

Wednesday the 22<sup>nd</sup> of February 2017



# Vidya

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



Minister Hon. Susil Premajayantha and Director, Community of Sri Lanka and the European Organization for Nuclear Research (CERN), Charlotte Warakaulle signing the International Cooperation Agreement (ICA).



## 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, Susil Premajayantha and



the Director for International Relations of CERN, Charlotte Warakaulle 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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Ministry of Science, Technology and Research

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videos on the hemispherical screen in a very realistic manner.

- The birth of the solar system
- Hubble Vision 02
- Dawn of the Space Age

#### International Competition

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

**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 appearances 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

## Let us watch the night During the day time

- Natural Selection
- Stars
- Exploring the Universe with Galileo

The Sri Lanka Planetarium also provides the following services:

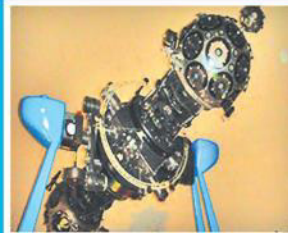
#### 1. Astro Kids

This programme, intended for school children from Year 1 to Year 5, is held at Planetarium premises every Saturday from 10.00 am to 12.00 noon.

#### 2. Tharu Vidu Piyasa

This Astrological 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



“ 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. ”

#### 4. Social Services

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

#### 5. Edification Programmes

Organizing Special Edification Programmes and publishing astronomical newspaper articles on the 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](http://www.planetarium.gov.lk)







was further agreed that CERN would consider donating servers to be used for data analysis projects with CERN.

Formal cooperation between Sri Lanka and CERN was initiated on 25 June 2015, following the signing of an 'Expression of Interest' (EOI) Agreement between Sri Lanka's Permanent Representative to the UN in Geneva Ambassador Mr. Ravinatha Aryasinha and the

International Relations, Dr. Rüdiger Voss visited Sri Lanka as a Guest of the Government of Sri Lanka and a Resource Person at the 'Science and Technology for Society Forum Sri Lanka 2016' (STS Forum 2016), where it was decided to move towards signing a full-fledged International Cooperation Agreement. The Ministry of Science, Technology and Research and the Coordinating Secretariat for Science, Technology and Innovation (COSTI), have been responsible for coordinating these projects, with assistance from the Sri Lanka National Science Foundation (NSF).

## Science and Technology Forum Bears Fruit Labs Conforming To International Standards For Sri Lankan School System

Continued from Page 01...

Warakaulle commended the Sri Lanka Government's commitment and investment in fundamental research and pledged the cooperation of CERN in furthering this goal.

Sri Lanka becomes the 47th country to sign an ICA with CERN, which is regarded the most prominent particle physics research institute in the world. This Agreement will create a framework for the participation by Sri Lankan scientists, engineers and technicians in research projects of the CERN and increase opportunities for Sri Lankan undergraduates and physics teachers to participate in CERN's training programmes. As a follow-up to the implementation of this Agreement, it was agreed that that a group of leading scientists representing the different Universities in Sri Lanka would undertake a 'Study visit' to CERN in May 2017 in order to familiarize them-

**“ 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. ”**

selves with the CERN's ongoing research. It was also agreed that a 'Particle Physics Cluster' will be formed in Sri Lanka in order to develop scientific cooperation between Sri Lanka and CERN by networking through a virtual institute. 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

then Director General of CERN, Prof. Rolf-Dieter Heuer. As a result of this process, for the first time two Sri Lankan undergraduate students participated in the CERN Summer Student Programme 2016, while it has also enabled Sri Lankan teachers to apply to participate in the CERN High School Physics Teachers International Programme. In September 2016, CERN Senior Advisor on

Following the signing of the Agreement, Minister Susil Premajayantha visited the CERN underground experimental area, in Cessy, France, also known as the Compact Muon Solenoid (CMS) experiment, particle detector at CERN's Large Hadron Collider (LHC). He was also able to see a demonstration of a hands-on particle physics experiment in the School Lab', the particle physics learning laboratory at CERN, which offers experimental workshops for high school physics students and teachers from around the world.

