



JANUARY 2018 - MARCH 2018



#### **BRIEF HISTORY OF ENSEARCH**

ENSEARCH was formed in 1984 by a pioneer group of local professionals and academics from multidisciplinary backgrounds. Its first President (1984-2000) was Ir. K.Kumarasivam and its first Hon. Secretary General was Dato' Dr. Abu Bakar Jaafar. Today, ENSEARCH has more than 300 members consisting of corporate, individual and life members.

It is acknowledged that enhanced awareness and competency of organisations and individuals through education and training is essential to achieve the objectives of Malaysian Environmental Quality Act, 1974. Therefore ENSEARCH began formulating and implementing training programmes to enhance the capacity for environmental management in Malaysia.

In addition, ENSEARCH organizes Tea Talks and Public Lectures to enhance awareness on pertinent and comprehensive issues on the environment. ENSEARCH has also been actively involved in dialogue sessions with relevant authorities in development of legislative and regulatory frameworks that are supportive of good environmental management practices. In recognition of ENSEARCH's objectives, it has been given tax-exempt status whereby the donations to ENSEARCH are exempted from tax. e-bulletin at http://ensearch.org/resources/

## ENVIRONMENTAL MANAGEMENT AND RESEARCH ASSOCIATION OF MALAYSIA (ENSEARCH) 30-2 Jalan PJU 5/16, Dataran Sunway, Kota Damansara, 47810 Petaling Jaya, Selangor Darul Ehsan. Image: State of the sta

CONTENTS

Brief History of Ensearch	1
ENSEARCH President's Message	2
Featured Member	3 - 5
Featured Article	6 - 10
Past Events and Activities	5 - 19
ENSEARCH Training Calendar 2018	20 - 21
ENSEARCH Advertisement	22 - 24
Council Member 2017/2018	25
ENSEARCH Secretariat 2017/2018	26

#### Note to Members

To serve members better, please let us know if there are any changes to your contact details. For Corporate Members, please provide more than one contact e-mail address to facilitate better dissemination of ENSEARCH information. Please write to us at <u>admin@ensearch.org</u> for any changes or updates in contact details.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

Dear Members,

It is the time of the year to communicate with Members and Friends of ENSEARCH. The first quarter of Berita ENSEARCH is published as an update of ENSEARCH activities. I am specially happy to note of an interesting article produced by our ardent Council Member, Dr. Subramaniam. It is a must read uptake.

The K. Kumarasivam Memorial Public Lecture and the Young Environmentalist Internship Award event was a key activity that was successfully conducted. My special appreciation to Emeritus Prof. Muhamad Awang, Retired Vice—Chancellor, SEGi University for delivering the Memorial Public Lecture and donating the Token of Appreciation back to the KKEF Fund.

ENSEARCH is presently leveraging the success of the 13th Asia Pacific Roundtable on Sustainable Consumption and production (APRSCP) Conference, organized in October 2017, by engaging positively with the Economic Planning Unit and EU Switch - Asia Facility.

Relative to this engagement, it is timely that I should encourage Council Members to identify activities for ENSEARCH to continue to sustain the Secretariat to be in forefront of Environmental Sustainability.

I am sure you will enjoy the update in this Berita. Cheers.

Mr Gobinathan Kumaran Nair President 2017/2018



JANUARY 2018 - MARCH 2018

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#### Dato' Halimah Binti Hassan

Dato' Halimah Binti Hassan was recently conferred an Honorary Life Membership by ENSEARCH for her contributions to the Organisation. She has been an ENSEARCH member since 1988. Starting from 2010, she has been involved actively with ENSEARCH and successfully chaired the Organizing Committee of 13th Asia Pacific Roundtable on sustainable Consumption and Production 2017 (APRSCP), one of ENSEARCH's biggest activities last year.

Dato' Halimah's early education began at Sekolah Menengah Kota Bharu and Sekolah Tun Fatimah (1968 - 1973), before pursuing a Degree Science in Ecology at Universiti Malaya (1975 - 1978). She



also obtained a Post Graduate Certificate in Health Education from the Public Health Institute, Ministry of Health Malaysia.

