



GREEN FOOTPRINT 3

Think Green, Live Green, Love Green



FOREWORD

Green Footprint 3 is our third eBook to chronicle ITE's sustainability initiatives and achievements in 2015 and 2016. This has been a good platform to acknowledge and share the dedication of our staff and students in environmental care.

As an educational institution, we have a very important role to play in educating our youths to be conscious of the environmental impacts such as climate change, global warming and rising sea levels and to influence them to take actions in mitigating them.



In line with ITE's fifth strategic plan, ITE Trailblazer (2015 – 2019), the ITE's Environmental Sustainability (ES) Strategic Roadmap (2015 – 2019) was formulated and introduced by the ESI Committee in 2015. There are four key thrusts in this strategic roadmap: 'Building a Green Culture', 'Developing Green Competency', 'Fostering Collaboration' and 'Commitment in Environmental Care'. We will also work towards enhancing our resource efficiency and environmental practices to be an environmentally responsible organisation. The ES Strategic Roadmap (2015 – 2019) sets sustainability goals which align with the Sustainable Singapore Blueprint 2015 to focus and chart our sustainability direction till 2019.

In this eBook, we have adopted a slightly different approach to present the green activities. Our students from the Writers' Room, Green Ambassadors Club, as well as students taking the Down-to-Earth LifeSkills elective module were among the contributors of the articles. They interviewed the Eco champions and offered their perspective of the green events with a fresh view of our green enthusiasm.

I hope the passion and enthusiasm of our staff and students demonstrated in the Green Footprint will be able to inspire you to care for the environment.

Happy reading!

LIM TECK LEE

Deputy Principal (Academic), ITE College East
Chairman, ITE Environmental Sustainability Initiatives Committee





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Leading & Driving Environmental Care

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“Here is your country. Cherish these natural wonders, cherish the natural resources, cherish the history and romance as a sacred heritage, for your children and your children's children. Do not let selfish men or greedy interests skin your country of its beauty, its riches or its romance.”

— Theodore Roosevelt



In Conversation for a Greener Tomorrow

Written by Angeline Jane Lim, Lecturer/LifeSkills, College East

“Every day, waste collectors bring away approximately 8,300 tonnes of waste. That’s equal to more than 1,000 truckloads.” That’s the startling statistics shared by Minister Masagos Zulkifli on his visit to College East for a National Education Dialogue on 27 October 2016. The topic for the dialogue was “Singapore’s strategies towards Climate Change, Waste Management, its consequences and how students can play a part.”



Minister Masagos in conversation with the students about environmental issues and policies

Minister Masagos, who was affable and approachable, regaled stories of the Singapore he grew up in. More than one hundred students listened attentively to the stories and the questions soon flowed. Many were concerned how environmental issues would affect the future Singapore. Others asked how they could do their part for the environment, delaying the effects of climate change. Minister Masagos answered them all with aplomb, citing figures or using examples whenever he could to help the audience understand better. He also encouraged the students to make sassy messages or take pictures to spread their eco practices or habits via social media to influence their peers in making environmentally-friendly decisions.



Students from the Environmental Club CCA with the handmade aquatic and semi aquatic terrarium and gift bag made out of recyclable materials as a token of appreciation to Minister

Minister Masagos shared a light-hearted parable on three baskets of crabs. The story went that there were three baskets of crabs at a market stall – one from Country A; one from Country B and one from Country C. The seller only covered the basket from Country C but not the other two. When asked, the seller replied crabs from Country A would not escape as any crab trying to climb out would be pulled down by the rest of the crabs. Crabs from Country B would not escape too, because they were waiting for the Government to do something.

Using this parable, Minister Masagos reminded students that the movement towards a Sustainable Singapore was not something that could be undertaken by the Government alone. All individuals play a significant role in translating this movement into reality by reducing their environmental footprint and reducing waste or the consumption of resources. He urged the audience to make sustainability a way of life so that our collective efforts will shape Singapore's sustainability landscape.

It was very enriching to hear from the man who has designed policies to maintain a clean and green Singapore and engaging students in discussion about national issues that will affect their future. The green conversation which took place in the Student Activity Centre certainly left students with a clear message that everyone needs to play a part to create a better and greener tomorrow.

Guardian Angel for Mother Earth

Written by Helena Bte Kasmuri,

Higher Nitec in Event Management, College Central

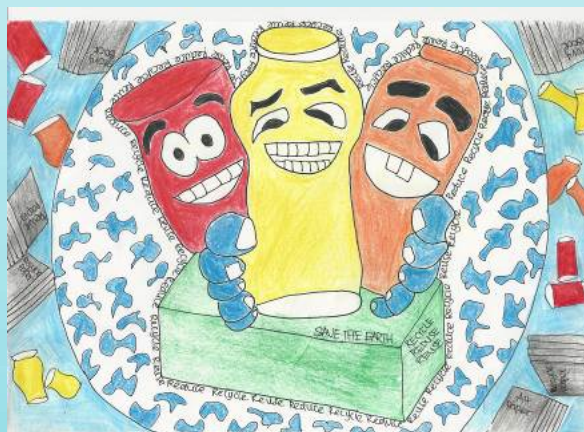
Just like a guardian angel for Mother Earth, Mrs Lee–Soh Hwee Ling, Senior Lecturer at the Electronics Department, is a champion for our green causes at College Central. Her passion on environmental issues sees her initiating a myriad of activities to develop the environmental conservation awareness in the college community as Principal staff-in-charge of the CC Greenery Club.

Mrs Lee has initiated many meaningful events and activities. One of which is the monthly recycling collection drive with Tzu Chi Foundation in the Ang Mo Kio vicinity. Steadfastly and faithfully, the members of the Greenery Club brief residents on the effects of Global Warming and the importance of the 3Rs (*Reduce, Reuse and Recycle*) as they go about their collection of recyclable materials. It is an active effort to save Mother Earth by minimising waste and treasuring resources in collaborating with Tzu Chi Foundation and the community.



Monthly recycling collection drive with Tzu Chi Foundation in Ang Mo Kio vicinity

To get the students' creative juices flowing, the Greenery Club organized the "Design a New Skin" competition for trash bins in 2013 to promote recycling awareness amongst our staff and students. It was a fun way to engage students to create attractive covers for trash bins which were normally ignored by everyone.



Winning design for "Design a New Skin" competition in 2013



Student helpers for the BiG Chase

The Greenery Club members were also trained to lead the ECO trails in College Central. The ECO trails enabled Greenery Club members to convey the message that everyone can play a part to protect the environment.

To celebrate Youth for the Environment Day on 19 Apr 2015, Greenery Club members also led a group of secondary students to do a mass clean-up. Many of the club members were also mobilized as helpers in The BiG Chase event around Singapore.

In the strong and steady guiding hands of Mrs Lee, the Greenery Club set up the ITE College Central Community Garden which won the Gold Award in the Community in Bloom 2014 competition. With this success, Mrs Lee further challenged and encouraged club members to take part in the Gardeners' Cup. It gave Mrs Lee a great sense of pride when the club's project "Touch The Heart" won the Best Themed Award and was displayed at the Singapore Garden Festival 2016.

Many students have benefitted immensely from Mrs Lee's indefatigable efforts to nurture them. The initiatives led by Mrs Lee have provided students with opportunities to develop a passion for the environment, leadership skills and the learning of important values crucial for holistic development. Indeed, Mrs Lee is an undisputed guardian angel for Mother Earth as well as students in College Central.

The Green Warrior

*Written by Grace Quah and Lewis Tan from Writers' Room,
College East*

Do you know that there are PokéStops at the Eco Park? Take a stroll at the Eco Park @ ITE College East (Level 1 between Administration Block and Technology Block) and you will see animal sculptures made from recycled materials created by College East's awesome Environmental Club (Eco Club) staff and students. This is where the Pokéstops are.



One of the Eco Park sculptures



Student eco-based activities during orientation

How time flies! Looking back, we remembered the time when we were 'Freshies' in ITE and the activities we had during student orientation. We had fun at the eco activities conducted during the orientation. Eco Club students would give us recycled items and facilitate hands-on activities to make creative products using the recycled materials. These were meaningful activities which helped to raise awareness on waste management and recycling habits.

Writers' Room had a chat with our friends at the *Eco Club*. When asked about what the word "eco" meant to them, they shared that initially it was, "Keep our campus litter-free!" However, after joining this club for some time, their understanding of the word "eco" expanded. They picked up practical eco-habits and were frequently involved in meaningful eco-activities, such as going around the neighbourhood to promote awareness to residents on the importance of recycling and ways to recycle. They also participated in engaging eco-workshops and forums, such as the Youth Environmental Stewardship (YES) Forum 2016.

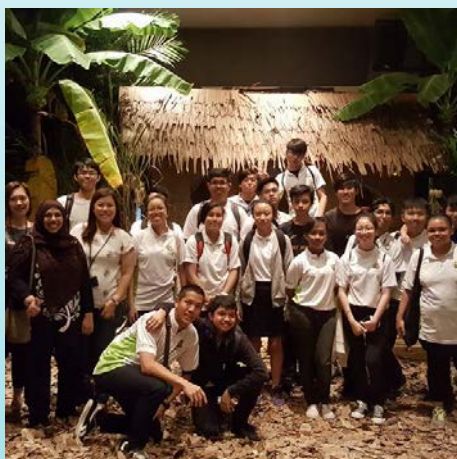
The *Eco Club* has also won awards at both the school and national levels. Last year, they were happy to receive the South-East Green Schools Excellence Award. There was also the School Green 3R Gold Award and the highest award, Lotus Award from the Singapore Environment Council. The list does not end there, two past President and Vice-President of Eco Club also received the HSBC/NYAA Youth Environmental Merit Award.

