Sri Lanka boosts scientific cooperation with CERN

An International Cooperation Agreement (ICA) to enhance scientific cooperation in “High Energy Physics” between the scientific community of Sri Lanka and the European Organization for Nuclear Research (CERN) was signed in Geneva on Wednesday (8 February 2017), Minister of Science, Technology and Research, Sudu Premajayantha and the Director for International Relations of CERN, Charlotte Warakaullie, signed on behalf of the two parties.

Speaking at the event, Minister Premajayantha said improving scientific cooperation with international organizations such as CERN will contribute to the Government’s efforts in the development of science, technology and research, as well as in popularizing science education in the country.

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The Sri Lanka Planetarium built for the Ceylon Industrial Exhibition held in the year 1965 is a construction of unique shape located in the middle of Colombo. This building, shaped like a lotus flower in full bloom, is a creation of reputed Sri Lankan Engineer late Dr. A. S. S. Kulasinghe.

The planetarium is the only place the beauty of night sky could be observed in the daytime. Night sky is created by artificially projecting the natural sky on the hemispherical screen on top of the planetarium through the Universal Projector built with German technology.

Here, opportunity is provided to observe, the stars at night which we are able to see and the stars during the daytime, which we cannot observe. Furthermore, the nature of the sky in any country at any time can be observed by changing the latitudes and longitudes. Not only that, but we can observe the sky that can be seen from a country situated in the Arctic Circle or the Antarctic Circle, we will be unable to do in our lifetimes as well as phenomena specific to various countries such as the “Midnight Sun.”

Universal Projector

Furthermore, not only natural phenomena such as solar and lunar eclipses and the appearance of comets but also artificial objects in space such as artificial satellites could be seen as they are. Furthermore, you can make arrangements to watch space 25,000 years old or in the future in a planetarium.

Furthermore, from the year 2014, you can watch the under mentioned

- Natural Selection
- Stars
- Exploring the Universe with Galileo

The Sri Lanka Planetarium also provides the following services:

1. Astro Kids
   - This programme, intended for school children from Year 1 to Year 6, is held at Planetarium premises every Saturday from 10.00 am to 12.00 noon.

2. Tharu Vidu Priyasa
   - This Astronautical Science Programme, conducted by the Astro IT Lab, is held from Tuesday to Saturday every week and schoolchildren from Year 06 to Year 13 can participate in it.

3. Astronomy Olympiad

Let us watch the night during the day time.

International Competition

The special series of seminars for students competing in this competition are held in the months of April and May.

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4. Social Services
   - Special shows and activities are held for children with special needs island-wide.

5. Education Programmes
   - Organising Special Education Programmes and publishing astronomical newspaper articles on astronomical natural phenomena such as solar and lunar eclipses, planetary transits, meteor showers and appearances of comets occurring in a year is being done at present.

6. Night Sky Observation Camp
   - A Night Sky Observation Camp is being held on the last Friday night of the month at the Planetarium premises and everyone interested in astronomy can participate in this camp. (This programme will be held only on nights with clear sky).

External Programmes

Mobile Planetarium Shows are held at rural schools and you can avail your school of this opportunity by making a written request. Furthermore, Night Sky Observation Camps can also be organized for schoolchildren. The times and dates when the Planetarium shows are being held are given below for your convenience:

- Tuesday to Friday – 10.00 am and 2.00 pm
- Saturday (Public Show) – 10.00 am and 2.00 pm

Important – a show will be held at 4.00 pm with increased participation.

As Planetarium shows are in great demand, dates have to be reserved over the telephone at least one month ahead for school shows. A written request also has to be made. You can obtain further details by logging on to our website.

Telephone: 011 2 586 499
Web: www.planetarium.gov.lk
CERN experts will also visit Sri Lanka to engage more closely with the Sri Lankan scientific community and to support the upgrading of teaching of physics in high schools. It was further agreed that CERN would consider donating servers to be used for data analysis projects with CERN.
Sri Lanka needs to capture and develop emerging technologies and innovative processes.