Dato' Halimah started her career in 1981 with the Department of Environment Malaysia as an Environmental Control Officer in Environmental Impact Assessment Unit. After few years, she became the State Director of Sabah and Federal Territory of Kuala Lumpur . She was the Director General, Department of Environment from 2011 to 2015. She is currently the Executive Director of Green Enable Technologies Sdn Bhd, a company which promotes green technologies and initiatives. Dato' Halimah is committed to raising sustainability awareness to the top of the Malaysian development agenda. She had been outspoken about the link between disasters, the ecosystem and uncontrolled development.



Dato' Halimah represented Malaysia for Meeting of Parties of the Montreal Protocol in Paris (2014)



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

She believes that the Quality - of - Life issues needed focus especially social concerns when important economic policy decisions must be made. She also stresses the importance of engaging and empowering Women and Children in the sustainability agenda. "It is everybody's responsibility to protect Mother Earth and it is important to adopt a sustainability lifestyle", she said.

On 12th December 2017, the ENSEARCH Council recognized Dato' Halimah Hassan's contribution as Chairperson of the 13th APRSCP Organising Committee by awarding her an Honorary Life Membership of ENSEARCH.



ENSEARCH Council awards Dato' Halimah Hassan's Life Membership of ENSEARCH. President, Mr Gobinathan Kumaran Nair did the presentation during KKEF: Memorial Public lecture 2017, one of ENSEARCH flagship programme.

She has successfully promoted ENSEARCH to delegates, speakers and guests from at least 20 countries. With her contribution also, ENSEARCH received strong support from the public and private sectors which made a success of the two day Conference and Exhibition.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/



Dato' Halimah and Ms Jenny Tan, ENSEARCH Honorary Treasurer, after having an 13th APRSCP interview at Vbuzz - Astro Ulangam

Dato' Halimah hopes ENSEARCH will play a leading and pivotal role in promoting excellence in environmental management, enhancing competency and upholding professional ethics amongst environmental managers and practitioners.

Dato' Halimah Hassan is married to Mr Hashimi Mohd Drus. They are both blessed with a beautiful daughter, Eleanur Bahira.



Dato' Halimah with her husband, Mr Hashimi Mohd Drus and their daughter, Eleanur Bahira



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

## 4th Industrial Revolution, Optimization and the Impacts on Environmental Health, Safety and Quality

Ву

**Dr.Subramaniam Karuppannan,** PhD, MCIEH, PJK1 Head of Environmental Health and Safety, MAHSA University, Saujana Putra.

#### 1. Introduction

Albert Einstein once said that "a new type of thinking is essential if mankind is to survive and move toward higher levels". He was suggesting a new form of thinking to allow mankind to survive and achieve a higher quality of life (Today In Science, 2018).

He too mentioned that mankind is greatly at risk from poor scientific decisions and if..."anyone who thinks science is trying to make human life easier or more pleasant is utterly mistaken" (Albert Einstein, 1931).

The innovations of mankind are reflected in the four listed "revolutions" known to mankind, namely:

- a) Agriculture Revolution
- b) Industrial Revolution
- c) Internet Revolution
- d) Artificial Intelligence Revolution

But what about the next revolution? What are we to expect in the next decade or two?

There were great innovations that drove and helped to evolve the Industrial Revolution by the:

- Invention of the steam engine.
- Electrification and expansion of industries for mass production and
- Digital revolution produced by computers and information technologies.

These innovations often led to higher impacts on environmental health by compromising safety and quality of various products and services.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

Considering the internet revolution which lead to the following scenario when forty years ago, the average person followed an employment path largely determined by birth and education, often committing to one employer until retirement. But today one probably wouldn't even consider that as a viable option. Success is no longer solely determined by the right education, the perfect resume, or even your age and background. Teenagers as young as 12 are now coding websites, producing films and building networks through social media. By the time they're adults, this online generation will already have some skills and real-world experience that a formal education just can't provide (Micha Kaufman, 2012). This leads us to the next stage of questions to seek new answers.

#### 2. Sustainable Production And Consumption Technologies

During the Global Innovation Summit 2017 in Kuala Lumpur, Deborah Wince-Smith, President of GFCC and Chief Executive Officer of the US Council on Competitiveness stated that "the world is entering a technology-driven Age of Optimization". This will bring more sustainable production and consumption technologies that "could answer the grand global challenges of adequate food, clean water, energy, the environment and global health". Could this be the next revolution that will lead to the more sustainable economy and provide a stable ecosystem?