In an Interview with Ms Karen Loh, who is the Principal Staff Advisor of CE's Environmental Club since 2011, she explained that Eco Ambassador Training Workshops were periodically conducted to educate students on environmental issues. "We believe in using the fun approach to interact and engage the students. Games are also played to trigger awareness on the importance of environmental care and promote green habits."



Eco Ambassador Training Workshop Youth Environmental Stewardship 2016

"On 26 August 2016, we went for an eco-learning journey at Keppel Club. The Keppel Club's Earthweek exhibition theme was Star Wars. Most of their innovative exhibits displayed were made out of recycled items. It was fun learning more about deforestation and eye-opening to know that trash discarded actually gets into outer space. We had an educational and enjoyable trip!" said Ms Karen.



Learning Journey to Keppel Club



Ms Karen Loh with Chewbecca, made from recycled materials

Having great confidence on eco-sustainability, Ms Karen Loh said, "I hope students would have a green heart and mind within them even after graduation. I want to encourage you to have a green mind set. When we make a collective effort, we will make a huge difference for the next generation!"

Leading with Passion

*Written By Lim-Phua Chiew Kheng,
Senior Lecturer/LifeSkills, College West*

The Green Ambassador Club is celebrating its milestone 21st birthday this year in 2016. I looked back with reminiscence when I founded the Green Ambassador Club in 1995 at the former College West Clementi campus with only ten students. It gives me tremendous encouragement to see the club grow from an insignificant unit to one of the key CCAs at College West currently.

The club has collaborated extensively with external organisations to embrace authentic learning on values such as perseverance, respect and patience and create opportunities to improve students' interpersonal and communication skills. The first collaboration was with NEA to launch its anti-littering drive "Pledge Green" in 2009 at Plaza Singapore. The list of the club's partners grew over the years counting MacRitchie Reservoir, Hortpark, NParks, Fuji Xerox, HSBC, Wildlife Reserves Singapore and Southwest CDC amongst them.



Club member approaching Minister Yaacob Ibrahim and DPM Teo Chee Hean at the "Pledge Green" anti-littering event at MacRitchie Reservoir in 2009.

The partnership with NParks started in 2013 when club members first built a showcase garden at Sentosa Flower Festival. Since then, the club has continued to scale new heights to winning the Gardeners' Cup at the Singapore Garden Festival 2016.



Sentosa Flower Festival 2013 -Proud team members who built the first showcase garden

Learning journeys were also part of the regular club activities. Organised trips to MacRitchie Reservoir Tree-top Walk, farms and Siloso Beach Resort were popular amongst members. Some members were also selected to participate in the Global Education Programme to countries such as Vietnam and China in which leadership qualities were developed.

Indeed, we are proud of Mohd Adam Shah Bin Asri, Club President of 2015 who won the prestigious HSBC/NYAA Youth Environmental Award 2016 and the Earthwatch Study Trip 2016. At the same time, the club members were also encouraged to see Muhammad Raiyan Bin Waridwan, Club President of 2012, being appointed in the National Youth Council to oversee the disbursement of seed funding to budding green entrepreneurs.

The Young Green Leader

Written By Irene Teh, Lecturer/LifeSkills, College East

It all began when Danniell Khor Yi Wei donned his green National Service uniform during an army training in the jungle. Danniell's immersion in a richly green environment sparked off a flaming passion in him for green issues. His keen concern for nature spurred him to participate in various environmental activities involving both college students and members of the community.

Danniell is an Eco-Youth leader who believes in the principle of 'walking the talk'. He said, "Participating in the Environmental Club and other environmental activities allows me to apply the theories that I've learnt from my *Nitec* in Facility Technology (Landscaping Services) course."

As President of ITE College East's Environmental Club in 2015, Danniell has inspired his fellow club members to promote environmental awareness to the entire college and neighbouring community through programmes such as the Litter Free Ambassador, Youth for the Environment Day, Waste to Craft Creativity Competitions, and Clean and Green Singapore Carnivals. Danniell is also an Eco Kepala (Malay word which means 'village head'), under the National Environment Agency and South East CDC's Eco Kepala@South East Schools initiative.



Danniell and his team of Environmental Club promoting recycling on campus



Danniell facilitating group activities at the Eco Orientation

Danniell is actively engaged with the community. He is an Earth Helper with the Singapore Environment Council, which allows him to contribute monthly to various residential towns through local recycling programmes. To the society at large, Danniell is a volunteer with the Community Volunteer Program that helps to educate litterbugs in public.

Whether it is within College or outside College, among our local community or beyond Singapore's shore, Danniell seizes every opportunity to contribute to a greener environment. In his personal capacity, Danniell volunteered for a Youth Expedition Program (YEP) which planted 1500 fir trees to help mitigate the air pollution levels in Inner Mongolia. Back in Singapore, he organised the Youth Environmental Stewardship Forum 2014 together with other YEP trip members to share their overseas experience. In another occasion, Danniell put up a proposal to tackle illegal wildlife trading in Singapore. This proposal led him to be selected for the Young Southeast Asian Leaders Initiative (YSEALI) Conference on Illegal Wildlife Trade in the Philippines in March 2015.

As a voice for the environment, Danniell enthusiastically recounted his memorable experience as ITE College East's representative to the International Student Seminar in Hong Kong. "I saw how I could make tangible impact, based on the theoretical and hands-on knowledge I have on green issues, to an international audience. For example, when I shared about terrarium making to the VIPs and Hong Kong students, I realised that I have imparted to them new skills as many from Hong Kong were curious and unfamiliar with this home-greening opportunity."

It was no surprise that Danniell was awarded the 2015 HBSC/NYAA Youth Environmental Award (Merit) in recognition for his leadership and contributions to the environment. His hope for youths is, "Not everyone needs to be an environmental activist, but everyone can do their part for the environment, even in small ways, to shape a greener and sustainable future."



Danniell Khor at the HSBC/NYAA Youth Environmental Award 2015 Ceremony

Leading the Green Cause

*Written By Mohammad Adam Shah Asri,
Higher Nitec in Service Management, College West*

When I was in primary school, I used to be bullied and had my pocket money snatched from me. For solace, I turned to the school's garden where my interest in insects and greenery was nurtured. I am thankful for this experience which led me to taking up the green cause. It was the enriching experience in College West that further developed me to be awarded the HSBC/NYAA Youth Environmental Award in 2016.

I decided to join the Green Ambassador Club when I joined ITE. With Mrs Lim Chiew Kheng's encouragement, I became the Club President and led the team in many projects.

One of the more interesting projects that I did was to revamp our school's community garden to make it more appealing. We invited the Choa Chu Kang residents and children for the South West SG50 garden party. There were flowerpot painting sessions and many games which everyone enjoyed. We also organised events such as Youth for the Environmental Day (YED), and the International Day for Biodiversity and visits to farms and nature reserves. Social media such as Instagram and Twitter were used to expand our reach. In partnership with the Southwest CDC, we also played a significant role in the Singapore Garden Festival 2014 and the SG50 Community in Bloom activity at the Hort Park.



Adam (extreme right) explaining the growing of hydroponics during YED 2014



Adam (middle) having a selfie with PM Lee at the launch of the Clean and Green Carnival SG50

As the Green Ambassador Club President, I introduced the 'Balik Kampung' ground-up initiative to bond my club members. My inspiration for the "Balik Kampung" initiative came from the leadership training camp organised by the Ground-up Initiative (GUI) which I had attended before taking on leadership at the Green Ambassador Club. I was very impressed by the family-like approach as we spent the day building the surrounding environment during the camp. At GUI, volunteers committed because of their passion for the environment; there was no need for any volunteer retention programmes. People with various skill sets and

This really motivated me to implement the approach in leading the Green Ambassador Club.

My proudest moment was when I was awarded HSBC/NYAA Youth Environmental Award 2016. There were some sacrifices which I had made at times to lead the club and organise events. Sometimes, being an activist and a leader can be lonely as family and friends may not fully understand. However, I am glad that my contributions had been acknowledged when I received the award. It is tremendous encouragement for me to continue taking up the green cause.

Besides the \$500 book prize that came with the award, it was a great privilege for me to embark on HSBC/NYAA Earthwatch Study Trip 2016. The research expedition to Andorran Pyrenees with the Earthwatch Institute from 17 to 25 Jul 2016 was sponsored by HSBC. The objective of the expedition is to study the impact of climate change in the mountain environment. Several experiments designed for the study included observing the abundance of animals as well as measurement of tree diameter growth over time with the use of dendrometers.



A group shot of the Singapore contingent at the Earthwatch Study Trip 2016

There were 14 people including myself in the research expedition. The team included high school Biology teachers from the US, a retired professor of electrical engineering, and an 83-year old oncologist!

Andorra is a mountainous country between Spain and France with a small population of 80,000. We were at least 1,500 feet above sea-level, and though the mountains were beautiful and peaceful, the air was thin which made breathing difficult. The days typically involved strenuous and extended periods of hiking on uneven terrain at high elevation. We helped the scientists collect plant samples and set up camera traps.

This study trip was a tremendous eye-opener and an unforgettable experience for me. While currently waiting for National Service enlistment after graduating from ITE, I am reflecting on my past experiences and also exploring more possibilities to contribute towards sustainability efforts in the future.