R. Wijesundara, Secretary, Ministry of Science, Technology and Research,

Patenting and research commercialization are already happening. Our institutions are involved in research, emerging technologies and research commercialization but not in synergizing. Present time, that is happening in the rest of the world.

Emerging technologies can be divided into two categories: emerging enabling technologies and emerging disruptive technologies. The former are technologies that enable the development of new or better products and services. The latter are technologies that can fundamentally change the way we live and work. The two categories are not distinct, and they often overlap.

Emerging enabling technologies can be further divided into two sub-categories: technologies that enable the development of new or better products and services, and technologies that enable the development of new or better processes. The former are technologies that enable the development of new or better products and services. The latter are technologies that enable the development of new or better processes.

Emerging disruptive technologies can be further divided into two sub-categories: technologies that can fundamentally change the way we live and work, and technologies that can fundamentally change the way we think. The former are technologies that can fundamentally change the way we live and work. The latter are technologies that can fundamentally change the way we think.

Personal Finance

Our population is expanding. Our tourist industry is expanding. Our education sector is expanding. Our technology sector is expanding. Our health sector is expanding. Our environment sector is expanding. Our economy is expanding. Our technology sector is expanding.

Innovation Incubation Centers

The Innovation Incubation Centers are the next generation of innovation centers. They are the next generation of innovation centers that are the next generation of innovation centers. They are the next generation of innovation centers that are the next generation of innovation centers. They are the next generation of innovation centers that are the next generation of innovation centers.

Innovation Incubation Centers are the next generation of innovation centers. They are the next generation of innovation centers. They are the next generation of innovation centers. They are the next generation of innovation centers. They are the next generation of innovation centers.
The present Government took a bold decision that it will stop using chemical fertilizer in three years. The main problem that arose in implementing that decision was whether there is any alternative to chemical fertilizer that could be used by cultivators. Even though some chemical fertilizers existed from past as organic fertilizer, there was a difficulty in manufacturing compost fertilizer to fulfill the demand of cultivators and using compost fertilizer was not sufficient for some crops.

Because of this, various private companies started importing chemical fertilizer to Sri Lanka just for economic gain and, by today, it has become a trade. Various kinds of granular fertilizer, vitamin, various types of liquid organic fertilizer and variations of compost fertilizer are prominent among them. These have, by today, speedily reached rural markets. Where was the quality of such fertilizer imported to Sri Lanka is tested is a question even today. There are various testing institutions dedicated to specific crops established by the Government. But, nowadays those institutions have certified that these fertilizers are suitable for use. There are some instances where it takes several years to complete testing of fertilizer for perennial crops. How were the licensees issued for selling these fertilizers without conducting such tests? The danger here is the ability of harmful substances entering the country especially through liquid fertilizer. Their composition and long-term effects have never been tested. In several occasions in the past, instances of various invasive alien plant and insects of their composition of the raw materials used in their manufacture. Even though chemical fertilizers such as urea and phosphate are imported and distributed with Government approval in the 70-80 decades, the country is still suffering from the ill-effects caused by their use. If such damage was caused by fertilizers imported with Government approval, what will be the destruction caused in the future by those fertilizers imported without Government approval?

The Government’s attention should be directed towards this as early as possible and, if investigations are postponed, it may cause worse than the damage caused by chemical fertilizers will be caused by these multitudes brands of organic or bio-fertilizer to Sri Lanka. Because of this, various kinds of fertilizers are imported to Sri Lanka as granular and liquid fertilizer under various aperatus brands. Nobody has been unknown composition in the future. Local universities research organizations have been conducting research over the decades to produce environmentally friendly fertilizers in place of chemical fertilizers. For example, researches on bio-fertilizer in Sri Lanka were launched in the 1970s’ and already, bio-fertilizer has been manufactured locally through the successful results of this research. World’s first Bio Film bio-fertilizer and Sri Lanka’s first Rhizobium bio-fertilizer are examples of those fertilizers. Those fertilizers have provided very successful results, not only at research level, but also in cultivation. By using Bio Film bio-fertilizer, the use of chemical fertilizer in crops using copious amounts of them such as tea, paddy and vegetables can be reduced by up to 50%. Furthermore, vegetables, as a whole, have increased by about 30% and the use of this bio-fertilizer will save around Rs. 5000/= per cultivator. Using Bio Film bio-fertilizer for tea cultivation has saved about Rs. 15,000/= per hectare per year.

