



Vidya

The Official Newspaper of the
Ministry of Science, Technology and Research

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Industrial Technology Institute marks 60th Anniversary with pride

The Industrial Technology Institute under the Ministry of Science, Technology and Research celebrated its 60th anniversary at Waters' Edge Hotel, Colombo, under the aegis of President Maithripala Sirisena and the participation of the Minister of Science, Technology and Research Susil Premjayantha.

The Industrial Technology Institute established with the objective of providing the technical assistance and knowledge to uplift local



industry consists of a staff of 400 which includes bright scientists, engineers and technicians. This institute which has become a research and development institution of international level, has secured ISO 17025 and ISO 9001 international standards, SWEDAC (Swedish Board Accreditation and Conformity Assessment and laboratory accreditations. Many natural resources widely available in our country are mainly exported as raw material. The Industrial Technology Institute is assisting in uplifting the country's economy by adding value to these raw materials through research and development. Furthermore, the Institute

has introduced enhanced varieties of food as a solution to the massive problem faced by the general public, the problem of controlling non-contagious diseases. Accordingly, the results of various experiments conducted by the Institute have contributed immensely through commercialization to the country's economy and the well-being of the people. At this anniversary celebration, 60 officials attached to various sections of the Institute who made long-term contributions for the Institute were awarded trophies of gold.

Science and Technology
Exhibition
May 28-29



If a country is to develop, a main position should be given to science. In every developed country science is at a very advanced level. Generating a generation of children who are attracted to science is made possible by making science attractive to them from the early ages. Pres-

ently in Sri Lanka, the concept of children towards science is, to say the least, lukewarm. A reduction in the number of students studying science for their G.C.E. (Advanced Level) Examination can also be observed because of this.

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Send your problems to us



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Organic Chemical Fertilizer Use

Fertilizer is chemical or organic compounds added to the soil or the crop to enhance its nutrition. These compounds add various nutrients necessary for growth to the soil. Mainly the ideal nutrients Nitrogen (N), Phosphorus (P) and Potassium (K) directly influence plant growth. The main objective of using fertilizer is increasing the percentages of these elements in the soil. Chemical fertilizer consists of mineral salts prepared to be easily soluble in water. In chemical fertilizers, 5555 has been added in a previously decided value. Nutrients are needed for various stages of a plant's growth. Accordingly, as chemical fertilizer could be used to suit the plant's need, they are very popular with cultivators. Organic fertilizer is naturally manufactured by the decaying of the organic refuse in the environment. But as large amounts of organic fertilizer are needed in agriculture, it is produced artificially. Organic fertilizer can also be called live fertilizer. Large numbers of micro and mega fauna live in organic fertilizer. Because of this, unlike chemical fertilizers, the composition of organic fertilizer changes from day to day. Furthermore, the nutritional composition of organic fertilizer varies according to the raw material used and the method employed to prepare it. So we can-

not decide the chemical composition of organic fertilizer. However, organic fertilizer is a treatment to the soil. It not only nurtures the plants planted in the soil but also nurtures the soil. That helps in soil preservation. An environment ideally conducive to plant life can be created through using organic fertilizer thereby improving the texture and the composition of soil. Various acids are added to chemical fertilizers to make them more soluble in water and improve absorption. That is the reason for increased acidity of the soil, on which chemical fertilizer is frequently applied. When this happens, it becomes very difficult for the plant to absorb the nutrients in the acidic soil. Then what the cultivators do is adding chemical fertilizer to the soil in larger amounts. Micro and mega fauna conducive to the life of plants cannot live in the acidic soil. That destroys the texture and the composition of soil. The soil becomes hard, preventing the growth of the roots of the plant. Then the soil loses its water retention qualities. Accordingly, soil on which chemical fertilizer is often used needs constant watering. This in turn increases soil erosion. The yield increased by using chemical fertilizer begins to decrease with the destruction of the soil. Furthermore, the disease conditions caused by these

“ The yield increased by using chemical fertilizer begins to decrease with the destruction of the soil. Furthermore, the disease conditions caused by these chemicals entering the human body also increase. ”

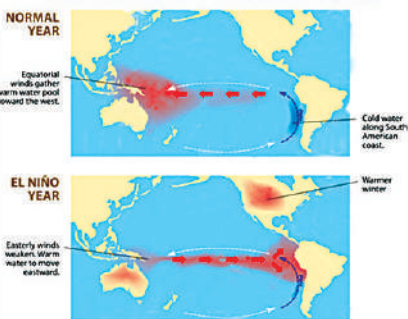
chemicals entering the human body also increase. But, this condition can be changed and the condition of the soil enhanced and turned into a homogenous, healthy soil through the use of organic fertilizer. Accordingly, getting used to applying organic fertilizer and refusing to use chemical fertilizer will be for the betterment of all and will pave



the way for the future generations to inherit a fertile soil and a fertile tomorrow.

