting Principles and for such internal control as the management determines is necessary to enable the preparation of financial statements that are free from material misstatements, whether due to fraud or error.

අංක 306/72 පොල්ලා පාර,  
 බත්තරමුල්ල, ශ්‍රී ලංකාව

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 தொலைபேசி }  
 Telephone }

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இல. 306/72, பொல்துள வீதி,  
 பத்தரமுல்லை இலங்கை

පැහැර අංකය }  
 பகல் இல }  
 Fax No. }

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 Battaramulla, Sri Lanka

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 e- மெயில் }  
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1:3 Auditor's Responsibility

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My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards. Those Standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

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

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

1:4 Basis for Qualified Audit Opinion

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

2. Financial Statements

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2:1 Qualified Opinion

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- In my opinion, except for the effects of the matters described in paragraph 2:2 of this report, the financial statements give a true and fair view of the financial position of the National Science Foundation as at 31 December 2012 and its financial performance and cash flows for the year then ended in accordance with Generally Accepted Accounting Principles.

## 2.2 Comments on Financial Statements

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### 2.2.1 Accounting Deficiencies

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The accounting for the gratuity provision had been understated by a sum of Rs.997,731.

### 2.2.2 Unreconciled Control Accounts

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Even though the value of the books, notices and cassettes included in the balance stock according to the statement of financial position amounted to Rs.2,973,545 according to the stock book that amounted to Rs.8,424,493.

### 2.2.3 Lack of Evidence for Audit

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The evidence indicated against the following items of account had not been furnished.

Item	Value	Evidence not made available
-----	-----	-----
	Rs.	
Lands	370,000,000	Title Deed for the Land
Fixed Assets (excluding buildings)	91,889,626	Board of Survey Reports
Science and Research Stocks	4,263,546	- do -
Equipment Grants	5,004,103	Schedules

### 2.2.4 Money Receivable

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Advances amounting to Rs.859,201 granted for researches projects had not been settled for over one year.

## 2.2.5 Non-compliance with Laws, Rules, Regulations and Management Decisions

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Contrary to the Public Finance Circular No. 449 dated 21 February 2011 of the Ministry of Finance and Planning, 03 retired officers over the age of 60 years had been deployed in consultancy services and paid a sum of Rs.1,088,998 as salaries and transport allowances.

## 3. Financial Review

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### 3.1 Financial Results

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According to the financial statements presented, the working of the Foundation for the year ended 31 December 2012 had resulted in a deficit of Rs.8,247,108 as compared with the corresponding deficit of Rs.4,658,685 for the preceding year. The deterioration of Rs.3,588,423 in the year under review as compared with the preceding year had been due to the increase of the total expenditure by Rs. 10 million despite the increase of the Government grant by a sum of Rs. 7 million.

## 4. Operating Review

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### 4.1 Performance

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A comparison of the Action Plan for the year 2012 prepared by the Foundation with the actual performance is given below.

Year	Number of Researches completed	Number sent to Technical Divisions for follow up	Researches not subjected to follow up	Researches that can be carried forward
2010	42	39	03	--
2011	37	17	20	09

An analysis of research reports referred to the Technical Division for follow up during the past several years is given below.

Year	Completed Researches used as a Publication	Researches eligible for Patent Application	Researches that can be developed as a Commercial Project	Researches that can be referred for further research	Projects that can be developed based on the original format	Patents obtained
2008	15	01	--	10	--	--
2009	16	02	01	05	02	--
2010	02	02	03	02	05	02
2011	01	01	--	13	08	--

#### 4:2 Identified Losses

The following observations are made.

- (a) A stock of 797 Mihimadala (earth) compact discs valued at Rs.83,800 produced in the year 2008 remained idle in the stores.
- (b) A stock of 12,394 non-moving books valued at Rs.8.424,493 remained idle in the stores due to printing of books without identifying the requirements.

#### 4:3 Delayed Projects

The following observations are made.

- (a) National Science Foundation had entered into an agreement with the University of Colombo School of Computing for a sum of Rs.2,999,000 on 15 February 2011 for the establishment of a Management Information System. That work had not been completed even by 31 March 2013.
- (b) Provision amounting to Rs. 70 million had been made for the Multi Research Project organized by the World Health Organization for the identification of the reasons for the acute renal disease prevalent in the North Central, Uva and Eastern Provinces and the results of those researches had not been released even by 31 March 2013.

- (c) The Internal and External Audit Reports on the utilization of the funds of the Multi Research Project had not been furnished to the Science Foundation and the National Science Foundation had not identified the information on the External Auditor.

#### 4.4 Resources of the Foundation given to other Government Institutions

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The following observations are made.

- (a) Two female officers recruited to the posts of Management Assistants of the National Science Foundation had been released to the Senior Minister's Office.
- (b) National Science Foundation had paid a sum of Rs.675,395 as the salaries from 01 May 2011 to an Assistant Teacher deployed in the service of the Ministry of Technical Research and Atomic Energy.

#### 5. Systems and Controls

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

- (a) Research Grants
- (b) Stock Control

I.A.S. Samaraweera  
Auditor General

/dk. \*

**NSF COMMENTS ON  
THE REPORT OF THE  
AUDITOR GENERAL**



Reference to the report of the Auditor General on the Financial Statements of the National Science Foundation for the year ended 31<sup>st</sup> December 2012 in terms of section 14 (2) (C) of the Finance Act No.38 of 1971. Our comments for the above audit report are given below.

## 2. Financial Statements

### 2.2 Our Observations

#### 2.2.1 Sri Lanka Accounting Standards

The funds for the development of the Nano park has been transferred to the Sri Lanka Institute of Nano Technology (SLINTEC) by the Ministry of Technology, Research & Atomic Energy through the National Science Foundation.

The transaction related to the collaborative parties such as above will be disclosed as per the Sri Lanka Accounting Standards 24 , from 2013.

#### 2.2.2 Accounting Deficiencies

a) The department of Treasury Operations has confirmed the amount of Rs.66,760/= as the treasury deposit by its letter dated 23.01.2013. ( Annexure 01)

b) The gratuity provision has been calculated according to the Sri Lanka Accounting Standards No.19. The relevant document is attached herewith. ( Annexure 02)

c) As per the decision taken by the Board of Management the value of books that have been printed prior to 05 years , the value of journals/magazines printed prior to one year and the 50% of the cost of journals printed prior to 06 months were written off.

The books printed within 05 years and journals/magazines printed within six months were value based on the cost/selling price, which is the lowest and are shown as the stock in the accounts, while those that have been written off are not included in the stocks.

Arrangements were made for the distribution of books that have been written off among schools and public libraries. Due to the delays in the process of distribution some books were remaining in the shelves. Action will be take to distribute the same before August 2013.

#### 2.2.3 Lack Of Evidence for Audit

Land	The land shown by the survey plan No.PP 4293 has been taken over by the NSF on 24.01.1977. But this land has not been registered under the Department of Land Registry. Action is being taken to obtain the Title Deed of the land under the leadership of the Ministry.
Fixed Assets ( Except Building)	Board Of Survey is going on.
Science & Research Publication Stock	
Equipment Grants	The equipments for research that were purchased from the funds directly handle by the NSF were included in the Asset Register.

2.2.4 Differences not Explained

RG/ 2011/EQ/11	<p>The amount (Rs.37,200/=) received on 18.12.2012 has not updated in the ledger &amp; it has been corrected on 22.05.2013.</p> <p>The funds (Rs.75,600/=) to be refunded as per the grant file was received on 30.04.2013 &amp; the grant was completed.</p>
RG/2009/Nano/01	<p>The money (Rs.680,496/=) to be refunded as per the grant file was after deducting committed funds as at 18.10.2012 .But committed funds have not been accounted until they are spent.Accordingly the ledger balance of Rs.726,142/- is correct. ( Annexure 04)</p> <p>The grantee has sent the financial statement on 01.03.2013 &amp; expenses were reported for the amount of Rs.13,171.20 &amp; out of the balance of Rs.712,971.80, Rs.680,491/= has been refunded to the NSF on 01.03.2013.</p>
RG/2007/E/04	<p>According to the ledger balance of Rs.522,863/=,expenses were reported for Rs.65,519/= &amp; it was accounted on 05.02.2013.</p> <p>The balance amount of the grant Rs.457,344 has been refunded to the NSF on 04.03.2013 &amp; the grant was completed.</p>
RG/2007/BT/07	<p>The amount of Rs.110,000/= were correct according to the grant ledger &amp; grant file.Expenditure has been reported on 13.02.2013 for the same amount &amp; the grant has been completed.</p>
RG/2006/AG/07	<p>Rs.355,278/= was the amount that grantee has requested form the NSF on 10.01.2011 as funds required for the project. ( Annexure 05)</p> <p>Accordingly the amount of Rs.228,914/= shown in the grant ledger is correct. The expenditure has been reported for the same amount on 20.02.2013 &amp; the grant was completed.</p>

2.2.5 Accounts Receivable & Payable

(a) The 08 months over due unsettled advance payment of Rs.221,400/- was settled on 2013.03.04 . Out of the one year over due advance payment of Rs. 13,766/- ,Rs.7,878/- has been settled on 2013.03.01.The institution was reminded to settle the balance advance payment of Rs.5,888/- on 2013 03.06. ( Annexure 06)

(b) Out of the refundable deposit Rs.50,000 paid at the booking of the BMICH Rs.10,191,41 has been deducted for damages incurred and the balance of Rs.39,808.59 was refunded to the NSF on 2013.02.15.

(c) Out of the balance funds Rs.2,822,370/- to be received from the research grants in 2012 Rs.1,963,168.62 has been settled in 2013. Action has been taken to obtain the balance of Rs.859,201.38. Accordingly 69% of the total has been settled to date. (Annexure 07) Arrangements are being made to receive the balance.

### 2.2.6 Reference to Laws, Rules, Regulations and Management Decision

NSF being an institution engaged in scientific activities usually acquires the services of consultants for better performance of the organization .

The human resources required for various projects identified by the Board of Management such as the establishment of the Management Information System & the preparation of the Manual of Procedures for the NSF were not available within the NSF. Therefore timely consultant services were needed to attend to these tasks .The service of a Consultant was obtained to carry these projects which are different from each other based on specific Terms of References (TOR) on assignment basis.

The letter no.DMS/ERST/21/3, dated 2005.06.09 issued by the Department of Management Services has approved 06 carder positions to obtain the above services for the NSF. Based on the letter no DMS/E2/24/4/172/2, dated 2011.03.07 issued by the DMS & the decision of the Board of Management, the consultancy services were obtained.

A consultant service was obtained for a 6 months period from 2009 & according to the requirements of the organization the service of the consultant was obtained to carryout different tasks based on specific TORs on assignment basis up to the December 2012.

This is not the continuation of the services but has taken periodically on assignment basis to carry out different tasks for the betterment of the Institution.

## 3. Financial Review

### 3.1 Financial Results

The deficiency of 4658 M in 2011 has been increased to 8247 M in 2012 due to the following reasons.

- As per the instruction given by the Labour Department the Board of Management decided to include the Cost Of Living allowance when calculating gratuity payments.
- Provisions of gratuity for the employees who have completed one year as per the Sri Lanka Accounting Standards No.19 .

Therefore the additional cost incurred Rs.3,409,181 was the main cause for the deficiency.

### 3.2 Analytical Financial Review

#### 4. Operating Review

##### 4.1 Progress

4.1.1 NSF provides funds for Research & Development activities in all areas of Science & Technology. The outputs from these grants can be categorized as follows.

- \* Capacity building in Science & Technology for future research in Sri Lanka
- \* Knowledge dissemination through publications and communications in Sri Lanka
- \* Carrying out relevant research activities to provide solutions to national issues

In addition, currently, the Research Division is carrying out a survey to find the outputs of research projects completed during 2008-2012. During this survey the NSF expects to value the achievements of the researchers, the contribution made towards the human resources development and the socio-economic development of the country.

The NSF will give priority to project proposals that address areas of research and that are of national priority, when awarding grants in the future.

4.1.2 National Science Foundation always attempts to follow up Research & Development outputs that has potential for technology development. However, some of the projects taken for follow up were not successful due to the following reasons.

- Decision makers at public/private sector organizations give more priority to imported technology rather than locally developed technology
- Poor relationship & trustworthiness between the Research & industrialists.
- Issues related to Intellectual Property Rights between Research / technology developers and the during the industry technology transfer.
- Lack of venture capital for new industries (start-ups/spin offs )
- Poor innovation culture

##### 4.2 Operational Inefficiencies

###### **a) RG/2004/C/01**

Four Progress Reports have been submitted during the grant period and the Final Report was submitted to the NSF on 17/04/2013. The balance funds of Rs.22, 803.87 have also been returned to the NSF.

A procedure has been implemented to detect and rectify unsatisfactory progress and delays in submitting Progress/ Final Reports of grants.

###### **b) RG/2008/AG/01**

The grant was awarded in 2009 and project period was over on 14<sup>th</sup> February 2010 and the Final Report was due in August 2010. The first Progress Report for the first six months has been submitted. Since the the Principal Investigator migrated, the co-investigator had to carryout the research work. However, the co-investigator was critically ill for two years and as such, the NSF did not receive any response to the 04 reminders to submit the Final Report sent by the NSF.

In 2013, the NSF received the Final Report and a CD with database relevant to this Research Grant and these have been sent for evaluation. Balance funds have also been returned to the NSF. As the investigator was sick and therefore unable to deliver the expected outputs before the end of the grant period, the NSF has decided not to penalize the Investigator by not giving any financial support for further period of 03 years.

**c) RG/2011/NRB/05**

The Contractual Agreement of the grant was signed on 15<sup>th</sup> September 2011 and first installment was transferred to UCSC, University of Colombo on 14.10.2011. However, 1<sup>st</sup> Progress Report was submitted on 10.02.2012. The NSF was informed that he was unable to carry out the project further since the Research Student had left the grant. As such, the NSF took necessary actions to terminate the grant with effect from 11<sup>th</sup> January 2013. On 6<sup>th</sup> February 2013 the full amount transferred to UCSC, Rs.304,500/= was returned.

**d) NSF/SCH/2005/13**

According to the Financial Statement submitted by the Industrial Technology Institute (ITI) all funds that had been transferred to ITI were spent for the above research project.

**RG/2005/FR/04**

The final report was received in August 2009 and the balance amount of Rs. 184,274.19 at the University of Peradeniya was returned to the NSF on 28<sup>th</sup> July 2010.

**4.3 Identified Losses**

a) The intension of the NSF publication were to popularize science & not to earn a profit. The cost of these books have been included in the accounts as an asset, although these were written-off from the books according to the accounting procedures. They will be distributed free of charge to the libraries of schools/universities for the benefit of the students as well as on request of those who would make use them. Therefore it should be considered not as a loss for the Institution but as an expense incurred for a definite purpose.

b) 915 Mihimadala VCD & CDs valued as Rs.61,665/- were in the stores as at 31.12.2012. Arrangement were made to distribute these among the School Science Societies registered with the National Science foundation before the end of August 2013.

c) Out of the publication listed, 2,896 books /Magazines were distributed at the Dayata Kirula & Science day programmes in some schools. The balance amount of 9,438 also will be distributed among the libraries of Schools & Universities before the end of August 2013.

Action will be taken to print according to the demand and to go for online publications.

**4.4 Delayed Projects**

a) The first version of the software developed by the University of Colombo School of computing was submitted to the National Science Foundation in January 2013 for beta testing. As multiple programming errors were detected at the initial software testing, the NSF has returned the software back to UCSC to scrutinize the development again.

