JSA

ISSN 2792-131X

NEWSLETTER

January 2022

Jaffna Science Association

"Uncovering an array of essential skills for scientific success during the crisis"

An academic,
A researcher,
An Entrepreneur
A Philosopher

Prof. Kandiah Balasubramaniam

JSA Newsletter
(Since 1991)

Volume 28 Issue 02

January 2022

ISSN 2792-131X

Published by:

Jaffna Science Association (JSA)

(Reg.No : G/L/2427)

Web

www.facebook.com/thejsa

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T.T Design

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Editor's Note

I am happy to publish the second issue of the JSA newsletter in 2022. The current JSA committee has been implemented in several projects very successfully during the covid-19 pandemic period. This newsletter is also part of that success. At this juncture, I would like to express my gratitude to the authors who submitted articles to this issue, Further, I thank the Executive Committee of JSA, and sub-editors of the JSA newsletter.

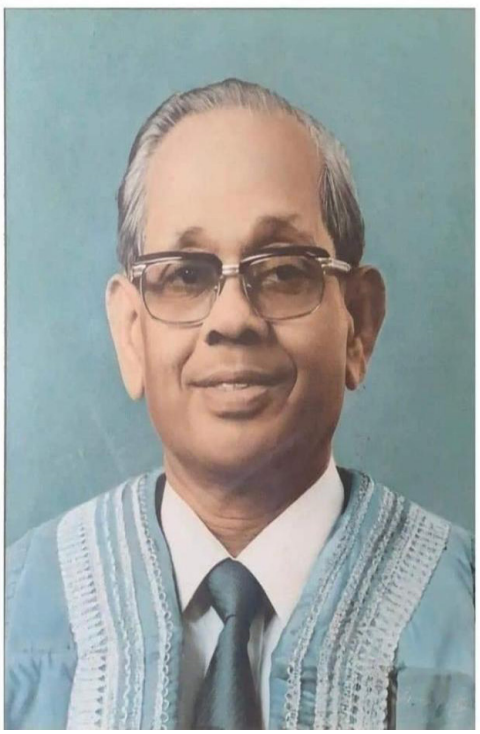
Thevanayagam Thevananth
Chief Editor/ JSA Newsletter

Prof. Kandiah Balasubramaniam
An academic, A researcher, An Entrepreneur and A Philosopher

Prof. (Ms.) V. Arasaratnam
University of Jaffna

With a lot of sorrow and sadness I give this message. Prof. Balasubramaniam had obtained his Ph.D. from Indiana University, USA in 1964 and to his credit he was one among the few Ph.D. students who had completed the Degree in three years. On his return to Sri Lanka in 1965, he joined the Department of Biochemistry, Faculty of Medicine University of Peradeniya in 1965 and moved to Department of Biochemistry, Faculty of Medicine University of Colombo in 1968. He had been promoted to Associate Professor in 1979, and since then he was the Head, Department of Biochemistry, Faculty of Medicine, University of Colombo. He moved to University of Jaffna in 1984 January and functioned as the Head of Department of Biochemistry.

Prof. Balasubramaniam had the opportunity to work with Prof. Leloir, at the Institute of Biochemistry and Physiology, Buenos Aires, Argentina, who was a Nobel Prize Laurite who worked on ATP and Glycogen synthesis. Prof. Balasubramaniam was elected as the Scientist of the year 1984 by the Institute of Chemistry, Sri Lanka for his Excellence and eminence in Research.



Prof. Balasubramaniam had served in several official capacities in the Sri Lanka Association for the Advancement of Science, Institute of Chemistry, Sri Lanka and in Several Boards of CISIR (Now ITI) and NARESA (Now NSF). In 1986 National Academy of Science, Sri Lanka recognised the scientific eminence of Prof. Balasubramaniam and awarded him the title 'Fellow of National Academy of Science'. He is the only Scientist in University of Jaffna who had been honoured with this highest award.

While Prof. Balasubramaniam was in Colombo, he had established the link program between the Department of Biochemistry, Faculty of Medicine,

University of Colombo and Biomedical Centre, Uppsala University, Sweden to develop Molecular Biology Based research at the Department of Biochemistry funded by the International Program in the Chemical Sciences (IPICS), Sweden. Then the name of the Department of Biochemistry has been changed to Department of Biochemistry and Molecular Biology at Faculty of Medicine, University of Colombo. When Prof. Balasubramaniam had moved to Department of Biochemistry, Faculty of Medicine, University of Jaffna he established a link program between the Department of Biotechnology, University of Lund, Sweden and Department of Biochemistry, Faculty of Medicine, University of Jaffna to develop Enzymology based research activities, which was again funded by the International Program in the Chemical Sciences (IPICS), Sweden.

During his tenure at the University of Jaffna, Prof. Balasubramaniam has commenced the M.Sc. course in Biotechnology and could not continue with the program due to the political situation of the country existed at that time. Prof. Balasubramaniam has trained more than dozens of Ph.D., MPhil ad MSc. Students. To his credit he also has commenced an undergraduate Research Project for the II MBBS Students from 1986 and was removed by the Faculty of Medicine during the recent curriculum revision. This research was unique to the Faculty of Medicine University of Jaffna and had been appreciated all over the world when the MBBS graduates went abroad seeking jobs or higher studies. Even a Doctor practicing in USA visited last month was very unhappy for removing this research program at the IIMBBS level.

Prof Balasubramaniam had a unique teaching style and approach to Biochemistry. Explaining the complicated concepts in Biochemistry in simplified way had been his speciality.

Prof. Balasubramaniam was the Dean, Faculty of Medicine from 1988 to 1994. First time Prof Karunainathan (Professor of Surgery) and Prof. Balasubramaniam contested for the Dean's Election and Professor Balasubramaniam was elected as the Dean and for the second term, everyone wanted Prof. Balasubramaniam to continue as the Dean and he became the Dean uncontested. Prof. Balasubramaniam during his tenure as the Dean worked hard to sustain the Faculty of Medicine in Jaffna even though some of the Medical students at that time wrote to the Ministry, foreign diplomats and Embassies as well as High Commissions to close down the Faculty and to send the students to other medical faculties in the country. He worked hard to bring visiting staff to have quality education to the students. Prof. Balasubramaniam had the sense of beautifying the environment and the present landscaping of the Faculty of Medicine; University of Jaffna was initiated and developed by Prof. Balasubramaniam.

Prof. Balasubramaniam had the mind set to upgrade the laboratory research out puts to the next level and had established the Biotech International and functioned as the Chairman. He had the faith on the appropriate technology and he won the 'Entrepreneur of the Year 2000', which was awarded by the 'Sri Lanka Chamber of Commerce and Industries'. He also won the Provincial Trophy and National Merit Award. Bio Tech was rated as one among the best 10 in Sri Lanka.

It is very difficult to meet a versatile personality like Prof. Balasubramaniam. His contribution to the Department of Biochemistry, to the Faculty of Medicine, University of Jaffna and the Northern Region cannot be forgotten.

I pray for his soul to attain the eternity.