Dharmika Rathnayake
Science and Technology Officer
Ministry of Science,
Technology and Research

THE EL NIÑO PHENOMENON



El Niño is the natural phenomenon of the water of the Pacific Ocean heating up and flowing by way of currents towards the South American coast thereby paving the way for the weather cycle of changing the

Action of El Niño on ecosystems' balance

global environment. This causes changes in the natural environment and acts in various ways on all life, including human life. In the year 2016 we are facing the worst El Niño conditions since the year 1988. The temperature of the atmosphere rises by the vaporised water heated by hot currents and incidences of rainfall also increases. This directly influences the normal weather patterns of various regions of the world and results in bad effects on the health of the living including people, the balance of

ecosystems and agriculture. When the atmospheric temperature and humidity (the amount of water vapour in the atmosphere) increase the fungi, bacteria and viruses causing disease in the fauna including humans and flora are quickly spread. Furthermore, the propagation of insects of various varieties causing harm to agricultural crops also increases damaging the economy directly or indirectly. The effects of the El Niño phenomenon on biodiversity are also not small. The biodiversity of the line of coral reefs located about 15=20 kilometres away from Sri Lanka and the water was destroyed during the severe El Niño conditions of 1998 and many coral reefs in Trincomalee, Mannar,

Kalpitiya, Kalkuda, Passikudah, Galle and Hikkaduwa areas became lifeless. Coral reefs are the ecosystem with the highest biodiversity in the world. At present about 800 species of coral have been identified and about 4000 more aquatic species live among the coral reefs. In the Hikkaduwa Ocean Natural Park corals are being re-grown to replace the destroyed coral reefs. The El Niño phenomenon affects in various ways not only the life of living species of the marine environment but also other ecosystems such as mangrove, swamp and jungle.

H. Dheena Harshanee
Technical Research and Development Division
Ministry of Science, Technology and Research



Country's future rests on Science and Technology

Susil Premjayantha – Minister of Science, Technology and Research

Remarking that the path of future Sri Lanka rests on science and technology, the Minister of Science, Technology and Research Susil Premjayantha gave us his views...

• **Is there a programme to bring the international developments of science and technology to Sri Lanka?**

Truthfully yes. Acquiring the scientific and technological developments internationally achieved is essential for us. By the present, we are directed towards memorandums of understanding in coordination with science foundations and other Governmental and non-governmental organizations. As an example, the Industrial Technology Institute has initiated a massive programme in collaboration with China through the Malabe institutional coordination. Furthermore, the Science and Technology Conference that is scheduled to be held in Sri Lanka on September 8, 9 and 10 will give a huge contribution for this. It has been decided to hold this conference with the participation of over 500 eminent scientists from countries throughout the international world. This conference will be operated on three topics. We are expecting exchange of scientists' knowledge, research and cooperation from this conference. We have

already activated a broad programme like this for this conference.

• **How is the timely necessity of directing the younger generation to science and technology being met?**

The future of the country rests on science and technology. Our younger generation has to realize this. We have taken steps to establish science and technology associations in 1500 schools targeting the younger generation. In the G.C.E. (Ordinary Level) Examination the results of which were released recently, about 6100 students managed to get nine A's. This means that Science and Maths subjects are also included in this result. It is not the lack of ability. The problem is with the attitudes of today's younger generation. The majority are under the impression that if they were unable to secure admission to the Medical or the Engineering Faculty, their results are useless. They think that there are no jobs for normal Degrees because of their ignorance. At present employment opportunities are amply available in this field. The younger generation must be directed more towards the subject of science. We are holding competitions, exhibitions and tour programmes for understanding and attraction. We are also working to update the knowledge of the teachers

through those.