Since additional components were also added to the initial development at the latter stages, the agreed project period too expired. However, both parties are expecting to use the software online by August 2013.

- b) (i) The NSF Board of Management on 28<sup>th</sup> January 2013 requested the WHO to analyze the data further and revise the Final Report and submit to the NSF. The WHO agreed to submit the report accordingly.
- (ii) According to the Contractual Agreement signed between NSF and WHO the Final Certified Financial Statement will be submitted to the NSF once all the activities of the project is completed.

#### 4.5 Foundation's Resources given to other government Institutions

- a) The National Science Foundation provided its human resource to other government institutions based on the letter No.PA/PMS/01/06 of the Secretary of the Ministry of Parliamentary Affairs & dated 23.06.2010. Two officers were released to the Senior ministers office as instructed by the Additional Secretary (Finance & Administration) of the Ministry of Technology, Research & Atomic Energy in the letter No.ST/2/2/PF/44 & dated 14.05.2010. The office of the Senior Ministry has agreed to reimburse the salary paid to these officers by the NSF.
- b) As instructed by the Additional Secretary (Finance & Administration) of the Ministry of Technology, Research & Atomic Energy in the letter No.ST/2/1/MS & dated 29.04.2011 ,arrangement were made to attach this officer to the NSF with effect from 2011.05.02 but was transferred to the Ministry of Technology, Research & Atomic Energy on the same day.

As per the instruction given by the above letter his salaries were paid by the NSF.

#### 5. Systems and Controls

- a) Research Grants  
b) Publication Stocks  
c) Board of survey
- } Relevant action is being taken with special attention on these areas.

Chairperson  
National Science Foundation

# ANNEXES



## Annex 1

## Research Grants awarded in 2012

## Research Panel on Agriculture &amp; Food Sciences

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2012/AG/01	Prof. U.L.B. Jayasinghe Prof. N.S. Kumar Natural Products Division Institute of Fundamental Studies Kandy	Chemistry and bioactivity of some popular edible fruits: studies on possible applications in health and agriculture  03 Years	1,870,963
RG/2012/AG/02	Dr Nimsha Sevwardika Weerakkody Department of Agricultural & Plantation Engineering The Open University of Sri Lanka Nawala  Dr Mayuri Thammitiyagodage Medical Research Institute Colombo 08	Antimicrobial, antibiofilm activity of Sri Lankan grown Galangal ( <i>Alpinia galanga</i> ) or Mahaaraththa against <i>Staphylococcus aureus</i> and its safety evaluations  02 Years	1,000,032
RG/2012/AG/03	Dr J.W. Damunupola Dr W.A.M. Daundasekara Department of Botany Faculty of Science University of Peradeniya Peradeniya  Dr S.A. Krishnarajah Dr D.S.A. Wijesundara Royal Botanical Gardens Peradeniya	Growth responses of <i>Ophiopogon japonicus</i> ('Silver dragon' or 'Mondo grass') for differential potting media, plant growth hormones and fertilizer treatments.  02 Years 06 Months	1,651,720
RG/2012/AG//04	Dr H.L.D. Weerahewa Department of Botany Open University of Sri Lanka Nawala  Mrs M.D.J. Saparamadu Department of Chemistry Faculty of Natural Sciences Open University of Sri Lanka Nugegoda	Determination of the effect of silicon on natural defense system against anthracnose disease and some pre and postharvest qualities in <i>Capsicum annum</i> (Malumiris) and investigating the possibility of using rice hull as a low cost silicon source  03 Years	1,462,500
RG/2012/AG/05	Dr D.L.C. Kumari Fonseka Prof. S.S. Subasinghe Department of Crop Science Faculty of Agriculture University of Ruhuna Mapalana Kamburupitiya.  Sheron Weerasooriya Agronomy and Plant Breeding Division Cinnamon Research Institute Palopitiya, Thihagoda	Mass production of elite Cinnamon ( <i>Cinnamomum verum</i> Presl.) lines through in-vitro culture  02 Years	1,332,980

RG/2012/AG//06	Dr A.M.W.K. Seneviratne Dr Mrs. P. Seneviratne Rubber Research Institute Dartonfield Agalawatta	The overall impact of different bark consumption rates associated with additional days of latex harvesting on growth, yield and financial implication of rubber ( <i>Hevea brasiliensis</i> Muell. Arg) plantations  03 Years	2,262,592
RG/2012/AG/07	Dr W.A.U. Vitharana Dept. of Soil Science Faculty of Agriculture Univ. of Peradeniya Peradeniya	Use of electromagnetic induction based soil apparent electrical conductivity (Eca) measurements to support site specific soil management of paddy cultivation in the Intermediate Zone.  02 Years	1,742,960
RG/2012/AG/08	Dr D.M.S. Munasinghe Dr L.J.P.A. Jayasooriya Dept. of Basic Vet. Sciences Faculty of Vet. Medicine & Animal Science University of Peradeniya Peradeniya	The effect of lipid peroxidation of keeping quality of tilapia ( <i>Oreochromis niloticus</i> ) preserved using different methods in Sri Lanka  02 Years	1,850,000

#### Research Panel on Basic Sciences

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2012/BS/01	Dr H.K.I. Perera Department of Biochemistry Faculty of Medicine University of Peradeniya Peradeniya  Prof. U.L.B. Jayasinghe Natural Products Division Institute of Fundamental Studies  Prof. R. Sivakanesan Department of Biochemistry Faculty of Medicine Univ. of Peradeniya Peradeniya	Identification and isolation of potential antidiabetic compounds from Sri Lankan medicinal plants  03 Years	1,306,000
RG/2012/BS/02	Prof. Namal Priyantha Department of Chemistry University of Peradeniya Peradeniya	Kinetics and equilibrium aspects of interaction of heavy metal ions and peat in natural and modified forms  03 Years	2, 619, 400
RG/2012/BS/03	Dr B.S. Dassanayake Department of Physics University of Peradeniya Peradeniya  Dr C.P. Jayalath Dr V.A. Seneviratne Department of Physics, University of Peradeniya Peradeniya	Synthesis and characterization of thin films based on Group II and VI elemental compounds for fabricating solar cells  03 Years	1, 416, 000

RG/2012/BS/04	Prof. M A K L Dissanayake Institute of Fundamental Studies Hantana Road Kandy  Dr. G.K.R. Senadeera The Open University of Sri Lanka Polgolla Kandy	Optimization of the growth process of cadmium sulfide (CdS) semiconductor thin films for efficiency enhancement in CdS/CdTe solar cells  03 Years	2, 800, 000
RG/2012/BS/05	Prof. Namal Priyantha Department of Chemistry University of Peradeniya Peradeniya	Investigation of sorption of industrial pollutants on selected natural substances and development of a pilot scale treatment facility for industrial effluents  03 Years	2, 710, 895
RG/2012/BS/06	Prof. N.S. Kumar Institute of Fundamental Studies Hantana Road Kandy  Prof. U. L. B. Jayasinghe Institute of Fundamental Studies Hantana Road Kandy	Bioactive molecules from endophytic microorganisms associated with medicinal and allelopathic active-plants from Sri Lanka  02 Years	1, 148, 200

#### Research Panel on Biotechnology

Grant No:	Grantee(s)/Institute	Project Title/ Duration	Total Allocation (Rs.)
RG/2012/BT/01	Dr H.A.M. Wickramasinghe Department of Agricultural Biology Faculty of Agriculture University of Peradeniya Peradeniya	Genomics and proteomic approaches of identifying dehydration stress responsive genes from selected rice varieties in Sri Lanka  02 Years	2, 706, 350
RG/2012/BT/02	Dr W.S.S. Wijesundara Dept. of Biochemistry & Molecular Biology Faculty of Medicine University of Colombo  Dr. N.V. Chandrasekharan Dept. of Chemistry Prof. R. L. C. Wijesundera Dept. of Plant Sciences Faculty of Science University of Colombo Colombo	Cloning and expression of cellulase and xylanase genes of <i>Trichoderma</i> in a yeast system to develop synergistic saccharification and direct fermentation of cellulosic biomass to ethanol  03 Years	3, 950, 370
RG/2012/BT/03	Prof. B.G.D.N.K. De Silva Dept. of Zoology Faculty of Science Univ. of Sri Jayewardenepura Nugegoda  Dr. G. N. Malavige Dept. of Microbiology, Faculty of Medical Sciences University of Sri Jayewardenepura. Nugegoda	Detection of dengue viruses in <i>Aedes</i> mosquitoes and their population genetic structure in Colombo, Sri Lanka  03 Years	3, 274, 250

**Research Panel on Computer Science & Information Technology**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2012/CSIT/01	Dr. Ranga Rodrigo Dr. Jayathu Samarawickrema Dept. of Electronic & Telecommunication Engineering University of Moratuwa Moratuwa	Visual surveillance based system for efficient management  03 Years	2,320,000

**Research Panel on Engineering Sciences & Architecture**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2012/ESA/01	Prof. Jayasundera Bandara Institute of Fundamental Studies Hantana Road Kandy	Design of a biological and advanced oxidation technology (AOT) hybrid reactor system for oil wastewater treatment  03 Years	3,263,000

**Research Panel on Health Sciences**

Grant No.	Applicants (PI,Col)/Institution	Project Title /Duration	Total Allocation (Rs.)
RG/2012/HS/01	Dr Godwin R. Constantine Dr Prasad Katulanda Dept. of Clinical Medicine University of Colombo Colombo 08 Dr M A Ranil Jayawardena Diabetes Research Unit Dept. of Clinical Medicine Faculty of Medicine, University of Colombo	Effects of the Zinc supplementation on pre-diabetes: A double-blind, randomized, placebo-controlled trial  02 Years	1,426,394
RG/2012/HS/01	Prof. Jennifer Perera Dept. of Microbiology Faculty of Medicine University of Colombo Colombo	Identification of clinically significant Mycobacterium other than tuberculosis (MOTT) species, assessment of in vitro drug susceptibility, development of a rapid ELISA based identification method  03 Years	3,908,807
RG/2012/HS/03	Dr Varuni de Silva Dr Raveen Hanwella Dept of Psychological Medicine. Faculty of Medicine. University of Colombo Colombo	Outcome of patients with schizophrenia: A prospective follow up study of an incidence and a prevalence cohort  03 Years	751,000
RG/2012/HS/04	Dr R.D.F.C. Kanthi Health Education Bureau Kinsey Road Colombo 08	Oral Health Literacy status of the pregnant mothers and effectiveness of an intervention to improve the Oral Health Literacy status of the pregnant mothers in a selected MOH area in Colombo District  01 Year	281,955

## Research Panel on Natural Resources and Biodiversity

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2012/NRB/01	<p>Prof. E.D. de Silva Dr C.D. Wijayarathna Dept. of Chemistry Faculty of Science University of Colombo Colombo</p> <p>Prof. R.L.C. Wijesundara Department of Plant Sciences University of Colombo Colombo</p>	<p>Investigation of endophytic fungi of endemic Sri Lankan plants for antimicrobial agents</p> <p>03 Years</p>	4,105,000
RG/2012/NRB/02	<p>Dr Chandima Dangalle Dept. of Zoology Faculty of Science University of Colombo Colombo</p> <p>Prof. Nimal K. Dangalle Department of Geography University of Kelaniya Kelaniya</p>	<p>Habitat specificity and habitat types of tiger beetles (Coleoptera: Cicindelidae) of Sri Lanka</p> <p>03 Years</p>	1,010,875
RG/2012/NRB/03	<p>Dr N.D. Subasinghe Prof. C.B. Dissanayake Institute of Fundamental Studies Hantana Road Kandy</p>	<p>Estimate subsurface extension of Eppawala apatite deposit and its parent rock using geophysical techniques</p> <p>03 Years</p>	2,060,063

**Research Grants completed in 2012****Research Panel on Agriculture & Food Sciences**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2006/AG/07	Dr V.H.L. Rodrigo Dept. of Plant Science Rubber Research Institute Agalawatta	Development of efficient low frequency tapping systems to address the tapper shortage and to reduce the cost of production in the rubber industry in Sri Lanka  03 Years	2,140,069
RG/2008/AG/05	Prof. Udith K. Jayasinghe Dr Jagath Edirisinghe Dept. Agribusiness Mgt. Faculty of Agriculture & Plantation Mgt Wayamba University of Sri Lanka	Economic incentives for firms to adopt an enhanced food safety & quality metasystem : The case of adoption of HACCP in Agri – food processing sectors in Sri Lanka  03 Years	669,575
RG/2006/AG/02	Dr K.M.S. Wimalasiri Dr S.P. Gunaratne Dr K.F.S.T. Silva Dept. of Food Science & Technology Univ. of Peradeniya Peradeniya	Investigation on the origin of aflatoxin M1 levels in milk and milk products in Sri Lanka with a view to suggest preventive measures  02 Years	2,179,443
RG/2006/AG/08	Dr Radhika Samarasekera Industrial Technology Institute Colombo 07	Biological control of vegetable pests by <i>Bacillus thuringiensis</i> (Bt)  03 Years	1,097,640

**Research Panel on Basic Sciences**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2006/FR/02	Dr (Mrs) Manawadevi Y. Udugal-Ganehenege Dept. of Chemistry Univ. of Ruhuna Matara.	Synthesis of covalently linked transition metal macrocyclic and polypyridyl complexes suitable for the reduction of water and small hazardous molecules like CO <sub>2</sub> .  03 Years	2,539,354/-
RG/2007/FR/07	Dr P. Ravirajan Dept. of Physics Univ. of Jaffna Jaffna	Characterization of nanostructured polymer fullerence solar cells under direct sun light  03 Years	1,898,000
RG/2007/FR/08	Prof. R. M. Gamini Rajapakse Prof. H.M.N. Bandara Dept. of Chemistry Univ. of Peradeniya Peradeniya	Hydrothermal synthesis and characterization of pure hydroxyapatite and hydroxyapatite-organic polymer nanocomposites for possible applications in dentistry and in artificial bones  03 Years	1,800,000
RG/2008/BS/01	Dr Champika Vithana Hettiarachchi Dept. of Chemistry Univ. of Peradeniya Peradeniya	Equilibrium studies on toxic metal ion-mixed ligand systems under physiological conditions  03 Years	1,490,000

## Research Panel on Biotechnology

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2006/BT/01	Ms W.A.S. Wijendra Ms K.A.K.C. Kulatunga Dept. of Microbiology  Mr. R. Ramesh Molecular Biology Unit Medical Research Institute Colombo 08	Rapid and early detection of <i>Listeria monocytogenes</i> in milk and milk products  02 Years	1,624,400
SIDA/2006/BT/03	Dr S. N. Surendran Dept. of Zoology Faculty of Science University of Jaffna Jaffna	Bionomics of the sibling species of the <i>Anopheles culicifacies</i> species complex in Sri Lanka  03 Years	3,286,010
SIDA/2006/BT/04	Dr Ranil Samantha Dassanayake Dept. of Chemistry  Prof. E.H. Karunanayake Dr O.V.D.S.J. Weerasena Institute of Biochemistry, Molecular Biology and Biotechnology Univ. of Colombo Colombo	Structural and functional characterization of putative nuclear cell envelope like parasitic nematode specific growth factor protein from goat and sheep parasite, <i>Setaria digitata</i> and human filarial parasite <i>Wuchereria bancrofti</i>  03 Years	1,941,175
SIDA/2006/BT/05	Dr W.S.S. Wijesundera Dept. of Biochemistry & Molecular Biology Faculty of Medicine University of Colombo Colombo  Ms Y.J.P.K. Mithrasena Agricultural Research and Development Regional Agricultural Research Centre, Dept. of Agriculture Bomuwala	Determination of pathotype and genetic variation of rice blast fungus ( <i>Magnaporthe grisea</i> ) isolates in agro-ecological zones in Sri Lanka  03 Years	1,705,740
RG/2007/BT/01	Prof. W.A.J.M. De Costa Dr Devika M. De Costa Dept. of Crop Science Faculty of Agriculture University of Peradeniya Peradeniya	Expression of candidate genes for salt tolerance in Sri Lankan rice germplasm  03 Years	1,080,000
RG/2007/BT/06	Dr H.A.M. Wickramasinghe Dept. of Agric. Biology Faculty of Agriculture  Dr T.C. Bamunuarachchige Postgraduate Institute of Agriculture University of Peradeniya Peradeniya	18s rRNA/rDNA based molecular characterization of locally isolated <i>Aspergillus oryzae</i> and the elucidation of alpha amylase gene expression based, altered carbohydrate metabolism during fermentation  02 Years	2,154,304
RG/2007/BT/07	Dr G.L.L.P. Silva Dept. of Animal Science Faculty of Agriculture University of Peradeniya Peradeniya	Genetic characterization of native goat types in Sri Lanka  02 Years	552,000