'Paal vendi': A traditional okra variety that is vanishing in front of us

Dr.(Mrs.) Tharmila C. Jeyaseelan
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Okra (vendikaai) is being one of the highly favoured vegetables in Sri Lankan cuisine. Even though several okra varieties are available in the market, the leading choice of the Jaffna community is always 'Paal vendi'. This pale yellow immature fruit is mainly liked because of its taste and soft texture (due to the low fibre content). This fruits' slender, slightly curved appearance highly coincides with its alternative name, laddies' fingers. If you are a regular shopper, you may have noticed that this type of okra is rarely seen in the market in the last few years. Even if you found this in the markets, you may need to pay double the other types of okra to buy these. If you are a farmer, you may know the reason for this. Anyway, this article will reveal to you the reason behind it.

In Sri Lanka, okra (Abelmoschus esculentus L.) is ranked as the fourth popular vegetable crop among the low-country vegetables. It is cultivated in diverse climatic conditions, including wet, intermediate and dry zones either as a home garden crop or commercial scale. Due to its nutritional values and health benefits, it has significant commercial demand. At present, major okra growing districts of Sri Lanka are Hambantota, Kurunagala, Ratnapura, Matale, Anuradhapura, Puttalam, Matara, Kandy, Moneragala, Ampara, Jaffna, Vavuniya, Trincomalee and Kalutara. Two okra varieties, namely, MI-5 and MI-7, were initially recommended by the Department of Agriculture (DOA) for cultivation. But, in the Northern Province, the variety 'Paal vendi' (also known as TV8) was famous for a long time among the farmers because of its consumer demand. Also, this seems to be a traditional variety or local variety since it has been mainly grown in this region only. The MI-5 and MI-7 fruits are light green, comparatively more fibre, and smaller than the 'Paal vendi'. Also, these two varieties are popular in other parts of the country.

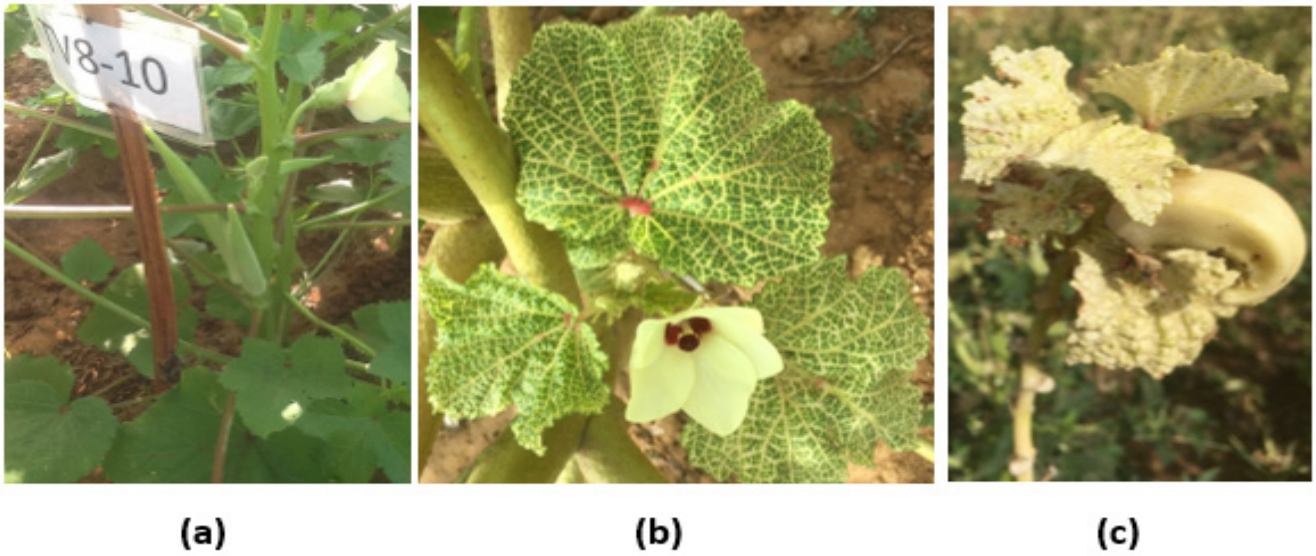

Figure: (a) Healthy plant with fruits, (b) and (C) Different stages of diseased plant

All these varieties were affected by a disease known as yellow vein mosaic disease (YVMD). This disease was first found in India in 1924. But later, it has been reported in many Asian and African countries where okra is cultivated. The diseased plant leaves showed alternate green and yellow patches and vein clearing. In severe cases, the plant showed stunted growth and produced dwarfed fruits. Ultimately, the poor fruit quality affected the market value. Among the above three varieties, the 'Paal vendi' was highly susceptible to the disease.

Since a plant virus causes the disease, direct control of the pathogen is not feasible. There are two options to manage the disease; the first option is controlling the whitefly vector, which transmits the virus from one plant to another. The second option is producing disease-resistant varieties through breeding techniques. DOA produced a new variety known as 'Haritha' and introduced it as a resistant variety to YVMD. The fruits of Haritha is medium-size and dark green. However, after few years, the variety' Haritha' also affected by the YVMD. But nowadays, there are many hybrid varieties (for example, No-521, Maha F1, OKH1 etc.) introduced by seed supplying companies, and most of them show resistance against YVMD. But these varieties have many other issues; mainly, they could not compete with the taste and texture of the 'Paal vendi'. So, the introduced varieties are not favoured by consumers in Northern Sri Lanka. In addition, the farmers always have to depend on seed supplying companies and the pesticides they recommend. Due to this situation, farmers in the Jaffna peninsula had to move to hybrid varieties and stopped 'Paal vendi' cultivation. When this change happened slowly in the last few years, the availability of 'Paal vendi' in the local market declined gradually. Whoever farmers are still involved in 'Paal vendi' cultivation entirely depends on heavy chemical pesticides that target whitefly vectors. However, everyone knows the consequence of this heavy use of pesticides, such as environmental pollution and health hazards.

From 2015 to 2019, I researched YVMD, and my research findings confirmed that the 'Paal vendi' is highly vulnerable. Early infections lead to complete loss to farmers. The losses are high in Yala season than Maha season because, in Maha season, the activity of whitefly vectors is low. I also found that two begomovirus species cause this disease in Sri Lanka, namely Okra enation leaf curl virus and Bhendi yellow vein mosaic virus. Both of them are associated with a satellite particle Bhendi yellow vein mosaic betasatellite. I have developed a real-time quantification PCR method (RT-qPCR) to quantify this virus in okra samples. This technique is advantageous to plant breeders to quantify the virus even at a very low number in their samples. An integrated pest management (IPM) package also trialled with the least usage of chemical pesticides and heavily based on simple cultural practices and natural immune inducers. However, implementation of this IPM in field conditions may face some difficulties.

The plant viral diseases are a severe problem in okra cultivation and many other vegetable crops, mainly in dry zone cultivation. On the other hand, only a few scientists are involved in plant virology in Sri Lanka. In the case of 'Paal vendi', the role of regional plant breeders is essential. Plant breeders have to develop new varieties with disease resistance and fruit quality that can satisfy the locals' needs. Conservation of the genetic pool of this kind of traditional varieties is essential. Each of us can contribute to preventing the loss of traditional varieties or local varieties by establishing home gardens. In my research, I noticed 'Paal vendi' plants growing in home gardens or growing in places away from central agricultural lands showed the least disease incidence or were not affected by the disease. This is because the pathogen begomovirus is not transmitted by seeds and absence of a virus-carrying whitefly vector population. The COVID 19 pandemic has already taught us the necessity of home gardens, and there are so many youngsters already intensively involved in home gardening. My advice to them is always to go for the traditional varieties and contribute to their conservation.