Sri Lanka's Permanent Representative to the UN in Geneva Ambassador Ravinatha Aryasinha, Deputy Permanent Representative Samantha Jayasuriya, Counsellor Shashika Somaratne, the Officer responsible for CERN cooperation Second Secretary Dilini Gunasekera, and Head of the Group of Fifteen (G-15) Secretariat Gihan Indragupta were associated with Minister Premajayantha in the discussions, while CERN's Senior Advisor and former Head of International Relations, Dr. Rüdiger Voss, Head of Associate Member and Non-Member State Relations Prof. Emmanuel Tsesmelis and other senior officials were associated with Warakaulle.





**ACCIM embarked upon a project to design, development, testing and launch of Sri Lanka's first ever Nanosatellite**

**A**thur C Clarke Institute for Modern Technologies initiated a project to design, development, testing and launch of the first ever Sri Lanka Nanosatellite in collaboration with one of the world's prestigious universities in aerospace, the Saratov State Aerospace University (SSAU) working in conjunction with the State Space Rocket Centre, in Russia. Apart from the fact the ACCIM would be meeting up with academics and professionals from local universities and other related government organizations to make this endeavor a success.

Nanosatellites can be built in a standard format known as a CubeSat, a 10cm cube weighing 1-10kg. Some nanosatellites consist of two or three cubes. Satellites of this scale and other small satellites are moving from being experimental to delivering useful scientific data and commercial services.

Nanosatellites provide much of the performance of a conventional satellite for a fraction of the cost. Further, latest technological advancements in smartphones and other miniature consumer electronics products provide a wealth of ready-made technologies that can be incorporated to nanosatellites to perform much of the functions of conventional satellites, bringing the development cost as well as weight requirements down by considerable proportions. This results in increased number of opportunities for the usage of nanosatellites in commercial and other related applications.

As the first initiative of the project a kick-off workshop was held with the participation of visiting Russian experts during 18th and 19th August 2015 at ACCIM premises. The Russian expert team from Saratov State Aerospace University was led by Prof. Igor Bekasov, a leading Russian specialist in the field. During the workshop a team of Sri Lanka members were given an overview of the project and a SMOCT analysis, a bio-satellite and a future resource development proposal was developed.

As per the vision of Eng. Sarath Perera, Director General & CEO of the Athur C Clarke Institute for Modern Technologies, development of nanosatellites and providing technological developments in other related fields would be a very lucrative global business in coming years and the space technology programme planned by the ACCIM would provide opportunities for Sri Lanka to enjoy the benefits from the related business opportunities, which would be based in the future.



Workshop participants discussing the project details.

**S**cience, technology and innovation play a crucial role in the sustainable development of any country. We have already involved our Ministry and our affiliate institutions, including the research, technology development and technology commercialization and transfer to the community, industries and the SME sector. In addition to that, we are involved in science and innovation popularization programmes, because everyone needs to be aware of the current technology and scientific development what is happening in the rest of the world, and however we need to have innovations to benefit the economy.

With innovation, we can get the contribution of the society and the industries. We have to inform the society. The education process must be right across all social strata, the younger generation, individuals and the common mass. The only skill that is generated. They will tell about the good aspects and the bad aspects, the positive factors and the negative factors in science, technology and innovation. Further to these areas, we are involved in policy matters, strategy and Research and Development Frameworks, and R. W. Mahipala, the Secretary of the Ministry of Science, Technology and Research.

There are a lot of sectors involved in the development of technology. Enabling those sectors will support the Science, Technology and Innovation Policy (STI Policy). And strategy and priorities, if they are identified, will strengthen that sectoral activities. We are focusing on other areas also for example the society and environmental protection sub-sectors. We have the science and technology policy and the STI Policy almost finalized. We are in the process of updating those Policies and some of the other relevant policies such as the Mineral Policy and the SME Policy are in the process. Some of these Policies are not formulated or implemented by our Ministry. Our institutions are doing the formulation and implementation but we are supporting those endeavors by giving our inputs. These are the matters we are handling at present.

**Emerging technologies**  
"Speaking of our future contributions, now the world is moving extremely fast. It is getting more advanced scientifically and technologically. If you think of developed economies, mostly they are very well advanced in science and technology. This gives them the ability of interacting with the industries. In turn, industries also support research and development activities so they will easily acquire the innovation-led economy. In this context, Sri Lanka needs to capture and develop emerging technologies and innovative processes which will enable our country to improve development activities and SME

activities of our country. Recently we held STS Forum, and we are in the process of formulating and preparing the Action Plan that is based on strategic investment. It is focusing on three main areas. One is acquiring emerging technologies because, at present, we are lacking in emerging technologies. We are doing some research kind of things but we are not sufficiently focusing on the industrial sector. We are doing research but research commercialization is a very rare occurrence in Sri Lanka. So, we are working towards changing that. The second factor is private sector partnership. The contribution should come from the private sector. At present, the Government is contributing more. Without private sector partnership we cannot go ahead. We want to increase private sector participation and encourage the private sector to invest in emerging technologies."

