



# Vidya

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



Minister of Science, Technology and Research Susil Premajayantha and the delegation that participated in signing of Paris Accord

## Sri Lanka signs historic Paris Accord

The Heads of State meeting to sign the Paris Accord for minimizing the use of fossil fuels and generating an alternate source of energy was held at the United Nations General Assembly Hall on 22nd April. Parallel to that, arrangements were made to the High Profile Thematic Discussion on Sustainable Goals on 21st April. The participation of Sri Lanka at this highly critical juncture to provide the people of, not only Sri Lanka but the whole world with a sustainable clean environment is of utmost importance. Accordingly, when using

energy for the well being of humankind, the necessity of turning to other alternatives to fossil fuels has been created. Fulfilling these necessities and directing attention to sustainable energy sources, the historic Paris Accord signed by World Leaders on 22nd of this month is a very important decision towards safeguarding the world's continuation. President Maithripala Sirisena was represented by the Minister of Science, Technology and Research Susil Premajayantha at this event.

## Trained Task Force to uplift Solar Energy Industry

The Government of Sri Lanka has directed its attention uplifting sustainable energy sources towards generating 20% of the electricity generated in the country by the year 2020. With the objective of obtaining assistance to the solar energy and related industries that is speedily growing in the country, the necessary attention has been given towards creating a trained task force and the Minister has already received the required Cabinet approval. Through the unique location of Sri Lanka, the country will get the opportunity of becoming an exhibition center for sustainable energy in South East Asia. Accordingly, a practical training of high standards on research and development of solar cells, manufacturing and fitting solar panels and supplying services for solar power station systems will be given to a task force of about 2000 personnel including University Undergraduates, Post Graduate students in science, students of Vocational Training Schools, bright Officers of the Tri-Forces and school leavers who have passed the G.C.E. (Advanced Level) Examination. Peradeniya, Kelaniya, Jaffna and Ruhunu Universities have been selected to establish these training facilities based on their research abilities of this subject. The National Engineering Research and Development Center (NERD Center), the Sri Lanka Institute of Nano Technology (SLINTEC) and the National Institute of Fundamental Studies will be assisting in this venture and the Sivanandan Laboratories Limited and the University of Illinois of Chicago will supply specialist advisory services and guidance.



Our New Inventors  
**win the world...**

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Ministry of Science, Technology and Research

To mark Earth  
Day celebrated  
on 22<sup>nd</sup> April

## 'Green World' protecting future generations

### "Trees for the Earth"

In the present era with globalization spreading broadly based on the mutual dependency of all countries of the world, tragically man does not seem to be giving any consideration to nature's greatest gift, the deep and sensitive mutual dependency with trees, that is the mainstay of all life on the earth. According to a notice made by the World Health Organization in 2014, over seven million deaths due to air pollution were reported in 2012 and that number was as high as 1/8 of the total number of deaths during that year. It is true that clean and protected environment is continuously bonded with community health.

Over 96 trees are required to absorb the amount of Carbon Dioxide exhaled by one person. Other than that, trees absorb pollutant gases such as Nitrogen Oxide, Ammonia, Sulfur Dioxide and Ozone.

'Earth Day' was celebrated for the first time in the year 1970 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) based on environmental preservation. From that date, over 193 countries of the world commemorate Earth Day on 22nd April. Furthermore, the week from April 16 to 23 has been named as the Climate

Educational Week.

The necessity of creating an accord among countries to minimize the emission of Greenhouse Gases was stressed at the United Nations Climate Conference 2015 held in Paris, France. At this Conference, the participating countries arrived at a memorandum of understanding to activate new policies to control speedy escalation of global warmth. One hundred and twenty countries including the United States of America and China signed this memorandum of understanding on this

**Based on the theme  
'Trees for the Earth,'  
each person is invited to  
plant one tree to  
achieve the target of  
planting 7.8 billion trees  
before the year 2020."**

year's Earth Day celebrated on 22nd April.

The Earth Day of the year 2020 will be celebrating its 20th anniversary. Over 15 billion trees are destroyed each year. From the year 1990, about six million Hectares of land is subjected to erosion per year. This is equal to 48 football grounds being destroyed per minute.

