

JSA Newsletter

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Jaffna Science Association, Jaffna, Sri Lanka

Message From The President

It gives much pleasure to lead the activities of the Jaffna Science Association (JSA) since April 2015. This year the JSA has taken a major step forward in addressing an important issue. This year the JSA has selected the problem of proper waste management and identified "Integrated Waste Management for the Region" as its theme and has been carrying out its activities towards this theme. The four sections of the JSA are also gearing their activities in achieving the aims of the theme. There have been many activities that include popular talks, school science activities and awareness programmes etc., are being conducted as part of achieving this aim.

Proper waste management has become a serious issue in the present industrialized world. Newer industrial inventions and consumer products that flood the market on daily basis pose serious threats to the environment, when they become no more usable. When they are not properly disposed of when they near their lifetime, serious toxics that can leak from the substances, which are used to produce these gadgets, as they decompose, mix with the natural resources of the environments.

When the toxic components mix with the natural resources, the damages they make to the human life and the nature are enormous. Much of the damages they make are beyond repairable and can be carried over many generations.

Developed and developing nations all around the globe have clearly identified the serious threat that these waste pose to the nature and are actively involved in carrying out activities to reduce the effect of them.

Proper waste management is one of them, and there exist many state and non-state agencies that actively involve in the waste management related activities. These activities range from educating the masses on the proper use of the consumer products to monitoring the industries on the production that reduces the use and wastage of toxic materials.

There exist many challenges that need to be properly identified and addressed in controlling and preventing the use of the toxic substances in the production line. The challenges also extend towards the proper management of the waste when toxic substances are produced as a by product of the production line and when the products reach their usability lifetime.

It is highly appreciated that the JSA is also gearing its activities towards achieving these goals. I am sure that the year-around activities carried out by the JSA would really make an impact towards this goal. The JSA requests the support of all its members towards achieving this goal. As the president of JSA for the current year, I cordially welcome all the members of JSA to work together towards achieving this goal.

In addition to this, the JSA is also promoting research activities among young researchers and encouraging researchers to submit research papers for its annual sessions with the theme of the JSA for this year as a the topic of the research. The JSA also welcomes regular research papers for presentation during the annual sessions as usual.

Dr. K. Thabotharan,
President 2015-2016,
Jaffna Science Association.

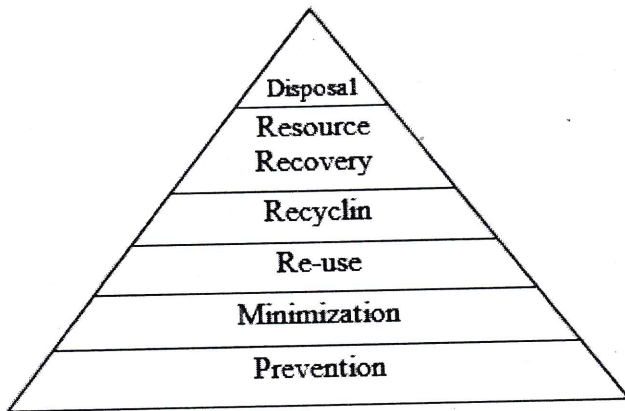
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Solid Waste Management: An Ongoing Challenge

Increasing population density and industrialization continue to generate large amount of waste. Waste is a valuable resource at an unwanted place in an unwanted form. Damage to biodiversity and natural beauty of the environment, ground and surface water pollution are the consequences of improper waste management.

Municipal Solid Waste (MSW) is one of the many different forms of wastes. It includes a number of items and it should be managed from its generation to final disposal by economically feasible and environmentally sound practices. Waste hierarchy refers to the “3Rs” (Reduce, Reuse and Recycle) represents the progression of a product through the sequential stages of the pyramid of waste management.