• **Is there a methodology to disseminate knowledge to schools?**

We hold several programmes to disseminate knowledge to school children. Workshops are held annually with the participation of Professors and Doctors of Universities. We are expecting to take science and technology not only to Ordinary Level students but also to Grade 9 students. The interest of school children can be increased by making magazines an educational project and directing children towards the Editorial Boards of those magazines. This objective could be easily achieved by activities such as providing modern facilities for school laboratories and sending children abroad. We are also getting widespread assistance from media to fulfil this timely necessity.

Basic preparations to establish a science centre in the Homagama area presently constructed in the world but not in Sri Lanka have been made.

• **What are the benefits expected by establishing this science centre?**

This centre is being constructed through an accord with China with the objective of popularizing the subject of science and technology. School children will be provided with higher technologies such as nanotechnology and biotechnology through this centre. Furthermore, old medical methods and technology will be updated. We expect to bring this close to

They think that there are no jobs for normal Degrees because of their ignorance. At present employment opportunities are amply available in this field. The younger generation must be directed more towards the subject of science. We are holding competitions, exhibitions and tour programmes for understanding and attraction.

• **What is the importance of establishing Vidatha Centres?**

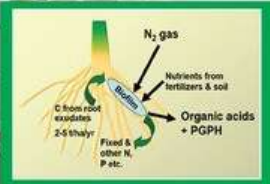
The objective of establishing Vidatha Centres is taking technology to villages. So the programme is prepared saying this number of Vidatha Centres will be established in these areas through Divisional Secretary's Areas. Many people lack technology. They don't have a helping hand or understanding. But, through these Vidatha Centres, massive assistance is provided to strengthen the rural economy. That is achieved by providing the villagers with employment opportunities and small scale industries. The paddy husks and coconut pith of the village should not be thrown away. When technology is provided, the villagers will be pointed towards relevant products. That minimizes poverty and unemployment of villagers. The guidance and the assistance provided to villagers through this Centres is a great source of strength to the national economy. When Colombo and its environs are taken, value is added to raw material and exported. The country's economy is greatly strengthened through this.

• **How does the methodology of constructing a country free of poisons (Wasa Visa Nathi Ratak) strengthened?**

Construction of a poison free country begins with us. We invented bio fertilizer through plant sections at our National Institute of Fundamental Studies laboratory at Hanthana. Soil can be fertilized without using chemical fertilizer by mixing that bio fertilizer with soil. The use of chemical fertilizer can be reduced by 50% through using this bio fertilizer. At present, for vegetable cultivations, 50% of this bio fertilizer is used. The intention of our researchers is using this bio fertilizer for other crops. We are making arrangements to send this message among school children and the general public through science associations and Vidatha Centres. In this, edification about food production and usage is carried out. The methodology of building a 'Poison-free Country' is strengthened.



school children, tourists and researchers as an information centre, a laboratory and a research laboratory in another 3, 4 years. We are specially thinking of pointing the younger generation towards science and technology through the science and technology exhibition under the theme "Viduhuru Ratak, Thirasara Hetak" to be held on 28th-29th May.



With the advancement of science in the Western world, scientists endeavoured to find methods of increasing yields by artificially providing nutrients needed for the growth of crops. As a result, the production of artificial chemical fertilizers containing Nitrogen, Potassium and Phosphorus was begun. As the yields of crops increased with the introduction of chemical fertilizers, their usage, started in the West was fast broadened to all Western and Eastern countries. But, with problems such as the spreading out of disease such as the agricultural kidney disease in agricultural countries such as Sri Lanka, the environmental destruction, loss of biodiversity and the increase in environmental temperature have compelled the Western countries that started the production of chemical fertilizers, to reduce the use of chemical fertilizer. The impression of today's scientists is that the breaking down of ecosystems by using chemical fertilizers without understanding their complex processes is the main cause of such problems. The operation of ecosystems is a natural balance. The plant community, animal community and the microbiological community of an ecosystem controls its sustainability. In making natural forests, the engineers are herbivorous insects and microbes.

