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A SHIP IN HARBOR IS SAFE, BUT THAT'S NOT WHAT SHIPS *Are* FOR

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A Review of DEMAND AND SUPPLY *of* SHIPPING 24

Unlike demand and supply of physical goods the shipping industry reflects very complicated demand and supply characteristics. On one hand demand for shipping (except for passenger ships) is a derived demand under the economic theory. On the other hand, supply of shipping is not straight forward like physical goods.

CASA *Signs* AGREEMENT WITH MEPA TO SUPPORT THE PROJECT "BEACH CARE-TAKERS FOR SUSTAINABLE UTILIZATION OF BEACHES" 30

Ceylon Association of Shipping Agents (CASA) entered into an agreement with Marine Environment Protection Authority (MEPA) on the 27th of November 2020 to support the project "Establishment of Beach Care-takers for Sustainable Utilization of Beaches".

HAYCARB PLC STEALTHILY STEALING *the* SHOW 32

Haycarb PLC, a world's leading manufacturer and marketer of coconut shell activated carbon has been stealthily stealing the show since its inception in 1973.

ADAPTING TO THE *winds* of change 39

How does one anticipate a calamity of such colossal proportion in a business perspective and how fast does it take to react? Do you sink or sail, fall or fly? Covid 19's initial impact had the world reeling as businesses floundered under the pressure of the epitome of disaster, giving prominence to a term which has become a byword in society; unprecedented.

WASTE to Wealth 50

'Waste Not Want Not,' is a term we have been grilled with since our childhood but waste has become a colossal global issue, leading scores of multi-dimensional companies to invest in transforming waste into usable material.

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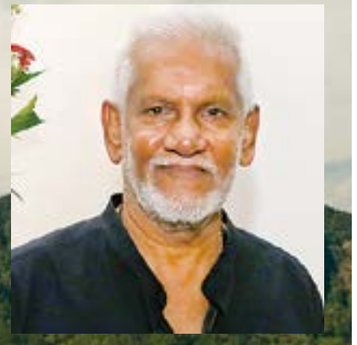
SRI LANKA'S TECHNICAL DIVING MAESTRO DHARSHANA JAYAWARDENA TAKES THE PLUNGE

You know you've met a brilliant person by merely browsing through his amazing profile. Dharshana Jayawardena, a name associated with those rare individuals who have reached mercurial heights but in his case mercurial depths as Dharshana is one of the few Technical Divers / Extreme Dive Specialists in the world.

A SAD NIGHT *to Remember*



Capt
Elmo Jayawardena

4th of December 1974 a DC-8 aircraft belonging to Martinair crashed into the Anjimalai mountain range also known as the Seven Virgins. The accident happened around 1015 PM and the location was in the vicinity of Maskeliya. This was the worst air disaster that had taken place in Sri Lanka. 191 lives were lost with no survivors. That is how the 4th of December became a sad night to remember.

Corona curfews give us time to read and in my isolation at home I have been pulling out 'Bucket-listed' stories to munch. Most articles I browsed through about the Martinair DC-8 crash had covered all aspects of this horrible disaster. Adequate details were available to re-construct the story and come to reasonable conclusions of what may have happened. We all know the easy way out of most aeroplane crashes has been the first-choice of the hit-parade – PILOT ERROR. The captain is buried beneath the Seven Virgins hills in shamed silence. So is his First Officer and the Flight Engineer. The case is closed and forgotten. I have no defense to rub on behalf of the crew to give even a shallow coating of an excuse.

But! There is a 'BUT' I need to mention here. On one side we have technology inundated with fancy aviation jargon. Add to that a half-burnt Black Box and communication tapes between the pilot and the controller. Plus, all the details of the flying records of the crew and what they have done and what they have not done. Then comes a hundred titbits of aeronautical specifics that act as tinsel to an investigation.

All that is fine, valid to be used at round table conferences where aviation-related head umpires and leg umpires, third umpires plus match referees discuss and make decisions taking all the time in the world. It is not the same for the Captain and his crew. No doubt they are professionally competent aircrew. Yet, some decisions to be made in an aeroplane are instant. You win some and you lose some and the ones you lose may have devastating repercussions. Worst is you may not even be living to tell your side of the story. A few seconds make the difference between life and death. In such calamitous situations we tend to forget that the most lethal ingredient in an aviation disaster is – The Human Factor.

The Captain is not an infallible demi-god who jumped out of Mount Olympus and sat in the cockpit of his aeroplane. He is human and so are his crew. They are no different to the ordinary you and me. I have been a Captain for a considerable amount of years. I have made many mistakes flying aeroplanes. I humbly say I was lucky I escaped without an accident. There is nothing courageous or brilliant about that, it is simply the way fate rolled the dice. Such would be the story of any Captain. Admitted or not, it is the truth, the absolute truth.

The scales of justice in an aviation accident investigation is handled by competent authorities. In the case of the Martinair DC-8 crash there were three Civil Aviation Departments associated with the inquiry. Sri Lanka, The Netherlands, and Indonesia. Plus, there would have been the McDonnell Douglas Company that built the aeroplane and insurance companies that were present to protect their dollar. There had been whispers about the Doppler system in this aeroplane having errors which resulted in inaccuracies in the 'distance to go'. It was also said that the crew were not informed of this. There is nothing to substantiate such statements and as such, it is best that I leave them out and keep them buried along with the aeroplane. I also read that the co-pilot had a traumatic childhood and that could have affected his behavior when approaching to land. I make no comment on such absurdities.

There is nothing courageous or brilliant about that, *it is simply the way fate rolled the dice.*

Let me now take you to the story of the DC 8 that crashed into the Seven Virgins mountain range. The accident tragically killed 191 innocent people (182 passengers + 9 crew). It sure is a terrible night to remember.

The flight was from Surabaya, Java, to Jeddah via Colombo which was a re-fueling stop. This was Muslim pilgrimage time to Mecca for the Haj. Devotees came from all parts of the world. Some flew in on private jets but most travelled on chartered aeroplanes. The flight that took off from Surabaya was a DC-8 55CF aeroplane owned by Martinair of The Netherlands which had been leased by Garuda Indonesia to fly the Haj charters. In command was Capt Hendrik Lamme, 58 years old, a very experienced pilot who had flown 27000 plus flying hours of which 4000 were on DC-8s. The First Officer Robert Blomsma had 2480 hours and was new

FORGOTTEN HISTORY: A second memorial plaque near the crash site carrying the names of the crew of the ill-fated airliner

on the DC-8 type with 47 hours. The third crew member, the flight engineer was Johannes Wijnands who had flown 3000 hours on DC-8 type aeroplanes. Back in the cabin there were 6 crew members, 4 were Dutch and 2 were from Indonesia. The aircraft had a Dutch registration of PH-MBH and was less than 10 years old. The flight plan filed call-sign for the flight was MP 138.

Here I must explain to the reader something about the navigational instruments that the aeroplane had. I want to make it as simple as possible for a non-aviator to understand.

The route from Surabaya to Sri Lanka is mostly oceanic. It starts with an airway called Red-61 and extends on a North-Westerly direction till it reaches the Sri Lankan Flight Information Region (FIR - 92 East longitude) and follows route Golf-462 to cross the coast at a waypoint located over Yala. This reporting point unfortunately had no Radio Aid for the pilots to cross-check their navigation when flying overhead. The primary navigation system that was in use by Martinair was called Doppler. This was operated worldwide by many airlines and during that era it was a primary navigational aid for jet aeroplanes flying long haul sectors. Doppler gave the pilots a digital reading of the distance to go to the waypoint it was heading to. However, Doppler system was not overly accurate when flying over water for a long period and had to be updated over a radio beacon or a known geographical position (maybe a river or town) to maintain its accuracy. Flight MP 138's route initially had radio beacons to update the Doppler. But the final ocean crossing before coast of Sri Lanka had no radio beacon for the crew to update the Doppler position. That was a long leg, too long to fly without an update.

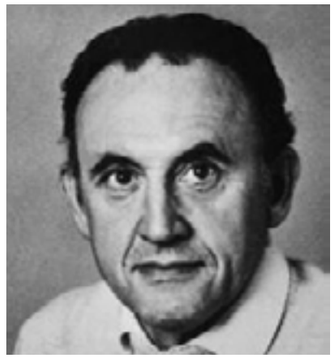
The last point the DC-8 could have done a navigational cross-check would have been at a waypoint closer to Banda Archi airport which was about 135 miles right of their track. From there Capt. Lamme still had to fly close to two hours to reach the coast of Sri Lanka. He was navigating now purely by rudimentary 'dead-reckoning' and Doppler 'distance to go' readouts without any cross-check to update his position.

Flight MP138 crossed the FIR at 8.27 pm local time - six minutes earlier than the estimate. Calculating its speed by distance between two waypoints and time taken, the ground speed would be 478. That is at 8 miles a minute. Six minutes would be almost 50 miles. The FIR was about 850 miles from the Sri Lankan coastal waypoint. Maybe Capt. Lamme and his crew were getting a wrong 'distance to go' reading from their Doppler. It is difficult to fathom whether it was because of the reported fault in this particular aeroplane Doppler or it was because of a very long sea track flown without an update. It could even have been both.

Already there had been a 6-minute (50 miles) correction made. Was it correct or was it a Doppler error? There was no way to cross check and update. If it was a Doppler fault that could have been the cause the Martinair DC-8 flew all the way to its death in Maskeliya.

Flight MP 138 first contacted Colombo Air Traffic Control located at Ratmalana at 9.52 PM and reported 130 miles out at 35,000ft. They were only going by the Doppler. The controller answered 'MP-138 clear descend 10,000 when ready and call 50 miles from Katunayake." When Capt. Lamme commenced his

Capt Lamme



Flight Engineer Johannes Wijnands

FO Robert Blomsma

Capt. Hendrik Lamme was *guilty of being a human being.*

descent by what his Doppler reading displayed his actual position would have been 50 miles east of where he thought he was. Unfortunately, Katunayake Airport at that time did not have Approach Radar nor a Distance Measuring Equipment (DME) which would have digitally told the pilot exactly how far he was from the airfield.

Few minutes later the DC-8 called "50 miles" and was cleared to 6000 and handed over to Colombo Approach Control at Katunayake. The First Officer who was doing the radio called Colombo Approach at 10.08 PM and reported he was 'one four" (14) miles from the Katunayake airport passing 7000 for 6000. Approach Control had no Radar to see him. The controller had to go purely by the MP 138's estimate of 14 miles from the airfield. He cleared MP 138 to 2000 ft and told him to call "field in sight" or overhead the KAT radio beacon.

"Roger, cleared 2000, to KAT or field in sight." This was at 1010 by the first Officer.

That sadly was the last communication.

On descent the DC-8 hit the 5th of the Seven Virgins mountains at a height of 4354 feet. The impact place was about 65 miles from Katunayake. When F/O Blomsma reported 14 miles from the airport, he was most certainly giving the distance from the cockpit Doppler. He had no other instrument to read from other than a possible error-tainted Doppler. If you add 14 miles to the error of 50 miles on the Doppler the answer is 64. Give or take a few miles for the random calculation I am doing and then perhaps the 64 coincides with the distance from Katunayake to where the crash occurred in the Anjimalai hills.

The only other explanation for Capt. Lamme to initiate an early descent could have been a wrongly interpreted weather radar sighting of the eastern coast. These were black and white radar displays and it is possible that a low cloud could have been mistaken for the coast maybe 50 miles before ALGET.

I, in no way can say what I have written is the gospel truth. I have no crystal-clear facts to ponder on. It is just my opinion I am stating. I do have some knowledge on Doppler matters as I have flown these routes in similar aeroplanes using Doppler navigation. Many opinions are expressed by journalists about this disaster. How true such inferences are, is another side of the coin. I was greatly assisted by Sri Lankan Air Traffic Controllers and communication officers, some who handled MP 138 arrival. I am deeply grateful for their first-hand information.