RG/2007/BT/08	Prof. H.W. Cyril Dr G.L.L.P. Silva Ms S.M.C. Himali Dept. of Animal Science Faculty of Agriculture University of Peradeniya Peradeniya	Use of microsatellites for identification of exotic, domestic and wild swine ( <i>Sus scrofa</i> ) meat  02 Years	666,365
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#### Research Committee on Engineering Science & Architecture

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2007/E/04	Prof. Sohan Wijesekera Department of Civil Engineering University of Moratuwa Moratuwa	Development of GIS model for the identification, planning and management of ecological resources in the Kalutara District  01 Year 06 Months	2,659,000
RG/2011/ESA/02	Dr. K.T.M.U. Hemapala Dept. of Electrical Engineering Faculty of Engineering University of Moratuwa Moratuwa	Agent based control and protection for smart grids  01 Year	311,000

#### Research Panel on Environmental Sciences

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2004/BM/02	Dr B.T.S.D.P. Kannangara Dr N. Deshappriya Dept. of Botany University of Kelaniya Kelaniya	Isolation and inclusion of mixed leaf litter decomposition fungi in a National culture collection  03 Years	1,109,200
RG/2004/TM/03	Prof. A.M. Abeysekera Dept. of Chemistry University of Sri Jayawardenapura	Studies on the Chemistry and standardization of arylurvedic medicinal oils  03 Years	1,477,000
RG/2006/EB/08	Dr M.C.M. Iqbal Institute of Fundamental Studies Hantana Road Kandy  Dr D.S.A. Wijesundera Royal Botanic Gardens Peradeniya  Dr G.W.A.R. Fernando Dept. of Physics Open University of Sri Lanka Nawala	Ecology of the Ussangoda serpentine flora  03 Years	1,908,450

**Research Panel on Nanotechnology**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2008/NANO/01	Prof. C.A.N. Fernando Department of Electronics Faculty of Applied Sciences Wayamba University of Sri Lanka	Langmuir-Bolgett films for dye sensitized solar cells as solar energy conversion devices  03 Years	945,000
RG/2009/NANO/01	Prof. R.M.G. Rajapakse Dept. of Chemistry University of Peradeniya Peradeniya	Development and characterization of functional textile materials with stain-resistant and antimicrobial activities  03 Years 06 Months	3,139,400

**Research Panel on Health Sciences**

Grant No:	Grantee(s)/Institute	Project Title/Duration	Total Allocation (Rs.)
RG/2003/M/03	Dr. Ananda Chandrasekera Faculty of Dental Sciences University of Peradeniya Peradeniya	Effect of non-surgical periodontal treatment on haemoglobin glycosylation  02 Years	530,000
RG/2004/M/16	Dr. K. R. D. de Silva Dept. of Anatomy Faculty of Medicine University of Sri Jayawardenapura Nugegoda	Prevalence of neuro-pathological changes of Alzheimer disease in Sri Lankan postmortem brains and its correlation to atherosclerosis and ApoE genotype  02 Years	791, 108
RG/2007/HS/14	Dr (Mrs) L.D. Amarasinghe Dept. of Zoology Faculty of Science University of Kelaniya	Application of geographic information system for modelling spatial and temporal risk for dengue transmission in Kelaniya MOH area in Sri Lanka  03 Years	1,538,900
RG/2005/HS/01	Dr. Kumudu Karunaratne Lady Ridgeway Hospital Colombo 08	Aetiological agents of bacteraemia and fungemia in patients with neoplastic disease at Cancer Institute, Maharagama  01 Year	58, 150
RG/2005/HS/04	Prof. A.R. Wickremasinghe Dr. K.T.A.A. Kasturiratne Dept. of Community & Family Medicine Faculty of Medicine University of Peradeniya Peradeniya	Risk analysis and prognostic factors of oral cancer in Sri Lanka  02 Years	1,288, 642
RG/2007/HS/08	Prof. P.S. Wijesinghe Dr. T.S. Palihawadana Dept. of Obstetrics & Gynaecology Univ. of Kelaniya Ragama	A study on ovulatory dysfunction in an infertile population of Sri Lanka and a prospective randomized comparison between Clomifene citrate and Letrozole, in ovulation induction and augmentation  03 Years	2,510,462

RG/2005/HS/18	Dr. R.P.V.J. Rajapakse Faculty of Veterinary Medicine and Animal Science University of Peradeniya Peradeniya  Dr(Mrs) E.R.H.S. Ediriweera Institute of Indigenous Medicine University of Colombo Colombo 08	Evaluation of anti-helmintic and anti-protozoal activity of selected medicinal plants currently used in Ayurveda  02 Years	448,000
RG/2005/HS/15	Dr. Shiroma Handunnetti Prof. E.H. Karunanayake Institute of Biochemistry, Molecular Biology & Biotechnology University of Colombo Colombo	Identification of active components and the mechanisms of anti-inflammatory effects of three medicinal plants in Sri Lanka  02 Years	2,153,940
RG/2004/TM/02	Dr. Mangala Gunathilake Prof. Dilani Lokuhetty Faculty of Medicine, University of Colombo Colombo	Polpala ( <i>Aerva lanata</i> ): its effects on the structure and the functions of urinary tract  01 Year	1,120,225
RG/2005/HS/17	Dr. S.S.S.B.D.P. Soysa Dept. of Biochemistry Faculty of Medicine Univ. of Colombo Colombo	Induction of apoptosis in cancer cell lines by selected traditional medicines  02 Years	1,826,250
RG/2004/V/05	Dr. R.S. Kalupahana, Faculty of Veterinary Medicine University of Peradeniya Peradeniya	Post harvest control of <i>Campylobacter</i> in broiler meat through determination of CCP in broiler processing line and design of intervention measures  02 Years	1,042,437

## Annex 3

## Summary of Research Grants Scheme – 2012

		Agriculture & Food Science	Computer Science & Information Technology	Health Science	Hydrology	Environmental Sciences	Library & Information Sciences	Natural Resources & Biodiversity	Nanotechnology	Social Sciences	S&T Policy Studies	Science Education	Basic Sciences	Biotechnology	Engineering Sciences & Architecture	Total
01	Total no of ongoing grants as at 31.12.2012	27	02	26	02	15	-	11	04	06	02	-	15	21	02	<b>133</b>
02	Grants awarded	08	01	04	-	-	-	03	-	-	-	-	06	03	01	<b>26</b>
03	Grants completed	04	-	11	-	03	-	-	02	-	-	-	04	08	02	<b>34</b>
04	Grants withdrawn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Grants terminated	-	-	-	-	-	-	01	-	-	-	-	-	-	-	<b>01</b>
06	RSs appointed/ to be appointed	05	01	10	-	04	-	03	02	-	01	-	06	12	02	<b>46</b>
07	RSs registered for Post graduate degree/ to be registered for post graduate degree	04	01	04	-	04	-	05	-	-	01	-	06	12	02	<b>39</b>
08	TAs appointed / to be appointed	04	-	09	-	-	-	02	-	-	-	-	01	02	-	<b>18</b>
09	Post graduate degrees obtained	-	-	-	-	01	-	-	-	-	-	-	-	-	-	<b>01</b>
	PhD	01	-	-	-	02	-	-	-	-	-	-	02	02	-	<b>07</b>
	MPhil	-	-	-	-	01	-	-	-	-	-	-	-	-	01	<b>02</b>
	MSc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	No of publications arising from grants (Foreign)	03	-	02	-	-	-	-	-	-	-	-	02	06	-	<b>13</b>
11	No of publications arising from grants (Local)	07	-	02	-	02	-	-	01	-	-	-	-	01	02	<b>15</b>
12	Communi-cations	21	-	12	07	11	-	-	-	-	-	-	20	18	05	<b>94</b>

**Recommended for NSF Research Awards – 2010**

Research Panel	Grantee/s	Grant No/ Project Title
Basic Sciences	Prof. Namal Priyantha Dr Ayanthi Navaratne Dept. of Chemistry University of Peradeniya Peradeniya  Research Student Mr C. B. Ekanayake MPhil	RG/2005/FR/05  Investigation of environmental fate of some selected pesticides using electrochemical methods.

**Recommended for NSF Research Awards – 2011**

Research Panel	Grantee/s	Grant No/ Project Title
Basic Sciences	Prof. R.M. G. Rajapakse Dept. of Chemistry  Prof. B. S. B. Karunaratne Dept. of Physics  Prof. D. T. B. Tennakoon Prof. H. M. N. Bandara Prof. B. M. R. Bandara Dept. of Chemistry University of Peradeniya Peradeniya  Research Students 1. Mr. S. Wijeratne MPhil 2. Mr R. M. M. Y. Rajapakse MPhil	RG/2005/FR/04  Clay-polymer Nanocomposites: Investigation of their electrical, mechanical, thermal and green-catalytic properties for industrial and technological applications
Engineering Sciences & Architecture	Prof. K. K. Y. W. Perera Department of Electronics & Telecommunication Engineering University of Moratuwa Moratuwa.	RG/2005/E/05  Electronics devices for energy saving design & prototype fabrication.

**Recommended for Certificates of Commendation – 2010**

Research Panel	Grantee/s	Grant No/ Project Title
Basic Sciences	Dr Varuni A. Seneviratne Dept. of Physics University of Peradeniya Prof. M.A.K.L. Dissanayake Postgraduate Institute of Science University of Peradeniya Peradeniya  Research Student Mr H. M. J. C. Pitawala MPhil	RG/2005/FR/03  Optical and electrical studies in novel solid polymer electrolytes..

Engineering Sciences	Dr (Mrs) C. Jayasinghe Dept. of Civil Engineering University of Moratuwa Moratuwa  Research Student Mr K. P. Arandara M.Sc	RG/2006/E/01  Durability properties of earth buildings.
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**Recommended for Certificates of Commendation – 2011**

Research Panel	Grantee/s	Grant No/ Project Title
Basic Sciences	Dr. L. Karunanayake Dept. of Chemistry Univ. of Sri Jayewardenepura Nugegoda  Prof. G.M.K.B. Gunaherath Dept. of Chemistry The Open University of Sri Lanka Nawala  Research Student Mr K.G.Padmasiri PhD	RG/2006/FR/03  Use of locally available fatty acids and their derivatives as a plasticizer/stabilizer for PVC
Basic Sciences	Dr Samantha Weerasinghe Dept. of Chemistry Univ. of Colombo Colombo 03  Research Student Mr W.M.R. Sanjeewa MPhil	RG/2007/FR/01  Investigation of atomic level description of the effect of denaturing agents on hydrophobic interaction by molecular simulation
Health Sciences	Prof. P.S. Wijesinghe Dr G.S. Padumadasa Dr T.S. Palihawadana Dept. Of Obsterics & Gynaecology University of Kelaniya Kelaniya  Collaborator Dr F.S. Marleen (Completed MD)	RG/2007/HS/07  Efficacy of surgical versus expectant management in incomplete miscarriage.

**SUSRED Awardees****Awards for PhD Degrees 2009**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
1	Prof. Sagarika Ekanayake University of Sri Jayawardenepura Prof. Jayantha Welihinda University of Colombo	Dr U.P.K. Hettiaratchi  Effects of Macronutrients and Physicochemical Properties of Carbohydrates on Glycaemic Indices (GI) of some Sri Lankan Foods	Dept. of Biochemistry Faculty of Medical Sciences University of Sri Jayawardenepura
2	Dr L. Karunanayake University of Sri Jayawardenepura Dr Susil J. Silva (migrated)	Dr S. Arasaretnam  Synthesis, Characterization and Utilization of formaldehyde- based resins manufactured using some locally available Plant based tannin sources	Dept. of Chemistry University of Sri Jayawardenepura
3	Prof. Malik Ranasinghe Dept. of Civil Engineering University of Moratuwa Prof. Sohan Wijesekara Dept. of Civil Engineering University of Moratuwa	Dr W.B.M. Thoradeniya  Stakeholder involvement in the decision making for development projects using 'Educated Trade-Offs'	Dept. of Civil Engineering University of Moratuwa  Economy and Environment Programme for South East Asia (EEPSEA)
4	Prof. K.K.D.S. Ranaweera University of Sri Jayawardenepura Prof. A. Bamunuarachchi University of Sri Jayawardenepura	Dr Indira Wickramasinghe  Studies on the occurrence of nutritionally and toxicologically significant metals in selected marine edible fish and their availability in in vitro hydrolysates	Dept. of Food Science and Technology University of Sri Jayawardenepura

**Awards for PhD Degrees 2010**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
5	Prof. R.M.G. Rajapakse University of Peradeniya Prof. H.M.N. Bandara University of Peradeniya	Dr K. Velauthamurty  Synthesis of monomers and polymers based on metal [Pd(II), Pt(II), Ru(II), Ni(II) and Cu(II) functionalized 3, 4-ethylenedioxythiophene-complexes and their characterization	Dept. of Chemistry University of Peradeniya  Dept. of Chemistry University of Liverpool UK
6	Prof. C. Shanthi De Silva Faculty of Agriculture Open University of Sri Lanka	Dr Thushyanthy Mikunthan  Shallow groundwater resources assessment in limestone aquifer: A case study in Thirunevely and Kondavil areas in Jaffna district	Dept. of Agricultural Engineering University of Jaffna
7	Dr Shanthi Wilson Industrial Technology Institute  Prof. R.L.C. Wijesundera University of Colombo Dr R. Samarasekera Industrial Technology Institute	Dr C.J. Wijesinghe  Use of Trichoderma asperellum to control black rot disease of pineapple and anthracnose disease of rambutan in Sri Lanka	Industrial Technology Institute Colombo 7  University of Colombo

**Awards for PhD Degrees 2011**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
8	Prof. E.R.N. Gunawardena University of Peradeniya Prof. L.H.P. Gunaratne University of Peradeniya	Dr S.B. Thrikawala  Sustainable water supply and sanitation through financing and institutional intervention: A case from Kandy, Sri Lanka	Dept. of Agricultural Engineering University of Peradeniya  Dept. of Agricultural Economics and Business Management University of Peradeniya

