
BERITA ENSEARCH

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

Brief History of ENSEARCH

ENSEARCH was registered on 26th November 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 organizing and implementing training programmes to enhance the capacity for environmental management in Malaysia.

In addition, ENSEARCH organises 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 strengthens the environmental management practices in Malaysia. In recognition of ENSEARCH's objectives, it has been given tax-exempt status whereby the donations to ENSEARCH are exempted from tax.

in this issue

FEATURED MEMBER – 03

FEATURED ARTICLES

Plasma Gasification Technology for Malaysia - 04

Food Waste: A Criminal Waste - 12

PAST EVENTS & ACTIVITIES - 15

ENSEARCH CALENDAR 2018 - 20

ENSEARCH COUNCIL MEMBER

2018/2019 - 22

ENSEARCH SECRETARIAT

2018/2019 - 23



NOTE TO MEMBERS

Members are encouraged to write to us at admin@ensearch.org in the event of changing contact details. Corporate members are recommended to provide more than one contact (email address) to facilitate better dissemination of ENSEARCH information.

Editor's Note

Dear Members,

It's season of joy of the year again and hope everyone is having great time with family and friends.

The 24th Conference of the Parties to United Nations Framework Convention on Climate Change (COP24) was concluded with parties agreed on the rulebook that loosely details mechanism of implementing Paris Agreement. Nevertheless, it is lamented by many for lack of ambition to recognize the imminent threat of climate change as few countries refuse to welcome the finding of the Special Report on Global Warming of 1.5°C by Intergovernmental Panel on Climate Change (IPCC).

The Special Report highlighted urgency of rapid decarbonisation to limit global warming to 1.5°C in order to minimise challenging impacts on ecosystem, human health and well-being. The Emissions Gap Report 2018 by United Nations Environment Programme (UNEP) assessed the Nationally Determined Contributions (NDC) submitted by each party to UNFCCC and found that the pledged voluntary emission reduction of all parties are simply insufficient and there is a huge gap of emissions required to be offset.

Nevertheless, it seems to be a promising start for the new Malaysia as Ministry of Energy, Science & Technology, Environment and Climate Change (MESTECC) and Ministry of Housing and Local Government (KPKT) take on reducing Greenhouse Gas (GHG) emissions in timely fashion, addressing the emissions from the 2 highest contributing sector: Energy and Waste.

MESTECC announced new and updated policies on Energy Efficiency i.e National Building Intensity Labelling for Government Buildings and Preliminary Study of Demand Side Management as well as Renewable Energy i.e. NEM & SARE acknowledging the fact that building energy consumption comprised more than 50% of total electricity consumption in Malaysia.

Further from reviewing alternative waste treatment facility, KPKT stated need of Waste to Energy plant in each state to address the issue of landfill meeting lifespan and lack of waste disposal facility. The ministry also announced and conducted workshop on the implementation of Solid Waste and Public Cleansing Management Regulations 2018 that requires Commercial, Industrial and Institutional Solid Waste to be properly segregated, stored, and collected by licensed contractor with statistics recorded.

In this edition, the bulletin features articles of Plasma Gasification Technology and Food Waste, in relations to the contentious issue of Waste to Energy plant and better understanding on how handling food waste could reduce GHG emissions from landfill.

As the trainings and events received overwhelming response and constructive feedback from participants, from ENSEARCH, we would like to thank for the support and please look us up for more trainings in the pipeline.

Hope everyone have a good read and wishing all a Happy New Year with abundance of peace, love and aspiration.

Kelvin Diong

Editor

Publication and Website

Featured Member

ENSEARCH Honorary Secretary General

Mr Tan Poh Aun is the Honorary Secretary General of ENSEARCH 2018/2019. He graduated from University of Malaya (UM), in 1997 with a Bachelor of Science degree major in Chemistry. After graduation, he was attached to Perunding Utama Sdn Bhd as an Environmental Chemist and was subsequently promoted to Senior Consultant in 2002. With the incorporation of Perunding Utama Sdn Bhd into Worley Parsons Environmental Sdn Bhd in July 2007, he was promoted as one of the team leaders responsible for mentoring and guiding the junior consultants in environmental consulting services. He joined Environmental Resources Management (M) Sdn Bhd as Environmental Senior Consultant in 2009 and is currently the Principal Consultant at SOx NOx Asia Sdn Bhd. To date, he has been involved in over than 100 air quality management and environmental projects, having extensive project experience in Malaysia and throughout Asia.