The possibility remains that Capt. Lamme may have commenced his descent approximately 50 miles before the planned point to leave 35000.

The aeroplane crashed, there were many mitigating factors that left room and would have contributed for human error.

Capt. Hendrik Lamme was guilty of being a human being.

Today people driving past Norton Bridge town see a strange sight. A structure displaying a large tyre. It is a wheel from the DC-8 that crashed in the Seven Virgins mountains. It could be all that is left of that magnificent aeroplane owned and flown by the Dutch. If one's interest is kindled, on the road from Norton Bridge to Maskeliya there is a place where one should stop. A plaque of remembrance is there, erected in memory of those who are buried around this place at the foot of this hill. The Martinair crew and the Indonesian pilgrims who died on the slopes of the mountain were buried in a common grave by the roadside. People say flowers do get placed off and on at the memorial. In remembrance of who we know but by whom is a question mark?

Up in the mountain is the main memorial, a stone pillar-like monument erected at the actual crash site. Wind-swept and rain-soaked it stands in its forgotten loneliness. Perhaps it whispers its sadness amidst the Seven Virgins mountain range. The column had been erected in remembrance of the 191 innocent people who died there on a sorrowful December night, a long time ago.

The COVID-19 Crisis and Innovation:

WHY INTELLECTUAL PROPERTY RIGHTS MATTER

Dilani Hirimuthugodage

Dilani Hirimuthugodage is a Research Economist working in the Agriculture Economic Policy unit at the IPS. Her research interests include agriculture economics, intellectual property rights, food security and innovations in the agriculture sector especially on Genetically Modified Organisms (GMOs).

IPS
TALKING ECONOMICS

This article was taken from 'Talking Economics', the blog of the Institute of Policy Studies of Sri Lanka (IPS), Sri Lanka's apex socio-economic policy think tank.

Way back in 1945, renowned author Kumarathunga Munidasa wrote in 'Virith Vekiya': "A nation that does not invent and produce new things will not thrive". The visionary Munidasa clearly understood the importance of innovation for economic and social progress. Today, it is telling that Sri Lanka ranks at 101 in the World Intellectual Property Organization (WIPO)'s Global Innovation Index (GII) for 2020 – a considerable drop of 12 places from last year – and earning a pitiful score of 23.78 on a scale of 0-100, 100 being the most innovative.

However, according to the Sri Lanka Inventors Commission, there were 200 innovations since the COVID-19 outbreak in March. This is a noteworthy increase in a short period of time. These innovations are mostly scientific or technological and focus on various practical and medical necessities that have arisen directly from the pandemic. Yet only a very few of these innovations were commercialised during this period.

At this juncture, it is essential to make inventions and innovations commercially viable products and to use them effectively to contain the virus. This blog highlights the importance of intellectual property rights (IPRs) in the commercialisation process and suggests some strategies to advance the commercialisation process in Sri Lanka.

At this juncture, it is essential to make inventions and innovations commercially viable products and to use them effectively to contain the virus.

BACKGROUND

Three concepts are vital in introducing new products and processes to the market: invention, innovation and commercialisation. IPRs are important in the process of commercialisation as they facilitate the process of bringing innovative technology to the market by safeguarding inventor creativity. Further, IPRs give inventors the right to prevent or allow third parties to commercially use the products. Only the products or processes which are protected by IPRs will benefit from the commercialisation process.

Patenting is the most suitable protection method for innovations under Sri Lanka's Intellectual Property Rights Act of 2003. Patents are available for inventions, products and processes in all fields of technology. Once obtained, a patent is valid for 20 years. However, the patent holder has to re-validate the patent license annually by paying a fee to the National Intellectual Property Office (NIPO). Usually, if the innovation has a good commercial value, the patent holder tends to renew the license annually. However, if there is limited commercial value, the inventor may decide to abandon the patent as the renewal of a patent is also costly, and at which point the innovation will be in the public domain for free use. There are other IPRs such as copyrights, trademarks and trade secrets to protect innovations.

THE STATUS QUO

An important criterion to evaluate a country's innovations is the number of intellectual property (IP) filings by residents and non-residents over the past few years. Sri Lanka shows a fluctuating trend in the total number of patents registered locally by residents and non-residents since 2011. (Figure 1). However, it shows an increase since 2016 and a slight decrease in 2019. Moreover, it is important to see how many of these innovations become commercially viable.

As shown in Figure 2, business enterprises are leading in developing, transferring and commercialising innovations, whereas the performance of the higher education sector and public R&D institutes are unsatisfactory according to the latest available data. This could be due to low number of researches conducted by such institutes, lack of research interest among staff and students, poor management system of IPRs, lack of awareness of patenting, and the high cost of patenting.

When compared with 2013, there is an increase in commercialisation of innovations in government and higher education sector by nearly 68 %, however, business enterprise data are not available. Nevertheless, Sri Lanka is not at a satisfactory level when compared with its peers in South and East Asia. According to GII 2020, knowledge and technology outputs which take innovation and commercialisation into consideration, Sri Lanka was ranked at 68 out of 131 countries, whereas Singapore was at 14th, India at 27th and Malaysia at 38th places, respectively.

The Coronavirus Innovation Map, also ranks Sri Lanka at a very low level. The United States leads the global coronavirus innovation efforts whereas China and India lead the Asian region. One of the main reasons for the low ranking in the Coronavirus Innovation Map is the lack of IT and online facilities available at present for patenting and lack of technical staff at NIPO for innovation examinations and registration during this pandemic period. Moreover, due to lack of awareness on IPRs, they are not applying for IPR registrations.

Figure 1: Patent Registration over the Past Few Years

Source: National Intellectual Property Office, Sri Lanka

Note: Residents – an application/ registration filed with an IP office in Sri Lanka by a person who is residing in Sri Lanka; non-residents – an application/ registration filed with a patent office in Sri Lanka by an applicant residing in another country.

Sri Lanka too can consider waving off patent fees and renewal fees as it is considered high.

WHAT CAN BE DONE?

There are several strategies that Sri Lanka can adopt to encourage innovations and speed up the process of patenting especially during this pandemic. As a first step, it is necessary to create public awareness on IPR services, especially patenting, its importance, how patents support and encourage inventors by providing recognition and rewards, and how to convert inventors' knowledge into tradable assets.

NIPO has introduced an online patent application system since April 2020 and is conducting online patent examinations. This information should be made available to the public. Equally, it is vital to recruit technically-sound IP examiners and to also provide IT facilities for virtual examinations, remote working to examine IP applications relating to COVID-19, and to speed up the patent examination process. If these practices are not implemented, the technology would get outdated and not be put into use.

Sri Lanka can also introduce an online search facility for PATENTSCOPE database which provides access to international Patent Cooperation Treaty (PCT) applications to support COVID-19 innovations and an online dashboard to monitor operations in line with WIPO. According to WIPO COVID-19 IP Policy Tracker, some countries have reduced patent fees and extended deadlines. Sri Lanka too can consider waving off patent fees and renewal fees as it is considered high. As a solution to sharing the high cost of patenting, Sri Lanka should explore alternatives such as integrating with regional patenting organisations. Moreover, it is essential to strengthen the activities in technology and innovation support centres established in universities for the effective enforcement of the existing IPR policy.

Building Back Better:

REVIVING SRI LANKA'S ECONOMY BEYOND COVID-19

Harini Weerasekera

Harini Weerasekera is a Research Officer at the Institute of Policy Studies of Sri Lanka with research interests in the areas of macroeconomic policy and planning, labour and migration, and econometrics and economic modelling. She graduated with an MSc in Economics from the University of Warwick.

TALKING ECONOMICS

This article was taken from 'Talking Economics', the blog of the Institute of Policy Studies of Sri Lanka (IPS), Sri Lanka's apex socio-economic policy think tank.

The Sri Lankan economy is likely to face a contraction in 2020 as a direct result of the COVID-19 pandemic but there is potential for this to be followed by a sharp V-shaped economic recovery. The means of navigating such a recovery path were discussed at a webinar panel discussion held last Thursday (15th October) to mark the release of the Institute of Policy Studies of Sri Lanka's (IPS) flagship report 'Sri Lanka: State of the Economy 2020'.

MACROECONOMY: GETTING PUBLIC FINANCES IN ORDER

Dr. Dushni Weerakoon, Executive Director, IPS, stated that the key macroeconomic challenge Sri Lanka has to contend with is its mounting debt. This is not a new issue, but one that has built up progressively over the last decade, where a shock like COVID-19 simply makes dealing with such a debt burden much more challenging. A large debt overhang does not allow for the implementation of a crisis mitigation strategy or an economic stimulus package of the desired size, to match the scale and complexity of the current pandemic.

The medium-term recovery path outlined by Dr. Weerakoon comprises of temporary measures to jump-start economic growth, which should then be followed by productivity-driven growth with technology infusion that is more sustainable in the long-term. Specifically, a quick-win strategy would be infusions to the infrastructure sector; attracting FDI into sectors such as construction can aid in jump-starting the recovery process. However, policymakers must recognise this as a temporary measure and not lean on such measures as the main driver of economic growth in the post-recovery phase.

However, policymakers must recognise this as a temporary measure and not lean on such measures as the main driver of economic growth in the post-recovery phase.

Dr. Weerakoon contended that import restrictions are "understandable" at this juncture but should be viewed as an emergency measure to protect employment but must eventually be re-aligned based on global value chain recovery. With rapid structural changes taking place, value chains are also restructuring and becoming more compact. Sri Lanka cannot afford to hold on to protectionist measures and miss out on breaking into these new regional production structures.

PRIVATE SECTOR PERSPECTIVES

Mr. Dilhan Fernando, CEO, Dilmah Ceylon Tea said that the COVID-19 crisis has exposed several structural weaknesses in the business world. The pandemic has shown that businesses must now ascribe value to education and healthcare, which were once considered costs, and that these will be vital components in 'building back better'.

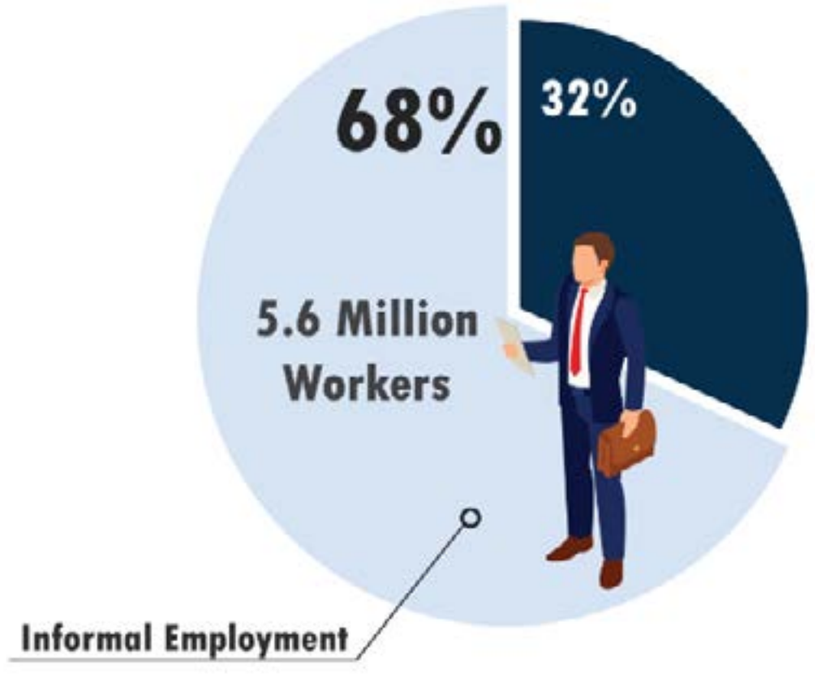
He stressed on the need to improve the country's export competitiveness and productivity and asserted that integrating technology and value addition is the way forward, similar to what is practiced in the tea industry. Currently, the market is demanding features like traceability of products, ethical business practices and sustainability so businesses must adapt to these evolving demands.