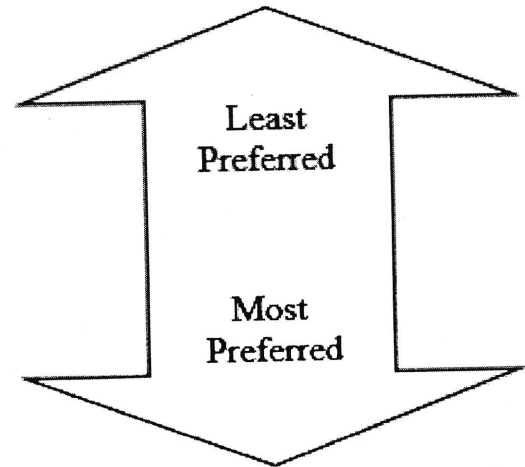
This remains the cornerstone of most waste minimization strategies and aims to extract maximum practical benefits from the products with the optimized use of limited resources and to generate the minimum amount of waste. First preferred action is prevention of waste being created. Next preferred action is to reduce the generation of waste by re-use and recycling.

For mixed MSW recoverable materials that are of organic nature can be recovered through

Composting and the resulting organic material is then recycled as mulch or compost for agricultural and landscaping purposes. Waste gas (CH₄) from

the process can be used for generating electricity and heat. Reuse and recycling are the preferred paths for non-organic fraction.

Reuse of second hand products, designing products to be refillable or reusable will reduce the amount of waste. Re-cycling is the resource recovery practice, where the recyclable materials are collected



separately and reprocessed into new products (glass, food scraps, paper and cardboard, plastic bottles and metal). Waste collection methods and management practices vary widely among different countries regions and sectors.

Disposal of waste in a landfill is a common practice in most countries. Poorly managed landfills lead to adverse environmental impacts. Like in other countries, three bin system to collect wastes (blue-recyclables, green – compostable, black – land fill-bound materials) separately at the collection point, “Pay – as – you – Throw” systems which charges the households for the volume of rubbish they produce or provides financial incentive to separate recyclables and compostables from other discards will help improve the Waste Management. But how many of us are ready to put the household waste separately into bags or bins? Legal action should be taken against those local authorities that are not managing the solid waste properly. Awareness about why we need to manage waste is necessary starting with school level.

“3R” principle can also be adopted for non-degradable materials like polythene, plastic and asbestos. When polythene bags get collected in materials are collected separately and reprocessed into new products (glass, food scraps, paper and cardboard, plastic bottles and metal). Waste collection methods and management practices vary widely among different countries regions and sectors.

Drains, they may disrupt the water flow and leads to stagnation of water which enables mosquitoes to breed and when they deposited in soil affect the growth of plants. Asbestos is a hazardous waste. Biodegradable alternatives are the solution for these

problems (clay tiles for asbestos and paper, bioplastic, cotton or jute bags for polythene and plastic bags).

Therefore as a user of these materials we should make an environmentally responsible decisions. Good policy frames, expertise and treatment facilities are needed to promote SWM. Political will together with attitude change will bring the practical solution to Solid waste management.

Mrs. K. Niranjana
Chairperson
Section A, JSA

Sectional Activities

Section A

5th of June 2015

Section A of the JSA organised the Environmental Day. **Prof. G. Mikunthan**, Dean/Graduate Studies, University of Jaffna delivered a talk on “Climate Smart Agriculture: A Global Environmental Initiative”. The General Manager of the Seed Co-institutional farm of Thirunelveli gave instructions on seeding. School and university students benefited from talks.

17th of June 2015

Olympian N. Ethirveerasingam delivered a popular talk on “Science Education in Northern and Eastern Provinces- an approach”.

8th of July 2015

Prof. A. S. Kantharajah, Professor of In-vitro Crop Improvement and Horticulture, University of Western Sydney, Australia delivered a talk on “New Developments in Horticulture towards crop improvement”.