Mr Tan Poh Aun has been actively involved with ENSEARCH since 2009



Mr Tan Poh Aun with his family during a family trip in Kuching.

Mr Tan Poh Aun is married to Ms Chen Heuy Gin since 2003. They are blessed with three daughters and a son. When asked about his aspiration on ENSEARCH, Mr Tan opines that ENSEARCH requires participation from younger generation to move forward as it is important to cultivate the younger generation environment consciousness as they are the one who will steer the country in the future.



Mr Tan Poh Aun with his wife and daughters

Featured Article

The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

1.0 Introduction

Waste can be defined as any substance that is discarded after primary use, worthless, defective and of no use. It can be classified as household waste, clinical waste, and industrial waste and can be categorized as hazardous waste or non-hazardous waste according to their functions, toxicity, corrosiveness, explosiveness and radio activeness characteristics. (Couto et al., 2013)

The Malaysian Department of Environment (DOE) defines Hazardous waste as any waste falling within the categories listed in the First Scheduled of Environmental Quality (Scheduled Wastes) Regulations 2005. (T. A. Zuraini, 2014). There are four basic characteristics of hazardous wastes that are potentially dangerous to human health and to the environment; their characteristics are as listed below:

- i. Ignitable (flash point of $\leq 60^{\circ}\text{C}$)
- ii. Corrosive (dissolves metals, burns the skin or has a $\text{pH} \leq 2$ or $\text{pH} \geq 12.5$)
- iii. Reactive (unstable or undergoes rapid or violent chemical reaction with water, air or other materials)
- iv. Toxic (poisonous or can cause cancer, mutations or death)

Thermal disposable techniques especially incinerations are often used in industrialized countries including Malaysia as a way to treat waste in general. This method becomes harmful to the environment when there is no comprehensive and consistent control in the emission reductions of substances and compound such as Zinc, Arsenic, Mercury, Cadmium, Selenium, Lead, Copper, Dioxin and other heavy metal. This paper tries to explore the benefits, challenges and opportunities of implementing Plasma Gasification Technology (PGT) to treat hazardous waste in Malaysia.

PGT is considered as a new technology in Malaysia that may be used as an alternative technology to incineration and landfill. PGT has been proven to effectively neutralize almost any kind of toxic substances and chemical to the environment. In the next paragraph, we will explain in more details of the capability of this technology. After that, analysis on the scheduled waste generation, trend and its relationship to PGT will be done.

2.0 Plasma Gasification Technology (PGT)

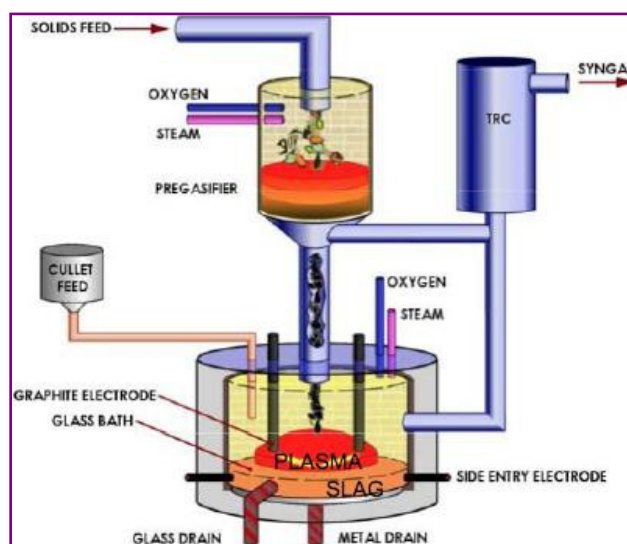


Figure 1: An example of Plasma Gasifier process (Willis, 2010)

PGT is a process that converts any type feed such as solid and organic substances into synthetic gas (syngas) and slag using fourth matter which is known as plasma as shown in **Figure 1** above. Inside the above gasifier, the hot gases from the plasma torch or arc (from the graphite electrode) will contact the feedstock (such as hazardous waste, municipal solid waste, shredded wastes and medical waste) and heating it to more than 1650°C .

Featured Article

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The syngas consists primarily of carbon monoxide and hydrogen, the basic building blocks for chemicals, fertilizers, natural gas, and liquid transportation fuels. The syngas can also be sent to gas turbines or reciprocating engines to produce electricity or combusted to produce steam for a steam turbine-generator.