Commenting on the tourism sector, he flagged the need to focus on refining processes, training employees and looking at ways to rebuild to engage consumers, even though the sector cannot receive them in full capacity at present. He stated that pent-up demand will build up for better times, so the best option is to prepare for it in the interim.

WIDENING DISPARITIES

Dr. Nisha Arunatilake, Director of Research, IPS, said that the government's relief package to workers was comprehensive, but small relative to other middle-income economies. While government expenditure acts as a key stimulus during crises, Sri Lanka does not possess the macroeconomic stability to offer such a package. The repercussions of this are primarily felt by informal sector workers who make up 68% of Sri Lanka's workforce. Such workers will experience a decline in savings and resort to coping mechanisms such as foregoing investments in education and health, thus widening already existing inequalities.

She stated that the country's macroeconomic constraints also limit the government's ability to keep the



Flexible working arrangements can create more opportunities for women, but these benefits will be primarily accrued by skilled female workers.

education sector afloat, during and in the aftermath of the pandemic. There were constraints in providing an integrated response of the nature seen in other countries where state resources were deployed to reach all students through multiple channels such as television, social media, etc. Instead, in Sri Lanka, individual schools and other educational institutions were left to their own devices, which intensify disparities. A significant proportion of households with school-going children do not have access to smart phones/ computers (52%) and the internet (66%) which affects educational outcomes and exacerbates inequalities in the long run.

Another aspect discussed was gender inequality, where women tend to be disproportionately affected by the pandemic. On the one hand, flexible working arrangements can create more opportunities for women, but these benefits will be primarily accrued by skilled female workers. On the other hand, it is the large majority of female informal sector workers who are not covered by social protection schemes, who will be rendered more vulnerable than their male counterparts. She stressed that the solution lies in better disaster risk management systems – similar to that in Sri Lanka's health sector, which had the apparatus in place to prepare for and deal with the crisis.

WAY FORWARD

Sri Lanka must make some important policy choices to ensure an effective post-pandemic economic recovery. There is a need for a sound fiscal policy including better tax and spending policies as a central requirement to address wide-ranging challenges including the debt burden, providing remote-education opportunities for all, and protecting workers and businesses without entrenching existing disparities, in the time of COVID-19.

"EXPORTERS OUTLOOK FOR BUSINESS AND ECONOMY IMPROVES"

according to the latest USAID and CCC COVID-19 impact survey

"Sri Lankan exporters are more positive in their outlook with expectation for a moderate growth for export business and the economy over the next 12 months as the country rebounds from the impact of COVID-19", as revealed in the latest Business Survey on Trade and Labour Market Impacts of COVID – 19 on Sri Lankan Exporters. The survey was designed and conducted by the Ceylon Chamber of Commerce (CCC) Economic Intelligence Unit (EIU) and the United States Agency for International Development (USAID) supported Partnership for Accelerating Results in Trade, National Expenditure and Revenue (PARTNER) project. This is the second assessment of the impact of COVID-19 on Sri Lankan Exporters. The first business survey was conducted in May 2020 and captured insights from the lockdown period. The perceived outlook for export business and the economy in May was an expectation of a 'severe or moderate contraction.'

The full report is available on the CCC 'Trade Watch' website

COVID- 19

IMPACT ON EXPORT BUSINESS

Based on Findings of Business Survey "Trade and Labour Market Impacts of COVID – 19 on Sri Lankan Exporters - An Update" conducted by The Ceylon Chamber of Commerce and USAID PARTNER project.

USAID
FROM THE AMERICAN PEOPLE

Business operations in export firms have picked up since easing of lockdown in May 2020

53% of firms

Engaged in normal working operations (similar to pre COVID-19 level) and the number of firms utilizing more than 60% of their operational capacity have more than doubled compared to lockdown period

63% of firms expresed that;

Raw material sourcing conditions have improved since May, compared to the first 5 months of 2020

Key concerns related to sourcing raw materials were;
- Local factors being more challenging than international factors
- Price increase in production input both locally and internationally

53% of firms

Experienced difficulties related to local policy/regulatory measures

of which,

50% Import restrictions

29% Travel restrictions

48% of firms

Experienced difficulties due to restrictive trade measures by foreign Governments

of which,

33% In Export markets

20% In Import markets

49% of firms

Have identified new market opportunities arising out of the COVID – 19 impact

51% of

These opportunities are in new export markets;

28% Selling existing products/services in new export markets

23% Selling new products/services in new export markets

USAID

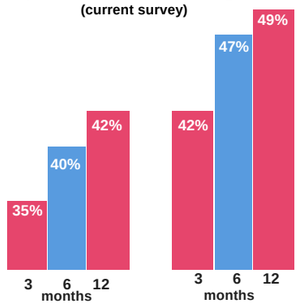
POST COVID- 19

BUSINESS OUTLOOK

Based on Findings of Business Survey "Trade and Labour Market Impacts of COVID – 19 on Sri Lankan Exporters - An Update" conducted by The Ceylon Chamber of Commerce and USAID PARTNER project.

Improvement in perceived outlook for the economy and export business

Expectations of a moderate growth
(current survey)



Higher number of firms in the current survey expect a moderate growth across all 3 timelines considered (next 3, 6, 12 months), compared to the expectation of a severe/moderate contraction in the previous survey

Most firms in the current survey expect;

- 'No Change' in employment counts across all employee types in the next 3 months (full-time, part-time and contractual) compared to expectations of a poosible decrease in prevous survey.
- Slight improvement in the expectations on a possible expansion of the workforce

A significant improvement in the ability of firms to compensate employees in the next 3 months

Expect to pay at least the basic salary with standards allowances to employees in both executive and non-executive grades

Current survey **70%** of firms (minimum)

Previous survey **30%** of firms (minimum)

2020 Training budgets for majority of the firms remain on par with 2019 levels

Current survey **67%** of firms

Previous survey **31%** of firms

44% of firms

Expect to undertake strategic measures related to their corporate structure within the next 12 months

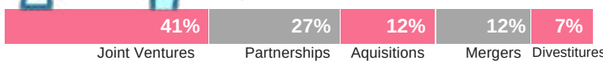
Of which;

50% SMEs

59% Firms led/owned by a female

38% Large firms

Strategic measure considered were;



Claims Review by ITIC SPECIALIST PROFESSIONAL INDEMNITY INSURANCE

Holiday hold up

A ship agent was notified by their principal that a ship would arrive at the port on 30th July. The ship agent allegedly notified the port and local customs of the impending arrival on 27th July. However, for reasons unknown, the customs office never received the notification of the arrival. The individual ship agent handling the matter then went on holiday and forgot to advise anyone else in the office of the ship's arrival or that customs approval was still outstanding.

Subsequently a follow up with customs was only carried out on 8th August when it was approved. However the ship had been held and delayed for a week. As a result demurrage was incurred.

You should try to have a system in place that allows colleagues' emails and work to be monitored whilst they are away, so nothing important is missed. Of course, such systems will not work on every occasion, but it is good practice to have a system in place. The total claim against the ship agent was US$ 30,000 which was paid by ITIC.

Fruits but of the sea

A liner agent booked two containers for a shipping line, one with a cargo of bananas and one a cargo of shrimps, both for delivery to the same country.

The ship agent created delivery notes for both containers. However, they transposed the wrong release numbers on each of the delivery notes. A haulier came to pick up the container of bananas and when they entered the details into the terminal system it was rejected as the container number and release number did not correspond. The haulier then contacted his office who reviewed the port system to see what the correct container number should be for that release number.

The container number was clearly entered into the port system as being shrimp and not bananas. However, rather than contact the line for clarification, the haulier simply corrected the delivery note with a pen so it showed the container number for what should have been the bananas, but was actually shrimp. As a result, the wrong container was collected and the error was only noticed when the cargo of shrimp was delivered to a surprised fruit wholesaler. As the container had been opened without veterinarian inspection and the seal was broken the cargo needed to either be destroyed or exported back to the country of origin. Eventually, the cargo was sent back and a 30% value was received in a salvage sale.

The value of the cargo after the salvage was US$ 205,000. The line settled with the cargo owner in full and sought recovery against the liner agent for the mistake. ITIC agreed to reimburse the claim in full as long as the line assigned their rights of recovery against the haulage company. ITIC then brought a subrogated recovery against the haulage company.

The haulage company claimed they were acting as a forwarder. Under their national freight forwarding conditions a freight forwarder can limit their liability to SDR 50,000 (around US$ 68,000); whereas if they were a carrier the limitation is SDR 8.33 per kilo, which would have been in excess of the claimed amount. The haulier put forward an offer of SDR 50,000 to settle the matter, which ITIC rejected. The matter was taken to court, where unfortunately although the haulier was found negligent, the court upheld they were a forwarder and therefore the limitation of SDR 50,000 applied. This decision was appealed and the appeal court overturned the original decision. The haulier was to be considered a carrier. Therefore the full claim, plus interest and costs was payable by the haulier. The total claim paid (and then recovered from the haulage company) was US$ 205,000 in liability US$ 135,000 in legal costs. The claim from notification to recovery took five years.

If a recovery can be made, it is worth doing so as the claim on the member's record will be reduced by the recovered amount.

PAGE 06

Missed message

A ship agent received notification from their principal that the port of destination had issued new regulations specifying that ships carrying specific dangerous cargo would not be permitted to enter particular berths.

The principal instructed the ship agent to advise them if any shipper was to book dangerous cargo so that alternative arrangements could be made if necessary.

The ship agent accepted a booking for a shipment, unaware at the time of booking that the cargo contained dangerous goods as per the new regulations. Shortly after the booking was made the shipper sent the ship agent the details of the shipment which showed the cargo was indeed dangerous goods. However the agency staff member to whom the email was sent had since left the company. It appeared that his email address was not being monitored nor were his emails forwarded to a colleague. Therefore, neither the ship agent nor the principal were aware that the shipment contained dangerous goods. The cargo was subsequently received at the wharf and accepted onto the ship by the master.

Once the ship was enroute the owner realised that the containers contained dangerous cargo and that they would face problems in the port of discharge. They decided to deviate to another port where the cargo could be transhipped onto a different ship calling at a berth in a port where the cargo could be accepted.

The principal brought a claim against the ship agent for US$ 52,000, representing the additional costs incurred in deviating and transhipping the cargo, in mitigation of higher costs which would have been incurred if the ship arrived with the dangerous goods on board.

It was accepted that the ship agent should have set up a system whereby emails sent to the addresses of former staff were seen, and the ship agent had clearly failed to advise their principal of the dangerous cargo as per the principal's instructions. Nevertheless, the master had also accepted the cargo without any objection.

The ship agent discussed the matter with their principal and with ITIC's approval agreed a settlement of US$ 25,000, which ITIC reimbursed.

Carpetbaggers

A yacht manager was instructed by the owners to settle the fees of an artisan carpet maker who had renewed the interior carpet of a yacht. The owners liked the work and ordered some extra carpets.

The manager then received two invoices from the supplier – for the first job and the second. They registered them in their system and paid them out of the owner's funds. A day later a different person within the yacht manager's office asked the yacht's captain if they should proceed to pay the supplier for the work done. The captain authorised the payment. The yacht manager paid the supplier's invoices again but with a slightly different reference number. As a consequence of the erroneous double entry of the invoice in the system, the supplier received the funds twice.

By the time the yacht manager realised the issue, the supplier had used the money to pay off some debts and did not have the funds to repay the owners. Furthermore, he then fell ill and was hospitalised. It became clear that the extra funds remitted would not be returned. Owners put pressure on the yacht manager to credit the additional money back to them.

The yacht manager had to pay the sum of EUR 90,000 back to the owners in respect of the loss they suffered. The yacht manager was reimbursed by ITIC.

WhatsApp woes

A shipbroker mistakenly understood that owners had agreed to discount the overage rate by 50%, meaning that cargo loaded above 66,000MT would be charged at US$13.5 per MT instead of US$27 per MT. This mistake arose when a message from the charterer was received, via a screenshot in WhatsApp, which appeared to contain the owner's consent to the proposal. However, all it actually contained was a copy of the message in which the charterers were asking the question of owners.