When we artificially alter the plant, animal or microbiological communities in an ecosystem, its balance breaks down and the ecosystem is destroyed. Let us take a natural forest as an example. Even though the mother trees in a forest propagate a large amount of seeds, only a small number of them germinate. The balance seeds are ingested by herbivorous insects and microbiological fauna. This protects the environmental balance without allowing one species of trees to overwhelm others. Furthermore, the breeding of herbivorous insects is controlled by other insects and microbiological fauna and there is a balance also in fauna. If the above mentioned insects and microbiological fauna are removed from the forest, the result will be the breakdown of the balance of flora and fauna and thus the biodiversity. A large number of insects and microbiological fauna will be killed when chemical fertilizer is used and as the insects and microbiological fauna providing a control to the herbivorous insects, they feed on the crop as they have nothing else to feed on and propagate speedily. Then the cultivators call them pests and spray insecticides to control them. That further kills off insects and microbiological fauna, the engineers of forests. Professor Gamini Seneviratne, introducing a new concept to the world has said that the chemical signals exchanged by microbiological fauna in an ecosystem maintain the sustainability of that ecosystem. Plants, animals and soil microbiological fauna live in an ecosystem. Their exchanges of chemical signals regulate important processes in an ecosystem such as photosynthesis, fixing of Nitrogen in the soil, building up of organic material in the soil and production of plant growth hormones. This concept of Prof. Seneviratne was published in the international research magazine "Agriculture, Ecosystems and Environment." According to the concept of Prof. Seneviratne, the artificial chemical fertilizers and pesticides used in agriculture paralyzes the exchange of chemical signals of microbiological fauna in the soil thereby reducing their efficiency of fixing Nitrogen in the soil. The growth of plant roots gets retarded causing the decrease of water retention quality of the soil. The quality of the soil decreases making cul-

tivators use more chemical fertilizer making this vicious cycle faster. How to break this vicious cycle and

microorganisms make bio films of a beneficial nature with the assistance of the environment and disease-causing bacteria makes harmful bio films. Examples of natural bio films are the thick fungal growth on the kitchen waste water gully and the layer of fungi that forms near wells. The study of biofilms differs from traditional microbiology in that it uses mixed cultures instead of pure cultures. After the formation of biofilm, the various microorganisms acquire specialized gene statement, anatomy and action not seen before the formation of the bio film. Instead of exudates exuded by bacteria and fungi separately, bio films consisting of bacteria and fungi exude exudates consisting of different chemicals. All these compounds released by bio films are environmentally significant. Those chemicals activate the dormant microorganism spores in the soil. The team from the National Institute

of Fundamental Studies working on the concept of Prof. Seneviratne were successful in discovering the first bio film bio fertilizer of the world. The variety of fertilizer made for tea with the support of the Industrial Technology Institute of Sri Lanka is named 'Biofilm T' and the patent rights of it belong to Research Professor Gamini Seneviratne of the Institute of Fundamental Studies and researcher Prof. S.A. Kulasekera. Biofilm T is not an artificial organic fertilizer but a biofertilizer made from microorganisms beneficial to tea cultivation. The benefits to cultivators from the bio film bio fertilizer Biofilm T that is being used with

once to control them is sufficient as the whole bank of weed seeds gets destroyed reducing the number of weedicide applications. Another benefit of using bio film bio fertilizer is their ability to cover the most number of hectares with the least amount of fertilizer. Even though at least three metric tons of organic fertilizer has to be applied per one hectare of tea, only a 500 ml bottle of bio film bio fertilizer is required for one hectare of tea. Commercial production of bio film bio fertilizer has started with the permission of the National Institute of Fundamental Studies and the Institute manufactures the initial cultivar and controls the quality of the final product. According to Prof. Seneviratne, using bio film bio fertilizer is the only way

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Communications and Media Officer
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Kandy

Sri Lankan scientists rectify historic mistake

re-establish the lost environmental balance? According to Prof. Seneviratne, the only solution is re-establishing the microbiological balance in the soil destroyed by humans. The team from the National Institute of Fundamental Studies including Prof. Seneviratne identified the necessary process for the first time in the world after conducting research for 10 years. The identification of this process is also an accident. The first Ph.D. undergraduate student of the Professor observed a fungus growing with every batch of pure culture of rhizobium she fixed in every instance to conduct a research on the rhizobium bacterium fixing Nitrogen in the soil. Then, she cultivated that culture in a liquid medium. As expected, the bacterium was found growing adhering to fungal hyphae. A natural microbiological combination is called a Biofilm. The definition of a biofilm is a complex structure of microbiological community adhering to live or lifeless surfaces. Developed Fungal-Bacterial Biofilm Penicillium Brachytrichobium (Seneviratne and Jayasingharachchi). These bio films were initially identified in medical science as a cause for various bacterial infections. According to Prof. Seneviratne, beneficial