Plasma gasification uses the oxygen-starved with extremely high-temperature environment to completely decompose waste material into very simple molecules in a process similar to pyrolysis. Because the feed reacting within the gasifier are converted into their basic elements, even hazardous waste becomes a useful syngas. The left-over materials from the feed are then melted and fused into a glassy-like slag, which is non-hazardous and can be used in a variety of applications, such as the construction of road, pavement and building's roof. It is also used commercially as a form of waste treatment and has also been tested for the gasification of biomass and solid hydrocarbons, such as coal, oil sands, oil shale and even radioactive waste can be treated (Uttag Technology, 2018).

According to a technology assessment on waste treatment method done by United Nation Environment Programme (UNEP), Malaysia has inadequate availability of recycling and recovery facilities in local authority areas whereas the amount of waste, especially hazardous (scheduled) waste is expected to increase significantly in the future.

With a population of 32 million people in 2016 (Unit, E.P., 2016), it is useful to note that there is a rapid growth in the urban population which is due to the rural-urban migration and natural growth which resulted in changing consumption patterns.

This phenomenon has contributed to an increase in the generation and composition of waste, including hazardous waste due to the urbanization process. In the next section, an analysis on the hazardous waste trend in Malaysia will be done, before we look into PGT's application to address this issue.

2.1 Scheduled (Hazardous) Waste Trend in Malaysia

The trend for total scheduled waste generated from 2007 to 2013 is as shown in **Figure 2**. **Figure 2** shows the increment of 260% of scheduled waste being generated in the country from 2007 to 2013. In 2013, the total numbers of scheduled wastes produced were 2,965,611.65 metric tonnes, which shows an overall increase of 3.89% as compared to 2012, where 2,854,516.78 metric tonnes of scheduled wastes was reported. Gypsum, dross, slag, clinker, ash, lubricating oil, heavy metal sludge and contaminated containers, were the main categories of the total number of wastes generated. Latest data on the scheduled waste generated is still unavailable, but if this trend continues, it is estimated that by 2020 around 4.5 million metric tonnes will be generated. This amount will be almost double than the amount produced in 2013.