Love Nature

1. An Expedition in the Northern Hemisphere
2. Butterfly Watch
3. City in a Garden
4. More than Tom Yam

“Our task must be to free ourselves by widening our circle of compassion to embrace all living creatures and the whole of nature and its beauty.”

— Albert Einstein



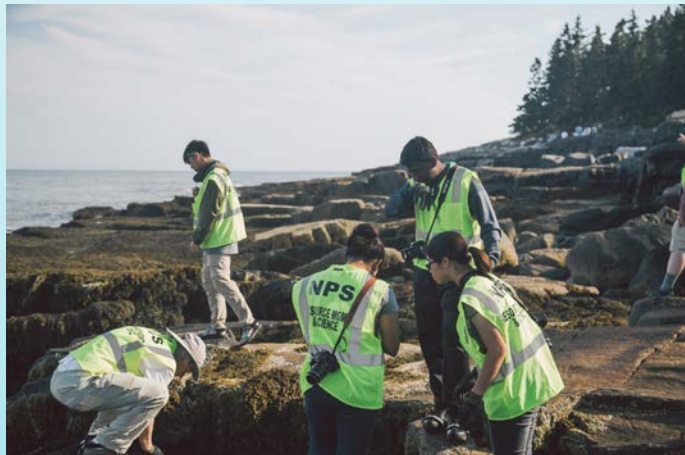
An Expedition in the Northern Hemisphere

*Written By Daniel Ravindran s/o Thangaraju,
Higher Nitec in Electronics Engineering, College West*

I am greatly honoured to be awarded the 2015 HSBC/NYAA Youth Environmental Award and given the privilege to embark on Earthwatch Study Trip 2015. The seven-day expedition to Acadia National Park in Maine, USA gave me the opportunity to work with researchers from Canada's Churchill Northern Studies Centre, which studies environmental issues in the northern hemisphere.

The granite mountains and craggy coasts of the islands that make up Acadia are famous for their beauty and their wildlife. Acadia is on a bird "superhighway," a route heavily travelled by birds that migrate between Canada and South America. Researchers have recorded 23 species of warblers alone here. The park's lakes and coastal waters provide a home for 30 species of fish and a wide array of invertebrates, such as sea stars and urchins. Acadia's scientists have over 120 years of detailed natural history observations to compare current patterns to. And that's where Earthwatch volunteers come in - to help collect similar data that can be compared to this extended time-series data-set with the hope of inspiring policies that will help safeguard this iconic American habitat.

For this trip, we were tasked with helping out in the "Dragonfly Mercury Project" coordinated by Dr Sarah Nelson from the University of Maine together with the Schoodic Institute.



Working on the "Dragonfly Mercury Project" at Acadia National Park

We often hear of pollution of heavy metals affecting marine life, but did you know that even the most pristine and remote freshwater bodies are not safe from industrial effluent? Mercury is one of the most toxic pollutants, harmful to both humans and wildlife, and it can be deposited by coal-burning power plants through atmospheric deposition, even to the most remote and uninhabited areas. Even water bodies cannot escape the effects.

One of the ways to measure the amount and impact of mercury in an ecosystem is to study the “bio-indicator species” which also reflects the state of the food cycle in the habitat. Dragonflies, and more specifically their water-dwelling nymphs/larvae, meet the criteria of a “bio-indicator species” perfectly. Not only are they predatory insects that can be found in relatively high numbers and are easy to handle, they are also relatively high up in the food chain. By preying on many other aquatic invertebrates, the levels of toxins they accumulate reflect the level of toxins that are present in the ecosystem. The measurement of the toxins gives researchers an indication of the damage done by such poisons.

In order to carry out the research, we were first taught basic species identification and the sorting of dragonfly nymphs. We were then presented with the tools of the trade - large nets that functioned as aquatic sieving trays, and ice cube holders to hold our dragonfly nymphs. We then drove out to a trail and climbed uphill for a couple of hours, occasionally stopping to pick up fresh blueberries along the way, before finally arriving at our research destination.

By monitoring the levels of mercury in dragonflies and comparing the results over time, it is possible to map out trends of atmospheric toxin deposition. Such information is crucial in conservation and management of nature areas, such as the National Parks of America.

Likewise, in bustling Singapore, it would be great if we could do such research. There is definitely a great deal of toxins into our environment and I look forward to participating in such a study to help in the conservation of our beautiful Lion City.

Lastly, I would like to thank NYAA, HSBC and Earthwatch for giving me this unforgettable opportunity to do my part for the environment. In addition, I would like to thank Mr Tan Hwee Siang, Deputy Director, School of Hospitality/ITE College West, for nominating me for this award, and for nurturing and guiding me throughout my years in ITE.

Note

Daniel Ravindran graduated from ITE and pursuing Diploma in Electrical and Electronic Engineering at Singapore Polytechnic. Daniel was a student eco-warrior in ITE College West where he led many eco-sustainability projects such as the e-waste bin to safely dispose batteries. As Chairman of the World Wide Fund Eco Campus student committee, Daniel implemented the idea of having an energy-saving ambassador for each class and also organised a photography competition entitled “Animals in Their Natural Habitat” to raise awareness of the different animals living around us.

Butterfly Watch

*Written By Lim-Phua Chiew Kheng,
Senior Lecturer/LifeSkills, College West*

Have you noticed the abundant varieties of butterflies in our Garden City lately? This is because the National Parks Board (NParks) has introduced the “Butterfly Watch Project” in its Community in Nature Biodiversity Watch series. The aim of this project is to piece together information about where our butterflies are found and in what numbers. This information will contribute towards better park management and conservation measures.

In 2016, College West Green Ambassador Club celebrated International Day for Biodiversity by participating in this watch. A training session was conducted by NParks and then they were all set to do the data collection.

The Butterfly Watch was done at Hortpark and Southern Ridges. NParks provided the exact locations given in grid points which the club members can locate by keying into Google Map. During the watch, members were grouped into teams and each team was given a start and end point within a grid. They had to walk at a very slow pace in one direction within a grid to ensure that they do not miss out on any butterfly and also not to count the same butterfly twice. In the data sheet provided by NParks, members had to record the weather for that day, the start time and end time of the watch as well as the names and number of butterflies.



Members watching out for the Grass Blue Butterflies



Members looking at the Butterfly Chart provided by NParks to identify the correct breed

Club members learnt that there are 318 butterfly species in Singapore. They managed to spot 24 different species which included the common ones such as Common Glass, Common Tiger and Pansy Butterfly. The butterflies which were the most attractive in colour were the “Painted Jezebel” and “Emigrant”. It was not an easy task searching for the butterflies.

An Executive Committee member of the Green Ambassador Club, Muhammad Zaheed Bin Mohd Isa, had this to say, “I learned some characteristics of butterflies that I did not know. Their eyes are in fact made of many smaller eyes which allow them to see all around. Another unique feature of the eyes is their sensitivity to movement. Interestingly, some of the butterfly wings, like those of the Peacock Pansy, have circular patterns that look like eyes to scare off their predators.”



Members of the Green Ambassador Club from College West on their Butterfly Watch

Other members also commented that they had learnt a lot from this experience. One of them, Zuhaily Bin Mohd Arshad, was excited to learn that butterflies imitated the sounds of other poisonous insects to protect them from predators. He was also amazed to discover that butterflies drink salt solution to stay alive; butterflies urinate to dissolve salt on dry surfaces to drink the solution.

It is indeed a joy to know that our Garden City is not just clean and green, but also adorned with these flying “jewels” of butterflies waiting to be discovered. So head out and be enchanted by these hidden gems.

City in a Garden

*Written By Norhaqym Bin Norhaizan and
Nur Zakirah from Writer's Room, College East*

The Singapore Garden Festival 2016 enchanted everyone with a magical wonderland at Gardens by the Bay from 23 to 31 July 2016. It was the largest of the six editions to date with more than 70 garden and flower displays sprawling the grounds. Student reporters from *The Writers' Room* captured some interesting highlights of the festival with the staff and students involved.



A wonderful floral tapestry



Tantalising Garden of Food

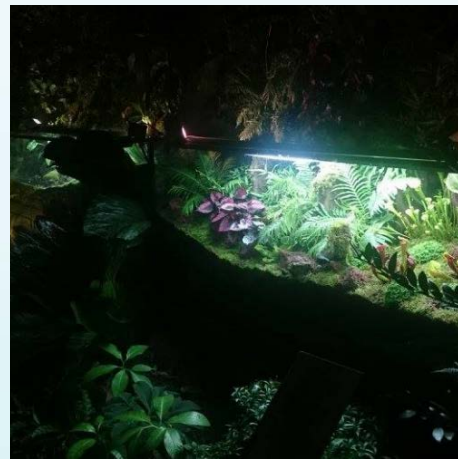
Students from *Nitec* in Facility Technology (Landscaping Services) at College East collaborated with College Central's Digital Animation students to provide interactivity to their terrariums with fantastic animation. They presented the evolution of plants from pre-historic times to modern day. Dr Derek Yeo, Director of School of Business and Services at College Central, commented, "The students developed the footage by using an Augmented Reality camera that showed how the flowers bloom in real life footage and in pixel animated form. Work on the two terrariums stretched for three days but the end product was splendid." The students felt honoured to be part of the event and received kudos for their efforts.