Furthermore, at the United Nations Framework Convention on Climate Change held in New York in the year 2014, it was stressed that, if the global temperature increases by two degrees Centigrade due to the emission of Carbon Dioxide directly influencing human activities, all arable lands in the world will be destroyed, causing the poor, the



majority of people of the world, to die without food or water. It is expected to reach three main objectives by planting trees. They are,

- ❖ Minimizing the effect of climate change and environmental pollution,
- ❖ Helping livelihoods of communities,
- ❖ Protecting the globe's bio-diversity conservation by planting more rare trees and plants.

Planting trees will help in long-term economic and environmental sustainability, supplying food and energy and broadening avenues of income. This is the time to take the necessary action by considering all pertinent matters in a balancing way. By creating a clean and healthy environment filled with greenery suitable for the living of all beings, the astute brilliance of nature will protect all of us.

**H. Dheena Harshani**

Technology and Research Development Division  
Ministry of Science, Technology and Research

### From the history of planting trees...

Reacting to the challenges of global warming and the sustainability of ecosystems being lost due to the loss of biodiversity, the United Nations Environment Programme planted a billion trees in 2006 and another billion trees in 2007 in Ethiopia.

A project of planting seven billion trees was launched in 2008 and that target was achieved three months before the Conference on Climate Change held in 2009 December at Copenhagen, Denmark.

The call for planting at least one tree by every follower to achieve the target of planting one billion trees on the World Environment Day that fell on 5th of June 2009 was successful. Over 12 billion trees were planted after the month of December 2011. Special attention was given to the below-mentioned sectors at the Earth Summit held at Johannesburg in 2002.

- ❖ Preserving biodiversity and the real value of natural ecosystems
- ❖ Giving a long-term vision to the creation of cities based on environmental sustainability
- ❖ Building the features of natural ecosystems to create healthier and more sustainable cities
- ❖ Using more environment-friendly products

Deploring the destruction of forests, Prof. Wangari Maathai (Mother of Trees) started the 'Green Belt Movement' in Nairobi, Kenya, and over 51 billion trees have been planted through that movement.

She was honoured with the Nobel Peace Prize in 2014.

The objective of the Green Belt Movement was reacting to global warming that is directly responsible for climate change through acquiring positive results in increasing forest cover, soil conservation, enhancing nature's beauty and establishing living spaces for birds and small animals.

A massive transformation of the lower strata of society was created through this.





# Encouraging new inventors our task

**R. Wijialudchumi**

**Secretary – Ministry of Science, Technology and Research**

Appearing below is an Interview with the Secretary of the Ministry of Science, Technology and Research R.

Wijialudchumi on uplifting the country's economy through encouraging new inventors.

● **Is there a programme to encourage new inventors?**

At this moment of time when our country is on the path to a fast-tracked development, the sphere of Science, Technology and Research massively contributes to it. Out of these, the contribution of new inventors is special. Because of that, we have taken steps to take the new inventions programme to the youth, and specially the students of this country and create interest and encourage them for new inventions. Under this, with the objective of expanding the sphere of science and technology, various programmes are activated through the New Inventions Commission of Sri Lanka under the Ministry of Science, Technology and Research. Through that, various workshops, programmes and competitions are being held in District, Provincial and National Levels. We provide the necessary assistance and aid to new inventions and inventors selected through these.

Furthermore, we are providing them the necessary help get marketing opportunities for these inventions through the New Inventors' Commission. With its help every week we are telecasting a new inventions programme named INNOVA-MIND. At the end of the programme we are selecting the best new invention and give prizes to the new inventors. We are establishing New Inventors' Clubs at school level. This will establish a good rapport among young inventors.

● **Can you tell us about the new inventors and international recognition?**

We have made arrangements to submit selected new inventions to the international level, especially the Exhibition held yearly in Geneva. Accordingly, the seven young inventors who represented Sri Lanka at the Geneva New Inventions Exhibition this year were able to bring glory to our country. Out of these, two won Gold Medals, three won Silver Medals and another two were awarded Bronze Medals. We organized a special reception at the Bandaranaike International Airport,

Katunayake for those inventors.