**Right direction**  
"The other important factor is the industrial sector. There are some innovations and new technologies that should be commercialized. So, industries and the manufacturing sector should be focusing on this. This is the paradigm shift we are trying to achieve through our future plans. This year, we got an allocation of nearly Rs. 300, 000 million to achieve all these for the Ministry and affiliated institutions including some special projects and emerging technology projects. So, there, with the support of all relevant stakeholders we will be able to implement. We have initiated some of the technology related programmes. There are in their initial stages. We have some stakeholder contribution



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

because some of them are public-private partnerships and some are new technologies. We need some designing for new infrastructure facilities and laboratory experimental facilities and we need stakeholder contribution to fulfil that need. Despite the dearth of stakeholder contributions, we will move ahead. What we have is a medium framework with medium programme. But we hope we will be moving in the right direction."

"We have to persuade individuals to participate by investing. The participation is there but it is not sufficient. Otherwise, the research and development projects already completed will just be papers, gathering dust on shelves we cannot allow that to happen. It should be utilized by the community. If you give some further details, we would like to update the Policies, Frameworks and R. & D. Frameworks in the future. In the global context, technology is changing very fast. We also should attend to that fast pace. Otherwise we will be left behind. So, these Policies and Frameworks would give the correct directions. Then only we will move forward with the world. Not only Policies, but there are some barriers. Revising the current Policies is a continuous process. The National Science and Technology Commission (NATSC) the Policy are of the Ministry,

is doing the reviewing. The Policies we have should be reviewed sector-wise and updated. That is being handled by the NATSC."

"Strategy also has to be reviewed. The priorities might change in the R & D Framework. So, we have to revisit strategies with the participation of stakeholders, identify needs, gaps and opportunities and priorities and change them accordingly. This is a continuous process and the National Science Foundation (NSF) are doing the research on these Policies. The kind of research they do, and their assessment of Policies of other countries where we can learn from them to suit our country is also supporting us. They are reviewing several Policies of the moment, including the Mineral Policy, which will be finalized in a couple of months. If emphasis on the Mineral Policy, for example, we have huge deposits of limestone in the coastal areas. If we can convert it to silicon and export without just exporting it in the raw form, we will be able to save more foreign exchange. At present, raw materials are being exported. If we can add value to these exports, these monetary value will also be greater. This is an example of how the Mineral Policy works. Already the Cabinet has given its approval and we are in the last stages of finalizing those Policies."

"This year, we are focusing on the synergizing of the research and emerging technologies there are 62 research institutions and universities in the country actively doing research activities. Nineteen Ministries are involved in research in various sectors. Research and technology development is going on. The Ministry is supporting research and some institutions are doing research. Some are

supporting the researchers by providing various types of assistance such as financial, technical and consultancy.

**Personalized Medicine**  
"Patenting and research commercialization are already happening. Our institutions are involved in research, emerging technologies and research commercialization but not in synergizing. At present, that is happening in the rest of the world. For example, ICT is an emerging high and technology and likewise bio-technology is also an emerging high-end technology. In synergizing these, we will go for personalized medicine. The health sector is concentrating on personalized medicine with genomics, where what diseases you will be afflicted with will be predicted and what kind of medicine to take according to the genome. Personalized medicine can predict your allergies so you know what kind of substance to avoid. Although other countries have the advanced technology, we do not have it. Now we are focusing on synergizing technologies and that's what we are focusing on this year. We understand that the funds have been given for special projects and one such project is genomics. That's digital health. That is also in the initial stages. There is digital discussion on

the parameters we are going to have, what kind of laboratories and expertise we need and the model followed. We will initiate it. This project has also been approved by the Cabinet."