Global Federation of Competitiveness Councils (GFCC) outlined some guiding principles to succeed in the fierce global trading rivalries and achieve environmental sustainability. These principles included and emphasized by six key competitiveness drivers:

- a) Research and development;
- b) Education and training for all;
- c) Sustainable and responsible natural resource development;
- d) Strong intellectual property rights;
- e) Open trade; and,
- f) A stable, transparent, efficient and fair environment for business investment, formation and growth (Zakri Abdul Hamid, 2017).

The Industrial Revolution caused a major impact to every aspect of daily life it influenced. The average income and population began to exhibit unprecedented sustained growth. The standard of living for the population began to increase consistently for the first time in history. This led to the promised path of greater development and a larger promise of increased income generation worldwide.



JANUARY 2018 - MARCH 2018

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#### 3. Impacts of Industrial Revolution

While the 4th Industrial Revolution holds greater promise of a path to environmental sustainability. There was a transformation of man's work nature and with its expected impact both on the environment he lives in. There were direct impacts on his health and safety along with greater social implications due to disruptions entailed therein. These encapsulated impacts were on the human micro environment namely the physical, chemical, biological, psychosocial and ergonomic environments. This led to the developing emphasis and meeting standards on Environmental Health, Safety and Quality.

#### 4. Industrial Revolution and the Sustainability Gap

The Industrial Revolution loop began when modern corporations grew, where the larger corporations produced more goods and services with increasing profits. As these corporations grew, the loop started all over again creating a ripple effect. The Industrial Revolution produced many side effects, namely:

- a) Environmental impacts,
- b) Economic impacts, and;
- c) Social unsustainability.

The Industrial Revolution loop is a reinforcing loop (R).

- d) No reinforcing loop can grow forever.
- e) They all have limits.
- f) If nothing is done to solve the sustain ability problem, those limits will eventually result in catastrophic environmental collapse. (See Figure 1)



Figure 1: Sustainability Loop (Twink, 2017).



JANUARY 2018 - MARCH 2018

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#### 5. Closing the Sustainability Gap

Increases in sustainability gap causes the difference between where we are today and where we need to be to be sustainable. In this concept of the Sustainability Revolution loop where to avoid the difference, we add the right balancing loop (B). A thermostatic effect balances the output of a heating or cooling system where the Sustainability Revolution loop balances the side effects of the Industrial Revolution loop. (See Figure 1).

#### 6. Environmental Health Safety and Quality interactions within the sustainability loop

Sustainability Revolution loop is created by enabling legislation as the first component. The right enabling legislation will create the enabling stewards. This will enable a better ecosystem for the management of goods and services. As these goes up, side effects go down which leads to an Inverse effect and relationship. The causal loop diagrams (Figure 1) explains this where the solid arrow is a direct relationship and when node A goes up, so does node B. Environmental Health

Safety and Quality (EHSEQ) is such an enabler in both formal and informal organisations. Interactive enablers involved environment protection (ISO14000), health conservation (ISO?), safety and prevention (ISO18000), quality control & assurance (ISO9001). (Figure 2).



Figure 2: Cousal - loop diagram of several important feedback in World 3



JANUARY 2018 - MARCH 2018

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The four major aspects of EHSEQ Management enablers are namely legal instruments based on the Department of Environment (DOE) with the amendment and promulgation of the EQA 1974 to EPA 201X; the Department of Occupational Safety and Health (DOSH) with the amalgamation of the OSHA 1994 and FMA 1967 to the new OSH Act 201X; among many. The shift also towards self-regulation with a fresh emphasis on guided self-regulation. Institutional support where there is a lacking in the support to government and non-government bodies by the public. The financial gimplications with a lack of national and private venture fiscal policies (~30% budgeting) in the field of EHSQ. The obvious technology divide which is still existing especially due to dumping of poor technology by advanced countries to the developing countries (Karuppannan, S.; 2016).

#### 7. The Next Big Thing: A Fifth Industrial Revolution

According to Bhaskar Chakravorti (2016): "...historian Arnold Toynbee popularised the idea of the industrial revolution back in the 19th century. Three revolutions are not widely distributed, even in the 21st century. Bhaskar Chakravorti (2016) suggestions were to use innovations by ensuring all industrial revolutions are spread globally to the balance six billion people. If countries, such as India, with a 100 times the population of 19th century Britain, can get to the 1st industrial revolution, through some other form of catch-up, double its GDP per capita in 1/10th of the time taken by Britain and, manage the disasters of urban pollution, water shortages and chronic diseases; that alone would be revolutionary. Rinsing this method and repeat in other parts of the have-not world. We might have a fifth industrial revolution on our hands at a scale 1000 times that of the first world order. It might eclipse the impact of the 4th that was the rage at Davos (2016).