Through these, our inventors are getting internationally recognized giving them the opportunity to develop new inventions to be on par with new technology. Through this, we get the ability of exchanging our technology with developed and developing countries and enhancing their aptitudes. Furthermore, we get the ability of taking our goods and services to conform to the international level.

Every Saturday, we are telecasting a programme on new inventions through television, organized by the New Inventors' Commission. At the end of the programme best new inventions are selected and prizes are awarded. Young Inventors' Associations are being established at Provincial and District levels. That also builds up a good rapport among new inventors.

● **What are the programmes activated at Ministry level to promote the activities of new inventors?**

We will be activating the Innovation Accelerator Programme to fast-track new inventions. One million Rupees have been earmarked for this programme. Under this, inventors are provided with the necessary technological know-how, financial backing and research facilities. The relevant market for their inventions is also sought through this programme. A massive programme of gathering all parties working in science, technology and inventions through Vidhatha Centers will be activated in the near future. The reason for this is, at the present, all these are activated in the various fields separately. But, gathering together through the Vidhatha Centers is reason for good results.

● **Can you tell our readers more about the objectives and the role of Vidhatha Centers?**

The Vidhatha Resources Center Programme was introduced with the objective of taking technology, which is being enjoyed by the urban population, to the rural population. Science and technology is being taken to rural population according to their needs. This helps in uplifting the economy and livelihoods of the rural population. Through this programme, problems of science and technology are getting solved. Taking a village of farmers as an example, let us say that the need

arose to uplift the quality of their produce. That has to be done protecting the environment. Accordingly, in such situations, we endeavour to give them our technology. For instance, in agriculture, we introduce methods of manufacturing organic fertilizer, methods of water management and act as pathfinders in production. We give them the technology of manufacturing organic fertilizer using the organic material available in the area. Accordingly, agriculture becomes self-sufficient. In a fisheries village, we give them the technology of giving long life to sea food as well as the technology of value addition. That enhances the income of the



“ We have given our attention to this matter and formulated a National Policy to add value to resources exported as raw material enabling them to be exported as value-added products. We have also got the approval of the Cabinet for this proposal. Accordingly, steps will be taken in the future to activate this. ”

villagers.

● **Is there a programme to enhance and sustain the quality of Vidhatha products?**

We are taking various steps to enhance and sustain the quality of products manufacture under the advice of our Vidhatha centers. SLS certified products are recognized nationally and internationally. The demand for them is high. SLS and ISO quality certifications cannot be obtained for the products of small and medium scale entrepreneurs in the early stages. Accordingly, we have introduced five methods with the intention of securing recognition for the products of those entrepreneurs. The first certification is the Product Analysis Certificate. Under this certification, small scale products are analyzed and subjected to quality certification. The second certification is Vidhatha Methodology Certification. This is also for small scale entrepreneurs. The third is Good Manufacturing Practices (GMP) Certification. Some small and medium scale entrepreneurs are not in a position to apply for quality certification due to financial constraints. A programme to provide financial facilities through the Ministry to them has also been activated. After all these victories, they can acquire SLS and ISO quality certifications.

● **Has the Ministry given attention to formalizing the process of adding value to natural resources?**

Raw material such as Silicon, Chlorium and Titanium are being exported from our country at present. This earns low prices for us causing low inflows of foreign revenue. But, if we can export them as value-added exports, their value can be increased by 150%. We have given our attention to this matter and formulated a National Policy to add value to resources exported as raw material enabling them to be exported as value-added exports. We have also got the approval of the Cabinet for this proposal. Accordingly, steps will be taken in the future to activate this. We expect this will result in a rise of foreign revenue for the country. This is a great backing for the economic development of the country.