of correcting the ancient mistake of Western scientists of the destroying of the microorganism biodiversity, the most important part in ecosystems, by using artificial chemical fertilizer. At present even though the Government has taken steps to control agricultural kidney disease by banning agro-chemicals such as glyphosates, the practical problem was that successful fertilizers and pesticides that can be used in place of harmful chemicals were not available. But the research team of Prof. Gamini Seneviratne was successful in overcoming that challenge successfully for the first time in the world. It is the duty and responsibility of authorities to launch the use of

if bio film bio fertilizer is used for the whole country's tea cultivation, we should be able to save about Rs. 50 million currently spent on chemical and organic fertilizer. Furthermore, as the yield is increased, the incomes of the cultivators also increase. This is the only and best way for Sri Lanka, currently using the largest amount of agro-chemicals per hectare and in the eighth place in the world as the country using the most amount of chemical fertilizer per hectare to escape this vicious trap. Furthermore, with the application of bio film bio fertilizer, the microorganisms that are lying dormant in the soil are activated and all weed seeds in the soil germinate. Using weedicide

of correcting the ancient mistake of Western scientists of the destroying of the microorganism biodiversity, the most important part in ecosystems, by using artificial chemical fertilizer. At present even though the Government has taken steps to control agricultural kidney disease by banning agro-chemicals such as glyphosates, the practical problem was that successful fertilizers and pesticides that can be used in place of harmful chemicals were not available. But the research team of Prof. Gamini Seneviratne was successful in overcoming that challenge successfully for the first time in the world. It is the duty and responsibility of authorities to launch the use of



A new country with science...

Man and Climate Changes

The various changes in the climate that has been there for a long time such as wind patterns, rainfall patterns and atmospheric temperature are called climate changes. Accordingly, at present, some regions suffer prolonged drought conditions while some regions are deluged with rain during a very short period of time. The incidence of natural disasters such as desertification, forest fires, earthquakes, droughts and hurricanes have also considerably increased. According to the 5th evaluation report of the United Nations Framework Convention on Climate Change (UNFCCC) of 2014, these have increased due to natural reasons as well as human activities. The temperature of the whole climate system is increasing without any doubt and the temperature is increasing by 0.2 degrees Celsius for two decades since the decade of 1950 as not happened in two centuries and the report says it can be confirmed, with a certainty of 95% - 100% that this increase can be attributed to human activities. Changes in climate do not affect one region of one country but all people of the world have to suffer the results. This causes socio-economic problems and challenges the sustainability of the global bio-environment system.

H. Dheena Harshanee
Technical Research and Development Division
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Society based on new inventions...

Additional Secretary of the Technology and Research Development Division of the Ministry of Science, Technology and Research H.M.B.C. Herath spoke with us regarding the steps taken by the Ministry for the advancement of the Technology and Research Sector of the country.

• Can you tell our readers about the Technology and Research Sector of Sri Lanka?

Our objective is getting people used to science through the theme "Viduhuru Ratak – Thirasa Hetak" and making their tomorrow more sustainable through that. Accordingly, we are working for one of the two main divisions under the Ministry, the Technology and Research Development Division. The total power of the Ministry is centred here. Accordingly, we have 12 institutions such as the Industrial Technology Institute and the Planetarium. Other than their administration and accounting, our foremost task is coordinating all technical research and other development affairs conducted by those institutions. Our second task is preparing national policies relevant to the science and technology subject stream and coordinating. Accordingly what is happening here is taking fruitful scientific, technological researches to the people in coordination with these 12 institutions.

• What do you mean by research and development work?

We have research institutions. At those institutions research relevant to the subjects of science and technology

are being conducted.

That research work is coordinated by us. The idea is to facilitate and coordinating the research work relevant to the subject stream by other relevant institutions. Sometimes, we provide financial contributions to the research. If some outsider invents something new through research, if that person knows the correct institution he or she can go to that institution. Otherwise, we direct that person to the correct institution and provide the relevant facilities. Our other division, the Technical Transfer Division is always prepared to carry it out practically. That Division has Science and Technology Officers island-wide.