Ms Phua Chiew Kheng who designed the showcase with her students remarked, "The College West team that participated in the Gardeners' Cup created a showcase garden together with other organisations. "Candy Floss" was the whimsical theme they chose". There were giant ants made of tweed balls transporting sugar cubes into a 'candy floss machine' which was made of sweet-smelling flowers 'spun' into a dome. The sugar cubes represented each group of gardeners from the South West residents' committees. Staff and students met on weekends and weeknights since November 2015 to discuss the concept, design and selection of plants and hardscapes. Not surprisingly, this garden won the championship!

Two teams of students from College East took part in the Landscape Design Challenge under the hot blazing sun to create two beautiful gardens called the “The Queen’s Vision” and “The Children’s Chill-Out Garden.” The Children’s Chill-Out Garden” beat 8 other plots and received the Gold Award.



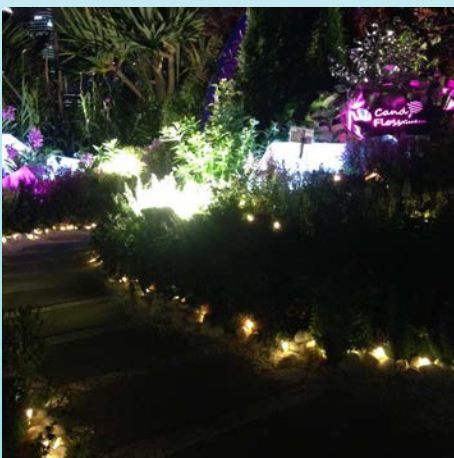
Children's Chill-out Garden



Finished terrarium on display

Mr Shawn Soo, Section Head/Environmental Services, College East shared, “Through this experience, the students learnt values like team work, time management and environmental awareness. During the process, there were emotional highs and lows, but it was all worth the learning experience.”

In line with our founding father Mr Lee Kuan Yew’s vision for Singapore to be a green oasis for citizens and visitors, let’s make Singapore a beautiful garden city and the best home possible for all Singaporeans.



CW's winning Candy Floss theme



Enchanting landscape at the Garden Festival

More than Tom Yam

Written by Tan Hong Ming, Section Head/Electronics Engineering, College Central

On 3 Jan 2016, 33 students and 3 staff from all three colleges travelled to the land of smiles, not just for tom yam but to learn from the environmentalists at the 'All Green Learning Centre (AGLC)' at Pak Chong, Bangkok, Thailand. The seven-day programme included the learning of Renewable Energy Sources, Water & Waste Management, Eco Farming, and Recycling & the Sustainable Production of daily items. Some of the activities with AGLC included charcoal making, herbal soap making and a visit to a wind farm. We have a detailed account for three interesting activities below.



Group photo of ITE Youth Environmental Envoy

(I) Renewable Energy – Biomass into Charcoal

For the very first time, students learnt how to process biomass into charcoal during a two-day workshop. The students collected dried branches and stick for dehydration. The wood vinegar produced during the process could then be used to reduce odour in the animal pens, repel insects, repel flies, and nourish the soil. It could also be used as food supplement for animals.



Getting ready for the wood dehydration process at the fireplace

It was a memorable day in charcoal making. I have managed to handle mud even though I am a hygiene-freak. The experience allowed me to break out of my comfort zone using my bare hands to seal the kiln with mud. "

*Nurul Aqilah
BteOsman, Nitec in
Nursing, JN1501E*

(II) Sustainable Production of Everyday item: Homemade Herbal Soap Bar

The team was divided into 4 groups to learn how to produce herbal soap bars using sustainable raw materials such as tamarind and honey, curcumin and butterfly peas.



The soap-making process using herbs and natural ingredients

"The soap-making experience was a once-in-a-lifetime experience. I got to know how to make soap using simple ingredients such as glycerine, water, honey....etc. I am glad to be given the opportunity to learn it."

Darren K Isulat, College East, Nitec in Nursing, JN1501C

(III) A Visit to Wind Farm

The team also visited a wind farm with 90 windmills in an open field. The towers were 99.5m tall! The windmills convert kinetic energy to mechanical energy. The mechanical energy was then used to drive a generator. One of the students, Nur Lydia Elyana, *Higher Nitec* from Early Childhood, College Central was fascinated as she saw so many windmills for the first time in learning about a clean and natural way to generate electricity.

The entire team learnt a great deal on how wasteful urban lifestyles contributed to climate change and was also grateful for the opportunity to understand the various aspects of environmental conservation in the journey.

Preserve Our Natural Resources

1. Cleaning with Less
2. Protect Our Environment, Treasure Our Resources
3. Make Every Drop Count
4. Appreciate Our Environment, Conserve by Action

“Earth provides enough to satisfy every man's needs, but not every man's greed.”

— Mahatma Gandhi



Cleaning with Less

Written By Mark Ng, Lecturer/LifeSkills, College East

Are we using too much detergent when we are washing our dishes? How much is enough?

These are not questions that we often think about, but three students - **Orion Lee Yong Xun, Rasheed Imran Muhammad S/O A, and Muhamad Raimi B Roslan**, all from the Chemical Processing Technology course at ITE College East – sought to answer them in as scientific a manner as possible. Guided by Lecturer-Advisor, Mr Desmond Lim, they undertook a careful study of the detergency effect of a surfactant at its Critical Micelle Concentration, hoping to find a way to conserve water, reduce chemical waste, and in the long run, to save everybody some money. It was a project that eventually took them to a historic First Place finish in the Singapore Junior Water Prize Competition, and to Sweden, where they represented Singapore in the Stockholm Junior Water Prize Competition.

What initially sparked off the students' interest in such a project was the very ordinary occurrence of washing hands. The team had first observed that several of their classmates use what they felt was an excessive amount of handwashing liquid, and realised that a similar occurrence was taking place at home, particularly when washing dishes. The seemingly excessive use of dishwashing detergent and water concerned them which propelled them to participate in the Singapore Junior Water Prize Competition hoping to be able to make a difference.

As with every science experiment, the team sought first to define their objectives. Since this was to be an experiment with real-life applications, they hoped to reduce the usage of detergent by attempting to find the minimum amount needed to create the required detergency effect. This, they hypothesized, can be achieved when there are just enough surfactant molecules to form a micelle. For dinner plates and utensils, this would mean that oil and dirt can be sufficiently removed if the Critical Micelle Concentration (CMC) of a detergent is reached. The trick was finding the CMC so that less water would be needed in order to achieve the same effect.

To start their experiment, the team first carried out a market survey to find the top 3 brands of dishwashing detergent in Singapore. They also studied consumer habits, and discovered that it took approximately 2 – 3 pumps of detergent (from a pump-action bottle) to wash the dishes for a typical family dinner of four. To the team, even that seemingly modest amount of detergent seemed somewhat excessive, and through a series of experiments, they sought to ascertain the minimum amount of detergent needed that would result in clean plates.

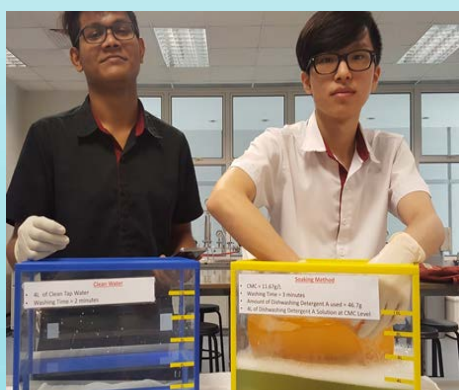
To find the CMC for the top 3 brands of dishwashing liquid in Singapore, the team used the conductivity method and the conductivity meter to test the detergents at various concentrations. When that was determined, the real hard work started with the team simulating the washing of dishes with solutions of the detergent at the CMC level. Besides washing the dishes under running water and by soaking them, the team also experimented with the various dishes used to serve food that Singaporeans enjoyed. No stone was left unturned, though at one point, there was a little problem – how could the team accurately test for grease remains on the dishes they washed?

That was solved with a little ingenuity typical of ITE students. Observing their classmates dabbing their faces with facial blotter papers, the team realised that they could also use these blotter papers as a low-cost and effective to test for grease remains.

It was a year of countless experiments before the team finally found the ideal amount of detergent, and hence water, needed to effectively clean greasy plates and cutlery. In the course of the project, the team discovered that consumers were overusing as much as 57% of dishwashing liquid in their daily chores, and thus overusing 25% of water. These could be saved to reduce the creation of toxic chemical waste that pollute the environment as well as harm marine life.

To communicate their findings, the team created a series of Consumer Education Cards, to be incorporated onto product packaging for distribution. “We need to communicate effective water conservation tips to help consumers reduce chemical waste, save water, and ultimately, save money.” Said Orion, 18.

It is therefore no surprise that the team emerged champion in the Singapore Junior Water Prize Competition and represented Singapore in the Stockholm Junior Water Prize Competition.



Team soaking the greasy dishes



Rinsing the dishes with running water



Champion of the Singapore Junior Water Prize Competition

Protect Our Environment, Treasure Our Resources

Written by Kiran Kaur, Lecturer/LifeSkills, College East

Environmental philosopher and naturalist John Muir once said “When one tugs at a single thing in nature, he finds it attached to the rest of the world.” In a modern city that drives innovation and technology, this quote resonates deeply as it rings hope and fuels all the endeavours towards protecting our environment and delicate ecosystem.