15th of September 2015

Prof. Fritz Schiemer, Head of the Institute of Ecology and Conservation Biology, Department of Limnology, University of Vienna, Austria, delivered a talk on “Modern approaches in limnological studies”.

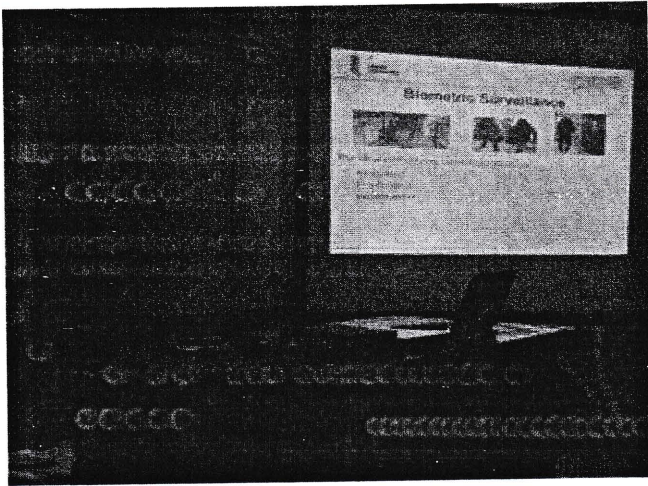
9th of October 2015

Prof.(Ms.)P.R.T. Cumararatne, Senior Professor in Fisheries Biology, Department of Fisheries and Aquaculture, Faculty of Fisheries and Marine Sciences and Technology, University of Ruhuna delivered a talk on “Adaptations to climate change with respect to coastal environment”.

Section B

24th July 2015

The Section B of the JSA organised a popular talk on 24th of July; titled as Computer Vision and Its Application by **Dr. Y. Pratheepan**. Dr. Pratheepan serves as a Research Associate in the University of Ulster, UK.



Section C

26th of June 2015

Section C of the JSA organised the Popular talk on 'Virgin Coconut oil and Health'. **Dr. Asoka Dissanayke**, a Retired Professor from the University of Kelaniya delivered the talk.



30th of June 2015

Section C of the JSA organized the World No Tobacco Day-2015 with the help of RDHS and NATA. The

Hon Health Minister of the Northern Province **Dr.P.Sathiyalingam** participated as the Chief Guest. The highlight of the event was delivering certificates to shop owners, who do not sell Tobacco Products. During the event the JSA released a mobile app to educate the general public with regards to harmfulness associated with smoking tobacco.

14th of July 2015

Section C of the JSA and the Jaffna Managers forum jointly organized a talk on Stress Management and Chronic disease. The talk was delivered by **Prof Peter Selvaratnam**, who serves as a Doctor of Medical Anatomy and a Specialist Musculoskeletal Physiotherapist, Associate Clinical Professor at the University of Melbourne and Adjunct Senior Lecturer at the Monash University. Large number of audience benefited from the talk.

14th of August 2015

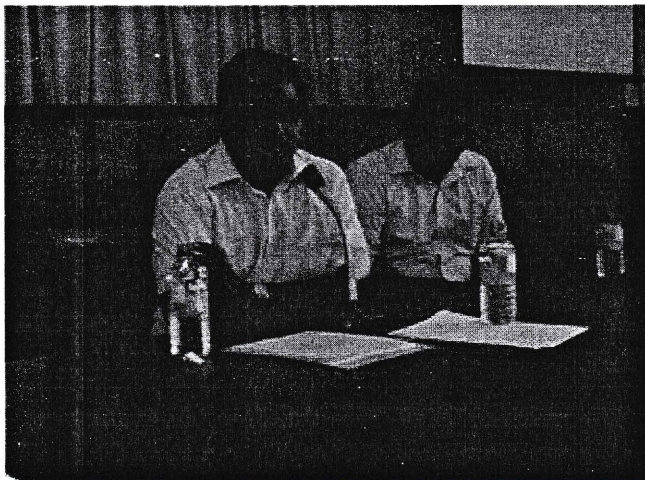
JSA Section C organised a popular talk, titled as "Can health be a bridge for peace?" on 14th of August 2015 at 4pm. The talk was given by the **Professor Mukesh Kapila**, CBE, Professor of Global Health and Humanitarian Affairs at the University of Manchester. Professor Kapila has extensive experience in the policy and practice of international development, humanitarian affairs, human rights and diplomacy, with particular expertise in tackling crimes against humanity, disaster and conflict management, and in global public health.