**Bio-Technology Innovation Park**  
"Then, there is the Bio-Technology Innovation Park. At present, we are having a Nano-Technology Park in Piliptank, Homagama. As bio-technology is another emerging high-end technology suitable for our country, we are in the process of preparing the construction of a bio-technology innovation facility and a Park which provides the space for institutions to provide and other health-related industries to conduct their manufacturing facilities. We are planning to set up the bio-technology experimental facility and the laboratory in the Nano-Technology Park and we have made a request to the Urban Development Authority (UDA) to provide a 100-acre land close to that for the Bio-Technology Park. As soon as we set up the experimental facility, we will move ahead with the Bio-Technology Park. We have established the Bio-Technology Association and it will be managing the STS Forum. They will be managing the Park in the future. This is what we have planned. We are also going to expand nano-technology."

**Renewable energy**  
"With the climate change, renewable energy also became one of our core areas. The Government is also moving towards the renewable energy sector. Already we have started the project of manufacturing prototype solar panels. Through that, we are expecting government support to around 2000 youth. Prototyping is going to be located in universities and other affiliated institutions such as NREG, SLINTEC, and HES. They are using the knowledge about the subject and are going to do their research part. All these institutions are going to train these youth and in future we will be able to manufacture high quality solar panels from our own skills. Silica is available in abundance in the coastal areas of our country. You can see the silica of the Mineral Policy clearly in this instance. This is synergy at its highest level. "The Ministry of Mahawel Development is planning to set up huge banks of solar panels to reservoirs to supply power to the National Grid. The Ministry of Power and Energy are also supporting that endeavor and encouraging renewable energy projects. We will perfect the process and give it to them to be implemented. They are going to use imported solar panels. But, if we produce our own, we will be producing the energy we require with our own water panels. The way, we will be able to strengthen our industries and the SME Sector and we will be getting a better production ramp imported solar panels. That will automatically support Sri Lanka's economic and human resource development."

**Innovation Incubation Centers**  
"Our Innovation Incubation Centers, which are being established in consultation with the Sri Lanka Investment Commission, who are working for the welfare of their protégés, the young members. This year we have identified five areas to establish Innovation Incubation Centers. They will be established in postnatal areas and they are having a discussion on



**Sri Lanka needs to capture and develop emerging technologies and innovative processes**  
R. Wijiludchumi, Secretary - Ministry of Science, Technology and Research

in close proximity to, or within, a university as it is easy to support young inventors and innovators in such a setting. We will be providing all the facilities. They only have to come and conduct their research. Through these, they can have prototyping, they can have IP support, business support and other non-technical support such as legal support and networking with industries and so on. These Incubation Centers will provide all these services. We need to strengthen innovators by providing this ecosystem for them. We have the Innovation Acceleration Fund where we can give financial assistance for innovators who have everything in order but funds to start a business initially. This Fund will support them to initiate their businesses. For that, this year, we have allocated about Rs. 350,000 million."

**Vidya Resource Centers**  
"Our Vidya Resource Centres are also going to be very useful for entrepreneurs in rural areas. This is an extension of our Ministry. In fact, mostly the people in the rural areas, the community and the SME Sector are not aware of new technological developments. Our main objective, through these Vidya Resource Centres, is to create awareness and educate them on the new technologies and new trends on the science and technology front so they can make use of them. We are constructing an ecosystem of rural nature for them to educate them. If somebody owns SME, or an entrepreneur, is interested they can get

technology transfers to improve their enterprises. Vidya Resource Centres are very active at grassroots level. If some of the products of entrepreneurs need quality certification, we can support them to obtain those, technically and financially. These will improve the SME Sector products in rural areas helping them to rise. This is another programme we are going to upgrade and extend to all the requirements."

**Science and Technology Popularization Programme**  
"The Science and Technology Popularization Programme is serving its purpose through the Inventors' Club, at school level, regional level and university level. Most of the people think that studying in the science stream is useless as if you cannot become a doctor or an engineer, then you have no other option. The Science and Technology Popularization Programme is causing a shift of paradigms on the social front, and in the atmosphere, the Secretary of the Ministry of Science, Technology and Research.

Jayasiri Jayakody  
Photos - Gayan Pusipika





# Vidya

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



crobe species entering this country through imported agro-products have been reported.

The trade mafia endeavouring to control the local agriculture industry is greatly assisted by the import of various kinds of fertilizer. According to the law of our country, it is completely forbidden to import any kind of

organic or bio-fertilizer to Sri Lanka. Because of that, various kinds of fertilizer are imported to Sri Lanka as granular and liquid fertilizer under various spurious brands. Nobody has been

unknown composition in the future.