Charterers then proceeded to load an additional 2,940MT, believing that this would cost them US$ 39.690. Owners maintained that they had never agreed to a discounted overage rate and therefore the full US$ 79,380 was due.

To resolve the matter, the charterers paid the full freight amount but sought to recover US$ 39,690 from the shipbroker on the basis that this was the amount that they had lead them to believe was due. The shipbroker settled the claim with the charterers which was reimbursed by ITIC.

Always be careful when receiving Whatsapp (or any chat app) messages – as screenshots can be used to make messages look different from their original intention.

PAGE 07

Strange range

A shipbroker had previously arranged a fixture between the same principals with discharging in north China. The discharge range had been designated as 1-2 port(s) Qingdao-Dongying. The fixture had proceeded smoothly.

The charterer had a further cargo which the shipbroker was told was destined for Jinzhou. The shipbroker contacted the owners and agreed terms on the basis of the previous fixture. The agreement was made in a hurry due to an approaching holiday. Unfortunately, the shipbroker failed to check if the intended port was in the previously agreed range - which it was not.

When voyage orders were passed through to the owners, they pointed out that the port was outside the agreed range. Furthermore, the owners did not wish to agree because Jinzhou is a potential ice port and their ship was not an ice class ship.

Ultimately the owners agreed that they would go to Jinzhou for an additional US$ 25,000 freight and an additional clause in the fixture to fully protect the owners regarding the ice issue.

The shipbroker, with ITIC's agreement, accepted that they would indemnify the charterers. Fortunately when the ship arrived the port was ice free.

Unstable criteria

ITIC insured a naval architect in Australia, who was also insured as a surveyor for small commercial vessel coding approval on behalf of the Australian Maritime Safety Authority (AMSA).

The naval architect was appointed to design a fuel barge that was to carry 37,000 litres of fuel. The naval architect was experienced in designing small passenger vessels and applied the same simplified stability criteria to the barge as they would for passenger vessels. This did not take into account the fuel cells that had to be carried on the hull form.

A peculiarity in the AMSA coding system is that a surveyor can sign off their own stability calculations. Therefore, no third party verified them. When the shipyard carried out a stability load test on the finished fuel barge there was excessive heeling. As a result the barge was re-rated and was only authorised to carry 11,000 litres, which was only 30% of the design criteria. The yard estimated that the cost to rectify the design mistake would be AU$ 258,000.

ITIC appointed an independent surveyor to review the rectification costs and they were found to be fair and reasonable. ITIC therefore reimbursed the AU$ 258,000.

Manifest mistake

A ship agent failed to manifest a cargo, which was a yacht, at the original port of loading. At the second port on the voyage the customs inspectors identified the error and seized the yacht.

The yacht's owners went to court to claim for either delivery of their cargo or damages for their loss in the sum of US$ 500,000. Despite everyone's best efforts, the yacht remained in detention and the claim increased to US$ 800,000.

Whilst the ship agent was not named directly in the claim by the consignee, the ship owner filed a separate claim against the ship agent requiring an indemnity of up to US$ 980,000 (the US$ 800,000 plus legal costs).

Initially settlement was offered to the consignee as per the value of the cargo which was US$ 125,000. This was rejected. **Eventually, US$ 250,000 was accepted by the consignee – a reduction of US$ 550,000 on the claimed amount. The ship agent reimbursed the ship owner this sum, which was covered by ITIC.**

Buyer beware

A shipbroker was asked to assist a buyer to place a bid in a judicial auction. Before proceeding the shipbroker was asked what their fee would be. The shipbroker said "typically our fee is 1% of the sale price at auction but are willing to discuss". The buyer responded "if we buy the ship then 35% of your 1% is to be returned to us". The shipbroker agreed. The buyer's bid was successful in the auction. The shipbroker was entitled to commission of US$ 75,000.

Although the shipbroker had forwarded the auction's "terms of sale" which stated that it was for buyers to pay commission, the buyer, who had not previously purchased a ship in a judicial auction, said they only agreed the commission on the basis that the shipbroker would be paid by the seller. Although they accepted that the shipbroker should be paid something for their work they offered a much smaller commission than what was truly owed. The shipbroker asked for ITIC's assistance.

Ultimately, a settlement was reached with the owner making a payment very close to the original commission agreement.

A Review of

DEMAND AND SUPPLY *of* SHIPPING

"God must have been a shipowner. He placed the raw materials far from where they were needed and covered two thirds of the earth with water."

- Erling Naess

Prof. Lalith Edirisinghe

Capt. Harindra Perera

Unlike demand and supply of physical goods the shipping industry reflects very complicated demand and supply characteristics. On one hand demand for shipping (except for passenger ships) is a derived demand under the economic theory. On the other hand, supply of shipping is not straight forward like physical goods. For example, if a manufacturer wants to increase the supply of computers he should increase the production capacity and manufacture more computers. There is no other option to increase the supply. However, shipping that contains more service characteristics (in terms of Marketing theory) may increase its supply in numerous ways apart from just increasing numbers as in the case of physical goods. This article briefly explains how the shipping industry balance the global demand and supply to sustain in a competitive market.

Demand for shipping

Transportatio of goods is an important function as manufacturers initially need toget all the required raw materials to their factories to convert them to finished goods. Thereafter, in the second phase they shouldddeliver the finished goods to the customers worldwide in a timely and efficient manner. This pattern is the ultimate result of sustainable trading between countries at global level. When there is more trading between countries the demand for transport (shipping, in this case)is created between the buyer and the seller. Therefore, shipping is termed (in economic theory) as a derived demand, and not a direct demand. It helps increase the sales of the business and if the goods are delivered to the consumer properly and in a timely manner, they will be satisfied and will ask for more. When more demand for goods is generated, manufacturers may strategically focus on scale of economies and reduce cost of production. This leads to competition and prices reduction of finished goods and as per basic economics theory more goods will be demanded when the price is low. This cycle keeps continuing and more demand for shipping will be derived.

However, shipping is a competitive market. Shipping customers have special needs that should be met by shipping companies. In general, these prerequisites include, price; speed; reliability; security; and most importantly legality in form of operation. Shippers pay more attention to freight transport as a percentage of CIF costs. Transit times are more important for shippers of high value goods and perishable cargo. The average speed of deep-sea container vessels increased from 17 knots in 1985 to 24 knots as of now. And then during the height of the fuel price hike the speeds came down to the original, with slow steaming, saving on fuel costs. It is cheaper to ship the required quantity and smaller quantity compared to the cost of keeping the goods in the warehouse. Despite the high freight rates, it is still small compared to the total cost of inventory. Reliability of delivery time, keeping up to carrying capacities, services quality is very crucial in a supply chain because one party in the chain acts as a customer of another and vice versa. Ship piracy and terrorism are making frequent problems in international trade. Border management is a very important factor in global transportation business. The carriers should be highly adaptive to the legal framework in every country they operate. this includes customs and many other legal compliances.

Supply and demand are the driving forces behind market economies. The shipping industry has always been part and parcel with international trade. after the world war II emphasis were made to establish collaboration among nations for a peaceful world. The GATT (General Agreement of Trade and Tariff) which later formed the WTO (World Trade Organization) provide leadership to sustainable international trading environment. since shipping is a derived demand of the trading between countries the overall impact of these activities helps shipping industry to expand. From an economist point of view factors such as Absolute advantage and Relative advantage, however, create complicated and volatile situation in shipping demand. Also, factors related to services marketing, as explained previously, make it more unpredictable and forecasting is highly unrealistic in most cases. For example, physical goods (say computers or televisions) can be stored for future use when there is a drop in demand. But in liner trade if a ship sails with empty space from a port that space can never be used again (Perishability factor in services marketing theory). take an example of an Airline industry. An unsold seat on an aircraft or unused cargo capacity on the same aircraft cannot be sold and can then be brought back as extra capacity like in the case of physical goods.

It is believed that more than 85 percent of cargo s is transported by sea. it is mainly due to Lower cost of maritime transport. for certain goods there are no real substitutes for shipping. Shipping is the cheapest mode and it is believed that it usually 15 percent of the cost of road transport. There are no space limits or other constraints on cargo handling as ships come in different sizes and different types. Shipping is the least corrupt mode as far as the carbon Footprints are concerned. Except for landlocked countries shipping is accessible to many people in the world.

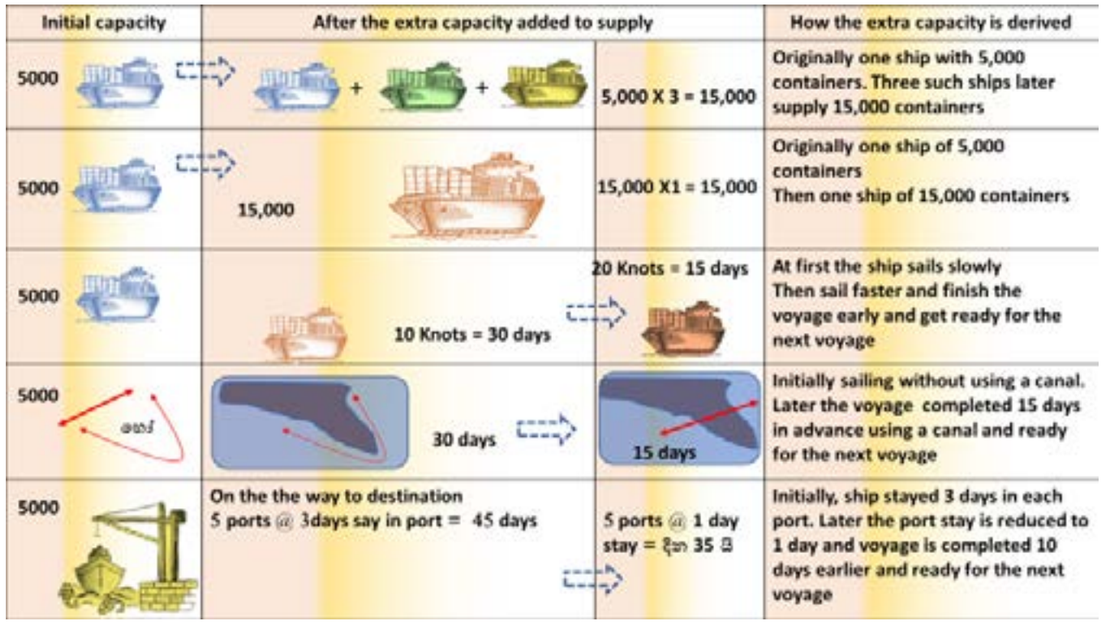


Figure 1: An analysis of adding shipping capacity to global supply

The Supply of Shipping

Like in any other business, shipping revenue is the most important factor pushing the supply side. By analysing the statistics over time, there seems to be a clear correlation between earnings in the shipping sector and the amount of investment made in a market.

Ships come in different type and sizes. Here we talk mostly of Container ships. But there are Bulk carriers, Tankers, Car Carriers, Heavy lift Carriers, Livestock carriers etc. depending on what specialised cargo you want to transport.

Similarly ships built sizes also vary according to the trading areas. Whether the load & discharge ports can safely accomadate them. Some sizes are called Suezmax, Malaccamax, Panamax meaning the maximum size of vessel that can transit Suez canal, Malacca Straits & Panama canal respectively.

According to Alphaliner TOP 100(2020) there are 6,150 active ships (including 5,356 fully cellular) ships in the world as at 16 Nov, 2020. These ships carry 24,133,941 TEU (Twenty Equivalent Units) containing 290,790,831 DWT.