Section D

27th of August 2015

Section D of the JSA organised a great and necessary popular talk titled as "Srilankan Parliamentary election 2015 and its challenges" on 27th of August 2015. The resource person **Dr. K. T. Ganesalingam** pointed out the problems of the society. Participants

discussed the matters with the resource person. Large number of audience participated in the event.

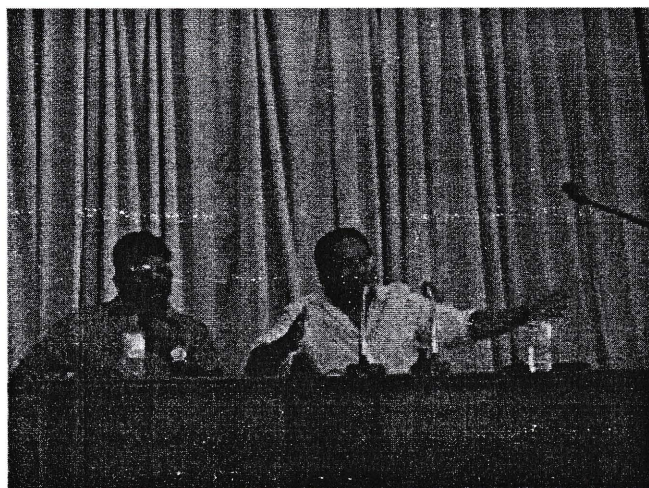


21st of September 2015

Section D of the JSA and Tamil Civil Society Forum jointly organised a popular talk titled as “The Investigation Report of UN Human Rights Council on Sri Lanka”. Senior Lawyer **Mr. V. Puvitharan** acted as the resource person for the talk.

30th of September 2015

Section D organised a popular talk on “Rituals and Embodied Practices” which was delivered by **Prof. Amy L. Allocco**, who works as an Associate Professor of Religious Studies, at the Elon University, USA



2nd of October 2015

The Celebration of International Non Violence Day and Gandhi Jeyanti jointly organized by JSA section D, Philosophical Society and All Ceylon Gandhi Sava Society on the 2nd of October 2015. **Professor N.Sanmugalingan**, a former Vice Chancellor of the University of Jaffna, **Mr.T.Rasanayagam**, **Professor M. Sinathamby**, **Dr.K.Kajavinthan** and **Mr. N. Natrajan**, Consul General of India, Jaffna have delivered talks. A large number of participants benefited from the talk.