Featured Article

The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

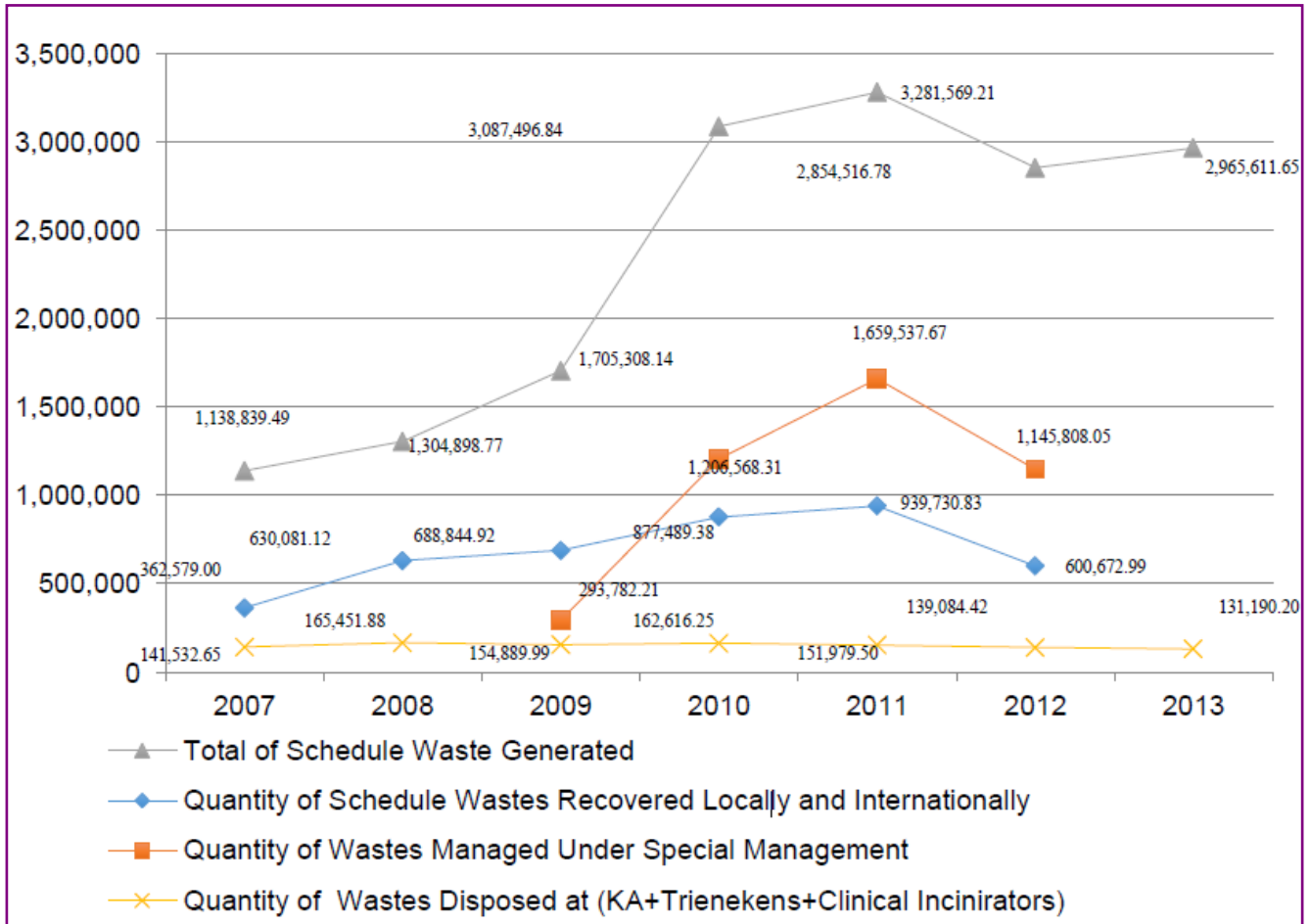


Figure 2: The Trends of Scheduled Waste in Malaysia

2.2 Scheduled Waste Produced by states in Malaysia

Figure 3 below displayed the statistics of scheduled waste produced by states in Malaysia. The state of Terengganu produced the largest volume of scheduled wastes (29.78%), followed by Perak (17.98%), Selangor (16.68%), Johor (12.28%) and Pulau Pinang (9.99%), while the other remaining 10 states generated a total of 13.28%. These waste were mainly generated by the industries that are currently running in the states.

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The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