**Merlin Marikkar**  
**W.A. Nisansala Kumari**  
Photo – Sudam Gunasinghe

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**VALID PERMIT HOLDERS OF FRUITS AND FRUIT BASED PRODUCTS**



**Valid permit holders as at 31-12-2015 of Fruits and Fruit based products**

**SLS mark is Compulsory FRUIT CORDIAL, CONCENTRATES, FRUIT SQUASH CONCENTRATES & FRUIT SYRUP CONCENTRATES - SLS 730 : 2010**

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**SLS mark is Compulsory FRUIT SQUASHES, FRUIT SYRUP'S AND FRUIT CORDIALS - SLS 214 : 2010**

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**SLS mark is Compulsory READY - TO - SERVE FRUIT DRINKS - SLS 729 : 2010 (The SLS mark is not mandatory for the products called "Nectars")**

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**Fruit Juices and nectars - SLS 1328 : 2008**

Tunip Lanka (Pvt) Ltd	Phase 1, lot No. 24 Ring Road, Spur Road 04, EPZ, Katunayake	Onjus
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**JAMS AND MARMALADES - SLS 265 : 2011**

Alli Co. (Pvt) Ltd., Cargills Agrifoods Ltd., Edinborough Products (Pvt.) Ltd, Kelani Vally Canneries Ltd., Lanka Canneries Ltd., Lanka Sathosa Ltd	Nambuluwa, Pasyala Weniwegodalla Watta, Kondagammulla Road, Demanhandiya, Katana Millewa Road, Halbarawa, Padukka No. 436, Kaluaggala, Hanwella No. 145, Vayangoda Road Urapola Manufactured by Alli Co (Pvt) Ltd Nambuluwa, Pasyala) No. 108, York Street, Colombo 01	Alli Kist Edinborough KVC MD Lanka Sathosa
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Wednesday, April 27, 2016



**SLS 730 SLS 214 SLS 729**  
**SLS mark is Compulsory for Fruits and Fruit Related Products. Selling of these products without SLS mark is Prohibited.**

**SLS Mark ..... The National Symbol of Quality**

- SLS Mark on a product assures that it is consistently manufactured in accordance with the relevant Sri Lanka Standard Specification.
- SLS Marked products are monitored for quality by the Sri Lanka Standards Institution.

**Benefits of the SLS Mark**

- Helps the consumers to identify products that have been manufactured in conformity to the Sri Lanka Standards
- Builds up customer confidence on products and hence manufacturers can use it as a marketing tool

**Are you aware of energy-less 'energy drinks'?**

You undoubtedly would have seen energy drinks being sold under various brand names in the market! But, are you aware of their specialities and their action on the human body? Energy drinks are used to stimulate the body. Accordingly, energy drinks give a hand in times of necessity to speed up the heart action and the increase blood pressure to speed up the circulation of blood.



Even though these drinks are called 'energy drinks', they do not contain caloric energy. The main ingredient of these energy drinks is the stimulant caffeine. Other than that, in some instances, vitamins and herbal extracts are added to these energy drinks. Many energy drinks contain high concentration of sugar, glucose or artificial sweeteners such as Saccharine. Sometimes, instead of caffeine, other very powerful stimulants/enhancers are used in very small quantities. That can prove to be of benefit to the manufacturer but detrimental to the consumer. Generally, the amount of caffeine in energy drinks is about 80 mg for 250 ml and that is a higher concentration of caffeine than normal fruit drinks and is more equal to the amount of caffeine contained in a normal cup of coffee.

are attracted to them. Other than the stimulant, the fact that these are carbonated drinks is another cause to make them attractive.

**Why should you be careful in consuming energy drinks?**

The reactions of various people to the major ingredient of these energy drinks, caffeine, can vary. Furthermore, the optimum dose of caffeine varies from person to person. Caffeine is a diuretic, causing more urine to be eliminated from the body. So, energy drinks can cause the body to be dehydrated. In strenuous activities, more water is eliminated from the body in the form of sweat. The body can become dehydrated by consuming a drink with a high concentration of caffeine in such a situation. Some people are used to ingesting energy drinks mixed with other drinks (Ex - alcoholic beverages). This practice can cause unsought-of complications because of the chemical reactions in both beverages. Using too much energy drinks can cause the heart to palpitate unnaturally, excessive urination and stomach discomfort. Because of these effects, many people are of the view that energy drinks should not be consumed by pregnant mothers and small children. Though a complete study has not yet been made of the chemicals resulting by the amalgamation of ingredients in energy drinks, their ill effects are found all over the world, because of that, you have to be very careful when using an energy drink.