Shipbuilding is a cyclical industry, with an interval of up to 4 years between order placement and actual delivery of the vessel. The lifetime of a ship is about 20 to 25 years. European yards have proved to be too expensive & now most ships are built in Korea & China. The European ships have a longer lifetime just like a German car vs a Chinese car. The big lines will run a ship for about 20years to the end of its economical life then sell it to a small operator before being sold for scrap. Ships from all over the world are scrapped mostly in India, Bangladesh etc where cheap labour & reduced health & safety standards are practised.

Generally, the supply part of shipping is affected by five main factors namely, (i) Number of ships; (ii) The amount of cargo that can be carried in a ship; (iii) Sailing speed; (iv) Shipping route; (v) Time spent at each port of call.

Number of ships

This is the simplest way to add more capacity like physical goods (Computers) in the previous example. if we consider container ships, for example, suppose the ship owner presently has one ship with 5000 TEU capacity and gets a demand created for 15,000 TEUS in future, the supply can be increased by adding two more 5000 TUE ship or similar to the fleet by just increasing the physical quantity. Please see first raw of figure 1 for the illustration.

The amount of cargo that can be carried on a ship under similar demand condition the shipowner may off hire the present fleet and get 15000 TEU bigger ship by simply increasing the size of the ship. in both situations the ship owner is compelled to approach the physical source of supply. The next strategy to increase supply is different to this simple adding of physical quantity or dimensions.Please see second raw of figure 1 for the illustration.

Shipping speed

Please see third raw of figure 1 for the illustration. If a ship sails at a slow speed it obviously takes longer time to reach the destination depending on the distance. Since shipping is characterised as a service factors such as inseparability, perishability, and intangibility the supply of the space (5000 TEU is this case) is blocked until it reaches the destination. Therefore, if the shipowner sails the ship at a higher speed it will reach the destination earlier and the capacity of 5000 TEU will be vacant to carry another shipment. Table 1 illustrates this fact using examples.

Most container ships were built for 24 knot speeds but at the height of the fuel crisis they wanted to reduce costs. Hence ships were slowing down to 16 knots calling it Slow Steaming. There was nearly 30% money saving along with reduced exhaust emissions. But on the long term, modifications were required to the Engines, Propellers etc to reduce damage by slow speed continuous running..

Shipping route

As per the fourth raw of figure ships may take alternative routes depending on circumstances or limitations. Table 1 illustrates this fact using more examples.

Ships are built to carry maximum cargo but also be able to transit the Canals such as Panama & Suez namely Panamax & Suezmax sizes to be economical. The size description Post-Panamax container ship means one which is too big for the Panama Canal Locks. Both Panama & Suez canals have been widened to accommodate much larger ships to keep up with the times when ship sizes are getting bigger. There was a time when the Suez Canal charges were so high that ships opted to go via the cape instead. Hence the canal authorities have to watch out on the charges.

From	To	Distance	Speed	Transit Time	
		Nautical miles	Knots	days	hours
Shanghai- China	*Port Kelang- Malaysia*	2447	14	7	7
			24	4	6
Port Kelang- Malaysia	*Colombo -Sri Lanka*	1370	14	4	2
			24	2	9
Colombo -Sri Lanka	*France Le Havre*	Via Suez 6550	14	19	12
			24	11	9
		via Cape of Good Hope 10301	14	30	16
			24	17	21
		Via Panama Canal 16715	14	49	18
			24	29	0
		Via Strait of Magellan 17553	14	52	6
			24	30	11
		Via Cape Horn 17617	14	52	10
			24	30	11

Table 1: An analysis of distance speed and use of canals

(Shipping times have been derived through https://sea-distances.org/)

Time spent at the port

thanks to containerization port stay has been reduced tremendously. This has helped shipowners to complete the voyage faster and make the ship promptly available to the next journey.

In the good old days before containerisation the ships were mainly general cargo ships, which involved very long port stays. Wet weather, rain meant closed hatches & further delays. Mainly loading our exports, Tea (in boxes), Rubber (in bales), Fibre (in bales), Desiccated coconut (in bags), Copra (in bulk) there was plenty of wastage & sweepings, Stevedore damages etc which is avoided by containerisation. After every discharge the Hatches had to be cleaned for the next cargo involving a lot of crew labour.

The following were some of the specialised ship types to reduce port time.

OBO: (Oil- bulk- Ore): a purpose-built bulk carrier designed to carry Oil or Iron Ore in Bulk form. Expensive to build & maintain. The ship could carry cargo both ways earning freight.

BIBO (Bulk in – Bag out) : A specialised geared bulk carrier where eg. Sugar is loaded in bulk form. Upon discharging it is sent out in bagged form through a bagging machine thus reducing port time, wastage & bagging time ashore. On the other hand, a bagging machine with a hopper discharge is placed on the jetty more time consuming & weather permitting.

Ro-Ro: Roll on Roll off ships have a ramp to be lowered onto the jetty like a car carrier to be driven on or off the ship.

LASH: (Lighter aboard ship) The specialised ship designed to carry standardised barges. The ship will unload the barges into the water in port & proceed on her voyage & collect the loaded barges on the return thereby reducing port time.

About authors

Professor Lalith Edirisinghe, PhD

Commenced his career in 1981 as a Cadet in Ceylon Shipping Corporation, served in various capacities in the shipping industry and in the Board of Investment Sri Lanka. He is a Professor and Doctor of Engineering in Transportation Planning and Logistics Management, Chartered Marketer, and Chartered Logistician. Prof. Edirisinghe has published many articles on innovative concepts introducing the Virtual Container Yard (VCY), 3F Container Inventory Management (CIM) Matrix, Multidimensional Country Index (MCI), 6R Container Supply Management Model (CSM), Harmonized System Code Process Flowchart (HPF), Carriers' CIM Competence Index (CCI), and CIM Concept Model (CCM). Represented Sri Lanka in the Indian Ocean Rim Association□(IORA) Project for development of transnational skills standards for port workers under the Australian Government-Department of Education and Training. He presently works as the Dean, faculty of management and Social Sciences, CINEC Campus , Malabe. Prof. Edirisinghe is a student of Ananda College, Colombo.

Capt. Harindra Perera

Capt. Harindra Perera FNI, FCILT. is presently the Head of the Marine Simulation Department of the CINEC Campus & is a Senior Lecturer since 2012. He is also the Pilot Training Instructor & is the Assessor for CMA CGM & Seaspan ships. He was the Chairman of the Nautical Institute Sri Lanka Branch & of the Chartered Institute of Logistics & Transport Sri Lanka. He has vast experience in Ports & Shipping, starting his career at the age of 17 joining the cadet training ship 'Dufferin'. Upon completion he joined the Ceylon Shipping Corporation ships working his way up from Cadet to Master. In 1985 he quit sailing & joined the Sri Lanka Ports Authority Pilots. In 2001 he joined Associated British Ports as a Humber VLS Pilot. He has over 25 years of Piloting experience both in Sri Lanka & in the UK & was also the Deputy Harbour Master, Sri Lanka Ports Authority.

CASA *Signs* AGREEMENT WITH MEPA TO SUPPORT THE PROJECT "BEACH CARE-TAKERS FOR SUSTAINABLE UTILIZATION OF BEACHES"

Ceylon Association of Shipping Agents (CASA) entered into an agreement with Marine Environment Protection Authority (MEPA) on the 27th of November 2020 to support the project "Establishment of Beach Care-takers for Sustainable Utilization of Beaches".

During the United Nations Environment Assembly of the United Nations Environment Programme held in December 2017 at Nairobi, Kenya, Sri Lanka joined "United Nations Clean Seas Campaign" by committing measures to reduce marine pollution. In order to support the Clean Seas Campaign, MEPA initiated few activities for obtaining community participation towards prevention of marine pollution and establishing Beach Care-takers for sustainable management of beaches is one of those activities.

This programme was launched on 16th September 2018 at Dadalla beach. Since then, this programme is in progress covering all coastal Districts in the country. With this agreement CASA has undertaken to maintain a beach stretch which includes the cost of a Beach Care-taker, cleaning gear for the Beach Care-taker and an informative board which is used to create awareness.

CASA is also promoting this project amongst its members so that each member will support and assist in maintaining a stretch of beach.

Private Companies who signed the agreement with MEPA along with the Hon. Nalaka Godahewa State Minister of Urban Development, Coast Conservation, Waste Disposal and Community Cleanliness and Mrs. Dharshani Lahandapura Chairperson Marine Environment Protection Authority(MEPA).

CASA Chairman Mr. Iqram Cuttilan Signing the Agreement with MEPA Chairperson Mrs. Dharshani Lahandapura

Exchanging of agreements between the CASA Chairman and MEPA Chairperson

HAYCARB PLC STEALTHILY STEALING *the* SHOW

by Rochelle Palipane Gunaratne

Haycarb PLC, a world's leading manufacturer and marketer of coconut shell activated carbon has been stealthily stealing the show since its inception in 1973. A pioneer establishment in any coconut producing nation, Haycarb operates six activated carbon manufacturing locations in Sri Lanka, Thailand and Indonesia, and a global sales network with marketing subsidiaries in USA, UK and Australia. Listed on the Sri Lankan stock exchange with an annual turnover of around US$ 145 million, producing over 50,000 metric tons of activated carbon, accounting for over 16% of the global market share, Haycarb is indisputably one of the largest companies operating in the coconut shell activated carbon industry with an astounding worldwide presence.

The local giant with a global reach, Haycarb manufactures a complete range of standard, washed and impregnated carbon in granular, powder and extruded pellet forms for a full spectrum of applications in Water Treatment, Air Treatment, Gold Recovery, Food and Beverage Industry, Energy Storage and an array of Specialty Applications. Equipped with in-house R&D and engineering capabilities, Haycarb offers a total solutions suite to customers from product recommendation, activated carbon testing and product development, regeneration of spent activated carbon to designing and implementation of activated carbon based environmental engineering systems.

Due to the high demand, and the nature of the business where there is a multitude of applications across the globe, it is one of the very few companies that has grown in proportion to the demand despite various external factors and challenges, including the recent pandemic that crippled entire economies the world over. It is a strong contender in a niche category which continues to grow from strength to strength.

"We are part of a global industry that is less susceptible to recessionary conditions as proved over time due to the essentiality of the material in the smooth function of a host of industries across the globe," responded, Rajitha Kariyawasan, Managing Director of Haycarb PLC to the question posed with regard to the effect the pandemic has had in the industry. Further adding that, " the company maintained the momentum in its supply and manufacturing chain by strategically implementing and following precautionary measures in compliance with government directives of the countries we operate to in order to safeguard the employees which amount to 1440 in total, with over 900 employees in Sri Lanka alone.

This massive project has so far illumined the lives of 33,593 people in 19 villages over the completion of 16 projects, at a cost of LKR 64 million.

We focused entirely on the wellbeing of employees by providing them with PPE and creating awareness about maintaining good hygiene, providing vitamins and a nutritious meal including herbal porridges and incorporating an effective roster for the purpose of retaining social distancing within the work place".

Haycarb's operations hardly came to a stand-still despite the adverse effects of the pandemic and it was largely due to the timely intervention of innovative forward thinking processes which were implemented to ensure the smooth functioning of the operations. Since the warning signs began to flicker globally, the company strategized through a period of trial and error and perfected the transition to remote working, effectively maintaining customer communications, continuous factory operations, providing support services using ERP and virtual platforms, virtual plant tours for customers and a virtual platform to conduct various customer and certification audits among others. While change was inevitable in order to survive, the company was determined to see it through and it required the dedication and commitment of each employee to come together as one family using technology and effective discussions which were conducted regularly to succeed".

Sath Diyawara – Giving back to the community

While we continue to place our utmost value on our employees, our clients and the sustenance of the product through the stringent implementation of ethical practices, extensive training and motivation programmes and adding value to the product through continuous research and development, we understand our stand in society and strongly believe in being socially responsible, hence the "Puritas Sath Diyawara" CSR project which is being carried out by our very own subsidiary Puritas (Pvt) Ltd. It is also the key CSR initiative undertaken by the Hayleys Group which was initiated with the aim of giving hope to people by providing good quality drinking water, enriching lives and facilitating socio-economical needs in areas affected by Chronic Kidney Disease (CKD). This massive project has so far illumined the lives of 33,593 people in 19 villages over the completion of 16 projects, at a cost of LKR 64 million. Through the Sath Diyawara initiative, 160,000 Liters of water is purified daily, thus giving hope to over 1,162 CKD patients.