In conclusion, there is a shift from the 4th to the 5th revolutions may happen by leaps and bounds with a greater impact to the world population and the economy. We need to plan and be ready with a better HSEQ management System that can cope with the arising needs.

Written by,

#### Dr. Subramaniam Karuppanan



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

#### K. Kumarasivam Young Environmentalist Internship Award 2017

<u>By</u>

Sathis Venkitasamy

JK Lakshmi Cement Ltd.



JK Lakshmi Cement Ltd. (JKLCL) under JK Organization Group is a well-established name in Indian Cement industry. The company came into existence in year 1982, with initial installed capacity of 0.5 million tonnes per annum. Keeping its sustainable approach to growth, company today has total installed capacity of more than 13.0 Million tonnes per annum, with 2 integrated cement plants at Sirohi ,Rajasthan and Durg , Chhattisgarh, and 3 standalone grinding units at Kalol and Surat, Gujarat and Jhajjar, Haryana. Apart from cement company also produces two value added products, i.e. Autoclaved aerated Concrete (AAC) Blocks and Ready Mix Concrete (RMC). The company operates in five states of India supplying various grades of cement and currently exploring opportunities to tap overseas markets. The company is a Listed Public Limited Company. The company is the member of Cement Manufacturers' Association (CMA), The Federation of Indian Chambers of Commerce & Industry (FICCI), Associated Chambers of Commerce, Udaipur Chamber of Commerce etc.

#### **Indian Cement Industry**

India is the second largest cement producer in the world after China with almost installed cement manufacturing capacity of 410 million tonnes per annum. Cement industry in India observed paradigm shift from wet manufacturing processes to the dry manufacturing processes which uses least water and energy efficient. Various forms of cements like Portland Pozzolana Cement (using fly ash) and Portland Slag Cement (using waste-slag) are being produced to reduce the utilization of clinker, thus saving natural resource limestone. The Industry is observed to be among the largest consumer of fly ash generated from coal based thermal power plants in India. Various companies are also accredited based on International Management Systems like ISO 14001, 14064, OHSAS18001, 50001, and 15001, etc. In India, all the industries are subject to Section 135 of the Companies Act, according to which, each company must allocate at least 2 percent of their average net of last three years profit for Corporate Social Responsibilities (CSR) activities.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

This makes the industries to have solid sustainability policies at top management with vision and mission being translated in every activity at their respective industries. This is a good model which others can learn where industries are subjected to contribute to environmental practices when being guided by national goal or legislations. Industries seen to be having voluntary contribution besides mandatory rule as environment blended so deeply with the culture since ancient times, preserving natural practices and heritage of the nation. Industries also observed to have incorporated main three pillars of sustainability which are Environment, Social and Economy, in a balanced model. Economical costs reduced together with better production and efficient usage of natural resources. Cement industries particularly have various forms of environmental practices be it macro level or micro scale, it makes good case studies for others to learn and implement those practices at their respective countries or regions.

#### Environmental Best Management Practices at JK Lakshmi Cement Ltd.

I noticed various number of environmental sustainability aspects which can be seen in both macro and micro scale. Macro scale aspects can be seen in plants' overall management as well as features to conserve environment, while micro scale aspects represented by minute detailed environmental aspects applied during cement production processes are well to be looked for. I had opportunities to visit two grinding units and one integrated cement plant under JK Lakshmi Cement Ltd. All three plants had their respective environmental practices applied. For instance, grinding unit in Kalol is the 1<sup>st</sup> unit in state of Gujarat to be Green Co Certified, for 10 diverse aspects of environment sustainability, besides being certified for ISO 9001, ISO14001, ISO 50001, ISO18001, ISO14064-1, ISO 14046 and NABL.



One of JK Lakhsmi plants in India



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

The plant has latest art of technology air pollution control equipment such as bag houses, bag filters as well as both ambient air and stack monitoring. These are the important features to prevent source and fugitive emissions especially in a cement plant. Also, the plant has continuous online emission monitoring system installed for cement mill stack and has scheduled programme for ambient air quality monitoring. The plant observed to have rainwater harvesting systems as well as packaged sewage treatment plants (STP) to treat the wastewater and the treated water is used for development of greenbelt and plantation. Besides water, the plant also has good waste management initiatives such as composting pit and vermicomposting facilities. The final compost is used as organic fertilizer for nursery and other plants in the premise.