The ITE community has been fully on board this journey to protect our environment, with the ITE Eco-Conference marked as a key event on its Environmental Sustainability Initiatives Calendar over the last few years. 2015 was no different. On 24 November, at the Tay Eng Soon Convention Centre at ITE HQ & College Central, the theme **“Protect Our environment, Treasure our resources”** pulsed strong. The ITE Eco-conference event brought home the importance of having clean air, water and living environment while inspiring the audience to strive towards protecting Mother Earth.

Even before the start of the conference, guests, staff and students had a “hands-on, hearts on” experience with recyclables via mini-workshops and eco-exhibits. There were a total of 18 exhibition booths set up, which included five Green Innovation Projects, three recyclable craft display booths from the colleges and 11 external exhibitors comprising government agencies, private and non-government organisations.



“Protect our environment, treasure our resources” was theme for ITE Eco-conference 2015.



Students engaged in the Environmental game made from recycled materials

During the conference, three distinguished guest speakers, all of whom are strong advocates for the local environment, shared their perspectives and insights on significant environmental issues. The first speaker, Professor Leo Tan, Director of Special Projects in the Faculty of Science at the National University of Singapore, delivered a stimulating and thought-provoking speech on: *“Is Environmental Protection a Pipe Dream?”* This was proceeded by Mr Eugene Heng, Founder & Chairman of Waterways Watch Society’s inspirational piece on the topic: *“Sustainability – It is all up to us”*. The third speaker Mr Kelvin Ng, Founder & Managing Director of Siloso Beach Resort surprised the audience with a video produced by our very own media students. Aptly titled Siloso Beach Resort: *“Doing it Nature’s Way”*, the production featured the sustainability practices in the eco resort. It was a video produced by students from the Digital Audio Video Production Course in College East.

Thereafter, an engaging panel discussion ensued, providing the audience opportune moments to enquire on burning issues and be illuminated via the sharings. The conference ended with an unprecedented eco-musical by ITE’s talented students from the CCAs - Curtain Call, CE –Vocal Club and K Pop Dance Club. Through drama, song and dance, the musical entitled *“The Raft of Life”* depicted the consequences of climate change on animals’ survival and the desperate cries of the animals to mankind. It beautifully tied together the key messages of the day.



Guest speakers (from left) Professor Leo Tan, Mr Eugene Heng and Mr Kelvin Heng at ITE Eco-Conference 2015.



“The Raft of Life” eco-musical by students from College East CCA Curtain Call.

At the end of it all, the audience not only parted the event with a heightened awareness of our environment but also with a gift-set comprising of a vegetable planting starter kit to germinate their efforts in conserving and protecting our planet.

Make Every Drop Count

Written By Benjamin Yap, Lecturer/LifeSkills, College East

Make every drop count. This is the mantra every Singaporean should live by in this water-scarce country. In promoting this important message as well as the importance of water conservation, ITE has incorporated the celebration of World Water Day into its calendar since 2014.

For the inaugural celebration of Singapore World Water Day (SWWD) 2016 on 15 March 2016 in ITE College East, a series of events and activities were organised in collaboration with PUB for students to participate.

At the college level, new students took part in eco-themed orientation programmes. First-year students and Environmental Club members also made 1,500 card holders from used banner materials for the "fun pack" in the Green Corridor Run 2016 held on 6 March 2016. "I am glad to be a part of a project that promotes good water-using habits to care for the environment. We use water when we really need to but we should not waste it." said Janice Poh, a first-year Engineering student.

On the actual day of the Green Corridor Run 2016, the organizers had the prestigious "Keppel Land Water Challenge Trophy" up for grabs. The run itself started and ended at two different venues. Beginning at the Bukit Timah Railway Station, the race took the runners through the rail corridor, before ending up at the Tanjong Pagar Railway Station. A record number of 11,000 participants who signed up, took part in the race. Senior Minister of State for Environment and Water Resources, Dr Amy Khor, who flagged off the race at starting point, sportingly took part in the race herself.

Six ITE staff and 35 ITE students participated in the race. They took part in a sub-category, where the participants were required to carry water containers filled with about 2 litres of water or more. This race category symbolized the difficulties faced by woman and children from the Third World countries. Mr Trevor Lim, Section Head of Sports & Wellness, who participated said, "It was a meaningful race although it was quite tough having to carry water containers and run with them at the same time. But it drove home the message that water is precious, and in many other countries, people go through so much trouble just to get their daily supply of water. Therefore we should not take the water supply we have in Singapore for granted."

Within the college campus, students also participated in the Upcycling Project Competition in which they were required to exhibit their creativity and resourcefulness by creating useful products from the unused banner materials. About 24 teams participated in the competition and the project “Artistic Organiser” by class NF1501M, won the first prize. The second and third prizes went to students from the Environmental Club and class: NM1501P, for their projects on “Multi-Purpose Pouch” and “Owl Bag” respectively.

At the Closing Ceremony of the World Water Day Celebrations on 15 March 2016, Mr Heng Chin Hien Eugene, Founder and Chairman of Waterways Watch Society presented a very inspiring sharing on “Water – Problems and Challenges Today” to our staff and students. At this platform, winners of the Upcycling Project Competition were also presented with prizes.

Mr Hizam Hashim, Senior Lecturer-Mentor of Environmental Services, who coordinated the activities across the 3 colleges, was passionate about the objective of the events. He said “The organisation of this series of events is opportune. The earth is facing so many environmental issues like climate change, air pollution and water pollution. The time to take action is now, or soon it will be too late. The damage done to the environment may by then be irreversible.”



The Green Corridor Run 2016



Upcycling project for first year students

Appreciate our Environment, Conserve by Action

*Written by Catherine Soh, Deputy Director/Environmental Engineering,
College East*

As ITE continues its journey as a responsible green organisation, the sixth edition of the yearly Eco-Conference took place on 19 October 2016 at the Tay Eng Soon Convention Centre with the theme **“Appreciate our Environment, Conserve by Action”**. 880 staff, students and guests attended this conference to renew their knowledge and practices on environmental sustainability initiatives.

We were privileged to hear from three very interesting speakers who were strong advocates of the local environment scene - Mr Mike Barclay, Group CEO of Mandai Park Holdings; Professor Subodh Mhaisalkar, Executive Director of the Energy Research Institute @NTU and Dr Lee Hui Mien, Head of Sustainability, IKEA Southeast Asia.



*A Group Photo of the Eco-Conference Speakers with Director & CEO of ITE
(Left to Right) Prof Subodh Mhaisalkar, Mr Bruce Poh, Dr Lee Hui Mien, Mr Mike Barclay*

Mr Barclay shared the Wildlife Reserves Singapore’s (WRS) conservation efforts, protection of endangered animals and how individuals could participate in WRS’ conservation programme. The student participants were very motivated by Mr Barclay’s presentation and many expressed interest to volunteer at the zoo.

The audience were wowed when Prof Mhaisalkar showed NTU’s Learning Hub whose resemblance to traditional dumpling steamers earned the building the nickname "Dim Sum". The Learning Hub, which was designed by renowned British designer, Thomas Heatherwick, hosted the test-bedding of many research projects, student innovation, entrepreneurship and social and community projects. Prof Mhaisalkar also shared how energy research has resulted in innovative applications in the field of solar cells, energy harvesting and new cooling technologies – an example was the recently launched autonomous eco-friendly electric vehicles in NTU.



NTU Learning Hub – “Dim Sum” Building

Dr Lee Hui Mien shared how the household name IKEA integrate sustainability into everyday business. In particular, the audience lauded IKEA’s effort to promote recycling with 85% of their transactions going bagless. It was also an interesting discovery that the signature blue IKEA recycling bag came with lifetime warranty.



IKEA’s blue recycling bag comes with lifetime warranty

At this platform, our CEO, Mr Bruce Poh, also presented the ITE Youth Eco Ambassador Awards to six students from the three ITE Colleges, to recognise their efforts, contributions and commitments in environmental conservation.



(Left to Right) Keshvinn Naidu, Xu En Xiang, Malaca Ma Anthea, Mr Bruce Poh, Kelvin Lim, Kelvin Ng, Ong Zi Yuan

Developing Green Competencies

1. Down-to-Earth
2. Conservation using Engineering Skills
3. The Award-winning Venturi Valve
4. Nurturing Ecovators
5. Lessons from the Green Booths

“I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait 'til oil and coal run out before we tackle that. “

- Thomas Edison.



Down-to-Earth

Written by Mark Ng, Lecturer/LifeSkills, College East



Up-cycling Craft Activity - An activity for the Eco-Sustainability Module to instil in students an awareness of how they can convert unused material at home to something useful.

In a move to develop green competency, an interdisciplinary module on eco-sustainability –“Down-to-Earth” was introduced in the LifeSkills curriculum in 2014.

Apart from imparting knowledge on how climate change could have adverse effects on food and water supplies, health, and basic needs, the module also focused on raising awareness of governmental and personal activities that can mitigate the change. Students were also engaged in eco-sustainability practices through hands-on activities and learning journeys.

According to Ms Phua Chiew Kheng, a strong advocate of the eco-sustainability movement as well as Chief Module-Coordinator for Down-to-Earth module, students enjoyed the module very much. Ms Phua reflected with joy and shared, “I am happy to know that my students who signed up for the module love nature and are keen to learn how they can play a part for the environment. I hope they can develop green habits that will stay with them for life!”

Apart from the “Down-to-Earth” interdisciplinary module, Ms Iris Seet, Senior Director of Curriculum and Educational Development offered some ideas on how green competency could be developed beyond the classrooms. Students could be engaged visually and emotionally with interesting resources such as movie clips and reports of current events with poignant graphic presentation on the consequences if climate change is not mitigated.