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Safety, Efficacy Quality of Traditional Medicine products in Sri Lanka

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The Ayurveda, Siddha, Unani and the Deshiya Chikitsa (Indigenous Traditional Medicine) are the Traditional Medical (TM) systems of Sri Lanka. Despite increasing popularity and utilization of TM, concerns of safety, efficacy and poor quality of TM products are being reported. In Sri Lanka, nearly half of the population use TM, there are about 185 TM manufactories in the country, 1193 formulations incorporated in the national pharmacopoeias and around 100 products are authorized for marketing annually.

The World Health Organization (WHO) strongly recommends the system strengthening approach to ensure safety, efficacy, and quality of TM products, and underscores the importance of regulation of these products. The WHO guidelines endorse TM evaluation based on TM theoretical frameworks, history of traditional use, appropriate use of modern scientific tools and adopting multidisciplinary approach.

The nature and types of evaluation differs based on the category of product: indigenous TM product, TM in systems, modified TM product and imported TM product. In Sri Lanka, the Ayurveda Act no. 31 of 1961 and the Ayurveda Pharmacies Regulations of 1973 are the legal foundation for the regulation of TM products.

The Ayurvedic Formulary Committee is the regulatory body for TM products. It grants pre-market approval after robust review of safety, efficacy, and quality. The minimum required level of evidence of safety, efficacy, and quality ranges from documentary proof of traditional use, scientific safety data, preclinical and clinical research evidence. Poor post-market monitoring, outdated pharmacopoeias and regulations, and inadequate research and collaboration are the weaknesses of the Sri Lankan TM regulatory mechanism. It must be strengthened parallel to encouraging appropriate and adequate multidisciplinary research.

Development of wireless technology increases the EMF radiation in environment that created great public concern on whether the radiation is safe or not. To address it, extensive research have been done and different standards were formed giving limitations on allowable maximum exposure.
The international Commission on Non-Ionizing Radiation Protection (ICNIRP) which is the official partner of WHO releases guidelines for limiting exposure. This guideline is incorporated into regulations of many countries including Sri Lanka. In Sri Lanka Telecommunication Regulatory Commission says in its “National Policy on Antenna Structures” that it will enforce the limits of ICNIRP.

ICNIRP considers heating as the only adverse health effect for RF radiation. Though there are several research demonstrate adverse health effect other than heating, ICNIRP claims that those are not scientifically substantiated. Accordingly ICNIRP claims that as long as the radiation is within their specified limits then there is no harmful effects. Standards released by some countries such as USA and Australia are also have similarly opinion like ICNIRP.

However, few other groups namely, Building biology standards, Bioinitiative and Australian Medical Association define limits on RF radiation considering non-thermal effects as precautionary measure. Their limits are much less than that of ICNIRP.

Further, International agency for research on cancer (IARC) classifies RF EMF as possibly carcinogenic (Group 2B) to human in 2011. The reason to classify in that category is because of limited evidence of carcinogenicity in humans.

Since there is still no consensus among the researchers on whether to consider non-thermal effect of RF EMF, it may be very confusing for general public to assess their safety. One possible way is to minimise the radiation of their own devices without adversely compromising the technological advantage. Few such simple measures are: not using a mobile when a wired phone is available, using ear phone or speaker mode during long chat, making calls where reception is good, turning off wifi during night, not using mobile phone as alarm clock (avoid having it next to head when sleeping), switching to air plane mode when giving it to kids to play games or to watch downloaded videos, minimising the time of carrying the phone next to the body.

Limiting the Radio Frequency Electro Magnetic Field (EMF)

Dr. T. Thiruvaran
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The Challenges faced by Nurses during Covid-19 pandemic

Mrs. Yanuthy Tharsan
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COVID 19 has been found in the city of Wuhan, China, due to novel coronavirus (Sars-CoV-2). It was designated a global public health emergency by the World Health Organization in late January 2020.
Health care professionals have encountered several problems during this pandemic due to long working hours under high pressure, with limited resources, separated from family and friends. Studies have shown that they faced depression, anxiety, stress disorders, eating difficulties, and lack of travel facilities.
Nurses are the frontline health care professionals particularly in taking care of Covid-19 patients. In practice, they faced unpleasant ethical challenges, moral issues, and increase patient mortality. The four major ethical principles such as autonomy, justice, beneficence, and non-maleficence were questioned for nurses in taking care of patients.

Nurses' safety, role and moral stress, resource allocation, and the nurse-client interaction are the major ethical issues in present. Nurses have suffered pressure injuries as a result of the continuous usage of masks and the lack of time. These occurrences may reduce the quality of treatment while also causing harm to clients and communities, therefore undermining non-maleficence. The allocation of restricted resources to fulfill the needs of patients is another major ethical issue facing by nurses.
Finally, the Covid-19 epidemic had a detrimental influence on the nurse-client relationship. In contrast, many individuals died in isolation and ICU, away from their family and loved ones, and without the opportunity to conduct end-of-life talks.

No one can be ahead or behind; there is a need to move forward in facing and fighting Covid-19 and other health issues and challenges. We must collaborate to guide, plan, execute, and recognize the importance of many forms of information that might improve the ultimate aims of preventing illnesses, restoring persons to good health, and saving lives.

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The overview of the smaller endocrine parathyroid gland

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In the 16th century, Human anatomy was in the developing stage and passionate Anatomists gathered together to catch the view of the anatomical structures in the dissection hall. Most of the Scientists carefully mapped the viscera, muscles, bones, nerve, vessels and other important structures in our human body. The new discoveries were noted in the last centuries including lymphatic vessels in the meninges, the increase prevalence of fabella bone, tubarial glands etc.

The parathyroid glands were described by Sir Richard Owen in 1852 and he noted a small yellow, glandular body attached to thyroid in an Indian rhinoceros. Virchow identified the human parathyroids in 1963 but credit for the first complete description goes to the Swedish doctor Sandstroem, in 1980. Anton Woelfler identified the intrathyroid parathyroid gland. The parathyroids were variable in their number, size, shape and location. Usually there was a pair of superior and inferior parathyroid glands in the posterior surface of thyroid gland.

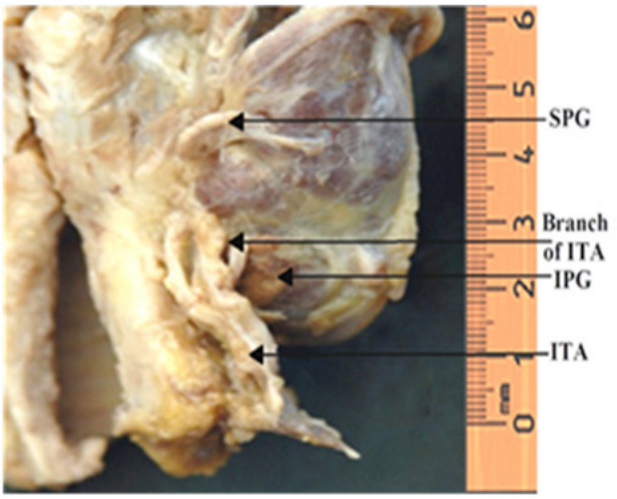

Figure showing the posterior surface of right thyroid lobe.
SPG- Superior parathyroid gland
IPG- Inferior parathyroid gland
ITA- Inferior thyroid artery

Figure showing the posterior surface of right thyroid lobe.
SPG- Superior parathyroid gland
IPG- Inferior parathyroid gland
ITA- Inferior thyroid artery

Parathyroid means around the thyroid and initially parathyroid glands were considered as the part of thyroid gland. Kohn was able to found that parathyroids were anatomically autonomous from thyroid. The thyroidectomy patients showed fatal tetany after complete removal of all parathyroid tissue. Thus proving that the parathyroid glands are essential for life.