Challenges posed

"While the industry is sustainable, where the demand for coconut activated carbon grows year by year, the key challenge posted by the industry is how to sustainably grow the coconut availability in the key coconut

growing countries. In this direction the government policy framework toward encouraging the growth of coconut plantation and the growth of coconut trees as a home garden model coupled with good cultivation practices to improve the yield are quite crucial. At the same time, there is a significant support necessary from the global shipping industry to understand the safety of the steam activated coconut carbons and encourage its counter parts to eliminate any myths of the cargo. There is a significant differentiation that needs to be done scientifically on proper declarations to avoid misuse of its HS code category for other use, and open up the industry with proper certification, testing and facility audits. This is vital, considering the essential status of coconut activated carbons for a variety of applications, from water to air purification and from mining to energy storage as a wonder chemical, largely used for the purification of the planet and its resources" stated Mr. Kariyawasan

Positioned to Prosper

" Haycarb Group is well-positioned to grow its business globally, supported by an exciting product portfolio, strong market position and an established technical and manufacturing base. Our expertise in many areas of the coconut shell activated carbon business helps us to establish a strong brand presence in key markets and differentiate us from the rest of the competition.

Haycarb continues to focus primarily on its aggressive growth plan to expand its business, under a well formulated strategic plan that is in motion. Although, we operate in a global economy that continues to display a significant amount of uncertainty in political and economic fronts, we believe that through the prudent strategies developed, the negative consequence on the Company of such macro-economic variables can be effectively mitigated.

We continue to focus on expanding our capacity and position our broad portfolio of products in emerging markets, niche high-end applications as in the case of alternative energy storage and other specialised segments, whilst setting up plans to consolidate our market position in key target applications and customer segments in the traditional developed markets.

Further to the growth opportunities for the Company's core product portfolio of coconut shell carbon, we will ensure sustainable top and bottom line growth through the development of related services such as spent carbon regeneration and turnkey water purification systems".

Pioneering HISTORICAL MILESTONES

Hayleys PLC, with its roots in the coconut fibre and allied industries, began exporting coconut shell charcoal in 1970. Being ever vigilant in seeking new opportunities to enhance value addition, Hayleys attempted to manufacture charcoal in metal retorts, to make better quality charcoal than that produced in the traditional 'pit' method. Although these initial attempts of value addition were unsuccessful, the company saw the business potential in converting this basic product into activated carbon, primarily for the export market.

However, activated carbon manufacturing was considered a 'black art', almost an alchemy, replete with secretive technology and a reluctance to even consider joint ventures, due to fears of proliferation of this technology. During this period there were only six (06) large activated carbon facilities in the USA and across Europe and around four (04) in Japan.

Undaunted, Hayleys went ahead with the venture and incorporated

However, activated carbon manufacturing was considered a 'black art', almost an alchemy, replete with secretive technology and a reluctance to even consider joint ventures, due to fears of proliferation of this technology.

Haycarb in 1973. Haycarb had to rely then, even as of now, on the determination and innovativeness of its leaders and employees, to develop the technology and establish itself in this highly technical global business. The first Managing Director, Mr. Rajan Yatawara, with his small team of staff and together with the assistance of consultants, embarked on this ambitious task. The project, despite being delayed due to restrictions on funding and tight exchange control regulations that prevailed at that time, went on to become the first activated carbon manufacturer outside the industrialized world. A truly pioneering venture.

Haycarb incorporated with an issued capital of Rs 1.25 million, followed by the setting up of the first manufacturing plant in Madampe, Sri Lanka with a capacity of 700 tons per annum. Foreign exchange required to import the equipment for the initial plant was Sri Lankan Rupees 375,194 only.

- Haycarb was the first company in the Hayleys Group to be listed in the Colombo bourse.
- 1977 - First major sale of activated carbon to a gold mine in Nevada.
- 1983-84 - one of the earliest Sri Lankan companies to step outside

its shores through the partnership with SorbTech in USA.

- 1986 – Marketing subsidiaries were set up in United Kingdom and Australia, resulting in growth of sales and presence in key geographical market segments.
- 1993 – Invested in Carbokarn in Thailand, the Groups' first manufacturing plant outside Sri Lanka, as a 50% owned joint venture.
- 1995 - The SorbTech name was changed to Haymark in the USA, and shareholding was increased from 49% to 100%. While this company continued to handle limited carbon business, a very lucrative ten year mutually exclusive supply contract was signed with Barnaby Sutcliff Corporation, USA. This restructuring enabled Haycarb to triple its sales volume into the US market and solidify the company's global presence.
- 1996 - To meet growing demand, capacity was expanded through the purchasing of assets of an activated carbon manufacturing plant in Badalgama, Sri Lanka.
- As a forward integration strategy, Puritas (Pvt) Ltd was set up, taking advantage of in-house expertise and capabilities in providing complete environmental engineering solutions.
- 2002 - Further forward integration to serve global clientele by setting up a central facility in Thailand for the regeneration of used activated carbon. Haycarb tied up with a large multinational chemical company, to provide regeneration services for their plant in Thailand.
- 2003 - Backward integration through the subsidiary Recogen (Pvt) Ltd to secure the supply of coconut shell charcoal, Haycarb's principal raw material. Recogen's 'Green Charcoal' process is environmentally friendly, and the waste gases are used to produce electricity that is sold to the national grid.
- 2005 - Setting up of a manufacturing plant in Indonesia, the second overseas manufacturing plant, thus enhancing flexibility in production and mitigating raw material supply and country risks, while optimising on speed and cost of delivery.
- 2010 - Haycarb launched its new logo and undertook a rebranding campaign. The new logo was launched to reinforce the global reputation that stands for Innovation, Technical Superiority, Customer Centricity, and 'Green' supply chain initiatives.
- Ultracarb Pvt. Ltd was incorporated in 2010 to supply highly specialized activated carbon for Energy Storage – becoming the 2nd supplier in the world to manufacturer high purity carbon.
- 2012 – Carbokarn Company Ltd. acquired Shizuka Company Limited situated in Ratchpuri province in Thailand, enhancing the activated carbon manufacturing capacity of the Group.
- 2013 - Haycarb Value Added Products, was incorporated in 2012 and commissioned in 2013 to manufacture Value Added Activated Carbon Products supplying niche and specialized applications.
- 2014 – Commissioned PT Haycarb Palu Mitra manufacturing plant in Palu, Central Sulawesi, Indonesia to augment Haycarb's manufacturing capacity.
- The Haritha Angara a community service project was launched in Sri Lanka to empower local charcoal manufacturers to adopt pollution free charcoaling. To date, this particular initiative has been instrumental in commissioning 319 environmental friendly charcoaling units with the capacity to supply 3500 – 4000 MT of charcoal.
- 2015 – 26 nos. of vertical charcoaling kilns were commissioned in Thailand to promote the concept of environment friendly charcoaling process. Installed in Ratchapuri, the plant has the capacity to manufacture 1800 MT of charcoal per month.
- 2019 – PT Haycarb Palu Mitra recorded a full year of performance, fully re- commissioned, after facing the 2018 earthquake and tsunami in Palu Province in Central Sulawesi, Indonesia.

The use of activated carbon has grown exponentially since the first discovery of charcoal was likely long before the first recorded use of the substance in about 3750 B.C.

Around 1500 B.C., we see the first written record of medicinal use of charcoal. Archaeologists have found that the first records of using charcoal for water treatment appear about a thousand years later, in 400 B.C. These records show up in several cultures, mostly of people who travelled by ship: sailors would char the inside of water barrels to purify and preserve the water for long ocean voyages. Additionally, a paste of charcoal tar was often used for sealing up leaks and holes in ships.
(Source : the discovery and history of activated carbon)

How does one anticipate a calamity of such colossal proportion in a business perspective and how fast does it take to react? Do you sink or sail, fall or fly? Covid 19's initial impact had the world reeling as businesses floundered under the pressure of the epitome of disaster, giving prominence to a term which has become a byword in society; unprecedented. Surely, the whole world has never experienced such a time as this and brings to mind the opening lines in Charles Dickens famous novel- Tale of Two Cities; "It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, ..."

ADAPTING TO THE *winds* of change

by Rochelle Palipane Gunaratne

The Keells Supermarket chain, a leading player in the FMCG retailing industry in Sri Lanka, with a growing online shopping platform, www.keellssuper.com is registered as Jaykay Marketing Services (Pvt) Ltd (JMSL), a subsidiary of Ceylon Cold Stores (CCS). Since opening its first supermarket in 1991 with a promise to bring the freshest products to the Sri Lankan consumers, the subsidiary of the John Keells Group, has grown into an effective network of 116 supermarkets across the country. Keells has received many accolades for the work done towards its goal to improve the customer shopping experience.

In 2017, Keells (then Keells Super) unveiled a new store with a fresh look and feel and in the year 2018 relaunched their brand identity as Keells, providing innovative retail experiences through quality food and fresh produce at the right price to their consumers.

Operating with the core purpose of improving the quality of life for the nation, focusing on providing for life's regular needs with a world class retail experience, Keells was certainly not exempted from the adverse effects of the pandemic. Yet the long standing giant in the FMCG sector was resilient through adversity and remained hopeful while adapting to the winds of change. **Aravinda Wanniarachchi,** Chief Financial Officer- Retail at John Keells Holdings PLC gives us an insight;

Give us a brief preview of how the FMCG sector functions on a daily basis.

Even though Keells was the first supermarket in Sri Lanka to launch an online grocery store concept in the country allowing customers to shop online and collect groceries from the store or have it delivered to their home, the higher percentage of shoppers post Covid 19 were those who visited the stores. The supply chain consisted of the fresh produce being sourced from eight (08) collection centers across the country, supporting local farmers and growers. The dry goods were delivered via a central distribution center to the stores island-wide.

How was the FMCG sector impacted by the COVID-19 pandemic?

Despite all the contingency plans in place for various disasters, the pandemic hit us hard. Life as we knew it changed drastically and the general flow of the business received a severe blow. The outbreak in Wuhan in November 2019 was not cause for alarm and subsequently when it started spreading at a rapid pace in March 2020, we assumed that the supermarkets will be functional similar to some of the other countries but the complete lockdown was never anticipated. Our business model had to change overnight when the government decided to impose stringent measures to curtail the spread of the virus. Some of the areas which needed immediate addressing was a shift in operations, the insufficient manpower as employees were leaving on their own volition due to the fear psychosis that prevailed, a surge in demand for online deliveries which we could not cope with on the existing platform. Suppliers too had trouble sustaining their business which hindered the supply chain.

How did Keells adapt its operational model to address the needs of the customers?

In the new normal, we see the FMCG sector of Sri Lanka evolving and adapting, to cater to the hyper-empowered and tech augmented consumers. We were compelled to change the operational model with concerns on staff shortages being sorted through the volunteers who pitched in from within the group and the tri-forces.. Even minor, seemingly insignificant processes had to be changed such as the clearing of the aisles to provide space for sorting and packing with the range of items being reduced and addressed in a semi – circular pattern for ease of access and mobility in order to cater to the

excessive demand for deliveries.

In the mainframe of the revamping process was our existing online platform which had to be revitalized and the development of a digital presence which catered to the ever-growing tech savvy customers. Till these platforms were set in motion, we gave our customers the option of sending us their orders through other social media platforms. It was a learning curve and transparency in communication was key to our sustenance and eventual success in retaining our loyal customer base, while securing a new segment of customers who have access to a quintessential shopping experience at their fingertips.

We have taken that extra initiative to ensure the safety of all our stores by investing on PPEs for all our staff and gone a step further by obtaining the SLS certification in COVID-19 Safety Management Systems as we believe in raising the bar in standardization for the benefit of our customers.