*Hands-on activity in the Down-To-Earth module -
Rooftop Vegetable Farming using recycled materials as planter boxes.*

Another way is work on the emotional-appeal to engage plant and animal-lovers amongst students. Ms Seet suggested educating these student groups on how climate change and unfriendly environmental practices impact the flora and fauna to spur them on to undertake activities to mitigate the consequences. In turn, the students can become champions to lead the rest of the student community in preserving and saving the environment.

Ms Seet is optimistic that students would continue the green practices when they join the workforce given the good habits that we have conscientiously cultivated in them.

Conservation using Engineering Skills

Written By Lim-Phua Chiew Kheng, Senior Lecturer/LifeSkills, College West

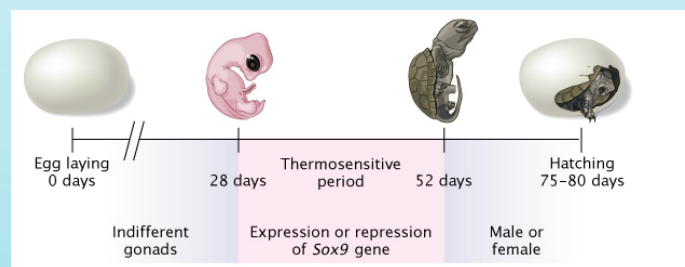
Mr Ng Chun Kee, Section Head/School of Electronics & ICT in College West, was an inquisitive child. His curiosity about the design and function of gadgets often saw him dismantling parts and reassembling them. This exploratory learning style developed Chun Kee's problem-solving skills from an early age and created a strong foundation for his Engineering education.

Apart from Engineering, Chun Kee also developed great interest in caring for the environment through his experience in tending to his family garden and the numerous ecological projects undertaken during his school days. These exposure took deep roots and Chun Kee eventually personalised his care for the environment with the use of engineering knowledge. At ITE, Chun Kee even rallied his team of lecturers and students to apply their engineering skills in various conservation projects with Wildlife Reserves Singapore.

One of the projects with Wildlife Reserves Singapore at Singapore Zoological Gardens was to create an incubating habitat for the endangered reptile species. Prevalent among the reptile class of animals, the gender of the offspring is determined by the environmental temperatures experienced during embryonic development. In order to prevent situations in which all eggs hatched into a single gender group (all male or all female), it was necessary to control the temperature of the incubation environment. For this, Chun Kee and his team created a temperature control system for incubation so that the gender of the hatched offspring could be managed to continue the reptile family line.



Turtles – an example of reptiles whose offspring gender is determined by temperature (source : Pinterest)



Timeline showing thermosensitivity of freshwater turtles embryos (source:www.nature.com)

Another conservation project was for the Horseshoe Crab, which was also an endangered species. The Horseshoe Crabs were hunted to near extinction for the medicinal value of the blue blood flowing through them. Chun Kee, together with his team of lecturers and students, created a habitat that closely resembled the natural habitat of the Horseshoe Crab. Applying engineering skills and concepts, students worked to create a sustainable controlled environment which was implemented in the Singapore Zoological Gardens. The results were extremely promising as the zoo had managed to breed infant crabs into fully grown adults in the habitat.



*Horseshoe crab has bright blue blood
(source :grist.org)*



Horseshoe crab
(source: daily.jstor.org)

Apart from the zoo, Chun Kee's team also collaborated with Wildlife Reserves Singapore to help Singapore Bird Park monitor new-born baby birds or hatchlings. Bird keepers used to climb up trees to check if the eggs in bird nests were hatched. The practice was extremely unsafe as most nests were located on very tall trees. In addition, birds had the tendency to fly away from the nests and abandon their new-born if they felt threatened.

To solve this problem, Chun Kee and his team engineered a new gadget that had a wireless streaming camera attached to a lightweight and sturdy photography pole. The engineering creation was a great success. The gadget helped bird keepers monitor the eggs in a safe working environment without having to climb up tall trees. At the same time, the birds and their offsprings were not disturbed in the entire observation process.

On thoughts about these conservation projects, Chun Kee believed that more could be done by engineers to protect the ecological system and make a difference to the environment through the application of technology. On another note, his message to all students is to IMAGINE, BELIEVE and CREATE for a better world and future. As all ideas are borne out of imagination, it is important to IMAGINE the new world we want to see. With these ideas, we must BELIEVE that we have the ability to achieve our dreams and start something new to CREATE.

The Award-winning Venturi Valve

Written by Charlotte Chan and Deborah Teo, Nitec in Floristry, College Central

“Water is the driving force of all nature” – Leonardo da Vinci encapsulated this fact concisely many centuries ago to constantly remind us of the importance of water. All the more, the reminder has to be taken seriously in Singapore where we need to ensure continuous water supply. With a growing population and the inevitable increase in water usage, water conservation has become an even more pressing issue, especially with the recent heat waves that saw our reservoir water-level hitting new lows.



Mr Ting (left) with Marcus (centre) and Chong Hao (right)

Driven by the motivation to contribute towards water conservation, two students from ITE College Central – Chan Yong Jie Marcus and Wong Chong Hao Andy, with the help of their Lecturer, Mr Ting Teck Beng embarked on a project to devise a water-saving device for the Green Wave Environmental Care Competition 2015.

Water wastage during showers is common among Singaporeans as most people allow water to run while waiting for it to be heated to the desired temperature. From the team’s research, on average, more than six litres of water was wasted per shower session. To solve this problem, the team investigated many options and finally modified the design of a gas-heating system to create a device featuring the Venturi Valve which was made using 3D-printing technology.

The invention device won Second Prize in the Green Wave Environmental Care Competition 2015 as it could be retro-fitted onto a typical HDB bathroom and save up to nine litres of water per shower session.



*Prototype of the device featuring the Venturi Valve
Winner of Second Prize in the Green Wave
Environmental Care Competition 2015*

The invented device uses a flow selector switch on the mixer tap to divert the initial flow of cold water into a temporary storage container. In the temporary storage container, the cold water is mixed with heated water as it flows in. By about one minute, the temporary storage container will be filled with water mixed at the desired temperature and the flow would be directed to the showerhead through the specially-designed Venturi valve.

The process allows a user to pause and/or resume showering at any time without having to wait for the water to be heated up. There is sufficient heated water in the temporary storage for a normal shower as the flow will last about 5 minutes before the container is emptied.

Mr Ting, who has guided the students in the success of this project, reiterated that water is very precious and urged all not to take our water supply for granted. He encouraged students to continuously pursue solutions to conserve water.

Nurturing Ecovators

Written by Irene Teh, Lecturer/LifeSkills, College East

The "Ecovators" from ITE College East is an eco-friendly interest group which consists of students who learn, practise and promote eco-sustainability through creating innovative green solutions. This initiative was started by the ITE College East's LifeSkills Department through the Eco-Sustainability module – “Down-to-Earth”.

Dr Thomas Koo, Section Head/LifeSkills, overseeing the module shared, “It is a joy for me to be part of the team who facilitates youths' learning on climate change and mentors the Ecovators to participate in eco-activities. There is great satisfaction whenever I see the sparks of enthusiasm and creativity among the students when they put their hands on green activities.”



Eco-sustainability Elective Module learning activities (clockwise from the right): Students flying kite at College East field, Students making kite using recycled envelopes and used papers, Students planning and creating musical instruments using recyclable materials, Spread of musical instruments created during Eco lessons.

In 'Down-to-Earth' module, students are engaged in hands-on activities to bring out the essence that every student has the ability to contribute practically and meaningfully towards eco-sustainability initiatives. The Ecovators' past activities range from planting home-grown hydroponic wheatgrass and rooftop vegetables using recycled materials, creating eco-craft to promoting eco-messages among children using games.

The story of CE Ecovators was recently featured in the Singapore Sustainability Story @ Green Living 2016 on the 9th to 11th September 2016 at the Marina Bay Sands. It was one of the twenty stories shortlisted over two hundred sustainability stories from all over the nation.



College East students visiting the Ecovators Story exhibit featured at the Singapore Sustainability Story @ Green Living 2016

LifeSkills Lecturers at College East are hopeful on the future of a sustainable Singapore as they see the Ecovators embrace eco-values as part of their lifestyle.

Lessons from the Green Booths

*Written by Muhd Khairul Bin Salim with photography by Jacky Nio,
Nitec in Aerospace Machining Technology, College Central*

It was 19 Oct 16 and the college was hosting ITE Eco-Conference 2016 at the Tay Eng Soon Convention Centre. As it was my first visit to this annual conference cum exhibition, I was a little overwhelmed by the fun activities taking place and the engaging and informative booths available. Somehow, I managed to shake myself out of my quiet and shy shell to explore the activities. I found myself chatting with most of the friendly and engaging exhibitors in no time.

As an engineering student, I was drawn to the technical aspects of eco-friendly system and practices. I met Eunos, a fellow Engineering Student from ITE College West showcasing his team's Horseshoe Crab Propagation System. Eunos excitedly shared that conserving the horseshoe crabs was important because they were in danger of being extinct as they were rapidly killed for the high price that their blood fetched. He further explained to me that the blood of horseshoe crabs was in high demand as it could be used for medical purposes.



Eunos (on the right) with his team mate and the Horseshoe Crab Propagation System.



A horseshoe crab at the exhibition.