Besides Kalol grinding unit, grinding unit in Surat also have its environmental practices on practice though the plant recently commissioned in 2017. The plant has capacity of 1.5 million tonnes per annum, higher than Kalol unit. The plant practices number of green construction practices. It uses refurbishment in terms of retrofitting some of the existing small infrastructure for office purposes, thereby boosting resource efficiency. This reduces natural resources and enhances energy efficiency. The un-manned weigh bridge can be seen done together for trucks to move in and out, as one single venue reduces the cost and time again saves resources. The buildings are made up of Autoclaved Aerated Concrete (AAC) blocks, which are considered as green building blocks. The pathway is completely made up of paver blocks which were also being manufactured in house, that utilises zero steel and less cement compared to cement-concrete roads. Plant has bigger solar yard than Kalol Unit with power generation capacity of 2.4MW, reducing about 1882720 Kgs of CO2 emission per year. Rainwater harvesting system also can be observed in this unit.



Rainwater harvesting system in one of JK Lakhsmi plants



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

I visited integrated cement plant which better known as Udaipur Cement Works Limited, located in Rajasthan. Integrated cement plant means it has its limestone mining area as well as processing stages which include grinding unit. So, being the bigger unit with vast amount of land area, the environmental aspects were observed and recorded in both mine and within plant. The mining area is about 900 hectares. A 6 km long covered belt conveyor is used to transport the crushed limestone from mine crusher to plant site. This in turn saves the need of truck movements, thus reduces carbon consumption.



Traditional cement production history on the wall of JK Lakshmi plant

The limestone mine area itself served as big hotspot for fauna especially birds and flora. There exist three old exhausted mining pits which are currently serving as natural rainwater ponds, under sustainable mining closure plan. The water is being abstracted for villagers' use, contributing to society as well as usage for plant in cooling and utilities. This again shows good water conservation practices especially in plant. The plant is fully equipped with latest pollution control equipment like other units. The plant is operating with one rotary Kiln and is energy efficient by having pre heater system before full heating take place, within the kiln. The coal/ petcock is only used for firing at Kiln and calciner. The plant also has 12 MW waste heat recovery system (WHRS) in place to convert waste heat into power.

On micro-scale environmental practices, all three plants have best practices during processing. For example, the plant produces two types of cement. Portland Pozzolana Cement (PPC), a major product is produced together with Ordinary Portland Cement (OPC) of which, the earlier only consumes 65% clinker compared to 95% clinker used in OPC. This in turn shows, that the company practices sustainable natural resource utilization and gypsum and fly ash, which are the waste- derived-products from other industries used as raw material for cement production.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

This helps JK Lakshmi Cement to close the loop of by-products of other industries thus prevents otherwise landfilling of wastes. The whole plant operates referring to Total Productive Maintenance (TPM) which helps the company to conserve environment through detailed and efficient management of production. The trucks movement into the plant is automated and routed so that can reduce possibilities of congestion within premise, at the same time, lead to reduced carbon footprint, associated to fuel burning.



Polypropylene bags that are used to pack cement at Auto Bag Placer Machine

The triplers carrying clinker to premises are covered with sheets to prevent fugitive emissions of dust and loss of material. Even the rubber belt sheets from scrap conveyor belts are used to cover the tripler, hoppers and other storage yards that is again is utilization of waste products. The whole process facility at all the material transfer points, has installed bag filter to prevent the fugitive emissions of dust as well as to clean the air. Prior to mixing and grinding in the ball mill, clinker is crushed in pre-crusher to increase surface area to volume ratio, thus better rate of grinding, it also reduces the energy consumption for ball mill. Hi-chrome steel balls act as grinding media in the ball mill as their sizes determined together with retention time to achieve maximum rate of grinding and power consumption.

#### **Undertaken projects during internship**

Besides learning environmental practices at JK Lakshmi Cement Ltd, I also took the opportunity to give suggestion as well as carried out small projects during my internship. After looking into aspects of high biodiversity value at Kalol grinding unit, a practical and desktop assessment was conducted and suggestions were made to have flora zones in Kalol unit and same can also be replicated in other plants.