How effective is the transformation from your perspective and from the customer's perspective?

Why, what and how consumers buy is changing due to the COVID-19 outbreak. Consumer priorities have become centered on the most basic needs, sending demand for hygiene, cleaning and staples products soaring, while non-essential categories slump. This has paved the way for Keells to re- think, re-evaluate and reform our entire business strategy and given us ample access into forming a stronger rapport with our customers, enabling us to personalize and add value to the shopper amid a secure space.

Keells own loyalty program Nexus, provides customers with deals on everyday essentials. Keells also carries an own label portfolio of close to 300+ products covering grocery, household and beverages which now also includes Organic and Free From product ranges which can all be accessed online.

Our customers too have shown a keen interest in these changes while the interaction helps us to understand their individual needs and cater accordingly and more effectively.

Currently, Keells is supplying three times the pre-Covid 19 monthly volumes in a day for online orders.

How the employees were kept motivated during these unprecedented times? What were the implications on their performance?

First and foremost we ensured the safety of our permanent and volunteer staff by following government directives and ensured that all their essential requirements from food, transport and accommodation were given priority. An additional hardship allowance was added to the monthly remuneration. In addition we had our own celebrities providing entertainment to the staff in some of the outlets in order to boost their morale.

Further, we openly communicated with media forums and staff with regard to any out-breaks which occurred during that period and took effective measures such as informing the relevant authorities to administer the necessary medical attention to the infected employee who was immediately transferred by ambulance to a government medical facility while we provided them with clothes, and other required items, while quarantining the rest of the staff in a government approved hotel or other facility to minimize the adverse effects the virus would cause.

Currently, the learning and development is continuing with the help of the online platform and courses are administered by the HR partner of each store.

How will the change impact Keells future growth potential and implications on its growth trajectory?

The change with its fundamental aspects it's a game changer in the growth trajectory of Keells with its focus on safety , exemplary service, user experience, excellence in quality and adhering to timelines among others.

In a crisis of such proportion we had the propensity to evolve or run the risk of becoming obsolete and we opted to thrive amid the disruption by gradually surging forward.

- Most Valuable Supermarket Brand in 2020 by Brand Finance
- Most Valuable Supermarket Brand in 2019 by Brand Finance
- Service Brand for the year at SLIM awards 2019 - Bronze
- Innovative Brand of the year at SLIM awards 2019 - Bronze
- National Business Excellence Awards 2019 - Silver in Trading Category
- Keells Own Label Packaging Wins a Highly Commended at Transform Awards 2019
- Keells Own Label Packaging Melbourne Design Awards 2019 – Silver
- Best Integrated Digital Marketing Campaign at SLT Zero1 Awards 2019 - Silver

GOING*to* EXTREMES

SRI LANKA'S TECHNICAL DIVING MAESTRO DHARSHANA JAYAWARDENA TAKES THE PLUNGE

by Rochelle Palipane Gunaratne

You know you've met a brilliant person by merely browsing through his amazing profile. Dharshana Jayawardena, a name associated with those rare individuals who have reached mercurial heights but in his case mercurial depths as Dharshana is one of the few Technical Divers / Extreme Dive Specialists in the world. (The share of technical divers among all recreational divers in the world is estimated between 4-12% as per google). What makes Dharshana's prolific hobby more valuable is his humility- Possessing a rare ability and being recognized globally would make hubris excusable yet he is nonchalant about his fame.

A virtuoso software Engineer by profession, Dharshana aimed for the stars in a literal sense as his childhood ambition was to be an astronaut but he was destined for greatness nevertheless as his diving pursuits take him on adventures where no man dares to venture. 'My interest in diving was purely an accidental discovery as I could not even swim at the time but I took the plunge nevertheless in the tropical waters of Bermuda during a vacation with friends but managed to

scuba dive to a depth of 10m. This stirred a determination to learn diving and unlike many others who learnt to swim first, I learned diving, snorkeling and finally to swim," said he laughingly.

While most divers would have been satiated with gaining a rudimentary knowledge of diving which required diving with an instructor to a depth of 18m or the advance requirement of 40m, Dharshana took it a step further and literally dived deeper through technical diving. This particular skill classed as an extreme sport requires the ability to dive solo below a depth of 40m and this created a hitherto unexplored opportunity – the exploration of shipwrecks around Sri Lanka. Being an island, situated centrally with a rich maritime legacy, it is no wonder that the ocean depths around Sri Lanka hold a myriad of fascinating artefacts.

My first foray to the deep blue was in search of the British merchant-navy vessel SS WORCESTERSHIRE LIVERPOOL, off the deep seas of Mt. Lavinia, sunk by a top-secret German naval vessel called the SMS WOLF (formerly the Hansa freighter Wachtfels) on 17 February 1917.

The local fisher folk were aware of its whereabouts which were close to Mt.Lavinia but no one had actually taken the initiative to investigate and research the wreck. The challenge spurred me on as it took a duration of two years to convince the locals that I was not some bounty hunter but a curious individual who was interested in search of concrete evidence about the origins of this mystery wreck. An additional year within a two year seasonal period making headway through 20-25 dives spending 25 minutes each time meticulously scouring for clues of which the bell was the key which bore the name of the ship. Initially, I discovered a chamber pot with and inscription

There are at least 100 shipwrecks at SCUBA divable depths, many more are yet to be discovered

of the company which supplied the cutlery and the crockery and final the great discovery of the bell laid to rest the speculation that the ship was indeed the SS Worcestershire. Next was the discovery of another century old British merchant vessel, the SS Perseus LIVERPOOL off the coast of Modara. The SMS Wolf also sank it, on 21 February 1917. Having found the bell of the ship, which is the best way to identify the authentication of a shipwreck, Dharshana stated, "During World War 1, a top-secret German naval vessel called the SMS Wolf successfully completed an epic voyage that lasted 15 months. During this time, the Wolf sailed for thousands of nautical miles covering the Atlantic, Indian and Pacific oceans, and captured or sank almost 30 vessels, over 114,000 tons of shipping, before triumphantly returning to Kiel, Germany with pirated bounty and hundreds of prisoners."

Dharshana first stumbled on this fascinating story during his research into two deep and unknown shipwrecks, approximately 15 kilometres West of Mount Lavinia and Modara.

In the wake of these discoveries, Dharshana has been a keynote speaker at ADEX since 2015. This annual global dive conference, held in Singapore; every April, sees top diving specialists from all over the world speak. Dharshana represented Sri Lanka among world's top diving experts, including personalities such as world record holder for deep diving Ahmed Gabr and expert technical diver Ritchie Kohler, the host of History Channel's 'Deep Sea Detectives'. Thus, this opportunity will help promote Sri Lanka as a leading Asian wreck dive destination to the community of over 60,000 divers in the world that attend the conference every year . In addition, he was recognized as the Asian Explorer of the year 2019 by ADEX for

this opportunity will help promote Sri Lanka as a leading Asian wreck dive destination to the community of over 60,000 divers in the world

his discoveries.

Currently both ships bells have been handed over to the Maritime Archaeological Unit (MAU) in Galle. Dharshana hopes that an exhibit in the Maritime Museum will be declared open to depict the story of the SMS Wolf, and the World War 1 impacts on maritime history of Sri Lanka along with these two valuable artefacts. "It will be a great value addition to the museum as well as elevate the tourism potential of wrecks in Sri Lanka as both these wrecks are in divable depths for SCUBA divers. Divers really love to dive shipwrecks that have an amazing story behind them, and

Sri Lanka has a vast untapped potential to develop shipwreck diving tourism, an area not yet fully promoted to the world.

it is hard to beat the exploits of SMS Wolf and the plight of her victims," commented Dharshana.

Apart from the above historical discovery, Dharshana has delved deeper into unchartered territory in Sri Lanka with cave dives, starting with the famous 'Nil Diya'. "So there I was – making my way down a rabbit hole infested with bats and spiders. After awhile we came across a pool with a blue luminescent glow which seemed ethereal and immediately I free dived to into its shimmering waters. A week later, I made my way down, gear in tow, to explore further and discovered a maze of wonder.

My next adventure would be the East coast of Sri Lanka with its treasure trove of sunken ships bombarded by Japanese artillery attacks during World War II". In his book 'Ghosts of the Deep – Diving the shipwrecks of Sri Lanka', Dharshana also details over 50 shipwrecks that have high tourism value to Sri Lanka. "There are at least 100 shipwrecks at SCUBA divable depths, many more are yet to be discovered," enthused the pioneer who dives not merely for the thrill of it as diving is a spiritual experience, making him aware of his vulnerability and the fact that there's more to life than what meets the eye.

Worldwide, shipwreck diving is a multimillion dollar industry and many countries in South Asia, such as Maldives, Indonesia, Malaysia and Philippines adeptly earn substantial foreign revenue by protecting and promoting marine tourism assets diligently. In comparison, Sri Lanka has a vast untapped potential to develop shipwreck diving tourism, an area not yet fully promoted to the world.

Waste to Wealth

World Review of Science, Technology and Sustainable Development, Vol. 15, No. 2, 2019 145

Excerpt from Circular economy: waste-to-wealth, jobs creation, and innovation in the global south

Compiled by Rochelle Palipane Gunaratne

'Waste Not Want Not,' is a term we have been grilled with since our childhood but waste has become a colossal global issue, leading scores of multi-dimensional companies to invest in transforming waste into usable material. While recycling is the most common form of re-using waste, the products which are manufactured tend to be of a lesser value than the actual item, making way for a commercially economical solution to waste through upscaling – as the term implies it adds value to waste creating a means for profit.

Sharing a study done by three academics, Katie Conlon, Dr. Randika Jayasinghe, Ranahansa Dassanyake gives an overview on the subject matter that has gained traction globally.

Katie Conlon is a PhD candidate in Urban Studies at Portland State University, and focuses her research on waste management in the global south, especially regarding the issue of plastics. Environmental awareness and connection; civic environmentalism; and environmental behavioural change, are also topics of keen interest. Her current research has received support through both a Fulbright Research Fellowship (2018–2019), as well as a National Science Foundation Fellowship (2014–2019). Currently, she is working on a case study in Colombo, Sri Lanka; previous research experience in the Asian context includes waste, sustainability, and community resilience to climate change issues in Ladakh, India; Thimphu, Bhutan; Hanoi, Vietnam; and Japan. She holds a Masters in International Peace Studies from Notre Dame, in which her research focused on the intersection between climate change and peacebuilding. Her research, work, and curiosity have taken her to 50 countries.

Dr. Randika Jayasinghe, a passionate advocate, having gained her Bachelor's degree in Forestry and Environmental Sciences (2009) from the University of Sri Jayewardenepura, Sri Lanka. She is an Australia Awards scholar and obtained her doctorate from the University of Western Australia in 2015. She is a Senior Lecturer and a researcher at the Faculty of Technology, University of Sri Jayewardenepura. She is the project coordinator of the Australia-Sri Lanka university partnership to develop community-based waste recycling businesses. Her research interests include waste upcycling, ecotechnology and eco-designs, wastewater treatment and circular economy.

Ranahansa Dasanayake holds a Baccalaureate degree with the specialisation in Microbiology (2004), a Master's degree in Molecular and Applied Microbiology (2006), a Master's degree in International Cooperation Policy 2012) and a Master's in Engineering in International Material Flow Management (2013). He is an experienced professional services engineer, worked for 3M Corporation until 2010 and currently serves as an International Project Manager at the Institute for Applied Material Flow Management of the Trier University of Applied Sciences, contributing to global circular economy and sustainable resource management projects in over 40 countries on five

continents. He also is a doctoral researcher at the University of Kassel's Centre for Environmental Systems Research. His current research interests include sustainable resource management modelling for renewable and energy-powered seawater desalination.