• Is there a programme to practically take this task to the people?

We are continuously working to take these technological and scientific matters to the people. Arrangements have been finalized to hold 03 exhibitions relevant to the year 2016. The District Programmes are also like that. The first stage of that programme will be

“**But, science is a part of life. That's not something alien. You must go on this journey with satisfaction and understanding. If science is studied as a subject matter, there are broad job opportunities in this field.**”

launched from the Colombo District. Arrangements have been made to hold a massive exhibition under the theme "Viduhuru Ratak – Thirasa Hetak" on April 8 and 9 centring on Rahula Model Boys' School and Sri Rahula Girls' School. It is convenient for this project to be launched from the Colombo District. Our objective is taking the knowledge of science and technology, and their value, to school children and bringing them closer to all members of the family. We have reserved

the first day for school children and the second day for the general public. Even though it is newly referred to as science, there are some traditional things also here. And there are parts of it that is not available. It does not have to be a new thing invented spending millions. This can be done with basic technology without spending huge amounts. For example, if a soup cube can be manufactured using fish heads that are discarded at the fish market, there is technology there. We all know that the vapour from mosquito coils is poisonous. Air fresheners should be prepared with traditional raw material such as Citronella Oil. We all can do these things. Institutions such as ITI teach making these things and methods of preserving food. Methods have been introduced to prepare food easily and speedily using sustainable technology. Making a rocket is good. But, that is not the only application of science and technology.

• What is the contribution of the Ministry towards the exhibition?

This exhibition is organized by the Ministry. Through this, the technology found is given to the general public in need. Small and Medium Scale entrepreneurs

have the ability of finding new technology for an existing process and finding technology to start a new business enterprise. Furthermore, there are Science Associations in schools. Accordingly, the new inventions of the school children of these two schools will be unveiled. The Technology Transfer Division provides technology. There are a large number of Small and Medium Scale entrepreneurs under its Vidatha Programme. There is a 'Goraka' paste manufacturer under the name 'Senani Products.' There are jam and yoghurt manufacturers. Through this, they are given a huge helping hand. They are also getting knowledge from Vidatha Centres. This provides a massive strength to the national economy as well as the domestic economy.

• Can you tell our readers about the Science Centre being shifted to the Malabe area?

With our basic plans, the Science Centre has been constructed centred on the Malabe area. The basic area for this is the area from Pitipana to Malabe, Kaduwela. Generally the public know what is happening in the other Ministries and institutions. For example, the general public know what is happening

in the Ministry of Wildlife Conservation. But, every person has to be educated on what is being done by science, technology and research and what is being done by the Ministry. And there is the question; Why should be technology taken to the villages? The reason for this is, when we take the science knowledge we had when we were small, many are not directed beyond that point. Many people today are living under wrong impressions. We have to specially educate the school children. Many are directed towards computers, Chartered, CIMA, IT, Law Entrance and Accounts. But now there is a dearth of jobs in those fields. One reason for this is the mentality of thinking that science is a difficult subject. But, science is a part of life. That's not something alien. You must go on this journey with satisfaction and understanding. If science is studied as a subject matter, there are broad job opportunities in this field.

In the future, we are expecting to sign international agreements and work with developed countries for technical exchange programmes.



Science is

something that is renewed day-by-day

H.M.B.C. Herath

Additional Secretary - Technology and Research Division

New Vidatha Centres for

Sandilipai and Nallur

The objective of Vidatha Projects activated by the Ministry of Science, Technology and Research is taking technology to villages. Through these projects extra value is added to the natural resources and the labour resource existing in the rural areas of Sri Lanka and small and medium scale industrialists are generated at village level. Vidatha Resource Centres have been established in every Provincial Secretary's Division in

the island to achieve this. Under this scheme, in the Jaffna District, two Vidatha Centres have been established, one in Sandilipai at a cost of 85 lakhs of Rupees and one at Nallur at a cost of Rs. 92 lakhs. These centres were vested with the people under the aegis of the Governor of the Northern Province, Reginald Cooray. These centres have been constructed



with the NERD technology introduced by the NERD Centre. Politicians of the

area, Secretary of the Ministry R. Jayalechchumi and Ministry officials participated in this occasion.