Accordingly, if the whole country could reduce the use of chemical fertilizer and start using bio-fertilizer, the country has the ability to save 30 billion Rupees per year. Even though researchers are able to locally produce such ‘miracle’ fertilizer, the Government support for this kind of research is extremely minimal. But, this fertilizer is in great demand among the general public because of its high success rate. This Bio Film bio-fertilizer has been subjected to field testing for a period of over one year in India and, on the results of such tests, a local company is exporting this fertilizer to little tea cultivations in that country. With the availability of such highly successful local fertilizer, allowing chemical fertilizers to be imposed without quality testing is an extremely unwise act. The cause for concern here is bio-fertilizer. Seeking solutions for this problem, the relevant responsible Government institutions should intervene to populations local bio-fertilizers and control various imported varieties of poisonous chemical fertilizers. This article is compiled through a discussion with the Research Professor Geminiseneviratha of the National Institute of Fundamental Studies, Kandy.

Pradeep Piyathilaka
Communications and Media Officer
Science Education & Dissemination Unit
National Institute of Fundamental Studies
Food is one of the basic human requirements. But it can be seen that the consumers today mostly look into the taste, color and look factors beyond the nutrition of various kinds of food items are available in the market when fulfilling their requirements of food. This leads to long term health problems to such consumers. Therefore, it is always advisable to refrain from buying food items that contain colouring and additives. At times, where you cannot refrain from such food, it is suitable if you can consume food with approved colourings. As for the safety of Sri Lankan consumers, Food (colouring agents) Regulations of 2006 were published in the Extra Ordinary Gazette No. 14/7/19 dated 23rd November 2006 under the Food Act No. 26 of 1980. This was amended in 2009 and was further amended on the 14th of January 2011 by Gazette no 16882/2. Accordingly, only the artificial colouring agents mentioned in Table I below are approved for the safety of consumers in Sri Lanka. Therefore, any food item which contains or coated with any other colouring other than mentioned in Table I and Table II should not be manufactured, imported, sold, stored, distributed or advertised. Further use of any colouring on food items mentioned below are not permitted under the Food (colouring agents) Regulations.

Table 1

<table>
<thead>
<tr>
<th>No</th>
<th>Color</th>
<th>Common Name</th>
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<tbody>
<tr>
<td>01</td>
<td>Red</td>
<td>01. Carmoisine</td>
<td>122</td>
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<tr>
<td></td>
<td></td>
<td>02. Ponceau 4 R</td>
<td>124</td>
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<tr>
<td></td>
<td></td>
<td>03. Erythrosine 127</td>
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<td>04. Allura Red 129</td>
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<tr>
<td>02</td>
<td>Yellow</td>
<td>01. Sudan Yellow F.C.F.</td>
<td>110</td>
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<td></td>
<td></td>
<td>02. Tartrazine</td>
<td>102</td>
</tr>
<tr>
<td>03</td>
<td>Green</td>
<td>01. Indigo Carmine</td>
<td>132</td>
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<tr>
<td></td>
<td></td>
<td>02. Brilliant Blue F.C.F.</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03. Fast Green F.C.F.</td>
<td>143</td>
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</table>

Table 1

<table>
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<th>Natural Colouring</th>
<th>Agents INS</th>
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<tbody>
<tr>
<td>01 Carminine</td>
<td>100(1)</td>
</tr>
<tr>
<td>02 Riboflavin 5’</td>
<td>101(1)</td>
</tr>
<tr>
<td>03 Phosphate</td>
<td>101(1)</td>
</tr>
<tr>
<td>04 Carminic acid</td>
<td>120(1)</td>
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<tr>
<td>02 Phosphate</td>
<td>140(1)(1)</td>
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<td>05 Chlorophylls</td>
<td></td>
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<tr>
<td>06 Chlorophylls</td>
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<tr>
<td>07 Caramel Class I</td>
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<tr>
<td>08 Caramel Class II</td>
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<tr>
<td>09 Caramel Class III</td>
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</tbody>
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Approved other Colouring Agents (14.01.2011)