Local universities research organizations have been conducting research over the decades to produce environment friendly fertilizes in place of chemical fertilizers. For example, researches on bio-fertilizer in Sri Lanka were launched the 60's decade and by today, bio-fertilizer has been manufactured locally through the successful results of that research. World's first Bio Film bio-fertilizer and Sri Lanka's first Rhizobium bio-fertilizer are examples of those fertilizers. Those fertilizers have shown 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, yields, as a whole, have increased by about 30% and the use of this bio-fertilizer will save about Rs. 9500/= per cultivator. Using Bio Film bio-fertilizer for tea cultivation has saved about Rs. 15,000/= per

that even some Government institutions are obstructing locally manufactured bio-fertilizer and facilitating the import of fertilizers whose compositions even are unknown. Our country, while allowing the use of any imported poison, is obstructing bio-fertilizer proven by years of research.

While attempts are being made to issue such bio-fertilizers, that are produced by our scientists with years of research under poor facilities without going overseas to the market under quality testing through the investments by local companies, varieties of imported fertilizer without any quality certifications and whose compositions are unknown are invading the local market. Agro fertilizer sellers are given large commissions and persuaded to sell those imported fertilizers. Accordingly, the Government should immediately intervene to remedy this situation.

At the inception of the scheme of giving money instead of the fertilizer subsidy, the

Government should have obtained bio-fertilizer to suit the land area cultivated through local companies and give to cultivators and give them the balance money to buy a variety of chemical or organic fertilizer that can be used together with bio-fertilizer. If it was done that way, the cultivator community would have been easily distanced from using chemical fertilizer and able to obtain increased yields using local

The present Government took a policy decision that it will go for poison-free methods of agriculture and programmes have been prepared to completely 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 compost fertilizer existed from the past as an 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 mafia. Various kinds of granular fertilizer, vitamins, various types of liquid organic fertilizer and varieties

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, none of 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 licenses 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 mi-

## Local Fertilizer Rejected Imported Fertilizer Crowned



Special thanks to:  
**Prof. Gamini Seneviratna**  
National Institute of Fundamental Education

edified 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 these fertilizers imported without Government approval? The Government's attention should be directed towards this as early as possible and, if investigations are postponed, a damage worse than the damage caused by chemical fertilizers will be caused by these multifarious brands of

hectare per year.

Accordingly, if the whole county 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 India to tea cultivations in that country.

With the availability of such highly successful local fertilizer, allowing chemical fertilizers to be imported without quality testing is an extremely unwise act. The cause for sadness here is

bio-fertilizer.

Seeking solutions for this problem, the relevant responsible Government institutions should intervene to popularize local bio-fertilizers and control various imported varieties of poisonous chemical fertilizers.

(This article is compiled through a discussion with the Research Professor Gamini Seneviratna of the National Institute of Fundamental Studies, Kandy.)

**Pradeep Piyathilaka**  
Communications and Media Officer  
Science Education & Dissemination Unit  
National Institute of Fundamental Studies







# Coloring of Food

**F**ood is one of the basic human requirements. But it can be seen that the consumers today mostly look into the taste, colors and look factors beyond the nutrition as 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 colorings. As for the safety of Sri Lankan consumers Food (coloring agents) Regulations of 2006 were published in the Extra Ordinary Gazette No. 1472/19 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 1688/22. Accordingly, only the artificial coloring agents mentioned in Table I below are approved

for the safety of consumers in Sri Lanka. Therefore, any food item that contain or coated with any other colorings other than mentioned in table one and table two should not be manufactured, imported, sold, stored, distributed or advertised. Further use of any coloring on food items mentioned below are not permitted under the Food (coloring agents) Regulations.



- i. Raw or unprocessed meat
- ii. Wild meat
- iii. Poultry (Chicken)
- iv. Fish Molluscas, Crusaceans, echinoderms
- v. Fruits
- vi. Vegetable
- vii. Coffee seeds
- viii. Coffee powder
- ix. Coffee additives
- x. Tea
- xi. Bread other than special kind of breads
- xii. Cream
- xiii. Liquid milk with or without fat
- xiv. Condensed milk
- xv. Powdered milk

And for butter – carotene, annatto and turmeric, for hard cheese, soft cheese, cheese with butter milk – carotene and annatto and only those colorings for any other kind by cheese. Please check whether only the approved colorings are used when you buy any kind of food with coloring in the market. Although it does not ensure you a healthy life, it can reduce the risk of any crucial harm.