**World's first energy drink**

'Iron Brew' was produced in Ireland around 1990 is considered the first energy drink of the world. Today a vast number of energy drinks under various brand names are produced around the world and mostly young males of the age group 16-30



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# Nanotechnology

**N**anotechnology, capable of creating a world revolution has, in the present, become the center of attention, embroiled in research and experiments and challenges and has become a topic of conversation of everybody over the world.

The various Eras of the human civilization beginning from the Stone Age advanced past the Agricultural Age and in the 18th Century, the creation of new inventions centered on the United Kingdom paved the way for the Industrial Revolution. Computer and Electronic Ages were created with the technical awakening that started with the beginning of the 19th Century and in the 20th Century; it has gone beyond Information Technology and Gene Technology and has reached Nanotechnology at present. Today experiments and research is being conducted on Nanotechnology and new inventions are being created. The Asian countries show more attention on Nanotechnology and India and China are very advanced in Nanotechnology.

## History of Nanotechnology

The ideas and concepts behind nanoscience and nanotechnology started with a talk entitled "There's Plenty of Room at the Bottom" by physicist Richard Feynman at an American Physical Society meeting at the California Institute of Technology (CalTech) on December 29, 1959. In his talk, Feynman described a process in which scientists would be able to manipulate and control individual atoms and molecules. Kim Eric Drexler (born April 25, 1955), honoured as the 'Father of Nanotech-

nology' is an American engineer best known for popularizing the potential of molecular nanotechnology (MNT), from the 1970s and 1980s. His 1991 doctoral thesis at Massachusetts Institute of Technology was revised and published as the book *Nanosystems: Molecular Machinery Manufacturing and Computation* (1992), which received the Association of American Publishers award for Best Computer Science Book of 1992. He introduced a broad audience to a fundamental technology objective: using machines that work at the molecular scale to structure matter from the bottom up.

## What is Nanotechnology?

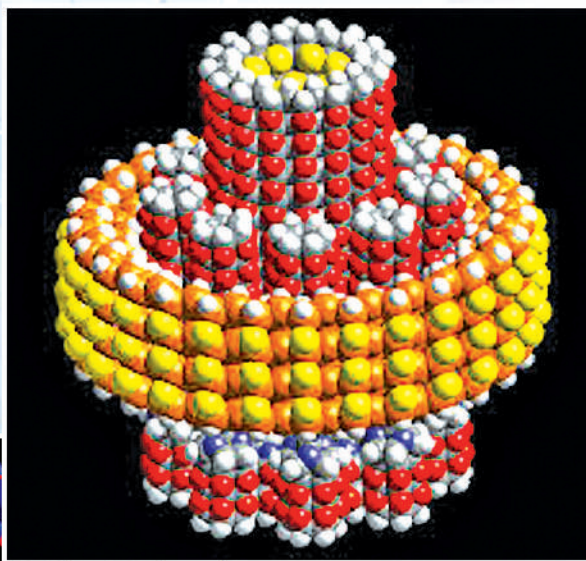
Nanotechnology is an incredibly complex subject field. It is the study of particles so small that they cannot be seen with the naked eye. It is the study of atoms and molecules in the spectrum of one Nanometer to 100 Nanometers. Here, the necessary applications are manufactured with manipulation, chemical bonding and by lining up

turing materials that are high in quality with minimum defects. This complex process is called Molecular Nanotechnology. In this, the molecular system models are created with the help of computer software. Nanotechnology can be used both for good and bad. So, Nanotechnology can also cause bad effects.