Parathyroid gland has the chief cell, which synthesis the parathyroid hormone and this hormone is responsible for the maintenance of the body calcium level. Parathyroid hormone was discovered by Collip in 1925 and used to treat tetany successfully in the same year. Another is the oxyphill cell, however function of oxyphil cell was not identified till now. The first parathyroid transplant was attempted by Halsted. He transplanted canine parathyroids into thyroid tissue, trying both iso- and auto- transplantation. Recent researchers noted the involvement of the parathyroid gland in COVID-19 patients.

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Current management of thyroid nodule

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Thyroid nodule is a radiological detectable discrete lesion arising in the thyroid gland distinct from surrounding thyroid parenchyma. The prevalence of thyroid nodules is as high as 50% in some studies. But most of them are benign and will not cause symptoms in patients' lifetime. But around 5% of them are malignant and should be managed appropriately. Thyroid nodules are increasing with age and are four times higher in females than males. Thyroid nodules can be identified during self-examination by a patient, clinical examination by a doctor, or incidentally during radiological investigations. The clinical importance of these nodules is to exclude malignancy, assess the thyroid's functional status, and identify the pressure symptoms.

Thyroid nodules can be due to benign conditions such as thyroiditis, colloid nodule, thyroid adenoma, thyroid cyst, and bleeding into the cyst or malignant nodules such as primary thyroid cancers (Papillary, Follicular, Medullary and Anaplastic cancer), thyroid lymphomas or metastases from other organs.

Initial assessment of thyroid nodule includes a detailed history and physical examination. Male sex, extremes in age (20 and > 65), rapidly increasing nodule, change in voice, history of radiation to neck and family history of thyroid cancer are "Red Flag" signs for thyroid cancer. In addition, hard, fixed lesions, lesions more than 4 cm and suspicious cervical lymphadenopathy indicates the malignant thyroid nodule.

Evaluation

Thyroid ultrasound scan should be done to confirm the nodule in clinically detected nodules. In addition, they may help to identify the suspicious sonographic features, other nodules in the thyroid gland and cervical lymph node enlargement due to tumour metastasis. Blood investigation should begin with serum thyroid stimulation (TSH) hormone measurement, and if it is low, the patient needs a thyroid nuclide scan to detect the hot nodule (Hyperfunctioning). These are very rarely malignant nodules. But warm (normal functioning) and cold (hypo functioning) nodules need a thorough evaluation to exclude the malignancy.

Fine needle aspiration (FNA) biopsy is a gold standard technique to assess the suspicious nodules. Ultrasound-guided FNA increases the accuracy and reduces the false-negative cytology results. According to the American Thyroid Association (ATA) guideline, FNA depends on the size of the nodule and USS features for malignant suspicious.
Bethesda system is used to report the thyroid FNA cytology. This includes non-diagnostic, benign, Follicular lesion or atypia of undetermined significance (FLUS / AUS), follicular neoplasm or suspicious for a follicular neoplasm (FN / SFN), Suspicious for malignancy, and malignant. The non-diagnostic category needs a repeat FNA, and it is advisable to be done under USS guidance.

A.	Nodules ≥ 1 cm with intermediate or high suspicion US pattern
B.	Nodules ≥ 1.5 cm with low suspicion US pattern
C.	Nodules ≥ 2 cm with very low suspicion US pattern
D.	For nodules that do not meet the above criteria, FNA is not required, including nodules < 1 cm (with some exceptions) and purely cystic nodules.)

Table 1: Indications for FNA of Thyroid nodule (ATA guideline)

Management

Thyroid nodule management is determined by the functional status of the thyroid/ nodule, patient risk factors, nodule size, sonographic features and notably FNA biopsy findings.
Hot nodules with hyperthyroidism usually manage either by radioiodine therapy or surgery. Thyroid nodules less than 1 cm and otherwise no risk factors can be followed up with clinical examination and ultrasonography.

Management guidelines for the nodules which undergone FNA biopsy vary according to the Bethesda classification mentioned above. Patients with benign nodules need no surgical intervention in the immediate future. But they need a long-term follow-up with clinical assessment and USS. FLUS / AUS category nodules can be managed by repeat FNA, close follow-up with USS, or surgery (Hemithyroidectomy). Management of these patients is usually determined by risk assessment, ultrasonographic features and patient preference. On the other hand, FN / SFN needs diagnostic surgery (Hemithyroidectomy), and depend on the histology report patient may not require further treatment (Follicular adenoma) or may need a total thyroidectomy (Follicular thyroid cancer).

Suspicious for malignancy usually need diagnostic surgery and histological assessment. In addition, patients with malignant cytology are generally recommended for surgical management, such as total thyroidectomy.

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Jaffna Theatre: Speaking loudly About Political Issues

Mr. Thevanayagam Thevananth

The desire of the Art is that, all artistic productions must help to think about social problems, and to come to constructive decisions on them and through that should lead to action. For this, the Artistic production should be made in a way that they can present logical arguments. It should be prepared like a mixture having equal amounts of feelings and knowledge. The situations for thinking in a causal related state and for logically arguing should be increased. For this, it is essential that knowledge of Law &Order and Rights to be imparted. An artist is capable of expressing a matter sentimentally, emotion or while being overwhelmed with emotion. It will have a humanitarian result on the basis of social responsibility and norms. But it was observable that chances are more in it for the knowledge related and logical presentation.

Drama is vested with the responsibility of capturing the metamorphic periods of change within the society for future reference and guidance in the society. How the playwright goes about documenting such issues determines how serious the people within the society would view his work. (Eagleton,2012) 'artistic work of a playwright is a reflection of the society from which he/ she emerges from. Wa Thiong'o (1981).

This paper employed auto-ethnography research method and take advantage of the author's direct observation as creator, performer and trainer. Information was also obtained from participants of some of the theatre productions in Jaffna. The paper concludes that, Theatre is a good tool to speak loudly and create public action against oppressed scenario in Srilanka. A hope has risen in the mind that, Drama could drum up the minds of people who had been oppressed.

Auto ethnographers argue that self-reflexive critique upon one's positionality as researcher inspires readers to reflect critically upon their own life experience, their constructions of self, and their interactions with others within socio historical contexts (Ellis & Bochner, 1996; Goodall,1998).