Excerpts from Food (coloring agents) Regulations No 20-11-01-14 of No. 1472/19 of 23.11.2006 and 1688/28 Amendment.

No	Color	Common Name	INS No
01.	Red	01. Carmoisine	122
		02. Ponceau 4 R	124
		03. Erythrosine	127
		04. Allura Red	129
02.	Yellow	01. Sun Set Yellow F.C.F.	110
		02. Tartrazine	102
03.		01. Indigotine (Indigo Carmine)	132
		02. Brilliant Blue F.C.F	133
04.	Green	01. Fast Green F.C.F.	143

Table 01

Natural Coloring	Agents INS
01. Carcumine	100(i)
02. Riboflavin 5' Phosphate	101 (i)
03. Riboflavin 5' Phosphate, Sodium	101 (i)
04. Cochineal (Carminic acid carmines)	120
05. Chlorophylls	140 141(i)
06. Chlorophylls Copper Complex	
07. Caramel Class I	150a
08. Caramel Class III	150c
09. Caramel Class IV	150d

Approved other Colouring Agents (14.01.2011)

Table 02

**Puwasala Kariapperuma**  
Assistant Director  
Sri Lanka Standards Institution

Medals were presented to J.M.L.R.B. Jayamaha for his invention of a modernized picker ('Kekka') and D.M.T.D. Bandara Dambewela for inventing an automatic alarm for sleepy drivers.



## Sri Lankan Inventions Win Special Accolades at IPITEx 2017

The Bangkok International Intellectual Property, Invention, 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. Yomal Wishwajith Siriwardena for his invention

of an automatic water supply and the Silver Medal and the Philippine Gold Award were presented to Viraj Chamika for his invention of Gem Flaw Tester. Silver



Advice

**R. Wijialudchumi**  
Secretary

Ministry of Science, Technology and Research

**H.M.B.C. Herath**  
Additional Secretary  
(Technical & Research Development)

**Renuka Amarasinghe**  
Additional Secretary  
(Technology Transfer)

**Nandanie Samarawickrema**  
Additional Secretary  
(Administration & Finance)

Guidance

**P.M. Dharmatilake**  
Director  
(Science and Research Development)

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Director (Planning)

**Nimali Kulathunga**  
Director (Planning)

**A.K.P. Peiris**  
Chief Accountant

Co-editing

**Mahesh Samarasekera**  
(Media Secretary)  
0112-372288

**B.H. Ishara Sudarshani Dhammika Rathnayake**  
(Technology and Research Development Division)

**Official Photographs**  
**Dulip Nayanapriya**  
Ministry Media Unit



Government Relations Dept.

Coordination/ Graphics and Creations Supervision  
**Samantha Karunasekera**  
Managing Editor – Government Relations (Lake House)  
0112 429297 / 077 3493785

Editor  
**Jayasri Jayakody**  
Creations  
Danushka Bandara / Ashani Jayawardana  
Photo Editing  
Lake House Production Graphic Department  
Printing  
Lake House Commercial Press



## New initiative to Popularize the-School Science education



**M**inistry 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 Minister of Science, Technology and Research Hon. Susil Premajayantha



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

on the 26<sup>th</sup>, 27<sup>th</sup> and the 28<sup>th</sup> of January 2017 at the National Engineering, Research and Development Center (NERD).

Secretary to the Ministry of Science, Technology and Research Mrs. R. Wijayaluchumi, State Secretary G. M. Mangalathissa, Additional Secretary Herath, Director P. M. Dharmathilaka, 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**



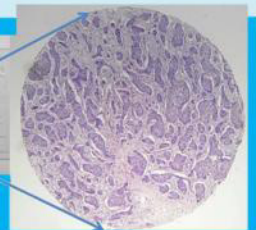
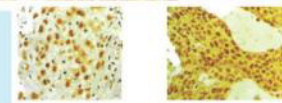
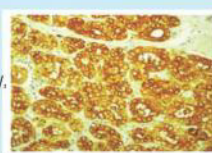
## Researching Connection between KIBRA Molecules and Breast Cancer

**T**his 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 is being analyzed.

Breast cancer is the most common type of can-

cer 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. This 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 Rayala, 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. Lakmini Mudduwa and her team.



According to the data analyzed so far, we have observed that 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.