**Awards for MPhil Degrees 2009**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
1	Prof. R.D. Wijesekera University of Colombo Prof. H. D. Gunawardhana University of Colombo  Dr W. A. P. Weerakkody University of Peradeniya	Ms M.D.J.S. Saparamadu  Development of a user friendly and cost effective nutrient management strategy for simplified hydroponics	Dept. of Chemistry University of Colombo
2	Prof. M.R. Sooriyarachchi Dept. of Statistics University of Colombo Dr T. S. G. Peiris University of Moratuwa	Ms P.S. Yatapana  An analytical approach to student selection method for university admission in Sri Lanka	Division of Interdisciplinary Studies Institute of Technology University of Moratuwa  Dept. of Statistics University of Colombo
3	Prof. Sriyani E. Peiris University of Peradeniya Dr Sumith Z. de Abeysirwardena CIC Agribusiness Pvt. Ltd.	Ms D.S.K. Nagahathenna  Micropopagation and change in plant architecture of <i>Hemidesmus indicus</i> (L) R.Br. (Iramusu) and <i>Osbeckia octandra</i> (L) Dc Prodr. (Heen bovitiya) through biotechnological approaches	Dept. of Crop Science University of Peradeniya
4	Prof. E.M.N. Ekanayake University of Peradeniya	Mr B.M.U. Amarakone  Mathematical Modeling of Probability Density Functions and Applications in Wireless Communication Systems	Dept. of Electrical and Electronic Engineering University of Peradeniya

**Awards for MPhil Degrees 2010**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
5	Dr Samantha Weerasinghe University of Colombo	Mr W.M.R. Sanjeewa  Investigation of the effect of chemical denaturants on hydrophobic interaction of caffeine by molecular dynamics simulation	Dept. of Chemistry University of Colombo
6	Prof. Sagarika Ekanayake University of Sri Jayawardenepura Prof. E. R. Jansz University of Sri Jayawardenepura  Prof. S. P. Lamabadusuriya University of Colombo	Mr N.D.A. Wageesha  A study of hypercarotenaemia in Sri Lankan children and its possible aetiology	Dept. of Biochemistry University of Sri Jayawardenepura

7	Prof. C.A.N. Fernando Wayamba University of Sri Lanka	Mr N.T.R.N. Kumara  Investigation of Cuprous Oxide thin film and CuI dye sensitized Langmuir- Blodgett (LB) thin films in Nano-Solar Cell Devices	Dept. of Electronics Wayamba University of Sri Lanka
8	Prof. S. Kuganathan University of Jaffna	Mr G.A. Charles  Population dynamics of Sepioteuthis lessoniana (Cephalopoda: Loliginidae) from the Jaffna lagoon	Dept. of Zoology University of Jaffna

**Awards for MPhil Degrees 2011**

No	Supervisory Team / Institution	Research Student/ Title of the Thesis	Institution/ Department where research was performed
9	Prof. V. Thevanesam University of Peradeniya Dr P. Saravanakumar University of Peradeniya	Dr L.V.C. Liyanapathirana  Diagnosis and mapping of rickettsial diseases in Sri Lanka using molecular and serological techniques	Dept. of Microbiology Faculty of Medicine University of Peradeniya
10	Prof. Veranja Karunaratne Sri Lanka Institute of Nanotechnology  Dr Nilwala Kottegoda Sri Lanka Institute of Nanotechnology  Dr Marliya Ismail University of Moratuwa	Ms Imalka Munaweera  Preparation and characterization of nutrient rich nanoparticles / composites for agricultural applications	Sri Lanka Institute of Nanotechnology  Dept. of Chemical and Process Engineering University of Moratuwa

## Annex 6

## Sponsorships for Conferences/Workshops

No	Title of Conference/ Workshop etc.	Organization	Date of Event	NSF Contribution (LKR)	Outcome
1	International Brain Research Organization Course in Neuroscience and one day Symposium on Clinical Neuroscience.	University of Sri Jayawardenapura Faculty of Medicine	18-26 April 2012	100 000/-	Five principal lecturers from the U.S, Italy, India and Israel participated at this programme. The course consisted of five lectures per day covering all aspects of neuroscience, followed by group discussions at the end. 15 students presented results of their research on the last day of the course. Discussions on setting up a MS degree program in neuroscience at University of Sri Jayawardenapura were also held during the course of this event.
2	International Women's Day 2012	Saviya Women's Organization	17 March 2012	70 000/-	An island wide poster/essay competition and a one day awareness programme on 'Action taken immediately during Natural disaster and emergency situations' were held to celebrate the International Women's Day. 150 participants participated at this function where Dr (Ms) Neela Gunasekara was the resource person.
3	6 <sup>th</sup> Biennial Scientific Sessions of the Allergy Immunology Society of Sri Lanka	Allergy and Immunology Society of Sri Lanka (Medical Research Institute)	14-15 June 2012	190 000/-	The programme included 4 free paper sessions at which 16 papers from different institutions in the country were presented. The papers presented included a number of foreign collaborators from UK, USA and India. Oral and poster presentations in the fields of clinical and laboratory medicine, veterinary medicine and agriculture were also presented. Guest lectures by both foreign and local resource persons were also held. The academic session was attended by 90 participants.
4	Workshop on Intellectual Property Rights (IPRs) for Innovations and Development	Industrial Technological Institute (ITI)/ International Development Law Organization (IDLO)	08-10 May 2012	79 000/-	34 participants consisted of Scientists and Lawyers from Private sector companies, Attorney General's Dept. and Officers from institutions functioning under the MoTR. Lectures and presentations were made by several resource persons in areas such as 'mechanisms for enforcement of IP in SL', 'IP & Innovations in the software industry' etc.

5	Sri Lanka Medical Association 125 <sup>th</sup> Anniversary Annual Medical Congress	Sri Lanka Medical Association (SLMA)	2-6 July 2012	1 000 000/-	A forum on financing and manpower requirements of the health sector, presentation of 244 research papers and symposia on a wide range of topics such as infectious disease, respiratory disease, stroke, cerebral palsy. Workshops on eHealth, reproductive health, birth defects etc. Over 1200 participants consisting of professionals from Medical and Healthcare Sectors participated at the Congress. A highlight of the forum was that the Keynote address on the third day was on the National Strategy on Science Technology and Innovation, which was the first time it was presented at a medical forum.
6	International Conference on Chemical Sciences	Institute of Chemistry Ceylon	20-22 June 2012	200 000/-	The theme of this year's conference was 'Role of Chemistry Research in National Development'. Over 300 participants representing 89 different institutions from Sri Lanka, UK, USA, Pakistan, Malaysia, India, Taiwan, Australia, Canada participated at the conference. Plenary lectures and sessions related to the conference theme such as Chemical Education, Natural Products, Environmental Chemistry, Food Science and poster presentations were held.
7	04 <sup>th</sup> Symposium on plantation and crop research	Tea Research Institute (TRI)	20-21 September 2012	279 808/-	The theme of this year's symposium was 'Technological Innovations for sustainable Plantation Economy'. The event was organized by TRI in collaboration with Rubber, Coconut and Sugarcane Research Institutes. A total of 181 participants from 04 research institutes and 101 stakeholders attended the technical sessions during the two days. 31 papers were presented on five different sub themes covering new research findings in tea, coconut, rubber and sugarcane sectors.
8.	44 <sup>th</sup> APACPH Conference 2012 - (Workshop on Scientific Writing)	Asia Pacific Academic Consortium for Public Health, Faculty of Medicine, University of Colombo	13-18 October 2012	200,000/-	The Conference was conducted on the theme "The Millennium Development Goals Beyond 2015: The challenge for Public Health". Over 1000 abstracts were submitted for scientific review and oral and poster presentations were made. The pre conference workshop covered various topics such as 'Outline of a typical paper', 'Introduction, Methods, Research and Discussion', 'Details on Illustrations, references and statistics', 'Review process and responding to Reviewer's comments' and 'Publication ethics'. Both local and foreign academics participated at this workshop as resource persons.

9.	Workshop on Current Status in Thin Film Solar PV Technology	Institute of Fundamental Studies and National Science Foundation	28-29 June 2012	200,000/-	The activity was a part of building up a R&D potential in Sri Lanka on Solar PV technology, initiated through the Global Forum, organized by NSF. The two day workshop covered topics from basics of photovoltaic science and technology to applications largely focused on thin film solar cells. Special emphasis was made on the next generation of high efficiency and low cost Cadmium based thin film solar cells. It was highlighted the importance of providing training to young scientists and engineers on Solar PV technology as Sri Lanka will in the near future embark on the utilization of solar energy. A book of handouts was distributed to the participants and a certificate of participation was also awarded.
10.	SAAP-3 Pre Conference Workshop and Symposium on Physiology Teaching	Dept of Physiology, Faculty of Medicine, University of Colombo	7-8 November 2012	100,000/-	This is the first workshop and symposium on physiology teaching at a South Asian Association of Physiologists (SAAP) conference and has concluded very successfully. The Workshop and the symposium included plenary sessions on 'Staying competent and relevant as Medical Educators: Beyond Paper Qualifications', 'Role of Faculty in teaching & learning', 'Evaluation of student learning' etc and a host of break-out sessions on 'Assessment system in Physiology', 'Practical Laboratories' etc. The summary and outcome of this will be discussed further at the International Union of Physiological Societies to be held in UK in July 2013.

11.	32 <sup>nd</sup> Annual Sessions of the Institute of Biology	Institute of Biology, Sri Lanka	28 <sup>th</sup> September 2012	175,000/-	The theme of the session was "Ecotoxicology: A field of growing importance" and the keynote address dealt with issues such as relentless discharge of industrial and domestic waste and effluents and the necessity for regular toxicity assessments and monitoring. As the Guest of Honour Director/NSF, highlighted ways in which NSF facilitates and strengthens the researchers within the country. Prof. Sarath Kotagama, one of the most influential environmentalists, was felicitated for his outstanding contribution to the fields of Ornithology and Biodiversity conservation. Award winners of the International Biology Olympiad 2012 were also acknowledged. 14 abstracts were presented at the technical sessions, which were highly interactive with active discussions between the presenters and the audience. A booklet with a collection of articles written by members of the institute which provides basic information on the status of pollution of wetlands, using bio indicators to monitor environmental pollution, and environmental contamination was circulated.
12.	FERCAP 2012 -12 <sup>th</sup> Asia and Western Pacific IRB/ IEC Conference, Colombo, Sri Lanka	Sri Lanka Medical Association	18-21 November 2012	1.8 Million	Sessions on Ethical, legal and social issues in genetic research, Promoting transparency and quality standards for ethical research, Culture, tradition and ethics in research, Collaboration ethics and research culture and a Round table discussion on Developing FERCAP Guidelines for Review of Social Science Research were held. On The last day of the conference was the FERCAP General Assembly where the recognition of the Ethics Review Committee the Faculty of Medicine, University of Colombo, by SIDCER (Strategic Initiative for Developing Capacity in Ethical Review) was renewed and the Ethics Review Committee of the Faculty of Medicine, University of Sri Jayawardenapura was recognized for the first time.
13.	International Symposium on Agriculture and Environment- ISAE 2012	Faculty of Agriculture, University of Ruhuna	29 November 2012	200,000/-	The Research Symposium was held at an International level with a wide opening for National and International Research Community. The Main Theme of the symposium was "Recent Advances in Ayurveda and Natural Medicines for Human Wellbeing". More than 100 oral presentations and 25 poster presentations were done in three parallel sessions under the fields of Ayurveda & Natural Sciences, Food & Nutrition, Agriculture, Social Science & Humanities, Ayurveda & Tourism, History & Philosophy and Sport Science.

14.	Pandit G.P Wickramarachchi Memorial International Research Symposium 2012	Gampaha Wickramarachchi Ayurveda Institute	7-9 November 2012	200,000/-	The Research Symposium was held at an International level with a wide opening for National and International Research Community. The Main Theme of the symposium was "Recent Advances in Ayurveda and Natural Medicines for Human Wellbeing". More than 100 oral presentations and 25 poster presentations were done in three parallel sessions under the fields of Ayurveda & Natural Sciences, Food & Nutrition, Agriculture, Social Science & Humanities, Ayurveda & Tourism, History & Philosophy and Sport Science.
15.	68 <sup>th</sup> Annual Session of the Sri Lanka Association for the Advancement of Science (SLAAS)	Sri Lanka Association for the Advancement of Science (SLAAS)	10-12 December 2012	950,000/-	<p>The 68<sup>th</sup> Annual Sessions were ceremonially inaugurated on the 10<sup>th</sup>, and were attended by many distinguished invitees and school children who were winners of awards for activities organized by the SLAAS. Two scientists from Bangladesh and Pakistan also attended the event representing scientific associations in their own countries. A full day seminar on the theme of the association for the year 2012 "Science for Sustainable Development and Prosperity" was held on the same day. Several important aspects related to the theme were covered by a group of scholars who are highly recognized for their contribution in the field.</p> <p>Technical sessions where presentation of scientific papers by the members of the association was held at the Faculty of Science, University of Colombo from 11-12<sup>th</sup> December. Total of 100 papers and posters on various important aspects of science and its applications were presented and discussed. An important highlight of the technical sessions was the presidential addresses delivered by seven sectional presidents.</p> <p>Another highlight of the activities held was the Young Inventors Exhibition where more than 1000 school children from various parts of the country, including North and North-East.</p>

16.	International Symposium of Polymer and Technology 2012	University of Sri Jayawardenapura Dept. of Chemistry	2-4 November 2012	200 000/-	Final Reports not received yet
17.	3rd Biennial Conference of the South Asian Assoc. Physiologists	Physiological Society of Sri Lanka	08-09 November 2012	500 000/-	
18.	Forestry and environmental symposium	University of Sri Jayawardenapura Dept. of Forestry & Environmental Science	16-17 November 2012	200 000/-	
19.	Conference on Herpetological Conservation & Biology	Postgraduate Institute of Science (PGIS)	28-29 November 2012	120 000/-	

## Annex 7

**Grants Awarded under Food Security – NTRP (2012)**

Grant Number	Title	Project Leader and affiliation	Total Allocation (LKR)
NTRP/FS/2012/PG-01/P-01	Development of a web-based crop forecasting system in Sri Lanka	Dr RM Herath Socio Economics and Planning Centre (SEPC), Department of Agriculture, Peradeniya	1,076,000
NTRP/FS/2012/PG-01/P-02	A Social Life Network to enable farmers to meet the varying food demands of the population, by providing needed information just in time and better monitoring and management of crop production	Prof. Gihan Wickramanayake, University of Colombo School of Computing (UCSC)	2,808,000
NTRP/FS/2012/PG-03/P-01	Establishing a national system for ensuring microbiological food safety	Prof. Jennifer Perera Department of Microbiology, Faculty of Medicine, University of Colombo	1,530,000
NTRP/FS/2012/PG-04/P-01	Assessing Internal & External Trade Policies and Practices Affecting Food Security in Sri Lanka, and Identifying Areas for Improvement	Prof. Udith K. Jayasinghe-Mudalige Dept. of Agribusiness Management, Faculty of Agriculture & Plantation Management, Wayamba University of Sri Lanka	2,285,000
NTRP/FS/2012/PG-04/P-02	A Study of Supply and Price Behaviour Relating to Selected Crops and Livestock Products in Sri Lanka	Dr Parakrama Samarathunga, Institute of Policy Studies, Colombo -07	435,000
NTRP/FS/2012/PG-05/P-01	Development of household food security models for poverty stricken areas of Sri Lanka	Dr S Pathmarajah Faculty of Agriculture, University of Peradeniya	1,500,000
NTRP/FS/2012/PG-05/P-02	Development of sustainable integrated food production systems to enhance household food and nutritional security, economic growth and livelihoods of resource poor families in the Northern Region of Sri Lanka	Prof. G. Mikunthan Dept of Agricultural Biology, Faculty of Agriculture, University of Jaffna	1,225,000