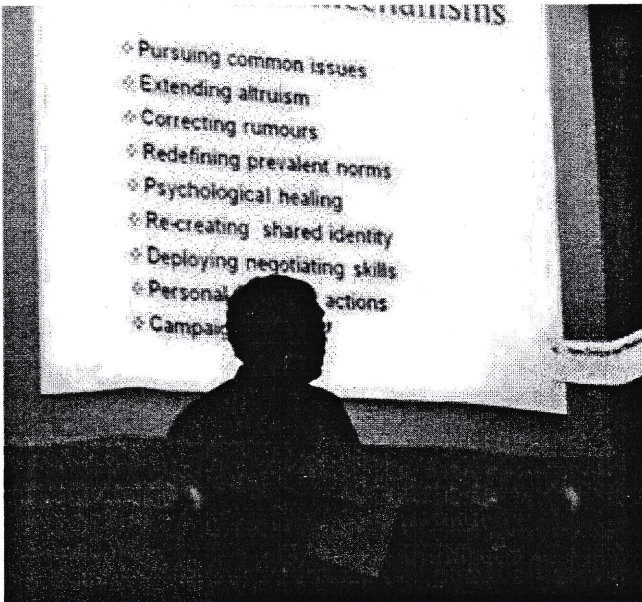


10th October 2015

Section D of Jaffna Science Association and Ministry of Health jointly conducted a workshop on “Designing a Research Questionnaire”. **Dr Murali Vallipurathan**, Consultant Community Physician, Ministry of Health acted as a resource person.

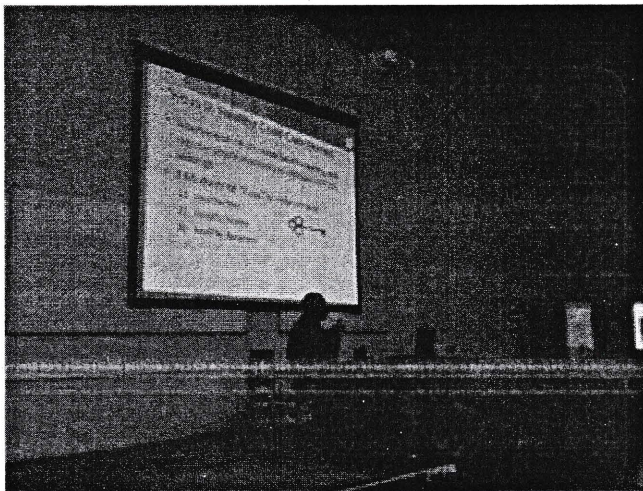
18th of November 2015

JSA Section C organised a popular talk on “Prevention of Childhood Obesity”. The talk was delivered by Prof Turl Ostbye, who serves at the Department of Community and Family Medicine at the Duke University USA.



16th November 2015

Jaffna Science Association section D and Edlocate Study Center jointly organized a study information discussion on Scholarship opportunity for post graduate study in Australia, Newzaland UK & Malasiya.



Jaffna Science Association

23rd Executive Committee

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Dr. K. Thabotharan

Past President

Prof(Mrs). S. Kuganathan

President Elect

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Mr. P. Maheswaran

Assistant General Secretary

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Section B : Dr. S. Vasantharuba

Section C : Mrs. T. Ganakarunyan

Section D : Mr. N. Sivakaran

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Ms. K.VidyaDharshini	Life	C
Ms. M.Tharshiga	Life	D
Ms. S.Sivarangini	Life	C

JSA Membership

Life Membership	Rs. 2000.00
Ordinary Membership	Rs. 500.00
Student Membership	Rs. 100.00

Application forms are available with the General Secretary and the Treasure of the JSA.

Are We Aware of Typhoid Fever?

Typhoid fever is a systemic infection caused mainly by *Salmonella enterica* subspecies *enterica* serotype Typhi. This fever is common and endemic in lower and middle income countries where unavailability of clean water, inadequate sanitation facilities and poor hygiene standards are common. The causative organism of typhoid fever, *S.typhi* has no non-human vectors and is transmitted orally through water, food or beverages handled by an individual who chronically sheds the bacteria through faeces or less commonly in urine.

Typhoid fever is an acute illness. The first typical clinical manifestations include fever, headache, abdominal pain, relative bradycardia, splenomegaly and leukopenia. Fever is present in more than 90% of the cases. Classically, fever begins with a remittent fever during the first week, rising in a stepwise fashion, after which the fever becomes sustained. In endemic areas deviations from this classic pattern may occur frequently. In such areas a differential diagnostic test is essential to differentiate other febrile illnesses such as malaria, dengue, leptospirosis and rickettsial fevers from typhoid.