## Many things could be done with Nanotechnology

- ❖ Cancer cells can be destroyed by methods of treatment at molecular level engineered by Nanotechnology
- ❖ Using Nanotechnology to manufacture valuable materials such as Nano Silica, Nano Magnite and Nano Graphite from natural resources mined from the ground
- ❖ Using for microsurgery and methods of prolonging youth
- ❖ Using as an aid in diagnostics, disease prevention and methods of treatment
- ❖ For manufacturing small-sized, ultra-speed computers consuming very low energy
- ❖ For manufacturing environment-friendly, highly efficient solar voltaic cells and hydrogen fuel cells to increase energy
- ❖ For manufacturing light weight, strong and fast space and air vehicles
- ❖ To increase food production and assist in agriculture
- ❖ For manufacturing extremely sensitive and accurate measuring equipment for experiments and cameras that cannot be detected with the naked eye for secret surveillance work
- ❖ Creating space elevators in the near future Nano robots and nano factories will be created for all spheres. Nanotechnology would be seen especially in medical science, space exploration, engineering science and generating environment-friendly energy.

**M.D.R. Kumudini**  
Assistant Director  
Sri Lanka Standards Institution



atoms and molecules in the correct order.

One meter is a billionth of a nanometer, or  $10^9$  of nanometers. Nanotechnology is used in working with atoms and molecules in the spectrum of one Nanometer to 100 Nanometers.

In Nanotechnology, the smallest unit is the nanoparticle. The objective of nanotechnology is placing molecules and atoms correctly and manufac-

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# Sri Lanka achieves several victories at Geneva International Exhibition of Inventions

Sri Lanka has successfully achieved several victories at the International Exhibition of Inventions held in Geneva, Switzerland. Over 60 countries participated in this Exhibition and over 1000 inventions were exhibited this year. Steps were taken to present these inventors by the New Inventors' Commission that won the Presidential Awards and DASIS Awards last year. The specialty here was that all participating competitors won medals at this

**02 Gold Medals, 03 Silver Medals, 02 Bronze Medals**



competition. The Inventors Commission of Sri Lanka organizes this project ever year. The award-winning new inventors returned to Sri

Lanka on last 19th. They were felicitated with a special reception at the Special Guests Reception Terminal of the Bandaranaike International Airport.

## Creations submitted by the Inventors' Commission of Sri Lanka



**Artificial foot**  
 Nilan Chathuranga Lokuhettige  
**Gold Medal**



**Mechanical ekel extractor**  
 R.M.S.B. Hunukumbura  
**Gold Medal**



**Automatic ceiling fan controller**  
 Prof. K.K.Y.W.Perera  
**Gold Medal**



**New smelling capsule containing dry powder**  
 K.K.Y.W. Kannangara and Manoj S. Hettige  
**Gold Medal**



**Specialized cake mixer**  
 K.D.S. Anusha Wijerathne  
**Gold Medal**



**Special machine to prevent respiratory diseases**  
 Dr. S.M.R. Bandara  
**Bronze Medal**



**Special machine with catheter tubes and external bladder**  
 D.G.A.I. Jayarathna - **Bronze Medal**



## Mercury Transit full of special happenings

Many changes occur in the solar system with planets orbiting in clockwise and counter-clockwise directions and among the general incidents, unexpected occurrences are also taking place. Among those incidents, an occurrence of great astrological and astronomical importance that could be observed by a majority of earth's inhabitants is scheduled to occur on May 09 this year. On that day, Mercury transition is occurring on that date. This is a very rare occurrence. In this Mercury transit, the planet Mercury comes between Earth and the Sun and the shadow of the planet Mercury falls on the Sun. The planet Mercury can be seen as a small black dot slowly going across the surface of the sun. Various countries of the world can witness this event at various times. The Mercury transit can be seen completely in the Americas and Western Europe but cannot be observed in Australia and adjacent countries. Observers in Sri Lanka can observe this phenomenon from 4.45 pm to sunset in the Western sky.

Very rarely do the three celestial bodies the Earth, the Sun and Mercury stand in line. The last Mercury transition that was visible to Sri Lanka occurred on 07th May 2003. The next transit of Mercury will occur on 13th November 2019. This will not be visible to Sri Lanka and the next Mercury transition that is visible to Sri Lanka will occur on 13th November 2032.