Maranachchanrithal & Kallaraikavithaikal both plays address prevailing socio-political problems, both have a vein of tragedy which makes their stark themes more palatable. Issues which engaged the attention of disappearance issues in Srilanka. Both plays have a serious socialist inclination in the performances, showing a clear refraction of the political ideologies and how they covertly or overtly intend to use the plays as tools to stir a political evolution in North Srilanka. These plays to effectively demonstrate the need for social change and fairness within their societies and the Country as a whole. Tamil theatre in North Srilanka has used theatre to convey messages, demand political action or change government policy and public opinion.

According to Betol Brecht, Political Theatre is the expression of strongly held beliefs, protesting at society or promoting a particular belief system. As politics is present in every corner of people's lives, political theatre includes party, gender, racial, sexual, animal, environmental and economic politics (Brecht, 1951). Bracco (2012) opines that: the most rewarding piece of theatre is one that stimulates thought, opens dialogue and leaves people talking about the play for hours, days and even years. Revered playwrights- Shakespeare, Bertolt Brecht, Arthur Miller- all wrote political plays that jarred audiences. Political work will continue to be found on the stage because the theatre is an ideal place for compelling stories about the complexities of the world in which we live… (p.1)

Dramatized stories of real tragic stories by the dramatists are working hard in crisis situation. The worldview of the playwright and his class is recaptured in his dramatization of events within his society (Gbilekaa, 1997). The interpretation and choice of material(s) by the playwright would help the audience and readers of the play-text to understand the message in the play through the ideological visage of the playwright. Ambanasom (2010) claims that most African playwrights are influenced by the political lines and tensions that have become a permanent feature in the continents road to greatness, He states that the story lines are subtly charged to pit the masses against the greedy political oppressors or "exploiters against the exploited". Benjamin explain that, the tradition of the oppressed teaches us that the 'state of emergency' in which we live is not the exception but the rule. We must attain to a conception of history that is in keeping with this insight. Then we shall clearly realize that it is our task to bring about a real state of emergency, and this will improve our position in the struggle against Fascism. One reason why Fascism has a chance is that in the name of progress its opponents treat it as a historical norm. The current amazement that the things we are experiencing are 'still' possible in the twentieth century is not philosophical. This amazement is not the beginning of knowledge—unless it is the knowledge that the view of history which gives rise to it is untenable. (Benjami,2009)

Speaking Loudly about Political Issues

The performing art of drama has an Extra-ordinary skill to attract people. It could be said that, when an artist made of flesh and blood express his sentiments through his body language, the lively situation created by it could not be equaled by any media. Therefore the exchange of ideas will easily occur through it.

In Northern Srilanka Theatre speaking loudly about political issues, that had kindled the thoughts of war affected people through pointing out the disputes in the society. When speaking loudly the deep traumas and empirical images had been revealed through dramas. The social reality had been reflected in theatre. It is apparent that, social aberrations and several types of problems could be pointed out through dramas and self-confidence could be also gained through it. Theatre revive the humanity, Drama is a cross – section of the society and a social Mirror.

Theatre is giving moral support for families of the disappeared, when their stories were performed publicaly, Walter Benjamin theory is perfectly fixed in to this that, "it is our task to bring about a real state of emergency, and this will improve our position in the struggle against Fascism." (Benjami, 2009)

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Climate change and its impacts on the crop-livestock integration systems in Sri Lanka

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The livestock sector plays an important role in the livelihoods of rural households in Sri Lanka with over 600,000 registered livestock farms, the majority of which are small-scale. Crop and livestock have a strong symbiotic relationship of the two sub-sectors of crop and livestock to increase the production of the Sri Lankan agricultural economy. However, livestock is one of the most sensitive economic sectors in the country, which is sensitive to climate change impact. In Sri Lanka, 1.7 million farmers have long explored strategies to strengthen the food system's resilience in the phase of growing climate change and variability. Figure 1 shows livestock populations in last year according to the department of census and statistics of Sri Lanka.

The climatic change has a significant impact on the poultry and dairy industries. Heat stress is caused by rising temperatures and it poses a direct threat to livestock species, particularly high-yielding imported breeds and other crossbreeds. Heat stress diminishes milk production and over time, it can increase vulnerability to serious disease, limit feed intake, and impair fertility. Long-term droughts reduce the quality and amount of fodder available to grazing livestock, reducing livestock feed supply. Droughts have become more intense in the dry zone in recent decades and as a result, substantial dairy farming systems in the dry zone have been severely impacted due to a lack of enough feed for the animals.

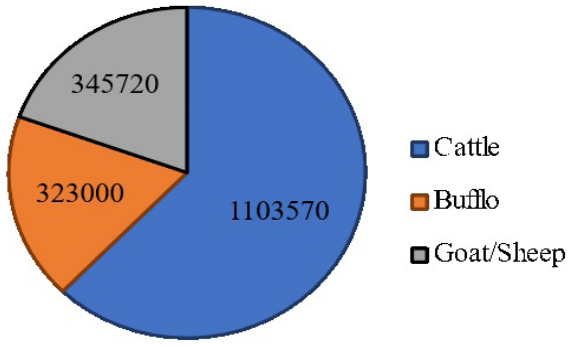

Figure 1: Livestock populations in Sri Lanka for the year of 2020

Animals that rely on various grains and their by-products have become an issue as a result of changes in crop production during the drought. Variations in pasture composition such as the ratio of grasses to legumes and changes in herbage quality are also caused by climate change.

The livestock sector contributes to some environmental problems such as land degradation, water pollution and biodiversity loss. Cattle ranching results in deforestation and the elimination of carbon sinks, which results in the loss of carbon sequestration. Furthermore, pasture and fodder lands are mostly managed monoculture systems and also many species such as birds and invertebrates that require variety of habitats. According to the impacts of livestock rearing, the mitigation potential can be fulfilled within the existing system which is both cheaper and faster than developing a new system such as developing sustainable intensification of mixed crop-livestock system to achieve the balance between livelihoods, livestock production and environmental protection. If livestock rearing is done as part of a mixed farming system, a smallholder or pastoralist system and on a smaller scale than the industrialized approach, it may be less detrimental to

the environment.

Crop-livestock integration

Traditional crop-livestock systems are less productive, less sustainable and less economically competitive than diversified crop-livestock systems. They make agricultural systems more climate-resilient and productive. Modern farmers seek to minimize costs while maximizing output. The integrated farming system strategy changes agricultural techniques for maximum productivity in the cropping pattern while also ensuring optimal resource utilization. In the integrated system, farm waste is better utilized for profitable reasons. Advantages of integrated farming systems are given below.

- Increased food production to meet the demands of our nation's rapidly growing population.
- Increased agricultural income as a result of proper residue recycling and other factors.
- Organic waste recycling ensures soil fertility and production. As a result of the integration of related activities, nutritious food rich in protein, carbohydrate, fat, minerals and vitamins will be available.
- Through proper waste recycling from animal activities such as piggery, poultry, and pigeon husbandry, integrated farming will aid in environmental protection.