**Details of Technology Grants**

Grant scheme	2012				No. of ongoing grants	No. of grants terminated	No. of grants completed
	Applications Received (1)	No. of incomplete applications (2)	No. of grants awarded (3)	Not Recommended applications (4)			
Support for Technology Development (Tech-D)	37	13	11	26	5	-	-
Support for Start-up Businesses Based on Novel Technologies (Start-ups)	14	12	01	13	1	-	-
Total (3+4)	51	25	12	39	06	-	-

**Technology Grants Awarded in 2012**

Grant No/Category	Grantee/Affiliation	Project Title/ Duration	Total Allocation (LKR)
TG/2012/Tech-D/01 State sector	Prof. D.A.N. Dharmasena Dept. of Agricultural Engineering Faculty of Agriculture University of Peradeniya	Design and development of a multi-pass vibro-fluidized bed dryer for black tea and desiccated coconut industry. 2 years	2,718,133.75
TG/2012/Tech-D/02 Individual	Mr Sunil Somasiri Gomes 378/ 2 F, Umagiliya Place, Nungamugoda, Kelaniya	Scaling up the invention of spherical container for natural rubber latex industry. 9 months	2,536,519.04
TG/2012/Tech-D/03 State sector	Dr Upul Nishantha Ratnayake Rubber Research Institute (RRI) Telawala Road Ratmalana.	High performance lighter weight prosthetic foot based on hybrid nanomaterial filled natural rubber nanocomposite. 2 years	5,283,625.00
TG/2012/Tech-D/04 Individual	Sohan Dharmarajah 105/1, Rosmead Place Colombo 07.	Novel Accessible Technologies on Touchscreen Devices (NAT-TD). 2 years	441,770.00
TG/2012/Tech-D/05 State sector	Dr Susantha Siriwardena Raw Rubber Process Development and Chemical Engineering Department, Rubber Research Institute, Ratmalana	Development of a cost effective, user friendly and efficient single dryer for different types of natural rubber. 18 months	2,367,400.00
TG/2012/Tech-D/06 Non-state sector	Ceygen Biotech (PVT) Ltd No. 03, Alfred Place Colombo 03	Further development, quality up gradation of Nucleic Acid Extraction Kits (Viral RNA and Human Genomic DNA) and recombinant enzymes for commercialization 36 months	8,331,830.57
TG/2012/Tech-D/07 Individual	Dr Susil Liyanarachchi No.14A Saparamadu Mawatha Nugegoda	Assessment of socio-economic viability of Simplified Hydroponics (SH) to improve the household food production and to develop a strategy for commercialization. 12 months	593,950.00

TG/2012/Tech-D/08 Non-state sector	Eng. Banduni Premaratne, Environmental Services, Community Led Environmental Awareness Network, Dambulla	Introducing energy efficient and environmentally friendly new technology to produce coconut shell charcoal. 3 months	1,536,689.00
TG/2012/Tech-D/09 Non-state sector	Swayang Wattegedara Limited Wattegedara, Murutenga	To grow the algae Spirulina to overcome malnutrition of children and pregnant & lactating mothers in villages in Sri Lanka. 1 year	1,500,000.00
TG/2012/Tech-D/10 State sector	Prof. Dileeka Dias Dept. of Electronic & Telecom. Eng. University of Moratuwa	iMoni 2.0: A platform as a service (PaaS) to provide remote monitoring of residential and industrial facilities 18 months	1,196,279.97
TG/2012/Tech-D/11 State sector	Prof. Ayanthi N. Navaratne Dept. of Chemistry Faculty of Science University of Peradeniya	Development of an Aloe vera (Aloe barbadensis Miller) incorporated ready- to serve beverage; its clinical evaluation of newly diagnosed type 2 diabetes mellitus (T2DM). 8 months	241,812.00
TG/2012/Strat- Up/01	Prof. K.K.Y.W. Perera 86, School Lane Colombo 03.	Establishment of a business for manufacturing and marketing of an integrated solid state fan controller for speed and time regulation 2 2 years	2,891,000.00

## **Recommendations made at the National Nanotechnology Conference**

### **1. Research Directions**

- Encourage more applied and experimental development research in the country.
- Long term health effects of wearable medical devices.
- Value addition to Sri Lankan graphite to be used for solar cells and lithium – iron batteries.
- Manufacturing of efficient solar cells with modified active layers consist of nano particles.
- Research focused on harnessing emerging opportunities in the global market.
- Research towards enhance High Tech. exports.
- Researchers shall undertake research projects originated from demand side/industry needs.
- Research focused on economically important sectors having national importance i.e. textile, rubber etc.

### **2. Policy Initiatives**

- Enhance R&D infrastructure facilities.
- Enhance support services (i.e. access to venture capital, entrepreneurship development, business incubation etc.).
- Government intervention to encourage research (i.e. Tax incentives, venture capital loans, research grants).
- National level solid R&D strategic plan with clearly defined time bound milestones.
- Establishing a Technology Development Fund.
- Administrative procedures conducive for research, technology development and innovation.
- Banking sector to be outreached and enhance access to venture capital.
- Tapping professionals in financial engineering at project proposal developing stage.
- Seed funds for start-ups to be provided by the government and the rest of capital to be met from private sector.
- Funds used for Cooperate Social Responsibility (CSR) activities by the private sector shall put together to form a proper development bank with the government support.
- Incentives to private sector to innovate.
- State should invest in HR & R&D infrastructure development and long term research.
- Open innovation concept to be adopted by research institutions/universities.

### **3. Human Resource development in the area of nanotechnology**

#### **3.1 Education/ awareness at school level**

- Special programmes should be formulated to change the attitude of school children and engage more students do their studies in S&T schemes.
- All students should be provided with basic understandings of science, principles used in the equipment designing and operations (e.g. electron microscope, Bukky ball etc.) for them to be more innovative.
- The reference materials used in school education should have standardization.
- Initiatives should be taken to educate the science teachers on Nano-science and steps should be taken to update their knowledge on science regularly.
- RDI activities in nanotechnology need multidisciplinary approach. Therefore, it is important that students should have basic knowledge in bio science as well as mathematics. Therefore, careful analysis is need to investigate whether A/L science scheme should be separated to Bioscience and Mathematics or amalgamate it to one.

#### **3.2 Education at University Level**

- Awareness programmes should be conducted for undergraduates of all disciplines on basic principles and the applications of Nanoscience.
- Undergraduates of all discipline should be encouraged and given opportunity to engage in research in various aspects of Nano science.

#### **3.3 For general Public**

General public of Sri Lanka is still not very much aware of Nanoscience/ nanotechnology and benefits/ risks of this technology. Therefore, initiatives should be taken to enhance knowledge of the general public on Nano science and engaged them in debate on nanotechnology.

#### 4. Governance

- Attractive remuneration for researchers engaged in Nanoscience and nanotechnology.
- R&D infrastructure to be improved on par with other countries.
- Establish and enhance mechanisms for linking research and commercialization.
- IP regime to be improved so that researchers' IPR is well secured.
- A mechanism to recognize and reward researchers.
- Government support to ensure liquidity for banks to support innovations/ technology development.
- Identification methodology for Nano products introducing to the market.
- Analyze the product specifications and declaration given by the manufacturer/ importers.
- Establishment of testing laboratory.
- Develop criteria for Nano labeling and standardization of Nano markers.
- Examine consumer safety and make public awareness on the benefits and risks of nanotech products.
- Conduct regular verifications of nanotech products introduced to the market.
- Investigate adverse effect of Nano products in term of health, environment (Life Cycle Analysis).
- Develop regulations for consumer protection.
- Develop mechanisms and regulations for occupational safety of workers who directly involved in the process.

#### **Expectations/Suggestions (received from feedback form distributed among participants)**

- Make the conference as an annual event.
- Bring the international researchers/students to the conference.
- More papers to be presented on applied and experimental research.
- Organize an exhibition parallel to the conference.
- Wider publicity for the conference to be given.
- To select the best paper and present an award at the end of conference.
- Ensure participation of undergraduates free of charge (at least five from each university).

**Equipment Grants awarded**

Grant No:	Grantee(s)/Institute	Equipment	Total Allocation (LKR)
RG/2012/EQ/01	Dean Faculty of Agriculture University of Peradeniya	Refrigerated Centrifuge	1,567,754/-
RG/2012/EQ/02	Dr. B. A. Karunaratne Faculty of Applied Sciences Rajarata University	Semi Automatic Kjeldhal distillation system	1,750,000/-
RG/2012/EQ/03	Director Institute of Fundamental Studies Kandy	Glass Oven	576,224/-
RG/2012/EQ/04	Dean Faculty of Science University of Colombo	Vertical Lamminar Flow	806,248/-
RG/2012/EQ/05	Dean Faculty of Agriculture University of Peradeniya	Two Dimensional Gel Electrophoresis Unit	1,771,728/-
RG/2012/EQ/06	Dean Faculty of Medical Science University of Sri Jayawardenepura	PC Based Spiro meter	375,000/-
RG/2012/EQ/07	Director Institute of Fundamental Studies Kandy	Biological Oxygen Demand Analyzer	650,048/-

**Spare parts Grants awarded**

Grant No:	Grantee(s)/Institute	Spare Parts	Total Allocation (LKR)
RG/2012/SPR/01	Prof. Sunethra Atukorala Department of Biochemistry & Molecular Biology Faculty of Medicine University of Colombo	206 – 70021 – 92 Laser assay 206 – 70106 – 9 Light Source, FTIR – 83/84/87/89	519,435/-
RG/2012/SPR/02	Prof. C. B. Dissanayake Director Institute of Fundamental Studies Kandy	Power Supply Unit & NDIR Detector for the TOC Analyzer	633,033/-
RG/2012/SPR/03	Priyani Paranagama Dept. of Chemistry University of Kelaniya	Five flasks of 300 ml for Freeze Dry System	280,000/-
RG/2012/SPR/04	Prof. Priyani Paranagama Dept. of Chemistry University of Kelaniya	Fluorescence Detector of HPLC System	220,000/-

## Annex 11

## Research Scholarships awarded

Grant No:	Name/ institute	Project title/ duration	Total Allocation (LKR)
NSF/SCH/2012/01	Ms H M C K Kanatiwela Dept. of Zoology Faculty of Science Univ. of Colombo Colombo	Development of immunological and molecular biology based diagnostic method for Weligama Coconut Leaf Wilt (WCWL) disease  02 Years	1, 320, 000
NSF/SCH/2012/02	Mr H.A. Priyashantha Uva Wellasa University Passara Road Badulla	Development of biofilmed biofertilizers to enhance the crop productivity of potato ( <i>Solanum tuberosum</i> L.)  02 Years	600, 000
NSF/SCH/2012/03	Ms U T N Senaratne No. 260, Sir Kudaratwatte Mw Kandy	Role of virus encoded virulence determinants and pro-inflammatory cytokines in the pathogenesis of dengue virus infection  2 1/2 Years	1,650, 000
NSF/SCH/2012/04	Ms. Sabrina Marsha Buharideen Department of Pathology Faculty of Medicine University of Peradeniya Peradeniya	Histology, serology, one minute rapid urease test and polymerase chain reaction as diagnostic tools in detecting <i>Helicobacter pylori</i> infection in symptomatic patients with endoscopic mucosal abnormalities in the stomach  02 Years	720, 000
NSF/SCH/2012/05	Miss. Ranmalee Amarasekera Human Genetics Unit Faculty of Medicine Univ. of Colombo Colombo 08	A comparative study of Viruses, Bacteria and Fungi present in the placental tissues of women with pre-eclampsia and normal pregnant women using molecular genetics 'techniques'  01 year	644, 000
NSF/SCH/2012/06	Mrs Gamage Bimalka Sajeevi Perera Department of Mechanical Engineering Faculty of Engineering University of Moratuwa Moratuwa	Investigating the atmospheric degradation of volatile organic compounds (VoCs) emitting from an urban airshed in Colombo.  03 Years	1, 980, 000

## Travel Grants Awarded

	Name and Address	Conference /Workshop/ Seminar	Title of Abstract/ presentation
1	Ms D. Kularatna Lecturer (Probationary) Dept. of Physics Faculty of Applied Sciences University of Sri Jayawardenapura Nugegoda	Sensors Applications Symposium 2012 University of Brescia, Italy  19 - 21 February 2012	IPT charged wireless sensor module for river sedimentation detection  Oral Presentation
2	Ms W.T.S.D. Premachandra Senior Lecturer Department of Zoology University of Ruhuna, Matara	2nd International Conference on Agrochemicals Protecting Crops, Health and Natural Environment - The Role of Chemistry for Sustainable Agriculture New Delhi, India  15 - 18 February 2012	The nematocidal properties of aqueous extract of ripe "Garcinia cambogia L. (family : clusiaceae) fruits  Oral Presentation
3	Dr K.T.M.U. Hemapala Senior Lecturer Department of Electrical Engineering University Moratuwa, Moratuwa	The Fifth IASTED (The International Association of Science and Technology for Development) Asian Conference on Power and Energy Systems ~AsiaPES 2012 Phuket, Thailand  02 - 04 April 2012	1. Dual layered multi agent system for load management during islanded operation of a microgrid 2. Demand side management for micro grids through smart meters  Oral Presentation
4	Dr A.G.P.M. Padeniya Post Graduate MSc Student in Clinical Genetics Human Genetics Unit Faculty of Medicine Universtiy of Colombo Kynsey Road, Colombo 08	16 <sup>th</sup> Human Genome Meeting 2012 Sydney, Australia  11 - 14 March 2012	A descriptive study of alpha and beta thalassaemia mutations in Sri Lanka  Poster Presentation
5	Dr T. Eswaramohan Senior Lecturer Department of Zoology Faculty of Science University of Jaffna, Thirunalveli, Jaffna	International Conference on Bioscience, Biochemistry & Bioinformatics (ICBBB) - 2012 Chennai, India  10 - 11 March 2012	A preliminary study for sperm sexing by using sucrose density gradients in Jersey bull at Artificial Insemination Centre at Thirunelvely (Northern Province of Sri Lanka)  Oral Presentation
6	Ms M.C.W. Somaratne Lecturer (Probationary) Institute of Technology University of Moratuwa, Moratuwa	Asian International Conference on Materials, Minerals and Polymer Penang, Malaysia  23 - 24 March 2012	Reinforcement of natural rubber latex films through surface modified Silica with macromolecular coupling agent  Oral presentation
7	Ms W.J.A.B.N. Jayasuriya Lecturer (Probationary) Department of Medical Education & Health Sciences Faculty of Medical Sciences University of Sri Jayawardenapura, Nugegoda	The 18 <sup>th</sup> Congress of the International Society for Mushroom Science Beijing, China  26 - 30 August 2012	Anti - inflammatory activity of Pleurotus ostreatus mushroom in Wistar rats.  Oral Presentation