Population based data suggests that the annual global incidence of typhoid fever is approximately 27 million cases each year with 216,000 deaths. More than 90% morbidity and mortality occurs in Asian countries. Children are more affected by typhoid fever than adults. Typhoid fever is endemic in Sri Lanka. The Regional District of Health Service (RDHS) Jaffna has reported the highest number of typhoid fever patients to the Ministry of Health for more than a period of ten years.

Blood culture is considered the gold standard for diagnosis of typhoid fever. The definitive diagnosis of typhoid fever therefore requires the isolation of *S. typhi* from blood or bone marrow of the patient. The yield of blood culture depends on many factors such as the day of blood collection for culture, prior antibiotic treatment of the patient and technical factors such as volume of blood, volume of culture media, additives and time of incubation.

In poorly resourced laboratories, blood culture facilities especially automated blood culture systems are not readily available. In addition the use of antibiotics before blood culture and late presentation of patients affect the yield of positive cultures. Serological tests therefore continue to play a major role in the laboratory diagnosis of typhoid. The Widal test (Standard Agglutination Test) is the commonly used serological test in many developing countries. Despite its drawbacks, the Widal test is in use in many countries, including developed countries. To find out its diagnostic utility, this test should be evaluated in the area where it is used as the diagnostic test. Ideally, the test should be performed on two serum samples as an acute and convalescent sample taken 10 days apart. Studies have shown that the four fold rise in antibody titre using convalescent serum is more reliable than a single Widal test. However this is not usually possible especially in endemic areas where the background antibody titre in healthy population is high and also results in delays in initiating treatment. Hence, a single Widal test is commonly used in clinical settings in many countries.

As early diagnosis and prompt treatment are essential for optimal management of typhoid fever, a rapid sensitive detection method for typhoid would be very helpful. PCR based assays have been developed and used as a diagnostic tool in typhoid fever.

The evaluation and the validation of diagnostic methods would assist in estimating the true incidence of typhoid fever and provide accurate information for developing strategies for control.

Improving the quality of water and improving sanitary conditions in endemic areas would help to control typhoid considerably. In addition, WHO and Center for Disease Control (CDC) recommended vaccination of individuals in high risk areas.

Mrs.T.Gnanakarunyan
Chairman/Section C
JSA

Jaffna Science Association Sectional Committees

Section A – Pure Sciences

Chairperson : Mrs. K. Niranjana
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Editor : Mr. K. Gunalan
Committee members: Mrs. N. Ravimannan
: Mrs. M. Khokulan
: Mr. A. C. Thavaranjit
: Mr. S. Selvarajan
: Mrs. R. Senthoooran

Section B – Applied Sciences

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Committee members: Dr. S. S. Sivakumar
: Mr. S. Shriparen
: Mr. V. Visithan
: Mr. N. Kannan
: Mrs. L. Umashankar

Section C – Medical Sciences

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Editor : Dr(Mrs). T. Thillepan
Committee members: Dr(Mrs). K. Muruganathan
: Dr. S. Kannathasan
: Dr. P. A. D. Coonghe
: Mrs. D. Thabotharan
: Miss. V. Sanmugarajah

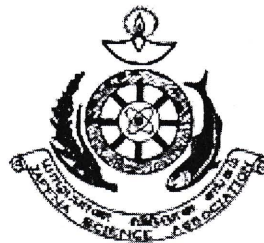
Section D – Social Sciences

Chairperson : Mr. N. Sivakaran
Secretary : Mr. S. Nirosan
Editor : Mr. E. Cumarana
Committee members: Mrs. B. Saseela
: Mr. K. Kumaradeepan
: Mr. A. Nithilavarnan
: Prof. N. Sivachandran

Publication Division of JSA

JSA provides a platform for authors to publish their literature work. Authors who wish to publish their work with JSA should submit the manuscript to the Publication division for a review. After review process, all the accepted publications will be permitted to use the title JSA as their publisher. Rs. 10,000.00 will be charged as the processing fee.

Mr. P. Maheswaran



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