Next, I chance upon a group of passionate ITE College East students at their booth. They were there to share about their Youth Expedition Project at Medan, North Sumatra. The trip was led by their Section Head, Mr Zaidi Yacob.



Siti Nabila, Isaac Lee, Amelia Lim, Dewi Hajar, Siti Nabila Binte Mansor and Lee Han He at the booth for Youth Expedition Project

The team visited Gunung Leuser National Park to assist conservationists on their research and conservation work on the orang utans. They told me that the trip was amazing. Trekking in the forests, listening to the sound of nature and knowing that their data collection work would assist the conservationists in their efforts in protecting the orang utans in the region were awesome!



Mr Vincent Koh (on the right), Ministry of the Environment & Water Resources.

I also had the opportunity to learn about the government's sustainability efforts from Mr Vincent Koh at the booth by the Ministry of the Environment and Water Resources. I learnt that every individual has the responsibility to contribute to eco sustainability. We have been creating a lot of rubbish by not recycling and reusing many items. I am, however, glad to learn waste to energy conversion from heat generated at the waste incineration facility has begun in Singapore.

At the end of the day, after visiting the "green" booths, I learnt to appreciate my environment. I am also heartened to know that ITE students like me, together with our lecturers, and our industry partners and government are able to make a difference in conservation through our action.

Clean & Green

1. Beyond the Green Walls
2. Youth for the Environment
3. Operation WE Clean Up!
4. The Green School in the East

“Our environment, the world in which we live and work, is a mirror of our attitudes and expectations.”

- Earl Nightingale



Beyond the Green Walls

Written by Wee Yin Ping, Lecturer/LifeSkills, College Central

Mr Edmund Tan, Head/Estate Management with the Campus Development & Estate Division in Headquarters, beamed with pride at the thoughts that ITE Headquarters/College Central had been chosen as the venue to host the National Rally Speech for four years in a row since 2013.

Edmund, an ITE alumni who previously trained at the old ITE Ang Mo Kio campus, is extremely proud of ITE's involvement in PSTLES (Public Sector Taking the Lead in Environmental Sustainability) initiative, particularly in the physical transformation of ITE Headquarters/College Central campus. The sustainable architecture, featuring vertical greeneries which are strategically installed on the west-facing facades of the eight blocks of building promotes a green-conscious culture and has won ITE many accolades including the 2015 BCA Green Mark Platinum Award.



Vertical green walls installed on west-facing facades of building walls at ITE College Central, Ang Mo Kio

Under the PSTLES initiative to reduce carbon footprint, all public agencies need to comply with various statutory requirements. In conjunction with this, ITE monitors the various environmental factors and submits reports such as the Environmental Scorecard to NEA, Building Energy Submission System to BCA and Water Efficiency Plan to PUB. Edmund shared that ITE also had a Resource Management Plan detailing our commitments to reduce energy and water consumption as well as waste generation.



Top view of a section of ITE College Central, Ang Mo Kio

Also a member of ITE Environmental Sustainability Initiatives Committee, Edmund reflected that beyond the green walls and “hardware”, it is the “heartware” that counts in reducing carbon footprint. It is therefore very crucial to engage everyone in ITE to embrace eco-friendly habits and practices in our daily lives.

Increasingly, divisions and departments in ITE have also stepped up efforts to contribute to the environmental sustainability initiatives. One example is the provision of recycle bins at strategic locations throughout the campus to encourage students to recycle the by-products of their practical projects. Through this practice, awareness of disposing waste responsibly would be instilled in students to help promote such eco-friendly practices in the workplace in the future.

Youth for the Environment

Written by Pamela Koh, Lecturer/LifeSkills, College East

In commemorating Youth for The Environment Day (YED) 2016, more than 2,000 ITE College East students and staff took part in “Our Campus, WE Clean up”, a mass cleaning exercise to clean the classrooms and laboratories thoroughly.

In addition to that, efforts were also made to keep the neighbourhood around the campus clean as well. For this activity, 70 students from various key CCA groups including the Student Ambassadors' Club, Bridge Leaders' Club, Student Councillors Club, and Environmental Club, were joined by staff and members of the management team in picking litter inside the campus and also around the neighbourhood.



A commendable team- all ready, set to go, to pick litter in and outside the campus

Writers' Room interviewed Ms Karen Loh, Principal Staff-in-charge of the Environmental Club and organiser of the YED 2016 event for College East.

“This is a commendable activity that creates awareness among staff and students in keeping the environment clean at all times. We get to appreciate the cleaners more as we are involved in the cleaning and litter-picking activity. We hope that everyone can take ownership and keep the environment clean,” said Ms Karen Loh when asked about her thoughts and feelings about Youth Environment Day.

Ms Karen Loh shared that her Environmental Club members were also Litter-Free Ambassadors who were scheduled to clean the campus as well as the perimeter outside the campus once a month. They would patrol the campus and the compound to advocate correct waste disposal methods to students as well as to pick up litter along the way.



Nursing students all geared up to do a spick and span cleaning job

In the mass cleanup exercise, Nursing students set high standards for themselves. They cleaned their laboratory, which looks like a hospital ward, to 'hospital hygiene standards'. This means that disinfection is the key. Every bedside table, tray and the floor would have to be wiped with disinfectant. The Nursing students felt that they have learned a lot about hygiene and cleanliness after this activity and would continue to keep up the hygiene standards.

Mr Zaidi Yacob, Section Head of Finance Services Department at College East was very supportive of the mass cleanup exercise. He said that small little steps such as mass classroom cleaning provided good learning opportunities for our students. Students would learn to contribute towards a conducive learning environment and that "every contribution matters". To encourage all students to participate in the campaign, a classroom cleaning roster system would be implemented.



Students give it all up for 'Our Campus, WE clean up!'

Operation WE Clean Up!

Written by Nur Zakirah Bte Abdul Jabar, Nitec in Business Services, College East

The annual nation-wide “Operation WE Clean Up!” exercise was carried out on 8 May 2016. The one-day event was coordinated by the Public Hygiene Council together with its partners in the “Keep Singapore Clean” movement at various locations in Singapore to influence individuals, schools and organisations to keep their communities clean and to reinforce the social norm of zero tolerance towards littering.

Dr Yek Tiew Ming, Principal of ITE College East was heartened to see many students, staff and alumni participating in the exercise on a Sunday. After Dr Yek launched the event with a blast from a bullhorn, eager volunteers and participants went about diligently picking up litter at the area of their responsibilities which included:

1. The footpath along the MRT track leading to Simei MRT station;
2. The route leading to the Singapore Expo; and
3. The main entrance of the campus
4. Private housing estate opposite the campus



Group photo at the end of the event. The blue bags contain the recyclable items collected.



Not forgetting to have a nice pose in front of the camera



All ready to go litter-picking!!!



Having fun along the way! Hey, it's a Sunday morning!

Students enjoyed clearing the litter despite having to do so under the scorching sun. Mdm Sapiah Ahmad, Course Manager of Administration Studies, supported the activity as an excellent opportunity for students to learn about civic responsibility. Dannie Khor, ITE College East alumni and ex-President of Environmental Club hoped to see all Singaporeans keeping the environment clean and green for generations to come.

The Green School in the East

Written by Kiran Kaur & Benjamin Yap, Lecturers/LifeSkills, College East

Yes! We've done it again! ITE College East received a big pat on the back at the South East Clean & Green SG50 Carnival, on 17 October 2015, where it was conferred the **2015 South East Green Schools Award (Sustained Excellence)**.

It was a proud and affirming moment when Mr Lim Teck Lee, Deputy Principal (Academic), ITE College East & Chairman for ITE Environmental Sustainability Initiative Committee received the award from Dr Maliki Osman, Mayor of South East District. The college is indeed humbled by this topmost accolade in the award structure that recognises and honours schools in the South East District for their contributions and efforts in reaching out to students and the community on environmental issues.

Since the launch of the South East Green Plan in 2010, the college has been actively engaging students in the green movement. 2015 was peppered with school and community-based outreach projects from its collaboration with PUB in celebrating "Singapore World Water Day" to environmental events such as "No Waste Day", promoting the zero littering footprint movement in Pei Chun Public School and supporting the Little Green Dot's Programme in reaching out to kindergarten children. As such, it is deeply rewarding and motivating for College East to attain yet another Certificate of Excellence for all its fruitful endeavours.



Mr Lim Teck Lee, Deputy Principal of College East receives the Sustained Excellence award on behalf of the school from Dr Maliki Osman, Mayor of South East District.

The other recognition of the College's green initiatives came from the Singapore Environment Council (SEC). ITE College East scored more than 95% in the SEC's school green audit checklist. With this achievement, ITE College East was conferred the Starhub-SEC School Green Award (Lotus Award) & 3R Award (Gold & Most Holistic Award) in 2015. The accolade came in the third year of the college's participation in the School Green Awards, by which time the culture of energy sustainability and energy conservation had already become engrained in the college's corporate ethos.

The School Green Awards (SGA) now in its 15th year since its inception, are administered by the Singapore Environment Council (SEC). The 2015 SGA was sponsored by the local telecommunication company, StarHub. It is the premier award to recognise schools and institutions for the efforts undertaken to help save and preserve the environment. The SGA's objectives of educating and inspiring learners of all ages on issues such as waste minimisation, resource conservation and the greening of the school grounds have certainly sunk in deep and taken firm roots in the minds of many.

On the morning of 5 November 2015, Ms Karen Loh, Principal Staff in-charge of the ITE College East Environmental Club, received the prestigious award on behalf of ITE College East.