8	Dr J.J. Wijetunge Senior Lecturer Department of Civil Engineering University of Peradeniya, Peradeniya Age: 46 Yrs	Coastal Cities Summit 2012 Florida, USA  30 April - 03 May 2012	Assessment of the impact of natural hazards and climate change on the vulnerable coastal communities of Sri Lanka  Oral Presentation
9	Dr P.C. Rodrigo Lecturer in Medicine Department of Clinical Medicine Faculty of Medicine University of Colombo Kynsey Road, Colombo 08	International Conference and Exhibition of Addiction Research and Therapy, 2012 Las Vegas, USA  20 - 22 Aug. 2012	1. Problematic internet behaviors and gender differences of internet use among university students in Sri Lanka 2. Psychiatric morbidity of cannabis use and implications on policy development  Oral presentation
10	Dr D.P. Chandima Senior Lecturer Department of Electrical Engineering University of Moratuwa, Moratuwa	The IEEE Power & Energy Society Innovative Smart Grid Technologies (ISGT Asia 2012) Conference Tianjin, China  21 - 24 May 2012	Smart metering for next generation energy efficiency and conservation  Oral presentation
11	Dr P.A. P. G. Jayawardane Senior Lecturer in Pharmacology Faculty of Medical Sciences University of Sri Jayawardenapura, Nugegoda	XXXII International Congress of the European Association of Poisons Centres and Clinical Toxicologists (EAPCCT) London, United Kingdom  29 May - 1 June 2012	Predictors of intermediate syndrome following acute chlorpyrifos poisoning  Oral presentation
12	Prof. N.D. Kodikara University of Colombo School of Computing University of Colombo, Colombo 07	5th International Conference on Computer Games and Allied Technology - CGAT 2012 Bali, Indonesia  7 - 8 May 2012	Low cost 3D immersive telepresence for surveillance, planning, maneuvering : 3D-COP The influence of games - related technologies on 21 <sup>st</sup> century surveillance: 3D common operating picture  Oral Presentation
13	Prof. W.A.P. Weerakkody Associate Professor Faculty of Agriculture University of Peradeniya, Peradeniya	International Conference and Exhibition on Soilless Culture Shanghi, China  22 -25 May 2012	Media and water management for improved vegetative growth of greenhouse grown gerbera ( <i>Gerbera jamesonii</i> )  Oral Presentation
14	Dr R.M.U.N. Ratnayake Senior Research Officer Rubber Research Institute Telawala Road, Ratmalana	International Rubber Conference (IRC), 2012 Jeju, Korea  21 - 24 May 2012	Synergistic effect of organoclay-carbon black hybrid filler system on vulcanization and mechanical properties of natural rubber nanocomposites  Oral Presentation
15	Dr U.G.Y. Manawadevi Senior Lecturer Faculty of Science University of Peradeniya, Peradeniya	International Journal of Arts and Sciences Conference 2012 (IJAS 2012) Florence, Italy  19 - 22 June 2012	Anomalous chemistry of transition metal shift base complexes: synthesis, anion binding capacity and catalytic activity for CO <sub>2</sub> reduction  Oral Presentation

16	Dr S.R. Weerakoon Senior Lecturer/ Head Department of Botany Open University of Sri Lanka, Nawala	The VIth International Weed Science Congress Hangzhou, China  17 - 22 June 2012	Variation in the morphology of offspring derived from single panicle of weedy rice  Oral Presentation
17	Prof. V. Thevanesam Senior Professor Faculty of Medicine University of Peradeniya, Peradeniya	15th International Congress on Infectious Diseases Bangkok, Thailand  13 - 16 June 2012	Scrub typhus among paediatric patients in a base hospital in Sri Lanka  Poster Presentation
18	Dr E.P. Kudavidanage Lecturer (Probationary) Department of Natural Resources Faculty of Applied Sciences Sabaragamuwa University of Sri Lanka, Belihuloya	The 49th Annual Meeting of the Association for Tropical Biology and Conservation Bonito, Mato Grosso Do Sul, Brazil  18 - 22 June 2012	Dung beetles respond to selective logging and land-use change in the tropical lowlands of Sri Lanka: implications for conservation  Oral Presentation
19	Prof. S.T. Hettige Professor of Sociology Department of Sociology University of Colombo, Colombo 03	International Sociology Association Forum 2012 Buenos Aires, Argentina  30 July - 06 August 2012	Higher education, youth unemployment and social justice in Sri Lanka  Oral Presentation
20	Ms W.N.S. Rupasinghe Research Assistant Institute of Fundamental Studies Hantana Road, Kandy	International Conference of Young Researchers on Advanced Materials (ICYRAM) Singapore  01 - 06 July 2012	Efficiency enhancement of dye - sensitized solar cells by TiO <sub>2</sub> nano fillers in polymer electrolytes  Poster Presentation
21	Ms H.I.U. Caldera Probationary Lecturer Department of Plant Science Faculty of Science University of Colombo, Reid Avenue, Colombo 07	29 <sup>th</sup> New Phytologist Symposium, Stomata 2012 Manchester, UK  02 - 04 July 2012	Stomatal response of <i>Camellia sinesis</i> (L.) Kuntze to elevated carbon dioxide  Poster Presentation
22	Mr D.S. Deegalla Lecturer Department of Computer Engineering University of Peradeniya, Peradeniya	15 <sup>th</sup> International Conference on Information Fusion Singapore  09 - 12 July 2012	Choice of dimensionality reduction methods for feature and classifier fusion with nearest neighbor classifiers  Oral Presentation
23	Dr R.P. Illeperuma Lecturer in Western Medicine (Probationary) Department of Allied Science Institute of Indigenous Medicine, University of Colombo, Rajagiriya	16 <sup>th</sup> International Congress on Oral Pathology and Medicine. International Association of Oral Pathologists (IAOP), General Sessions Sao Pedro, Brazil  30 July - 03 August 2012	Oxidative DNA damage in oral keratinocytes caused by cytokines released from fibroblasts by areca nut exposure  Oral Presentation

24	Dr P. Vinobaba Senior Lecturer & Head of the Department Department of Zoology Eastern University Vantharumoolai Sri Lanka	International Conference on Disaster Management 2012 Kumamoto University, Japan  24 - 26 August 2012	Management of man-made disaster on fisheries after the 2004 Tsunami on the Batticaloa lagoon, Sri Lanka  Oral presentation
25	Dr S.U. Adikary Senior Lecturer Department of Materials Science and Engineering University of Moratuwa, Moratuwa	International Conference on Traditional and Advanced Ceramics (ICTA 2012) Bangkok, Thailand  22 - 25 August 2012	1. Synthesis of chitosan/ hydroxyapatite nanocomposites using insitu coprecipitation technique with double step stirring 2. Thermal compatibility studies of variable body and glaze compositions for glazed clay based cookware applications  1. Oral presentation  2. Poster presentation
26	Dr N. Savitri Kumar Research Professor Institute of Fundamental Studies Hantana Road, Kandy	13 <sup>th</sup> International Symposium on Natural Products Chemistry (ISNPC - 13) Karachi, Pakistan  22 - 25 September 2012	Structural diversity of some dietary phenolics  Invited Lecturer
27	Prof. S.G. Yasawardene Professor of Anatomy Faculty of Medical Sciences University of Sri Jayawardenapura, Nugegoda	XVIII International Congress for Tropical Medicine and Malaria. XLVIII Congress of the Brazilian Society of Tropical Medicine Rio de Janeiro, Brazil  23 - 27 September 2012	Faecal antibody response, age related immunogenicity and microscopic cellular changes in immune tissues of mice immunized with Lactococcus lactis expressing a malaria parasite protein  Poster presentation
28	Ms S.W.G.R.T.K. Ariyawansa Research & Development Coordinator Solid Waste Management Research Unit Faculty of Agriculture University of Peradeniya, Peradeniya	The 7 <sup>th</sup> Asian - Pacific Landfill Symposium 2012 Bali, Indonesia  08 - 11 October 2012	Inferences drawn from converting a dumpsite quarry to a sustainable landfill in the east coast of Sri Lanka  Oral presentation
29	Prof. V.A. Sumanasinghe Professor Faculty of Agriculture University of Peradeniya, Peradeniya	International Conference on Agriculture, Chemical and Environmental Sciences (ICACES' 2012) Dubai, UAE  06 - 07 October 2012	Molecular characterization of selected Sri Lankan Exacum species  Oral Presentation
30	Dr S.A.D.P. Senadheera Lecturer Faculty of Natural Sciences The Open University of Sri Lanka, Nawala	The 26th Annual Conference of Asian Association of Open Universities Minato-ku, Japan  16 - 18 October 2012	1. Improving the livelihood of a selected rural agricultural community in Sri Lanka by inculcating lifelong learning in farmers 2. Innovative teaching in plant physiology course to induce deep learning approach in students in open and distance learning system  Oral presentation

31	Dr W.M.A.U. Jayatilleke Lecturer Department of Public Health Faculty of of Medicine University of Kelaniya, Ragama	Safety 2012 World Conference: 11th World Conference on Injury Prevention and Safety Promotion Wellington, New Zealand  01 - 04 October 2012	1. Drivers' working conditions and private bus crashes in Kandy, Sri Lanka 2. Increased traffic fines and road traffic crashes in Sri Lanka  Poster presentation
32	Dr N.R. Abeynayake Senior Lecturer Department of Agribusiness Management Wayamba University of Sri Lanka, Makandura, Gonawila	15 <sup>th</sup> AAAP Animal Science Congress Thailand  26 - 30 Nov. 2012	1. Forecasting of popultry egg production in Sri Lanka - Oral presentation 2. Effect of microwave heating or simple heat treatment of rice bran on the rate of release of free fatty acids during storage at room temperature - Oral presentation  3. Influence of stabilization treatments and packaging methods on the development of rancidity in rice bran - Poster presentation 4. Sensory evaluation and keeping quality assessment after inclusion of hathawariya ( <i>Asparagus racemosus</i> ) and gotukola ( <i>Centella asiatica</i> ) herbs in yoghurt preparation - Poster presentation
33	Dr.L.B. Samarakoon Medical Officer in Anaesthesiology, Base Hospital, H omagama	10th Asia Pacific Medical Education Conference (APMEC) 2013 National University of Singapore, Singapore  16 - 20 January 2013	Learning styles and approaches in medical undergraduates and postgraduates in Sri Lanka  Poster presentation
34	Mr.H.D.S.S. Karunarathne Lecturer Institute of Technology, University of Moratuwa	10 <sup>th</sup> Eco - Energy and Materials Science and Engineering Symposium GCOE Kyoto University and Faculty of Engineering Ubon - Ratenathani, Thailand  05 - 08 December. 2012	Fixed bed Adsorption Column Studies for the Removal of Aqueous Phenol from Activated Carbon Prepared from Sugarcane Bagasse  Oral presentation
35	Mr.K. Thabotharan Senior Lecturer Grade II Department of Computer Science University of Jaffna Jaffna	IEEE International Conference on Networks (ICON 2012) Singapore  12 - 14 December 2012	Self-Similarity and Predictability of Contact Opportunities in Opportunistic Networks  Oral presentation
36	Dr.I L K Jayaratne Consultant Community Physician National Programme Manager - Maternal & Child Morbidity & Mortality Surveillance Family Health Bureau Ministry of Health	18 <sup>th</sup> Annual Maternal and Child Health Epidemiology (MCH EPI), San Antonio,Texas  12 - 14 December 2012	Making a Difference in Resource- poor Settings:National Healthy Schoolbag Campaign in Sri Lanka  Oral presentation

## Annex 13

## OSTP Grants Awarded

#	Name	Type of OSTP Grant	Name of the Course, Duration and Country
1	Prof. W.P.S. Dias Senior Professor, Department of Civil Engineering, University of Moratuwa, Moratuwa.	NSF Training Fellowship	To pursue joint interest in Nanotechnology for sustainable construction, University of Melbourne, Australia Duration: 19th February - 31st April, 2012
2	Ms N.M. Wickramage Probationary Lecturer, University of Ruhuna, Matara.	NSF Training Scholarship	Research Training under PhD European Organization for Nuclear Research (CERN), Switzerland. Duration: 9th January-9th October, 2012
3	Dr Lanka Ranawake Senior Lecturer, Department of Agricultural Biology, Faculty of Agriculture, University of Ruhuna.	NSF Travelling Fellowship	Theoretical Course "RNA Structure and Function", Italy. Duration: 27th February - 1st March 2012.
4	Dr Lalith Perera Head, Coconut Breeding and Biotechnology Division, Coconut Research Institute, Lunuwila.	NSF Travelling Fellowship	Scientific familiarization study tour to the "Coconut Cadang Cadang Disease" affected areas and the disease control management laboratories in the Albey Province and the Coconut Breeding Station and the International Gene Bank in the Zamboanaga province of the Philippines. At Philippines. Duration: 09th - 24th April, 2012
5	Dr G.P.G.M.D. Hapugoda Senior Lecturer, Molecular Medicine Unit, Faculty of Medicine, University of Kelaniya	NSF Travelling Fellowship	Theoretical Course on RNA structure and Function, ICGEB, Trieste, Italy. Duration: 27th February - 1st March, 2012
6	Dr Radhika Samarasekera Senior Research Scientist, Herbal Technology Division, Industrial Technology Institute, 363, Baudhaloka Mawatha, Colombo 7.	NSF Training Scholarship (To Join the Sri Lanka Delegation to Bio Asia 2012)	Bio Asia 2012 - The Global Bio Business Forum, The Federation of Asian Biotech Association (FABA), Hydrabad, India. Duration: 9th - 11th February, 2012
7	Prof. P. Ravirajan Head, Department of Physics, University of Jaffna, Yhirunelvely, Jaffna	NSF Training Fellowship	Training in Research and Development in manufacturing CdTe based solar cells and Solar Panels in order to establish these facilities in Sri Lanka. Sivananthan Laboratories, Illinois, USA Duration: 17th April - 18th May, 2012
8	Dr G.D.K. Mahanama Senior Lecturer, Department of Physics, University of Ruhuna, Matara.	NSF Training Fellowship	Training in Research and Development in manufacturing CdTe based solar cells and Solar Panels in order to establish these facilities in Sri Lanka. Sivananthan Laboratories, Illinois, USA Duration: 17th April - 18th May, 2012
9	Dr Radhika Samarasekera Senior Research Scientist, Herbal Technology Division, Industrial Technology Institute, 363, Baudhaloka Mawatha, Colombo 7.	NSF Training Fellowship	Visiting Faculty Researcher Programme, University of Toledo, USA Duration: 1st June - 31st July 2012
10	Dr R.H.G. Ranil Lecturer (Temporary), Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Peradeniya	NSF Travelling Fellowship	Training on Molecular Phylogeny of Ferns, Department of Botany, National Museum of Nature and Science, Tsukuba, Japan. Duration: 2nd - 14th July 2012
11	Dr P.H.K.I.S. Ranasinghe Senior Lecturer, Department of Parasitology, Faculty of Medical Sciences, University of Sri Jayawardenapura, Nugegoda.	NSF Travelling Fellowship	Theoretical and Practical Course on "Molecular Biology of Leishmaniasis" Padriciano-Triest, Italy (ICGEB) Duration: 24th - 26th October, 2012

12	Dr M.D.J. Wijayabandara Senior Lecturer in Pharmacy & Coordinator - B. Pharm Programme, Faculty of Medical Sciences, University of Sri Jayawardenapura, Nugegoda.	NSF Travelling Fellowship	13th International Congress the Society of Ethnopharmacology at the Institute of the Pharmaceutical Sciences, University of Graz, Graz. Duration: 2nd - 6th September 2012
13	Ms A.J.I.S. Rathnayake Lecturer, Faculty of Medicine, General Sir John Kotelawala Defence University, Kandawala Estate, Ratmalana.	NSF Travelling Fellowship	Short Term Training Programme in Stem Cells and Regenerative Medicine, Manipal Institute of Regenerative Medicine, Bangalore, India. Duration: 15th - 30th January 2013
14	Mr W.M.M.S. Bandara Lecturer, Faculty of Medicine, General Sir John Kotelawala Defence University, Kandawala Estate, Ratmalana.	NSF Travelling Fellowship	Short Term Training Programme in Stem Cells and Regenerative Medicine, Manipal Institute of Regenerative Medicine, Bangalore, India. Duration: 15th - 30th January 2013
15	Ms Y.C. Aluwihare Graduate research Assistant, Department of Molecular Biology and Biotechnology, University of Peradeniya, Peradeniya.	NSF Training Scholarship	Molecular Breeding Course 2012, International Rice Research Institute, Metro Manila, Philippines. Duration: 12th - 23rd November 2012
16	Dr D.B.A.S. Jayawardena Medical Officer, Government Hospital, Dodangoda.	NSF Travelling Fellowship	eIndia Health Summit 2012, Hydrabad International Convention Centre, Andra Pradesh, India. Duration: 15th - 16th November 2012
17	Mr J.D.M. Senevirathna Research Assistant, Department of Zoology, Faculty of Science, University of Ruhuna, Matara	NSF Training Scholarship	Training in Molecular Ecological Techniques and Statistical Analysis, Paul Herbert Centre for DNA Barcoding and Biodiversity Studies, Dr Babasaheb Ambedkar Marathwada University, Aurangabad, India. Duration: 1st January - 1st April 2013

## Annex 14

**Projects initiated through the Global Forum Cell****1. Projects Initiated by the Global Forum and completed**

No.	Project	Local Collaborators	Foreign Collaborators	Present Status
1.1	Research and Development of coloured Glazes	Midaya Ceramics (Pvt.) Ltd., Homagama.	Prof. Vasantha Amarakoon Alfred UniversityUSA.	This project was conducted at the Midaya Ceramics (Pvt.) Ltd. in collaboration with Prof. Amarakoon in order to solve production problems of stoneware and glazes. Project was successfully completed providing concrete solutions to following two problems;  1. Lemon peel effect when using Dark red glaze  2. Crystal formation when using Cobalt blue glaze
1.2	Nature's Secrets skincare products	Nature's Beauty Creations Ltd.	Dr Karnika de Silva, The University of Auckland New Zealand.	A new company in the name of 'Nature's Creations NZ Ltd.' has been registered to open up channels to market "made in Sri Lanka Nature's Secrets skincare products" in the New Zealand /Australian market.  Nature's Secrete skin care products have gained high popularity and are now doing very well in New Zealand market.