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

I suggested the unit to develop and establish various zones of plants as bamboo zones, fruit trees zones, vegetable zones together with one environmental education zones. I also had the opportunity to visit two primary government schools in Kalol and one government primary school in Surat respectively. Water auditing was carried out at those schools and the assessment process and findings were shared with the company's management team in detailed presentations.



Water auditing at government primary schools

These are the some of the schools that are supported by JKLCL on both social and environmental sustainability elements. Khatraj primary school near Kalol grinding unit being the school promoting water stewardship observed to be having consuming around 10 litres of water per capita per day, compared to Dastan Primary school (25 litres of water per capita per day), near Surat Grinding unit. However, specific water consumption at both the schools were found lower than national recommended standard (Source: IS 1172, 1993) of 45 litres per capita per day school, given by Bureau of Indian Standards. I notices there was a temporary stream running across Surat Grinding Unit boundary wall. The stream is outside the boundary, but the river water is currently being abstracted for some of the minor usages in plant. I suggest to the unit that the small stretch of this stream can be adopted by JK Lakshmi Surat Grinding unit with involvement of other industries, villagers and government agencies. The stream proposed to be rehabilitated to have better water quality and biodiversity. The stream rehabilitation can be done by some deepening and widening of the stream together with minor trimming of plants at the stream bank. The treatment of river on site also will help villagers to get better water source for their farming activities and the grinding unit also will have benefits especially on reducing the cost of treatment for abstracted river water.

All my suggestions as well as possible projects that can be undertaken by JK Lakshmi Cement Ltd presented to Mr. Naveen Kumar Sharma, Senior Vice President (Works), JK Lakshmi Cement Ltd as well as to their staffs.



JANUARY 2018 - MARCH 2018

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Sharing session with employees at UCWL

#### Conclusion

I am very proud that I had the opportunity to have my internship at one of the renowned cement industry in India. In my point of view, JK Lakshmi Cement Ltd is a living cement industry that rich with environmental practices, flora and fauna. I would like to express my utmost gratitude to ENSEARCH and Board of K. Kumarasivam Endowment fund (KKEF) Board of Directors for granting me this two weeks international study internship at JK Lakshmi Cement Ltd, India. I would like to convey my special appreciation to JK Lakshmi Cement Ltd. for accepting me as intern and gave opportunity to share my suggestions as well as ideas.



KKEF Young Environmentalist Internship Award 2017



JANUARY 2018 - MARCH 2018

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#### ENVIRONMENTAL DRONERS – BEGINNERS' & INTERMEDIATE LEVEL (6<sup>th</sup> & 7<sup>th</sup> February 2018)

**A Participant's Reflection** 



Mr Mah is flying the DJI Drone provided by trainers

I came to know about this programme via an email from ENSEARCH. I was initially attracted to it due to the CPD points awarded for renewal of my DOE certification. On reviewing the training contents, it came across as a "fun" program. Thus, I spoke to my youngest son and decided to sign both of us up to attend the training together!



Participants are listening to the trainer's presentation



JANUARY 2018 - MARCH 2018

e-bulletin at http://ensearch.org/resources/

We found the training very interesting and simulating. Trainers were good as they are practitioners and I was able to pick up lots of good tips from them. I even got to fly one of their DJI drones.

In short, the two day course was a good learning experience and we are glad we made the decision to register for it early to secure the seats! It was also great to meet others who share similar interests from not only the Klang Valley but fellow Penangites and those coming from Perak and down south, Johor! It was also encouraging that other NGOs sent their employees as well including, WWF Malaysia, TRCRC and GEC. It was a fun to be part of such an enthusiastic and young at heart bunch of friends.



Group photo taken with a drone during an outdoor drone flying activity

I am encouraged that Drone Technology has many advantages and provides countless opportunities. In the future, I am hoping to start a new business in this field.

Finally it was also an excellent father-son bonding time.

Written by ENSEARCH member Mah Ting Keong

This programme received a full-house response of twenty participants with a waiting list. ENSEARCH endeavours to introduce the Advanced level and organise the Beginners' and Intermediate levels course again. For enquiries, please write to <u>spo@ensearch.org</u> or contact us at 03-61569807.