Sri Lankan Inventions Win Special Accolades at IPITEx 2017

The Bangkok International Intellectual Property, Innovation and Technology Exposition 2017 (IPITEx 2017), held parallel to the Thailand Inventors’ Day was held in Bangkok, Thailand, from 1st to 6th February. The Sri Lanka inventors’ Commission made arrangements to make four Sri Lankan inventors to participate in this Exposition under its full sponsorship and they were able to secure one Gold Medal and three Silver Medals for Sri Lanka. The Gold Award was presented to M. Yomar Waththajith Sinuwadana for his invention of an automatic water supply and the Silver Medal and the Philippine Gold Award were presented to Viraj Chamiika for his invention of Gem Flaw Tester, Silver

Medals were presented to J.M.L.R.B. Jayamaha for his invention of a modernized picker (‘Keikkit’) and D.M.T.D. Bandara Dambaruwa for inventing an automatic alarm for sleepy drivers.
New initiative to Popularize the School Science education

When we compare up with the developed nations of the world in technological development field we are lagging behind by about 15 years.

Ministry of Science, Technology and Research and Ministry of Education have launched a new project to popularize Science education among school children as per a concept of the Ministry of Science, Technology and Research Hon. Susil Premajayantha. It is intended to get school children more and more involved in science education through this project that is to be implemented with the cooperation of the Ministry of Education.

Although Science subject is followed up to G.C.E. (O/L) as a subject in the educational process in Sri Lankan Schools currently, only a small percentage select science stream for advanced level education thereafter. Innovations are the deciding factors in this fast improving technologically competitive world. When we compare up with the developed nations of the world in technological development field we are lagging behind by about 15 years. It is not necessary to repeatedly say that we have to definitely minimize this gap as much as possible in the process of building a developed Sri Lanka. The Ministry of Science, Technology and Research has identified that one of the main factors for the above is, that our school children are not much involved in science education and as a solution for this problem the Ministry intends to popularize science as a subject among our school children through this project. A three day workshop to design the action plan got under way under the patronage of the Department of Science and Technology and Research Hon. Susil Premajayantha on the 26th, 27th and the 28th of January 2017 at the National Engineering, Research and Development Center (NERD).

Secretary to the Ministry of Science, Technology and Research Mrs. R. Wijayauchchumi, State Secretary G. M. Mangalathilhena, Additional Secretary Herath, Director P. M. Dhammathilaka, Director in charge of science subject at the Ministry of Education Mr. M. P. Wipulasena and the provincial directors of education in charge of science subject participated at this workshop.

Media Unit

Researching Connection between KIBRA Molecules and Breast Cancer

This research programme was initiated in the year 2013 under the Programme of Cooperation (POC) of Professional Bodies the Ministry of Technology and Research, Sri Lanka, entered into with the Department of Science and Technology, India. The data collection and laboratory testing of that research has been completed by now and the obtained to being analyzed.

Breast cancer is the most common type of cancer seen in Sri Lanka. Many research projects have been conducted on the incidence and growing of breast cancer and it has been discovered that many biological factors contribute to it. The research of ours is conducted to discover the connection between a type of molecules called KIBRA and the occurrence and growth of breast cancer. The molecular biological investigations are being conducted at Dr. Suresh Kumar Rayale, Associate Professor, Department of Biotechnology, Indian Institute of Technology, Chennai and his team and the effects of KIBRA molecules on a breast cancer patient are being studied by Prof. Dr. Lakmuni Madduwa and her team.

KIBRA molecules are increasing the growth of the disease in breast cancer patients with hormone receptors. The research team expects to publish the results of the research very soon.