**2. Projects Initiated by the Global Forum and on-going**

No.	Project	Local Collaborators	Foreign Collaborators	Present Status
2.1	Establishment of a high throughput genomics facility	Prof. Vajira Dissanayake, Faculty of Medicine, University of Colombo.	Prof. Preethi Gunaratne University of Houston, USA.	'Credence Genomics Company' has been set up and laboratories have been established. Operations will commence soon.
2.2	Initiate a collaborative M. Sc. Course in Stem Cell Biology with Manipal Institute of Regenerative Medicine	Prof. Vajira Dissanayake, Faculty of Medicine, University of Colombo.	Dr Pavan Gupta, Manipal Institute of Regenerative Medicine India.	This has been approved by the UGC. The M.Sc. programme will commence in August 2013, at the Faculty of Medicine, University of Colombo. It will be a two year course and the facilities will be from both the Manipal Institute of Regenerative Medicine and the University of Colombo.
2.3	Establish a program to monitor adaptation of plants to climate change	SLINTEC, Finlays Group, Tea Research Institute, University of Moratuwa and University of Sri Jayawardanepura.	Prof. Monte Cassim, Ritsumeikan University Kyoto Japan.	Proposal developed in collaboration with Prof. Cassim (President of Ritsumeikan Asia Pacific University (APU) and Vice-Chancellor of Ritsumeikan Trust) has been submitted to JICA for funding under the SATREPS programme.
2.4	Collaborative work with Prof. Thilakaratne	Dr Radika Samarasekera, Additional Director- Research and Development, Industrial Technology Institute - ITI.	Prof. L.M.V Tillekeratne University of Toledo, USA.	Dr Samarasekera was awarded a fellowship as a visiting Faculty Researcher to the University of Toledo, USA, as a Global Forum initiative. As an outcome of her training she is planning to initiate a programme to establish a cell-based anti-cancer screening facility at ITI. Dr Samarasekera has been requested to apply for a research grant for this programme.

2.5	Effective management of natural eco-systems	Central Environmental Authority (CEA)	Dr Nimal Chandrasena, Water Sciences Group, ALS Global, Australia.	The proposal on “Capacity building in Natural Resource Management through Adaptive Management” by Dr Chandrasena was forwarded to the Central Environmental Authority (CEA) by the NSF for consideration for implementation. The Inter Agency Coordinating Committee which comprise of the Stakeholders of CEA at its meeting held on 15 <sup>th</sup> October at CEA decided that most appropriate agency to implement this proposed project is the Ministry of Environment and forwarded it to the same for comments and observations. The reply is awaited.
2.6	Possibility of trans-national research groups using Sri Lankan expat contacts – Webinar Series	National Science Foundation	Dr Nimal Gamage Computer Associates/ Nimsoft, USA.  Prof. Tissa Illangasekera, Colorado School of Mines USA.	<ol style="list-style-type: none"> <li>1. The 1<sup>st</sup> session of the Web seminar series; ‘Exploring Wireless Sensor Network Based Technologies for Environmental and Water Management and Infrastructure Monitoring in Sri Lanka’ was held on 05<sup>th</sup> October 2012 at the Auditorium of the National Science Foundation. Eighteen participants from the relevant institutions such as the Central Engineering Consultancy Bureau (CECB), Disaster Management Centre, National Water Supply and Drainage Board, Arthur C. Clerk Centre, Universities of Ruhuna, Moratuwa and Peradeniya, Atomic Energy Authority, Institute of Fundamental Studies as well as the Sri Lanka Institute of Nanotechnology (Pvt) Ltd. took part in this event. Dr Nimal Gamage was the local moderator and Dr Tissa H. Illangasekare joined from USA.</li> <li>2. A trial run of a web seminar was successfully done with the Sri Lanka Telecom Mobitel on 24.01.2013.</li> <li>3. The mechanism for continuing the webinar series is being formalized.</li> </ol>
2.7	Development of Advanced Ceramic Materials using Local Raw Materials	Midaya Ceramics (Pvt.) Ltd., Homagama.	Prof. Vasantha Amarakoon, Alfred University USA.	<p>Prof. Amarakoon is working with Midaya Ceramics (Pvt. ) Ltd. to develop a compound with Organic Dispersant with binder properties using the local ingredients to be used in the Ceramics Industry.</p> <p>The first part of the project was to test an organic polymer binder available in the market. Midaya Ceramics Company has imported the organic binder/dispersant from a US manufacturer in August 2012 and they have conducted initial tests to determine its incorporation in Midaya body compositions. Further R &amp; D activities on this project are kept on hold until Prof. Amarakoon’s advice is received.</p>
2.8	Manufacture of Industrial Plugs	Polycrome Electrical Industries (Pvt) Ltd, DSI-Samson Group.	Dr Karnika de Silva, University of Auckland New Zealand	This project is to supply 80,000 units of industry rubber plugs per year for the New Zealand/ Australian Markets. The buyer in NZ has invested on the mold. The project ongoing.

2.9	Training of Scientific and Technological personnel in R & D in thin film photovoltaic towards establishment of a facility for manufacturing solar panels in Sri Lanka	Institute of Fundamental Studies, Kandy.	Prof. Siva Sivananthan, Sivananthan Laboratory, Bolingbrook, IL, USA.	<ol style="list-style-type: none"> <li>1. Dr G.D.K Mahanama from the University of Ruhuna and Prof. Punniamoorthy Ravirajan from the University of Jaffna have been trained at Sivananthan Laboratory, USA on Research and Development of CdTe/CdS based solar cells which are emerging as the next generation of commercial solar cells in 2012. Their travel had been supported by the grants of the Overseas Special Training Programme (OSTP) of NSF. The Sivananthan laboratory has provided bench facilities and accommodation for participants.</li> <li>2. Dr Buddhika Dassanayake of the Department of Physics, University of Peradeniya has been awarded a NSF Traveling Fellowship under the OSTP Scheme to undergo one month intensive R &amp; D training programme on CdTe solar cells at Sivananthan Laboratories Inc., USA in April 2013.</li> <li>3. A two day workshop on Solar Photovoltaic Technology was held from 28<sup>th</sup> to 29<sup>th</sup> June 2012 at the Institute of Fundamental Studies in collaboration with the Sivananthan Laboratories, USA and National Science Foundation. The workshop was coordinated by Prof. Lakshman Dissanayake and was conducted by Dr Ramesh Dhere, Dr Chris Grien and Dr Kim Scouts from the Sivananthan laboratories under the guidance of Prof. Siva Sivananthan and Prof. C.B. Dssanayake (Director-IFS, Kandy).</li> <li>4. Advanced Workshop on Thin-film solar cells: their science, fabrication and characterization” was held from 19 to 21 March 2013. This was organized by the University of Ruhuna in collaboration with the Sivananthan Laboratories, IFS and NSF.</li> </ol>
2.10	Development of Biotechnology Initiative for Sri Lanka	Prof. Vajira Dissanayake, Faculty of Medicine, University of Colombo.	Prof. Gomika Udugamasuriya, University of Texas - Southwestern Medical Center, USA.	The BoM of NSF has directed this to the Office of Science , Technology and Innovation (OSTI) to do the follow up.
2.11	Establishment of an antibody based vaccine development facility	Veterinary Research Institute (VRI)	Prof. Aravinda de Silva, University of North Carolina School of Medicine, USA.	The Concept note developed by Prof. De Silva on Establishment of an antibody based Vaccine development facility was submitted to the VRI for their comments. The VRI has informed their inability to collaborate due to renovation of laboratory premises and lack of importance to animal viruses.

2.12	Use of Remote sensors for monitoring seasonal variations in physicochemical parameters within coral reefs and to study the migratory circuits of endangered marine mammals & turtles, with a view to conserve and manage sensitive marine ecosystems and endangered marine organisms	Prof. Ruchira Cumaranatunga, University of Ruhuna.  Dr Terny Pradeep Kumara University of Ruhuna.  Prof. Dileek Dias University of Moratuwa.	Dr Nimal Gamage, Computer Associates / Nimsoft.  Prof. Tissa Illangasekera, Colorado School of Mines, USA.	A pilot project on the use of sensors will be carried out soon.
2.13	Self-adhesive and heat bonded water proofing membranes and heat insulating roofing membranes, based on polymer modified bitumen	Rubber Research Institute	Dr Karnika de Silva, The University of Auckland, New Zealand.	This project involves the commercialization of the product. The Rubber Research Institute has applied for a NSF Technology grant for scaling up .
2.14	Strengthen the teaching and research capacities in the two leading national universities in Sri Lanka on comprehensive and climate-resilient water resources management practices	University of Peradeniya and University of Jaffna.	Prof. Harsha Ratnaweera, Norwegian University of Life Sciences, Norway.	Objective of the project is to initiate several M.Sc. and PhD research projects at partner universities to develop, adapt and use innovative concepts and technologies to analyse, mitigate and adapt to climate change related challenges in water resources management, and to develop related course modules to be used in the existing and new postgraduate courses. Prof. Ratnaweera wishes to submit a full proposal for NORAD funding.

2.15	Establish a Natural Product Focal Point; Restart stalled legislative process on 'Policy for exploitation / export /research cooperation of natural Resources	Prof. Ajith Abeysekera, University of Sri Jayawardenepura.  Dr Dilip De Silva, University of Colombo.  Dr Anura Senaratne  Prof. Ruchira Cumararatunga, University of Ruhuna, Matara.  Mr Jagath Gunawardena	Dr Nimal Gamage, Computer Associates/ Nimsoft.  Dr L.M.V. Tillekaratne, University of Toledo, USA.  Prof. Gomika Udugamasooriya, University of Texas - Southwestern Medical Center, USA.  Dr Nimal Chandrasena, Water Sciences Group, ALS Global, Australia.  Dr Gamini Jayatileka	The Board of Management of NSF has agreed in principle to establish a Drafting Committee on Bio Resources subject to the submission of the TOR and the time schedule. Approval was also granted to appoint the following local and expatriate scientists to the Committee.  1. Dr Nimal Gamage 2. Mr Jagath Gunawardena 3. Prof. Ajith Abeysekera 4. Dr Anura Senaratne (Coordinator) 5. Prof. Ruchira Cumararatunaga 6. Nominee from NASTEC  The National Committee on International Partnerships and the Sub-committee on Global Forum Cell have recommended a consultant be appointed to carry out the first activity of the TOR (Evaluate the existing valid documents related to rules and regulations relevant to exploitation, export and research on Natural Resources).
2.16	Expand collaboration in molecular plant breeding and utilize the SNP marker and knowledge generated via Coordinated Agricultural Projects (CAP) in USA and develop research capacity in local institutes	Dr Suneth Sooriyapathirana, University of Peradeniya.	Prof. Cholani Weebadde, Michigan State University, USA.	A proposal has been submitted for funding.
2.17	MoU with the Association of Professionals Sri Lanka (APSL), UK	National Science Foundation	Prof. I.M. Dharmadasa, Sheffield Hallam University, UK	MoU is being discussed.
2.18	Start training programmes to build capacity where expatriates can train the local graduates on a regular basis	Eng. Mr. B.S. Samarasiri, University of Moratuwa.	Prof. I.S. Jawahir, University of Kentucky, USA.  Prof. Vasantha Amarakoon, Alfred University, USA.  Dr N. Ishwaran,  Prof. Gomika Udugamasooriya, University of Texas - Southwestern Medical Center, USA.	A complete application received for this project by the Engineering Design Centre, University of Moratuwa was forwarded to the National Committee on Robotics, Advanced Design and Manufacture for necessary action.