Directing 'Vidya' newspaper

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March 15 – World
Consumer Rights Day

Consumers, Are you aware of this?



Once you have entered the marketplace to make day-to-day purchases, you may not be able to select which item to buy out of all items on display. When looking at the container it is easy to obtain information such as weight, volume, date of expiry, date of manufacture and ingredients from the label of the product but it is very difficult to check whether the product conforms to standards. The Sri Lanka Standards institution has introduced the SLS symbol system to make it easy for the consumer to select products conforming to SLS stand-

ards. The complete and sole rights to giving this SLS symbol are owned by the Sri Lanka Standards institution. The SLS symbol on a product means that that product has been manufactured conforming to Sri Lanka

Standards. The Sri Lanka Standards number should be printed with the SLS symbol. Examples are, SLS: 894 for bottled drinking water, SLS: 984 for light bulbs and SLS: 179 for condensed milk.

In awarding this certificate, the Sri Lanka Standards Institution will subject the manufacturing institution to a lengthy process of auditing and testing of samples and if the necessities of relevant standards are met, then only is the product awarded the SLS Certification. This is a process that does not end with the awarding of the SLS Certification but the

certified institution is subjected to several post-audits and continuous evaluation. Manufacturers who have a need to obtain this valuable standards certificate and want to maintain the quality of their products can apply voluntarily for SLS standardization and once certified they can enjoy benefits such as broadening their marketing network.

The Government, to protect the consumer public, has announced that the SLS standardization must be obtained for some identified essential consumer goods. Such goods are announced in rules and regulations issued by the Government from time to time under the Consumer Protection Act No.01 of 1979 and the subsequent Consumer Protection Authority Act No. 09 of 2003.

According to those rules and regulations, the relevant goods can be displayed for selling or

sold only if the designated product carries the SLS mark on it when manufactured locally and if imported, the Sri Lanka Standards institution has to inspect the relevant product at the point of import and award the SLS certification to that product and only thereafter that the relevant product could be displayed and sold. According to recent regulations, to further strengthen the protection of the construction industry, all brands of cement and steel bars for reinforcing concrete must have the SLS mark, not only if they are manufactured locally but also imported.

Learning about the SLS certification is very important in buying various products for domestic consumption, construction and diverse household requirements.

Nilupa Kakulandara
Assistant Director
Sri Lanka Standards Institution.

Continued from Page 01 Industrial Technology...

Another reason for this is that the idea 'science is a difficult subject' being embedded in the minds of children as well as their elders. The other reason is that the concept that after studying Advanced Level in Science subjects the higher education and

employment opportunities are rare have been embedded in the minds of the Sri Lankan society. The end result of all these is distancing our children from science. If this condition persists, it will be a great hindrance to our country's journey to development. As quick steps have to be taken to change the general public's concept of science and to popularize

science and technology among children and adults, the Ministry of Science, Technology and Research has made arrangements to hold a science and technology exhibition under the theme "Viduhuru Ratak, Thirasara Hetak." This exhibition will be held on the 08th and 09th of April at the Sri Rahula Boys' School and the Sri Rahula Girls' School, Malabe. All

12 institutions under the Ministry of Science, Technology and Research will be participating in this exhibition and a series of conferences will be held at this exhibition under various themes. On May 28, the first day, the exhibition will be open to school children and on the second day, 29th of May, it will be open for the general public.

Sinhala and Hindu New Year through astronomy

There are only a few days left for the dawning of the Sinhala and Hindu New Year. This event is directly connected to astronomy as well as astrology. If asked "What is the dawning of the New Year?" anyone will say it is the sun entering the House of Aries from the House of Pisces. But, as Sri Lankans, our knowledge of the dawning of the New Year with its cultural and national value should be broader than that reply. So, as Sri Lankans, we must identify the astronomical processes of the dawning of the New Year and its astrological base.

Astronomers such as Nicholas Copernicus, Galileo and Johannes Kepler demonstrated that the earth rotates on its axis and revolves on an elliptical path around the sun. Eighty eight constellations have been identified in the sky and 12 of them are located on the visible path of the sun. The visible path of the sun means that, although the earth revolves around the sun, we on earth see the sun as moving, the way we see trees by the wayside move when we are in a travelling vehicle. This path, also known as the Ecliptic, and the New Year dawns during the entry of the sun to the Northern Hemisphere of the earth after travelling through the Southern Hemisphere. That means that the sun is setting out on a new journey.