### A transit is...

A transit occurs when a planet travels between the Earth and the Sun. The transition of planets other than Venus occurs most often. The transit of Mercury was identified initially in 1631 A.D. by the French astronomer Pierre Gassendi. Furthermore, the most successful predictions were made by Astronomer Johannes Kepler. Even though the transition of Venus could be observed by the naked eye, it has not been observed till 1639 A.D. The transitions of planets are very important for quantitative evaluations of the solar system. Watching this transition with naked eyes or a binocular can cause damage to the eyes. Accordingly, you can watch this event by using a telescope and projecting the reflection of the sun on a screen.

### Earth, Mercury and Sun

Generally, Mercury travels between the Sun and the Earth about three times a

*Presented by*  
**Sri Lanka Planetarium**

# Saindamarudu Vidhatha Center vested with people



The Saindamarudu Vidhatha Center built with a cost of Rs. 94 lakhs under the 'Vidhatha' Programme taking technology to villages operated by the Ministry of Science, Technology and Research was vested with the people recently under the aegis of the Minister of Science, Technology and Research Susil Premjayantha and with the participation of the Minister of Pri-

mary Industries Daya Gamage. This is the first construction in the Ampara District constructed using NERD Low – Cost Housing Technology. The Ministry is working towards giving a plethora of services such as providing computer training free of charge, paving the way for the upliftment of small and medium scale entrepreneurs creating new products by providing technical knowledge to add value for the natural resources available in rural areas and facilitating bank loans to successful entrepreneurs. The Deputy Minister of Sports H.M.M. Haris, Secretary of the Ministry R. Wijjaludchumi, Additional Secretary Renuka Amarasinghe, Divisional Secretary Saindamarudu M. Saleem, Government Officials and a large number of people were present on this occasion.

The National Engineering Research and Development Centre (NERD) in collaboration with the Sri Lanka Sustainable Energy Authority and the Ministry of Education is operating a programme of training the Teacher Training Instructors and teachers serving under the Ministry as resource persons for Energy Clubs established in schools from last year. Under this programme, Science Coordinators attached to Education Offices of Uva, Sabaragamu, Southern, Western, Northern, Eastern, North Central, and Wayamba Provinces, Assistant Directors (Science), Deputy Directors (Science), Teacher Training Instructors (Science) and science teachers were trained. The required training was provided by the NERD Centre and the necessary funds were provided by the Sri Lanka Sustainable Energy Authority. Directing Teacher Training Instructors and teachers to these programmes and the supervision work of these programmes was handled by the Ministry of Education.

- Fields covered by training courses
- ◆ Solutions for the Energy Crisis
  - ◆ Solar energy
  - ◆ Biomass
  - ◆ Tour of Technical Parks
  - ◆ Projects connected to solar energy
  - ◆ Generating biogas
  - ◆ Small scale hydropower unit (100 W) and small scale wind power generator (100 W)
  - ◆ Efficient firewood stoves
  - ◆ Creating equipment models

- Teachers also created the following simple models
- ◆ Solar power water distiller
  - ◆ Solar heat box
  - ◆ Solar heat concentrator
  - ◆ Solar energy water heater
  - ◆ Solar energy food dehydrator
  - ◆ Firewood gas stove

- The following exhibits were studied:
- ◆ Solar energy boat
  - ◆ Water turbine
  - ◆ Deep well pump
  - ◆ Automatic liquid level controller
  - ◆ Saline tube water pump
  - ◆ Creating electronic equipment
  - ◆ Assembling LED bulbs with light sensors
- Other than these, wellness programmes were also conducted for those teachers. Nine programmes were held one for each Educational Zone and about 40 teacher training instructors and teachers participated in a programme.

## The National Science Educational Exhibition

“Viduhuru Ratak – Thirasara Hetak”

organized by the  
Ministry of Science,  
Technology and Research  
will be held on

May 28<sup>th</sup> and 29<sup>th</sup> at

**Malabe**

Boys' Model School and  
Sri Rahula Girls' School  
from 8.00 am to 6.00 pm.

- Scientific Exhibits
- Scientific demonstration
- Scientific Magic Shows
- Scientific Papers
- Participatory Activities
- Scientific Lectures



For all who are interested in scientific knowledge...

A New Country Based on Science...



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