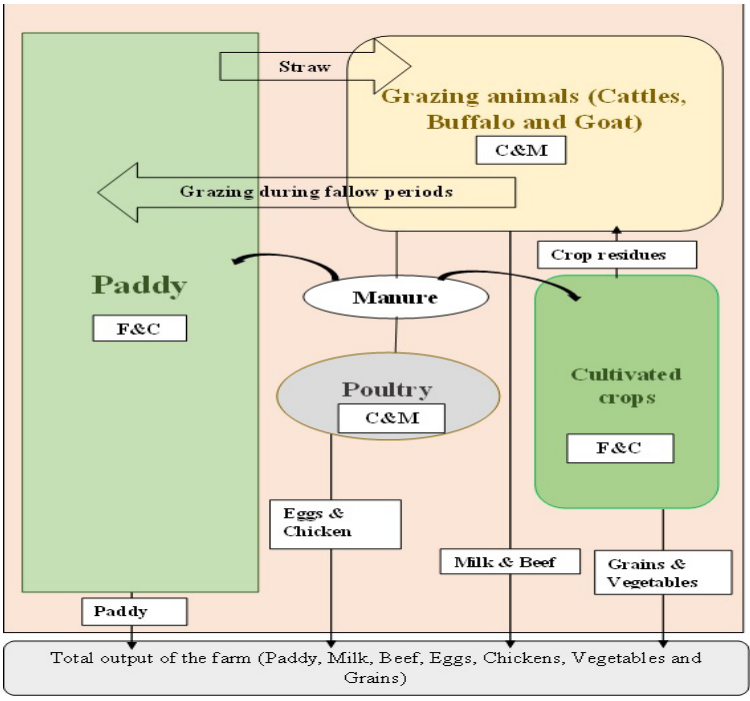

Figure 2 illustrates schematic diagram of the integrated farming system, its inputs and outputs.

Smart and Resilient Agriculture

Crops and crop varieties that are climate-resilient have higher tolerance to biotic and abiotic stresses. Climate-resilient crops and crop varieties have been suggested as a strategy for farmers to cope with or adapt to climate change. However, adoption rates by smallholder farmers are very varied, despite the obvious benefits. Climate change is considered a major threat to Sri Lanka's livestock sector. If Sri Lanka does not implement sustainable policies and practices to overcome these threats, the livestock sector will continue to reduce. Sri Lanka's NAP (National Adaptation Plans) includes a variety of actions for the livestock industry to address climate risks and increase resilience, including the creation of tolerant and resistant breeds, enhanced pasture and fodder management and promotion of intensive livestock management. The NDCs (Nationally Determined Contributions) include livestock

Figure 3: Semi-intensive management practice of goat at the Faculty of Agriculture, University of Jaffna, Sri Lanka.

as one of the adaptation sectors and their execution is based on the NAP commitments. They comprise the following points.

1. Identification of vulnerability in the livestock sector.
2. Introduction of adaptive measures to avoid or minimize adverse effects.
3. Introduction of alternative measures to minimize adverse effects of climate change.
4. Identification of potential clean and renewable energy sources for livestock-related activities.
5. Adaptation of integrated waste management systems.
6. Promotion of responsible consumption and sustainable production.
7. Enhancement of education, awareness and capacity building.

Climate-Smart Agriculture (CSA) in Sri Lanka

The preservation of indigenous crop varieties' genetic diversity is essential for the long-term development of new varieties that meet current and future concerns. Farmers with limited resources have developed varieties that are adaptable to local environmental stress through the utilization of genetic variation. Similarly, the preservation of genetic variety in indigenous animals has improved native dairy stocks' adaptability to shifting climate circumstances.

CSA is novel in that it focuses on a range of climate-related actions. According to the FAO (Food and Agriculture Organization), CSA is described as "agriculture that sustainably increases productivity, improves adaptation, reduces GHG emissions and promotes the achievement of national food security and development goals". Land productivity and resilience have also been improved through the use of perennial cropping systems and short-duration, agro-ecologically adapted plant varieties, while emissions reduction and carbon sequestration have been achieved through CSA practices like the crop–animal integration, manure production and reduced chemical inputs. However, uptake of these initiatives is typically weak, particularly among small-scale farmers.

Climate-smart agriculture is a comprehensive approach to addressing these issues.

I. Increasing agricultural production and earnings in a sustainable manner.

CSA attempts to enhance agricultural output and income from crops, livestock and fish in a sustainable manner while minimizing environmental effects. Food and nutritional security will be improved as a result of this. This is an important topic associated with increasing productivity while reducing climate impacts and greenhouse gas emissions through sustainable agriculture practices.

II. Emissions of greenhouse gases are being reduced or eliminated.

CSA aids in the reduction of greenhouse gas (GHG) emissions. This shows how much gas is emitted into the environment during the food producing process. Reduce gas emissions per calorie or kilogram of food, as well as the fibre produced through CSA. Deforestation is avoided with CSA. Soils and trees are managed in such a way that their ability to act as carbon sinks for atmospheric CO2.

III. Adapting to climate change and improving resilience.

Farmers' susceptibility to short-term hazards, such as food price fluctuations and status imbalance is reduced by CSA, while their livelihood pattern is strengthened. With cultivation practices, the short-term goals are to

improve their capacity to adapt to and face shocks as well as longer-term pressures. Protecting the ecosystem services that ecosystems supply to farmers and others receives special emphasis. These services are critical for maintaining agricultural productivity and the ability to adjust to climate change. Figure 4 shows that the approaches of climate-smart agriculture (CSA) practices in Sri Lanka.

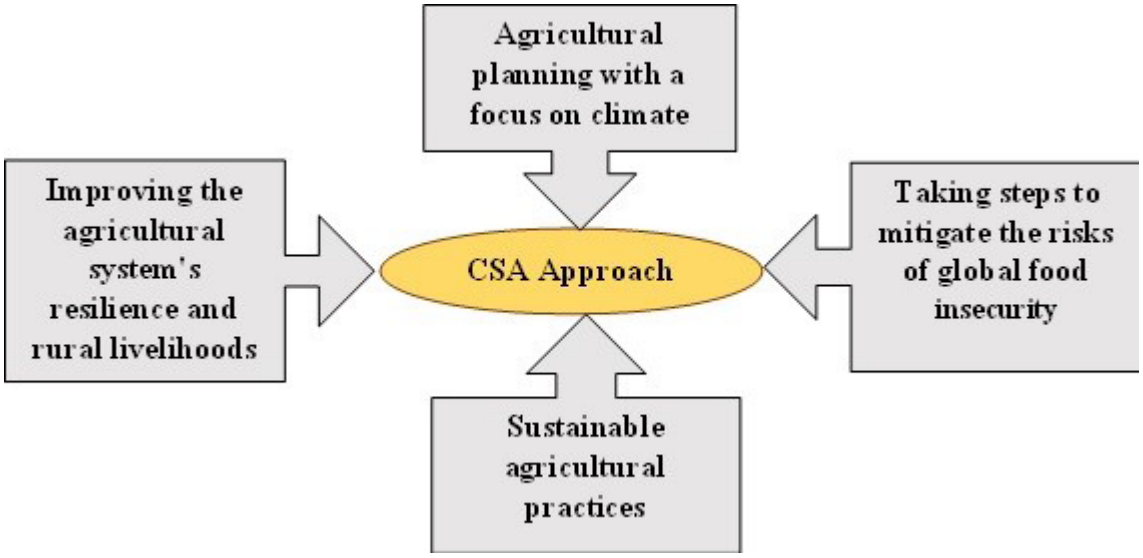

Figure 4: Dissection of climate-smart agriculture approach

Extreme weather events are becoming more common, and climate trends are changing rapidly therefore, it is threatened to agriculture production and food security in Sri Lanka. The government has taken a number of significant efforts in improving the productivity and resilience of primary agriculture systems like paddy, maize, and cattle. In Sri Lanka, simultaneously adoption of better plant types and livestock breeds while also preserving genetic diversity through the preservation of indigenous species.