# ENSEARCH TRAINING CALENDAR 2018



## Capacity Building NGO in the Environmental Field as an Enabler to Malaysian Professionals Growth

#### JANUARY 2018 - MARCH 2018

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	ENSEARC	]	
	FEB	Environmental Droners (EiMAS 12 CPD) Beginners' & Intermediate 6 & 7 Feb (Tue & Wed)	G
Ni L	MAR	<b>Open Air Training Workshop (EiMAS 6 CPD)</b> 13 March (Tue)	
	APR	<b>Air Quality Modelling</b> 10 & 11 Apr (Tue & Wed)	
	MAY	GSR Benefits & Challenges Forum - Morning (in conjunction with ENSEARCH AGM - afternoon) 10 May (Thu)	
o Le l	JUN	* <i>Update :</i> Talk Life-Cycle Analysis & Eco-Labelling 5 June (Tue) In Conjunction with World Environment Day 2018!	
	JUL	Technical Field Visit (3 <sup>rd</sup> week of July)	
•1 10	AUG	Continuous Emission Monitoring System (CEMS) as Environmental Management (EM) Tool in GSR (Guided Self-Regulations)Seminar & Exhibition 16 August (Thu)	
SEP		<ul> <li>Noise Modelling (Date to be confirmed)</li> <li>Hill-Slope Development Forum Sept 20 (Thu)</li> </ul>	
	OCT	ENSEARCH Conference & Exhibition Date to be confirmed	HTH
	NOV	Water Quality Modeling Date to be confirmed	
	ENSEARCH Trainings of For more information: for trainings please di	are HRDF Claimable. EIMAS CPD Points Apply	





JANUARY 2018 - MARCH 2018

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Date: 10th & 11th April 2018 (Tuesday & Wednesday)

Venue: ENSEARCH Training Centre, Kota Damansara, Petaling Jaya

\*EiMAS CPD Points Will Apply \*ENSEARCH is a HRDF Registered Training Centre

> For enquiries, please write to spo@ensearch.org or contact us at tel:03-61569807.

Join us as a member to be the first to know about **ENSEARCH's activities!** http://www.ensearch.org/membership/









JANUARY 2018 - MARCH 2018

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### **Training/Meeting Room for Rent**

Size: Approximately 800 square feet Classroom seating - 25 pax Theatre seating - 40 pax Time: 0830 - 1700

Room rental includes items with no additional cost: A) Projector Screen B) Whiteboard Marker C) Flip Chart D) High Speed Wifi Internet E) Tables & Chairs F) Water dispenser

Facilities: Prayer room / Washroom

Training room rental: RM350.00 nett / per day (Members only)

Contact us: Tel: +603 - 6156 9807 / 08 Fax: +603 - 6156 9803 Email: po@ensearch.org



Classroom seating for 25 pax





JANUARY 2018 - MARCH 2018

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Full air conditioned training room comes with free water dispenser (refillable)



Reading corner with wifi connection





JANUARY 2018 - MARCH 2018

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Dining room next to the training room.



Gents and ladies toilet with water sink.



#### JANUARY 2018 - MARCH 2018

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President	:	Mr Gobinathan Kumaran Nair
Vice President I	:	Dr Foo Say Moo
Vice President II	:	Mr Akashah Haji Majizat K.M.N
Hon. Sec. General	:	Ms Geetha P Kumaran
Hon. Treasurer	:	Ms Jenny Tan Suat Eam
Immediate Past President	:	Ir Elias bin Saidin

#### **COUNCIL MEMBERS:**

Mr Abdul Aziz bin Long Mr Mohamed Siraj Abdul Razack Mr Khoo Boon Keat Ir Lee Heng Keng Dr Subramanian A/L Karuppannan Dato' Ir Othman bin Abdul Rahim Mr Tan Poh Aun

#### **CO-OPTED MEMBERS:**

Dr Hari Ramalu Ragavan Dr Mohd Amri b. Lajis Ms Ruhaidah Md Hassan (Indah Water Konsortium Sdn Bhd Rep) Ms Victoria Charles Juta (Petronas Rep) Ms Ismawati Mohd Shah (Cenviro Sdn Bhd Rep) Mr Zaipul Anwar Bin Zainu (Student Member Rep) Ms Tania Golingi (ENSEARCH Sabah Rep)



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## **EXECUTIVE SECRETARY SENIOR PROJECT OFFICER** : **PROJECT OFFICER**

- **Ms Vishal Singam**
- Ms Sharon Woo
- Mr Syamim Asri