**3. Projects proposed at the Global Forum and to be initiated**

No.	Project	Local Collaborator	Foreign Collaborator	Present Status
3.1	Establishment of a cord blood stem cell bank and bone marrow transplantation programme	Prof. Vajira Dissanayake, Faculty of Medicine, University of Colombo.  Prof. Sumedha Wijeratne, University of Colombo.	Prof. Ariff Bongzo, National University of Singapore, Kent Ridge, Singapore.  Prof. Amitha Wickrema, University of Chicago USA  Prof. Malik Peiris, The University of Hong Kong.	Initial discussions between the Secretary, Ministry of Health and the Chairperson, NSF has been held in this regard. Further discussions awaited.
3.2	Participate/ influence ISO TC 249 to include indigenous Sri Lankan Herbal Medicine and Supplements	Prof. Ajith Abeysekera, University of Sri Jayawardenepura.  Dr Dilip De Silva, University of Colombo.  Dr Anura Senaratne,	Dr Nimal Gamage, Senior Architect at Computer Associates/ Nimsoft.  Dr L.M.V. Tillekaratne, University of Toledo, USA.	At the Global Forum it was decided that these projects should come under the Natural Resources Committee (NRC).  Awaiting the establishment of the Natural Resources Committee.
3.3	Create a single realistic MoU template for IP/ Risk-reward management for all Natural Product based foreign partnerships - Be a single point negotiator	Prof. Ruchira Cumararatunga, University of Ruhuna, Matara.  Mr Jagath Gunawardena	Dr Gomika Udugamasooriya, University of Texas - USA.  Dr Nimal Chandrasena, Water Sciences Group, ALS Global, Australia.  Dr Gamini Jayatileka	
3.4	Create and Host Cloud Based Solution for Product Lifecycle Management (PLM) for Natural products adhering US FDA 21 CFR 111/210/211, ISO 13485 and other emerging world standards	National Science Foundation	Dr Nimal Gamage, Computer Associates/ Nimsoft, USA.	
3.5	Establish central information base for Natural Product activity (from 1970 onwards) – Include research as well as traditional knowledge			
3.6	Establish a Technical and Technological transfer clearing house			

## Annex 15

**Records added to National Databases**

Database	New Records added 2012	Number of records as at 31 December 2012	Number of full text documents uploaded
Sri Lanka Science Index	714	33041	26148
SLAAS	432	8482	only abstracts
RGRA	37	1887	1036
National e-Repository	17	4153	1943
CKDu database	81	81	81
SLSTICAT	577	26973	Not applicable
Newspaper articles database	2559	22809	678
Union List of Periodicals (revised)	5241	5241	Not applicable

**National/International databases – usage statistics**

Database	Number of searches	No. Abstracts/articles downloaded
International databases (SCOPUS/TEEAL/HINARI/EBSCO)	4938	2958 abstracts/269 articles
National Databases	192	227

**Participation at Local & Foreign Training Programmes**

Name of the employee	Title of the Programme	Date/Duration
Ms Buddhi Wickremasinghe	Workshop on Procurement, Conducted by ITI	17 <sup>th</sup> February 2012
Ms. Buddhi Wickremasinghe	Workshop on Procurement at Ministry of Technology & Research	02 <sup>nd</sup> March 2012
Mrs. Y J Pathirana	Payment for Fixed Asset Management	12 <sup>th</sup> & 14 <sup>th</sup> March, 2012
Ms Christine Dasanayake Ms. Mahesha Nadugala Mrs. Amali Ranasinghe	Workshop on Ethics in Research, SLAAS Auditorium	20 <sup>th</sup> April, 2012
Ms. P A S F Perera Mr. S M A W Anuruddha	Leadership & Personality Development Skills Development Fund Ltd	31 <sup>st</sup> May, 2012
Mr. Wasantha Anuruddha Ms. Mahesha Nadugala	Workshop on Intellectual Property Rights for 1 <sup>st</sup> Innovation & Development	8 <sup>th</sup> - 10 <sup>th</sup> May, 2012
Mr. S M A W Anuruddha Mr. Janaka Karunasena Dr. Sachie Panawala	Training Seminar on Renewable Energy conducted by Institute of Chemistry, Ceylon	1 <sup>st</sup> June, 2012
Dr. H I Sandanayake Ms U T Karunarathne	Distance Learning Course in Basic Proof reading , Publishing Training Centre	Commencing from 20 <sup>th</sup> June, 2012
Mr. M M C Perera Mr M L Gunapala	Workshop for Drivers, conducted by ICTAD	29 <sup>th</sup> June 2012
Ms. Dilrukshi Ekanayake, Ms. Mahesha Nadugala, Dr. P R M P Dilrukshi, Ms. Chamika Dharmasena, Mr. Janaka Karunasena, Dr. Inoka Sandanayake, Ms. Dilani Jayaweera	Workshop on Inventions and Innovations , Organized by NASTEC	26 <sup>th</sup> June 2012
Mr. J G Shantha Siri Mrs. W L C Dasanayake	Workshop on current status and future Trends in Thin Films Solar PV Technology , INSTITUTE OF FUNDAMENTAL STUDIES , Kandy	28 <sup>th</sup> & 29 <sup>th</sup> June 2012
Mrs H A U Amarasinghe Mr. Madhawa Perera Mr. S C Senevirathne	Public Procurement Management , Awareness Programme, Academy of Financial Studies	19 <sup>th</sup> & 20 <sup>th</sup> July, 2012
Mr H M M Perera Mr. C A B Wickremasinghe	National Information Technology Conference , Hotel Galadari	10 <sup>th</sup> & 11 <sup>th</sup> July, 2012
Ms. Chamika Dharmasena Ms. T Kandanamulla, Ms. Perera	SLSI Training Programme for QMS	26 <sup>th</sup> &27 <sup>th</sup> July 2012
Ms. H A U Amarasinghe	How to minimize Audit queries	20 <sup>th</sup> August 2012
Staff	Tamil Training Programme	Up to 29 <sup>th</sup> August 2012
Mr. S N P K Sapumohotti Mr. K P Senanayake	Training on Disciplinary Procedure	19 <sup>th</sup> , 20 <sup>th</sup> & 21 <sup>st</sup> September, 2012
Mrs. H A U Amarasinghe Ms. P A S F Perera	Workshop on Good Governance & Leadership	25 <sup>th</sup> & 26 <sup>th</sup> September, 2012
Ms Jesika N Silva Ms Ruwanthi Ipalawaththe	Training Workshop on Human Resource Development, conducted by ICTAD	5 days commencing from 28 <sup>th</sup> September 2012
Mr. Janaka Karunasena	Workshop on Landslides , Sri Lanka Foundation Institute	3 <sup>rd</sup> , 4 <sup>th</sup> & 5 <sup>th</sup> October, 2012

Mrs. H A U Amarasinghe Dr. C G Yapa Ms. Mahesha Nadugala Ms. Dilrukshi Ekanayake Dr. S Panawala Ms. Dilani Jayaweera Dr. Inoka Sandanayake Ms. Christine Dassanayake Mr. Janaka karunasena Ms. Upuli Rathnayake Ms. Nadeera Jayaweera Ms. Maduka Senarathne	Workshop on “Stress Management for Better Performance at your Work place “ , SLAAS Auditorium	19 <sup>th</sup> October, 2012
Mr. S N P K Sapumohotti	Workshop on Transport Management conducted by ICTAD	30 <sup>th</sup> November, 2012
Miss Priyani Samaranyake	Participate for the workshop Skills Development Fund Ltd	5 <sup>th</sup> & 6 <sup>th</sup> December, 2012

### Foreign Training during the year 2012

Name of the employee	Title of the Programme	Country , Duration
Mrs. H A U Amarasinghe	Bio Asia 2012 Conference	8 <sup>th</sup> February 2012 - 12 <sup>th</sup> February, 2012, India
Dr. S A V Moorthy	Bio Asia 2012 Conference	8 <sup>th</sup> February 2012 - 12 <sup>th</sup> February, 2012, India
Mr. S M A W Anuruddha	APEC Research and Technology (ART) Programme 2012,	19 <sup>th</sup> February, 2012 - 25 <sup>th</sup> February, 2012. Republic of Korea,
Mrs. Amali Manori Ranasinghe Mrs. Nadeera Jayaweera	NISTEP/GRIPS Fellowship Programme, Spring Short Course, S & T Innovation Policy	26 <sup>th</sup> February, 2012 - 3 <sup>rd</sup> March 2012 Tokyo , Japan
Mr. J G Shantha Siri	Training on Life Cycle Assessment in Nanotechnology,	11 <sup>th</sup> March, 2012 - 15 <sup>th</sup> March, 2012 New Delhi, India
Mrs. H A U Amarasinghe	International Advisory Committee for Biosphere Reserves	31 <sup>st</sup> March, 2012 - 7 <sup>th</sup> April, 2012, France
Mrs. Nadeera S Jayaweera	Intel ISEF 2012 “ Educator Academy “ 2012 , Pittsburgh , Pennsylvania	12 <sup>th</sup> May - 21 <sup>st</sup> May, 2012, USA
Mrs. P A S F Perera	International Conference on Trends in knowledge and information Dynamics	9 <sup>th</sup> July, 2012 - 13 <sup>th</sup> July, 2012
Mrs. W L C Dassanayake	Seminar on Energy Saving, Emission Reduction & New Energy Industry Development	3 <sup>rd</sup> July, 2012 - 25 <sup>th</sup> July, 2012
Mrs. H I Sandanayake Ms. U T Karunaratne	Training in Journal Processes by Elsevier India	01 <sup>st</sup> August 2012 – 05 <sup>th</sup> August 2012, India
Ms. Nadeeja Wickramarachchi	Training under Malaysia Technology Development Cooperation Programme	2 <sup>nd</sup> - 8 <sup>th</sup> December, 2012, Kuala Lumpur , Malaysia

**Principal Staff – Year 2012****Chairperson**

Prof. Sirimali Fernando  
MBBS (Col.). Dip. Med Micro (Col), M.Sc (London )

**Director**

Ms. H A U Amarasinghe  
B.Sc (Ruhuna), M.Sc (Colombo)

With effect from 01.02.2012

**Research Division**

Dr. C G Yapa  
B.Sc (Hons.) (Colombo) Ph.D  
Mr. S M A W Anuruddha  
B.Sc (Hons.) (Colombo), M.Sc (Colombo)  
Dr. S A V Moorthy  
B.Sc (Jaffna). M.Sc (Colombo), Ph.D (Colombo)  
Dr. P V S Panawala  
B.V.Sc (Peradeniya), B.V.Sc MPhil  
Ms. D N Jayaweera  
B.Sc (Hons.) (J'pura)  
Dr. H I Sandanayake  
B.V.Sc (Peradeniya)  
Ms. Amali Ranasinghe  
B.Sc (Hons.) Bangalore, M.Sc (Peradeniya)  
Ms. Nasheera Paranamana  
B.Sc Special (Hons.)(Agric.) , Ruhuna  
Ms. Amali Bandara  
B.Sc (Bangalore)

Head / Principal Scientific Officer  
Senior Scientific Officer  
Senior Scientific Officer (w.e.f. 15.10.2012)  
Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer  
S & T Officer

**Science and Technology Policy Research Division**

Dr. S I Wickremasinghe  
B.Sc Special (Hons.) (Peradeniya), M.Sc (Agric.) (Peradeniya), Ph.D (New Delhi)  
Dr. P R M P Dilrukshi  
B.Sc Special (Hons.) (Peradeniya), Ph.D (Peradeniya)  
Ms. Chamika Dharmasena  
B.Sc Special (Hons.) , Colombo  
Ms. Nadeeka Jayaweera  
M.Sc (Architecture) (Moratuwa), B.Sc (Built Environment) (Moratuwa)  
Mr. L Weerasooriya  
B.Sc (Kelaniya)

Head / Principal Scientific Officer  
Senior Scientific Officer (w.e.f. 15.10.2012)  
Scientific Officer  
Scientific Officer (Up to 03.09.2012)  
S & T Officer (Up to 24.09.2012)

**Science Popularization Division**

Ms. P A S F Perera  
B.Sc (Colombo), M.Sc (UK)  
Mr. K G J Karunasena  
B.Sc (Hons.), M.Phil (Agric.) (Peradeniya)  
Ms. W M U K Rathnayake  
B.Sc Special (Wayamba)  
Ms. M N S Jayaweera  
B.Sc Special (Hons) (Peradeniya)  
Ms. Uthpala Karunarathne  
B.Sc Special (Hons.) Kelaniya  
Ms M D Senarathne  
Graduateship in Chemistry (I.Chem.)  
Ms R A A R Ranatunga  
B.Sc Special (Hons.) Colombo

Head (Up to 27.04.2012)  
Senior Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer  
Scientific Officer

**International Liaison Division**

Ms. U G S T Gamage B.Sc (Hons.) (Colombo)	Scientific Officer (Up to 31.08.2012)
Ms. W L C Dasanayake B.Sc (Peradeniya), M.Sc (Peradeniya)	Scientific Officer
Ms. E M D C K Ekanayake B.Sc (Hons) (Peradeniya), M.Sc (Peradeniya)	Scientific Officer
Ms. A M N S Nadugala B.Sc (Hons.), Peradeniya	Scientific Officer
M.Sc (Asian Institute of Technology)	
Ms. K A T K G Kandanamulla M.Sc (Colombo), B.Sc (Hons.), Agric. Ruhuna	Scientific Officer

**Technology Division**

Dr. T F Dias M.Sc (Hons.) (Moscow), Ph.D (Moscow),	Head / Senior Scientific Officer
Dr. S R Fernando M.Sc (Hons) (Moscow), Ph.D(Moscow), MBA (Colombo)	Scientific Officer
Mr. J G Shantha Siri B.Sc (Hons.) (Colombo), MSc (Kelaniya)	Senior Scientific Officer (w.e.f 15.10.2012)
Ms. D N Wickremaarachchi B.Sc (Open University), M.Sc (J'pura)	Scientific Officer
Ms S A P Madurangi B.Sc (Hons. ) Agric. (Ruhuna)	Scientific Officer
Ms. M M G N K Abhayaruwan B.Sc Special (Hons.) (Colombo)	S & T Officer

**Director's Office**

Ms. Dilu S Gamage M.Sc (Chem.) ANU. , Grad.IChem	Scientific Officer
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**National Science Library and Resource Centre**

Ms. P A S F Perera B.Sc (Colombo), M.Sc (UK)	Head
Ms. V N Perera B.Sc (Open University), ASLLA	Information Officer
Ms. A Tennakoon B.Sc (Kelaniya)	Information Officer
Ms. R P Sugathadasa B.Sc (J'pura)	Information Officer
Ms. V N Dharmarathne ASLLA	Information Officer (Up to 14.08.2012)
Ms. Jayanthi Weerathunga ASLLA	Information Officer

**Administration Division**

Mr. P Sapumohotty B.Sc (Peradeniya)	Administrative Officer
Ms. W S M De Silva BBA (Hons.) (Ruhuna)	Human Resource Development Officer (w.e.f. 12.11.2012)
Mr. S C Senevirathne B.Sc (J'pura )	S & T Officer
Ms. B T Wickremasinghe B.Sc (J'pura)	Accounting Assistant

**Finance Division**

Ms. K C J T K Fernando

FCMA

Miss. T D P P Samaranyake

Professional Part II of ICASL

Ms. E M P Bamunendra

B(Com.) ( J'pura), Licentiate Certificate of ICASL

Ms. Y J Pathirana

Ms. P N K Wickremarachchi

Chief Accountant (Up to 31.12.2012)

Accountant

Accountant (w.e.f 03.12.2012)

Accounting Officer

Accounts Officer ( w.e.f. 15.10.2012)

**Internal Audit Unit**

Ms. Aruni Bandaragoda

B(Com.) , ACA

Ms. M M Jayajeewani

B.Sc.B.Ad. (Special) (J'pura)

Mr. L B Ekanayake

Internal Auditor (Up to 12.03.2012)

Internal Auditor (w.e.f. 03.12.2012)

Internal Audit Officer ( w.e.f. 15.10.2012)

**Printing Unit**

Mr. K P Senanayake

Printing Manager

**IT Unit**

Mr. H M M Perera

Network Administrator

**Confidential Secretaries**

Ms. Ayomi Palihawadana

Ms. Seetha Wijesinghe

Confidential Secretary (Chairperson's Office)

Confidential Secretary (Director's Office)

**Recruitments during the year 2012**

31 employees have been recruited to permanent cadre of NSF

(Scientific Officers – 8, Internal Auditor – 01, Accountant –01, HRD Officer – 01 Book-keepers – 02, Management Assistants – 14, Library Attendant – 01, Office Aids -03, )

**Resigned during the year 2012**

Ms. Aruni Bandaragoda

Mr. Priyantha Mayadunnage

Ms. U G S T Gamage

Ms. Nadeeka Jayaweera

(Internal Auditor on 12.03.2012)

(Management Assistant on 05.05.2012)

(Scientific Officer on 31.08.2012)

(Scientific Officer on 03.09.2012)

**Retired During the year 2012**

Ms V N Dharmarathne

Mrs T K A Perera

Ms K C J T K Fernando

(Information Officer on 14.08.2012)

(Management Assistant on 02.12.2012)

(Head Administration/Finance on 31.12.2012)