In the revolutions of the earth around the sun within a year, the constellations in the background of the sun changes as seen from the earth. As shown in the graphs in the month of November the constellation in the background of the sun relevant to the earth is the constellation of Libra and the constellation relevant to the month of January is the constellation of Sagittarius. In April the constellations in the background of the sun's visible path is Pisces and Aries as indicated by the red arrow.

Accordingly, the earliest position of the sun in the Aries constellation is considered the beginning of the Zodiac and its last position in the Pisces constellation in con-

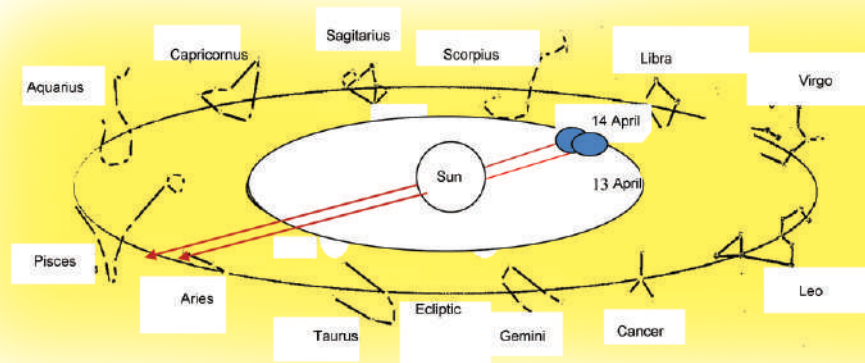
Edification seminars on provincial level will be organized to edify interested parties on the selection process of "Sahasak Nimavum", the National Invention Exhibition organized by the Sri Lanka Inventors' Commission (SLIC) to be

sidered the end. When the sun on its visible path draws near its earliest position in the Aries constellation, it is considered the dawning of the New Year. It takes the sun 365 days to complete this circuit. The time for the sun to travel from Pisces to Aries is 12 hours and 04 minutes. This period when the sun is without a House of the Zodiac is called the transition period or the 'Nonagathe' without any auspicious times and many people observing ritual customs take care not to do anything

auspicious during this period of transition. They spend this period by indulging in meritorious activities. In 1917, Albert Einstein through his theory of General Relativity, revealed that because of the balance between gravity and velocity that the path of light rays is on a shortest and linear path making possible observing the finer points of the movement of celestial objects possible. Accordingly, it was revealed that that the rotational axis of the earth and its orbital motion

held on the dates given in the chart.

New inventions under the categories of Schools, Open, Commercialized New Inventions, Universities and Tertiary Educational Institutions are to be selected at provincial level to compete at the "Sahasak Nimavum" National Invention Exhibition 2016. To confirm attendance at these seminars and obtain further details call the Extension Division of the Commission on 011-2676650.



change again and again bringing it back to the earlier position. It takes 26,000 years to move the rotational axis of the earth one complete circle. Accordingly, after $16,000/12=2166.67$ years have passed, the

House of Aries in a day in the month of May. Accordingly, in clarifying the dawning of the New Year astronomically, the problem will be whether the New Year is going to be celebrated in the month of May with the passing of 2000 years as the sun will go from the House of Pisces to the House of Aries in a day in the month of May.

A production of Sri Lanka
Planetarium

2016

"Sahasak Nimavum"

National Invention Exhibition

Province	Pre-edification date	Basic selection date	Venue
Sabaragamuwa	02.03.2016	14.05.2016	Technical College - Ratnapura
North Western	14.03.2016	18.05.2016	Technical College - Kurunegala
Eastern	08.03.2016	28.05.2016	Mahajana Vidyalaya - Batticaloa
Northern	10.03.2016	30.05.2016	Technical College - Jaffna
Central	16.03.2016	11.06.2016	Technical College - Kandy
Southern	04.03.2016	22.06.2016	Technical College - Matara
North Central	23.03.2016	25.06.2016	Technical College - Anuradhapura
Uva	03.05.2016	05.07.2016	Technical College - Badulla
Western	07.05.2016		Royal College - Colombo 07
		23.07.2016	Asoka Vidyalaya - Colombo 10