Karen had put her shoulders to the plough by initiating a slew of activities with the goal of galvanising the entire student population to go green. The award was a direct acknowledgment of her tireless efforts in promoting the environmental cause among the staff and students in ITE College East.



A proud moment as Ms Karen Loh receives the awards on behalf of ITE College East

Community Outreach

1. Making New the Old
2. Water for Life
3. Sustainable Green School @SW
4. Community Gardening @the Hort Park

“We use our resources and skills to care for the community and the environment”

- ITE's Corporate Social Responsibility Ethos



Making New the Old

Written By Irene Teh, Lecturer/LifeSkills, College East

Madam Saadiah Bawany, Technical Officer/Environmental Services at College East, has always been attracted by beautiful jewellery crafts. One of her favourite past times was to source for crystal beads and accessories to create pretty accessories that adorn one's outfit. A wire coiling tool Saadiah found in her shopping trip one day sparked off the idea to upcycle the leftover used cables in the lab after students had completed their projects.

From then on, Saadiah started her journey giving new leases of life to old or used items and has never turned back. She has taught many students, staff and members of the public the art of recycled wire art. She even had the opportunity to present this eco-craft know-how to Prime Minister Lee Hsien Loong in one of the South East Clean and Green Singapore Carnivals.



Madam Saadiah explaining recycling wire art to Prime Minister Lee Hsien Loong

“Always something new from the old”, is how staff and students who know Saadiah described her. As College East Environmental Club’s Staff Advisor, Saadiah’s creative streak in refurbishing pre-loved and recyclable items saw her tirelessly organise interesting activities such as recycling craft workshops, live demonstration to create upcycled door-gifts in the yearly South East Clean and Green Singapore Carnival since 2009 to ignite similar passion in others.

Saadiah is able to turn many kinds of “waste” of different size and form into useful and presentable items. Some projects shared at community workshops include making namecard holders out of unwanted banners, reusing pre-loved jewellery to make trendy handphone accessories, and using recycled wire to make intricate keychains.



Mdm Saadiah repurposing recycled wire at South East Clean and Green Carnival



Mdm Saadiah conducting a workshop with members of CE Environmental Club

A long-serving staff of 30 years in ITE, Saadiah is a true educator at heart. Her involvement in community events on eco-sustainability is an extension of her role in mentoring youths. Saadiah finds great satisfaction in promoting awareness of recycling and inculcating in students the habit to care for nature. Her clever use of seemingly “worthless” items has shown students that beautiful projects can still be created on shoestring budgets.

Apart from the Clean and Green Carnivals, Saadiah has also mentored students in the Environmental Club to serve in other community events, such as the Singapore World Water Day, the Green Corridor Run, and sharing sessions in secondary schools.

A key message which Saadiah strongly advocates is to reduce the use of non-biodegradable food packaging and drink bottles. This will greatly help to reduce the national waste build-up. Envisioning a green future for Singapore, Madam Saadiah shared, “I hope to see my students and our community at large live out the habits of ‘Reduce, Reuse and Recycle’.”

Water for Life

*Written By Tay Choon Yen,
Lecturer/Chemical Process Technology, College East*

“After a long day’s work under the scorching heat of 39 degree Celsius, the smile on the villagers’ faces was priceless.” those were the words of Ms Angela Lim Hui Min, Technical Officer/Chemical Process Technology who led the community service trip to Phnom Penh – Kampong Speu in Mar 2016 in the Water for Life (WFL) programme.

WFL is a collaboration project between Singapore International Foundation (SIF) and ITE which was initiated by Mr Raymond See, Deputy Director of Applied Science in 2013.

The WFL project provides a platform for ITE students to contribute towards water sustainability efforts outside Singapore. The Cambodians’ main source of drinking water comes from rain, underground water or rivers. In most cases, water is not treated and poses major health and social issue for the Cambodians. Through WFL, the bio-sand filters that are built and installed in each household have improved the villagers’ health. The clean drinking water has resulted in stronger immune systems, and the time spent by villagers to find clean water has also been channelled towards more meaningful economic and educational activities.



Group Photo on ITE-SIF collaboration on Water for Life Project in 2013

The first phase of the WFL collaboration which was completed in Dec 2014, saw the ITE team working with beneficiaries such as Angkor Hospital for Children and community in Dan Run and Dam Dek at Siem Reap. More than 17,000 Cambodian families benefitted from 2,600 bio-sand filters installed in their homes when the project ended.

In addition, the team also raised about USD3000 in donations to purchase a unit of new cement-mixing engine and more than 300 sets of hygiene sets for the villagers.



Pioneer ITE staff from Chemical Process Technology department, College East

In the current second phase WFL project in Phom Penh, the team provided hygiene training in addition to building water filters in the villages.

Student Yap Wei Sin, who was part of the June 2015 team, reflected that the quality of the villagers' drinking water was poor and was very glad to be involved in WFL to improve water quality. Another student volunteer from the March 2016 team, Muhammad Irfan bin Azman, was also happy in being able to apply his knowledge to improve living conditions for the community.

Apart from contributing to sustainable development, the WFL project also offers a holistic environment for our students' experiential learning. Students were able to benefit by applying the theoretical knowledge taught in classrooms to solve real life problems. For instance, when mixing construction materials to make bio-sand filters, they will get to observe real-time chemical processes, the principles of filtration and impact on the community.

All students who participated in the meaningful WFL projects felt that the experience was an eye-opener. They were more appreciative of the good living conditions and the various blessings we enjoy in Singapore.

Sustainable Green School @ SW

*Written By Lim-Phua Chiew Kheng,
Senior Lecturer/LifeSkills, College West*

It was a defining moment for ITE College West when it received the Sustainable Achievement Award 2015 in the IHL(Institute of Higher Learning) Category in the Green School @ South West programme. This was a resounding recognition for the college which had been achieving the Gold Award consecutively for the past five years since 2010. The award strongly affirmed College West's journey of being a sustainable Green School.

Green School @ South West programme focuses on training and empowering students to take leadership and ownership in caring for the environment. Students lead and organize environmental-themed activities in schools and within the communities for a cleaner and greener environment. In the lead up to becoming a Green School, students at College West completed modules such as:

- "Litter-free environment'
- "A community that does not spread bugs'
- "Clean, dry & sparkling toilets'
- "Energy efficiency & climate change'
- "4Rs-reduce, reuse, recycle

In addition, students also participated in the South West Clean and Green Carnival. Student leaders were trained as Junior Environmental Ambassador to propagate eco-sustainability messages. Collaboration with agencies such as NEA to raise awareness to the college community through themed performances on environmental issues such as prevention of mozzie was also carried out.



Litter-free module in which the members collect trash at Chua Chu Kang Zone 3



House-to-house visit to inform residents on the 5-step mozzie wipe-out

Support for South West Clean and Green Carnival 2015



Percussion performance by our students



Green workshop to educate the public



Club members participated in a recycling drive as part of South West Eco day out.



Learning journey to Siloso Beach Resort to learn the Eco initiative of wormery and herb garden



Sustainable Achievement Award Ceremony 2015 at Singapore Science Centre



Dr Goh Mong Song, Principal of College West receiving the Sustainable Achievement Award 2015

Community Gardening @ the Hort Park

Written by Charlotte Chan, Nitec in Floristry & Helena Bte Kasmuri, Higher Nitec in Event Management, College Central

To celebrate our nation's 50th Birthday in 2015, NParks' Community In Bloom (CIB) brought together communities from all walks of life to share their love for nature by developing the "SG50 CIB Gardens 2015" in Hort Park. The Park was created as a lively hub for those who share a passion for gardening.

The "SG50 CIB Gardens 2015", which showcased a series of commemorative gardens, was designed against a backdrop of much-loved places that have evolved over time. 50 Community in Bloom (CIB) groups came together to create five celebratory projects for "SG50 CIB Gardens 2015". Each project team was paired with NParks staff to create garden landscapes based on themes relating to Singapore's history. ITE College Central collaborated with the following groups from Central Singapore District:

- Moulmein Farrer Park RC
- APSN Tanglin School
- Lee Kong Chian Gardens School
- Seletar Hills East NC
- Teck Ghee Primary School
- Haji Muhammad Salleh Mosque

The team's garden "**BLK 50**", which is inspired by Housing & Development Board communities, was awarded the "**Best Eco-Friendly Garden**" on 6 Sep 2015. "**BLK 50**" garden comprises 3 sections: The Community Garden, the HDB block with corridor and homes, and the void deck.



Best Eco-Friendly Garden Award - BLK 50

HDB has played a major role in transforming Singapore by providing affordable housing to 85% of the country's population has seen many families live and grow in the flats. At the void decks, many community ties have been forged, along with lifelong friendships, and even marriages. **"BLK 50"** encapsulated the essence of our collective memories and was designed to bring forth a sense of nostalgia.

The official launch of SG50 CIB Garden 2015 was held on Sunday, 8 Feb 2015 at 8.30 am by Minister Lawrence Wong and MOS Desmond Lee with representatives from various organisations, including ITE College Central.



Minister Lawrence Wong and MOS Desmond Lee officiating the launch of SG50 CIB Gardens with representatives from ITE College Central



The "Gardeners" of Team ITE College Central



The "Painters" of Team ITE College Central

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Thank you, Eco Warriors, for contributing your stories!



GREEN FOOTPRINT 3

Think Green, Live Green, Love Green



Thank you for Reading