Circular economy (CE) has been conceptualised as a mechanism for keeping materials out of the waste streams otherwise destined to reach landfills, waterways etc. CE indicates pathways for industries and civic society to transit to a more sustainable economy, to reduce or eliminate waste through development of new business models, eco-designs, and sustainable consumption and production strategies. Presented herein are the lessons learned from the CE-based waste-to-wealth projects in Sri Lanka with an emphasis on the cultural, economic, and structural roadblocks faced by the micro-social entrepreneurs in this field.

Drawing a parallel with the biological systems, the fundamental premise of CE is that waste is a 'resource' at the wrong place at the wrong time and thus, essentially re-purposeful and can be used as inputs/raw material to other systems. CE usually takes the systems approach to resource management and is characterised by fundamental elements such as boundaries, input flows, stocks, output flows, and emissions.

CE strives to minimise the resource extraction from nature, by improving the efficiency of resource use or resource productivity, reduce emissions and associated impacts through various means by looping the material and energy flows mimicking ecological/biological systems. In so doing, CE essentially creates new socio-economic subsystems and employment; increases wealth and the volume of money in circulation; reduces negative environmental consequences; reduces the monetary outflow (spent on importation of resources); and decouples the system from fossil/non-renewable resources.

At the cusp of change

Waste management in the global south is significantly influenced by the rapid changes in urban dwelling populations and consumption patterns. As global south countries urbanise and develop, waste production increases proportionally to the GDP (Lacy and Rutqvist, 2015), and the challenge of how to manage ever-increasing waste streams falls on local governments. Currently, half of the world's population – 3.5 billion

people – lack means of waste disposal to manage increasing materials flows (World Bank, 2016). South Asia alone expects more than 250 million new urban dwellers by 2030 (Ellis and Roberts, 2016). Municipal solid waste (MSW) in South and South East Asia currently makes up approximately 33% of global waste streams; and waste in the global south overall is expected to double in the next 20 years (Hoornweg and Bhada-Tata, 2012).

Increasing waste creation and accumulation put pressure on already

overtaxed global south governments, and as a result, the effects of the increasing impacts of waste fall on local communities and the environment.

During the post-war period, rates of urban growth, industrial activity, infrastructure development, and the volumes of imports (packaged foods and goods, and subsequent consumption) have substantially increased.

These social-behavioural changes, in turn, play a key role in influencing the national waste volume. As an island nation that still relies on predominantly open dumping, as with the field of CE, waste management in the global south is also an evolving concept.

In Sri Lanka, the responsibility of waste management falls on the municipal government, and most struggle to manage the waste collection, as the municipal workforce change every few years linked with party elections and corruption. In municipalities where sorting is neglected, the informal sector often sorts recyclable materials of value and finds markets, predominantly external [such as India for wood and

metals; China for polyethylene terephthalate (PET)]. In some cases, informal sector workers are responsible for 20–30% of a city's recycling (Wilson et al., 2006).

Additionally, informal sector waste pickers and upcycle social enterprise groups are able to see value in material streams, and in Sri Lanka, these two groups work together in the recycling and CE domains.

Un-managed solid waste is a serious social, environmental, health and political concern in urban areas of Sri Lanka. Characteristic haphazard waste management is exacerbated by the unwitting civil contributions such as waste dumping on roadsides, waterways and abandoned lands, and the open burning of plastics, etc. that negatively impact health, quality of life and social well-being. The most critical incident was the

April 2017 collapse of the largest dumpsite in Colombo, Meethotamulla. Mismanagement of waste has also been linked to dengue (Gawande, 2017), as well as the environmental disturbances when elephants, cows, dogs, and other animals graze on the waste heaps (Rodrigo, 2017). As a response, waste management has been given a higher priority with intensive clean-up drives conducted around the country to remove waste from residential areas. These problematic incidents highlight that Sri Lanka lacks proper final waste disposal options, which has brought in an increased interest for new approaches at various levels of concern, which could lead to more sustainable and innovative ideas to manage waste or more practices that ultimately facilitate the creation of more waste.

The study pointed out that product design, prototyping, and manufacturing are rare, due to lack of affordable machinery, technological skills, design protocols, and knowledge of manufacturing processes.

As negative impacts of waste accumulation are increasingly felt in Sri Lanka, the social appeals for CE are high, as CE can improve the industry and economic flows as well as improve jobs creation, livelihood improvement, and waste management. Specifically, findings from a three-year feasibility study conducted from 2011 to 2014 found the opportunity for local economic development through upcycling discarded materials (Jayasinghe and Baillie, 2017). The study also indicates the presence in Sri Lanka of multiple layers of stakeholders who depend on waste for their livelihoods: individuals, small-scale recyclers, community-based organisations, and social enterprises. The study pointed out that product design, prototyping, and manufacturing are rare, due to lack of affordable machinery, technological skills, design protocols, and knowledge of manufacturing processes. Yet, these skills are key to enabling the development and longevity of successful small-scale industries (Thamae and Baillie, 2009).

One of the main issues with poor waste management is the lack of awareness about different waste types, recycling, and proper management methods. As such, a project on value addition through waste upcycling highlights that waste can be a valuable resource

in an emerging island economy like Sri Lanka where raw materials are expensive and/or unavailable. Based on the aforementioned feasibility study, the University of Western Australia partnered with three counterpart Sri Lankan Universities (Universities of Jaffna,

Moratuwa and Sri Jayewardenepura), and the not-for-profit organisation Waste for Life, to develop the waste to wealth educational program that engenders and supports community-based waste recycling and manufacturing businesses, as well as positively impacts both local economies and environmental health.

A key aim of the project was to provide education and training in developing waste-based businesses, and for participants to instigate their own start-up social enterprise by the end of the training. The community groups were first trained in materials and products development; then the project team worked with the groups to identify a brand name and find sustainable markets for each business. Resulting, the end of the project period in 2017 generated three community projects – two in Jaffna, in the Northern Province and one in Negombo, in the Western Province. These social enterprises manufacture a variety of domestic products from upcycled materials, such as book jackets, file folders, coasters, placemats, decorative sheets, and panels.

Yaal Fibre

A women's cooperative that upcycles waste fibres from discarded banana trunks at a banana transportation facility in Jaffna. With the extracted fibres, the women weave sustainable goods such as bags, baskets, and hats. Start-up support came from a German NGO, yet in the initial phases, the women faced difficulties finding a reliable market in Jaffna for their products. With aspirations to expand and diversify their products, the project team introduced a simple heat-press technology, which combined banana fibre with waste plastic to create different products such as notebook jackets, clipboards, coasters, and

placemats. Waste plastics such as LDPE, HDPE, and PP packaging materials are collected from different businesses in the area, including a bakery shop and a motorcycle spare parts store. This shift in design and products prompted continuous orders for Yaal products from a diverse range of service-industry clients: gift shops, travel agencies, hotels, and restaurants. However, with increasing production, Yaal has a new challenge of finding good-quality, locally-generated packaging materials, as the spare parts store in Jaffna is no longer in operation.

Yet, this new process is not without its critics. Natural-fibre composites or laminates in many ways make the end product complex by mixing up elements that could otherwise be recycled separately. Some criticise natural-fibre composites for encapsulating natural materials that can biodegrade, into a plastic material that cannot. Before the upcycling project, the packaging materials were burned or dumped informally or improperly. With this project, the materials are collected and used to make products that raise awareness on waste management and environmental impact, and show innovative ways of upcycling waste.

Yaal production is therefore not only associated with the CE upcycling of material resources available in the area, but also promotes providing solutions to local problems – employment, livelihoods, women's empowerment, post-war revitalisation – in ways that create social and environmental benefits while being at the same time financially sustainable. From their inception in October 2016 through

August 2018, Yaal has upcycled 240 kg of plastic packaging materials into value added products. The social implication through job creation was more profound, providing an income source for around 14 women from nearby villages.

Katana Upcycle

A social enterprise that collects, separates, and upcycles plastic waste into a range of commercial products. The products are made from HDPE and LDPE plastic packaging materials, gunny bags, old sarees, curtains and mixed-material (aluminium, plastic and paper composite) food wrappers. It was developed as the domestic product manufacturing arm of a small recycling business by a local entrepreneur. The social enterprise provides employment for eight to ten women from neighbouring houses and villages, and allows a flexible working schedule where women have the freedom to manage their time at work, depending on their other household responsibilities. During an interview with the women, this flexibility is cited as one of the main draws for them to work at Katana. The initial product range included folders, notebooks and stationery and they continuously experiment with materials and develop new products. The latest additions to the range of products include file covers and tiles made from mixed-material (metalised food wrappers that cannot be recycled using conventional recycling methods). Since inception in July 2016, Katana has converted around 700 kg of plastic waste and other materials into value-added, upcycled products. It also runs a successful stall at Good Market (a weekly marketplace in Colombo that provides social enterprises with a unique platform to promote and market their products and services). Katana Upcycle uses this platform not only to market their products but also to actively engage in environmental education and to promote recycling. This could be seen as an important service where the social enterprise supports CE education and the systems thinking required to accelerate a transition.

The social enterprise provides employment for eight to ten women from neighbouring houses and villages, and allows a flexible working schedule where women have the freedom to manage their time at work, depending on their other household responsibilities.

Paalam Products

A social enterprise that works with war-affected communities, particularly women in the Northern Province, to support employment and livelihood development and promote social responsibility in the local community (with support from a UK-based organisation). Paalam receives second-hand clothing items from its UK base, that they then sort and sell for local reuse. Some garments do not pass quality checks, and Paalam identified a further entrepreneurial opportunity

converting these textile wastes into value-added products. Initially, six women (mostly single mothers from the area) received training to upcycle the fabric waste with plastics into stationery products such as pencil cases, file covers, and folders (products sold both locally and in the UK).

Paalam is still in its initial stages since production began less than a year ago. Yet, during this time, they have converted around 50 kg of plastic packaging materials and 80 kg of fabric waste into value-added products.

Yaal, Katana, and Paalam achieve a mix of positive social, economic and environmental impacts through their businesses, and waste is diverted from haphazard disposal practices through the development of value-added products. They all support the notions: 'small is beautiful' and 'start local but think global'; and simultaneously, contribute to the climate change mitigation efforts by reducing emissions.

All three waste-to-wealth businesses source their raw materials locally – materials that would normally have been deposited in a landfill, dumped in a vacant land or openly burned – and in doing so provide new opportunities for new value-added products and increased social dialogue on the potentials of CE. All projects focus on providing job opportunities in the community, and often target marginalised groups who otherwise lack access to employment and income-generating activities.

Socially impacted change for a better life

Social impacts include an increase in income and job opportunities for marginalised groups, as well as training and skill development in local communities. As these social enterprises are mostly run by women, they also encourage women empowerment and improvement of gender equality, broadly addressing the aforementioned SDGs. The creation of job and income opportunities also stimulates local economies. From an economic point of view, the encouragement of local business development, reduction of community costs, the increase of purchasing power, and the creation of innovative value chains, leads to increased local economic activity.

The three waste-to-wealth businesses have recycled over one (01) ton of waste since their inception. Converting waste into value-added products not only address environmental degradation due to unmanaged waste, but also reduces consumption of raw materials, and energy for the production of new products.

According to Stanford University's recycling program, recycling 1 ton of plastic waste is equivalent to nearly 16.3 barrels of oil, 98 million BTU's of energy, and 30 cubic yards of landfill space (PSSI, n.d.); and reduces emissions 25 times more effectively than through incineration (Tellus

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Institute, 2008). Based on these studies, considerations for furthering CE potential in Sri Lanka could include:

- Further quantification of CE endeavours, such as the amount of methane reduced due to landfill minimisation; or carbon dioxide reduction due to locally processing materials and minimising the extraction of new materials.
- Initiate programs that further synchronise CE efforts, like local collection points for materials that can be reused or provide CE operations with transportation so that they are able to increase collection and scale-up to other areas.
- Provide training and technology like shredders, moulds, and 3D printers to open up opportunity for further processing and jobs creation with repurposed materials, as well as generate more interest in CE possibilities.

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