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Significance of soft skill in career development

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Soft skills can be defined as a cluster of skills that 'influence' how we interact with one another. Soft skills are an essential part in improving the ability of an employee to work with others and can have a positive influence on developing furthering his/her career. Thus, highly trained in technical skills or hard skills will not be enough to continue a smooth professional life since the soft skills help people to communicate and collaborate effectively and efficiently, particularly, when an organizations struggle to find meaningful ways to remain competitive and be productive. Teamwork, leadership, and communication are underpinned by soft skills development.

Soft skills are, on the other hand, mainly categorized as personalities, attributes, qualities and personal behaviour of individuals and also include certain important abilities such as communication, problem-solving, self-motivation, decision-making, and time management skills and still more.

Enhancing our abilities, capabilities and making ourselves committed to resolve conflicts, solve problems, and provide excellent service to the community, can lead to stronger relationships with colleagues, vendors, and other professional contacts, at the work place or in the community, we live. In contrast, a lack of soft skills can limit our potential, or even be the downfall of our profession and thus it leads to be identified as an unpopular character, irrespective to our technical skills. Hence, developing strong leadership, teamwork, and communication abilities, is an essential part in our career in order to continue our career more smoothly, deliver results that please everyone. We, as professionals or employees, are expected and /or preferred to have a fine blend of competencies in our their staff and, in addition to discipline-based knowledge and skills, adequate levels of soft skills to move forward in our career. Because, it is believed by any employers that professional and technical skills alone cannot help achieve organizational goals and objectives, it It is because their staff will also be involved in different levels of leadership and decision-making activities. Hence, employees also need to communicate effectively within the organization, with their customers and other stakeholders.

Therefore, the importance of these soft skills should not get undervalued and the individuals should still look to improve their social and soft skills. Building both our technical and soft skills is equally important to our successful career development. These skills constantly need to be improved as we encounter different situations throughout your career. Good Luck!

Environmental issues after the barrage construction across the Thondaimannar lagoon

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Thondaimannar or Vadamarachchi lagoon and Uppuaru lagoon are two major internal saltwater lagoons in Jaffna peninsula. Thondaimannar lagoon was rich in fishery resources and an ecosystem with high biodiversity up to installation of barrage with sluice gate. This lagoon once considered to be a sanctuary for shrimps, crabs and most of the popular species of Mullet, Rabbit fish, Milk fish and Cat fish. Thondaimannar lagoon scheme first initiated in 1879 was designed in 1943 to prevent the ingress of salt water from the sea into the lagoon by erecting a barrage with sluice gate and improve the quality of water and enhance the cultivation and irrigation of its adjacent regions. In this context, Thondaimannar barrage (1947 – 1953) was built across the lagoon to convert the respective lagoon to freshwater lake (Chitravadivelu, 1993).In 1969, the people of Vadamarachchi, were able to docultivation from lagoon water, and getting benefits of good ground water table(Chitravadivelu, 1978). But there are many positive and negative impacts on socio economic and environmental factors.

Environmental issues

Major environmental issues are changes in water levels, water movement patterns and salinity of water, loss of associated flora and fauna, loss or reduction in numbers of migratory fish and birds, loss of fish nurseries and breeding sitesand partial or total loss of marine fish. The conditions at the margins of the lagoon on both the landward and seaward side of the barrage was altered. This could have a dramatic effect on both marine and avian life. The brackish waters were prolific breeding grounds for shrimps and crabs, which were caught by the local fishermen and now their livelihood is being challenged. Changes in lagoon water salinity act as a reason for loss of fishery potentialities especially shrimps in Thondaimannar lagoon where recruitment and breeding of shrimps were affected and complete depletion of shrimp harvest is observed recent three years, which altered the livelihood of fisher folk (Chitravadivelu, 1978).

Closure of the lagoon has threaten the migration of animals especially fish and shell fish. Fish migrated from sea into the lagoon for their breeding. The barrage act as an artificial barrier prevents the recruitment of fish fauna from the sea.
The barrage construction is leading to habitat destruction. It destroys the habitat of mangrove patches and bottom fauna. The lack of flora especially mangrove threatens the faunal diversity; especially the birds. They relay on the flora for nesting and breeding.

There is NO Mangroves
NO Prawns/Shrimps
NO Crabs

The breeding habitats; especially mangroves, for the shellfish, fish, birds and other aquatic fauna was disturbed.
After the installation of barrage with sluice gate, fish fauna had been reduced from 47 species during 1967/1968 to about 15 species in 1978. (Chitravadivelu, 1993).There is no recent information about its faunal and floral diversity due to the prevailed war situation and security about 30 years.
But recently, 11 species were identified from Thondaimannar lagoon with the help of IUCN/MFF/138 grant during 2014-2015 (Piratheepa et al., 2016). 8 fish species were present in 2018 (Shobiya, 2019).
After the barrage construction, lagoon became as a closed system and when atmospheric temperature increases, water temperature also increases. As a result, water evaporates simultaneously. Due to the high evaporation, there may be changes in salinity and other water quality parameters. Consequently, the system undergoes environmental stress. Therefore, fauna and flora which can't tolerate these changes and they are lost from the lagoon.
Conversion of lagoon into freshwater lake is a massive environmental issue and resulting changes need to be properly addressed. Mitigatory measures should be adapted.

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Technologies in times of COVID-19

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The COVID-19 pandemic radically transformed the behavior of society; the use of masks, home quarantines, free transit restrictions, permanent sanitary measures, temporary closure of schools, businesses and entertainment venues; they continue to cause significant political, social and economic problems.

Times of crisis are a scene of opportunities and the emergence of new needs that allow the development of strategies and changes in the usual approach in the economy. In times of coronavirus, technology is a useful tool to prevent the growth of infections through applications that allow remote work, electronic commerce, telehealth, online education, geolocation for detection of infected and social communication, among others.

At present, there is access to various technological options to face the mobility and operational challenges of companies. According to a study carried out by Nokia Deepfield, it highlighted growth during working hours in applications such as Zoom and Skype and in social networks WhatsApp and Facebook. The change in routine has allowed more downloads in applications for teleworking and entertainment. Most downloaded apps during the lockdown from March 26 to April 1, 2020 (thousands).

According to the data published in the "Digital 2020" report, 4.5 billion Internet users, representing approximately 60% of the world population, making digital, mobile and social networks an indispensable part of the daily lives of people around the world. Internet users in Sri Lanka, there were 10.90 million internet users in Sri Lanka in January 2021. The number of internet users in Sri Lanka increased by 800 thousand (+7.9%) between 2020 and 2021. Internet penetration in Sri Lanka stood at 50.8% in January 2021. The adaptability in some companies has better solved the limitations imposed during the pandemic. On the contrary, other businesses have been forced into a digital transformation to guarantee continuity, improve competitiveness and offer a better experience to their customers.

Impact of technology during COVID-19

Information Communication.

The internet, use of mobile applications and information systems facilitate spread information on spread of the virus in real time and the appropriate measures of prevention, control and mitigation of the virus. Social media statistics for Sri Lanka, there were 7.90 million social media users in Sri Lanka in January 2021. The number of social media users in Sri Lanka increased by 1.5 million (+23%) between 2020 and 2021. The number of social media users in Sri Lanka was equivalent to 36.8% of the total population in January 2021. The World Health Organization (WHO), local health authorities and other health care entities constantly publish guidelines on social platforms to allow greater dissemination. The information that circulates does not always come from official sources, a situation that causes rumors to spread, create panic and confuse the population. Mobile connections in Sri Lanka, there were 30.41 million mobile connections in Sri Lanka in January 2021. The number of mobile connections in Sri Lanka increased by 612 thousand (+2.1%) between January 2020 and January 2021. The number of mobile connections in Sri Lanka in January 2021 was equivalent to 141.7% of the total population, because many people have more than one mobile connection, so figures for mobile connections may exceed 100% of the total population.

Health

At the end of 2019, the outbreak of the coronavirus in Wuhan, alerted the WHO about the high contagion of the virus, and its rapid spread to other countries allowed it to be considered a pandemic on March 11, 2020. After the emergence, the main recommendation was social isolation, a condition that forced governments to create solutions to detect, contain and seek a cure for COVID-19. Technologies have played an important role in the search for solutions, through digital tools and artificial intelligence, as allies to reduce the number of infections and the mortality rate.
Top leaders in technology development have turned to new technologies to reduce COVID-19 exposure. China and South Korea were the first countries to use drones to distribute medical supplies, as well as robots for medical care and disinfection. The Alipay Health application favored assigning a QR code to each citizen on a daily basis, this favored the control of body temperature, the degree of infection by means of a three-color traffic light (green, yellow and red). This made it possible to control the circulation between infected and uninfected people during home quarantines.
Thermal sensor cameras were developed to capture heat from the human body. These devices were placed by various countries in hospitals, airports and public places; in order to detect fever as a preventive measure to contain the pandemic.
Telehealth is considered another technological solution in health care services, carried out through videoconference, email and text message. This has allowed a quick way to obtain a diagnosis and helps reduce overcrowding.

China, the United States, France, Germany and Brazil are leading the search for a cure for Covid-19. In addition, large technology franchises have provided financial support to people affected by the pandemic, including: Facebook, Apple, AT&T, Cisco, Google, HP, Intel, Netflix, Qualcomm, Samsung, and T-Mobile . Other companies Amazon, AT&T, Google, Huawei and Microsoft granted free access to their services to health institutions and pharmacies in order to accelerate research in the development of drugs against the new coronavirus.

Telecommuting.

Several companies have adopted the work remotely to coordinate, make decisions, connectivity, flexibility and business continuity, mainly making use of networks, video conferencing and cloud services. Technological advances have allowed an adequate adaptation of telework, considered the best alternative to confinement measures. This condition forced companies to promote a digital culture in their employees, provide tools, means and knowledge necessary for working from home.

In this context, several multinational companies previously applied technologies and means necessary to allow their employees to work remotely; On the contrary, for small and medium-sized companies it represents a challenge in infrastructure and knowledge. The current technology market offers various tools to establish conferences for free such as Google Meet, Microsoft Teams, Cisco Webex, Zoom, among others.

Education

The temporary closure in educational centers due to the high risk of contagion forced teachers to opt for the online education modality, applying new learning strategies and continuing the development of activities through various technological platforms such as: Google Classroom, Meet, internal platforms ,Facebook ,WhatsApp and Zoom of each institution. The above has provided solutions to interact with students, conduct remote forums, instructive video recordings, tutorials, online folders (Drive), homework and online laboratory design.

Trade

The measures of social distancing restricted consumption patterns, in the sectors of entertainment, tourism, shopping centers, services, housing, transportation; and in the food sector, limiting the number of outlets for supply. This led to a significant boom in electronic commerce. The eCommerce, facilitates to distribute, sell, buy and generate a new marketing of products and services. Amazon presented a sales growth of 26.0% in the first quarter of the year compared to the previous period. The company has hired around 175,000 new jobs to meet the demand. Electronic commerce, card use and digital payment means will be part of the new normal explained by the ease, credibility, comfort and trust demonstrated during the pandemic.

Inequality of access to technology

Information and communication technology (ICT) favors economic and educational development, commerce, free expression and social growth. In 2016, the United Nations Human Rights Council established that Internet access is a basic right for people. The inequality of this right is pointed out as a risk factor in developing countries, mainly in rural areas where low-income households are located. The development of technology and access to the internet in our opinion will be fundamental in economic growth after the pandemic.

The forced reinvention of some sectors during the pandemic implied developing ways of commercializing through technology, to mention financial services and the evolution to exponential banking and Fintech.
The foregoing forces governments and companies to take measures in the face of the difficulty of access and disadvantage to digital solutions, mainly to the most vulnerable populations. that follow excluded from Internet, computer, cell phone, tablet, among others.

Cybersecurity

The greater dependence on digital platforms during the pandemic to interact, work, consume and access information related to COVID-19, influenced the growth of cyber incidents. Cybercriminals find an opportunity in technical and human weaknesses to carry out attacks through malware, phishing, ransomware, fraudulent web pages and the spread of fake news.

Lack of knowledge about security measures for people who work from home is a scenario that has favored cybercriminals. The absence of adequate security policies for devices in homes and company property for the continuity of work from home is a risk factor if the connection is from a home WiFi network. The foregoing will mark companies in strengthening technological risk management and creating prevention and detection policies, such as: updating software, reinforcing messages on security measures for teleworking, enabling anti-spam systems, reinforcing passwords, creating backups, blocking RDP accesses open and have contingency plans. 2020 will be remembered as the year of the evolution of the new digital normality, it will force us to reinvent new technologies, in the search for solutions that make life easier. The forced and massive digital transformation by the pandemic has shown that education can be done digitally, remote jobs and online marketing models will be strengthened through digital platforms.

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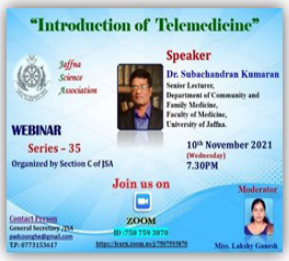
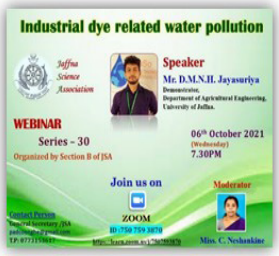
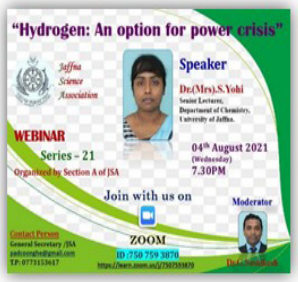
Great Achievement : 40 Webinars in a year





Great Achievement : 40 Webinars in a year



The JSA Executive Committee(2021/2022) has hosted 40 e-Seminars by 2021 via the ZOOM platform. More than 3000 participants from various sectors, different parts of Sri Lanka, and from all over the world have benefited. 40 resource persons from pure science, Applied Science, Medical Science, and Social Science four different fields provided their valuable thoughts through these seminars and discussed with the participants. This is a great achievement in a year.