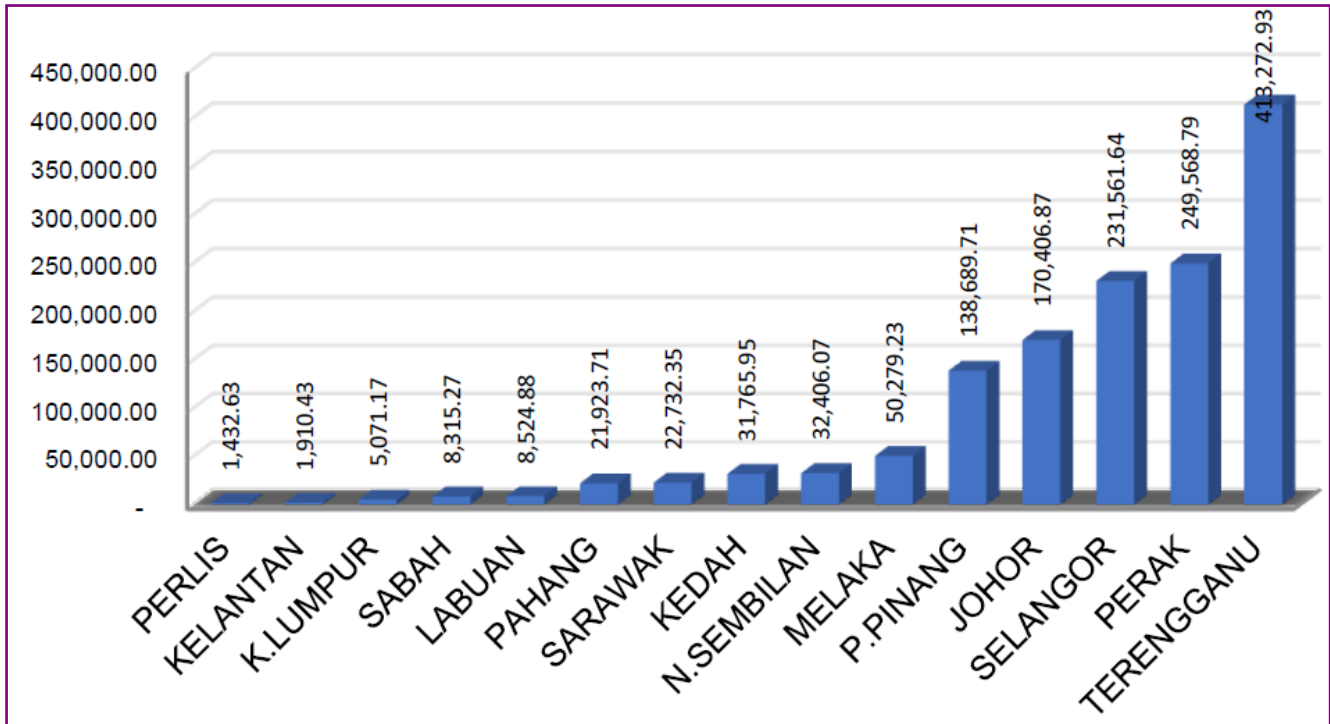


Figure 3: Distribution of Scheduled Waste Generated by State

Currently, conventional techniques such as combustion or incineration and land-filling were being used to treat the scheduled waste. The analysis done in the previous section had indicated that it is expected by 2020, the volume of scheduled wastes may double in terms of quantity.

This situation could lead to the increase of toxic emissions onto an already over-polluted environment (Ruj, B. et al, 2014). Researches have proven that the incineration process could release heavy-metal content to the environment such as research done by Wu, Lin & Zeng (2014). Reinhardt, Richers, & Suchomel (2008) also commented on the emission of CO₂ due to the consumption of fossil fuel in the incineration process. Beylot & Villeneuve (2013) also highlighted the impact of incineration on the environment in particular to climate change.

Besides the harmful process that could happen when using incinerators, landfilling also post a challenge to the country. As time goes on, it will be costly in the future to landfill, as the cost of land will significantly increase due to its scarcity, especially in the city area.

With PGT, all of the harmful effect to the environment as mentioned in the above paragraphs can be avoided. PGT has proven to effectively neutralize almost any kind of toxic substances and chemical to the environment without any hazardous effluent produced as mentioned during the introduction. PGT also doesn't require vast space as compared to landfilling. PGT can be set up in a confined plant area with the size of less than 5% of the space required for the landfill to process the same amount of waste.

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The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

2.3 Scheduled Waste Handling in Malaysia

In the previous section, we look at how the conventional method in treating scheduled waste could lead to harmful effect to the environment and how PGT could avoid it. In this section, a further investigation is done to study how effective scheduled waste is being treated and manage using the conventional method in Malaysia.

As shown in **Table 1**, Department of Environment (DOE) have licensed two (2) land farms and 15 on-site wastes incinerators respectively. A total of 131,190.20 metric tonnes (4.42%) of wastes were treated and placed for final disposal at Kualiti Alam Sdn. Bhd. (111,860.20 MT) and Trienekens (Sarawak) Sdn. Bhd. (19,330.00 MT). Kualiti Alam and Trienekens are among the largest waste management companies in Peninsula and East Malaysia. Out of 4.42% above, 18,201.05 metric tonnes (0.61%) of clinical wastes were incinerated at domestic licensed off-site facilities. This amount indicated a decrease of 5.66% from a total of 139,084.41 metric tonnes of scheduled wastes disposed of in 2012. The total of scheduled wastes treated on-site were 630,221.40 metric tonnes; (21.25%) while 41,742.48 metric tonnes (1.41%) were stored on-site at wastes generator's premises.

As shown in **Table 2**, wastes sent to Kualiti Alam Sdn Bhd and Trienekens Sdn Bhd were 45% incinerated followed by 43% landfilled. Several heavy metals, mixed wastes, dust, slag, dross or ash containing arsenic were being solidified (9%) and treated physically and chemically (3%).

Figures shown in this section has proven that majority of the scheduled waste was either being incinerated or disposed at the landfill.

No.	Facility	Tonnes	Percentage (%)
1	Special Waste Management	1,574,041.95	53.08
2	On-Site Treatment	630,221.40	21.25
3	Local Off-site Recovery Facilities	566,506.51	19.10
4	Kualiti Alam Sdn Bhd	111,860.20	3.77
5	On-Site Storage	41,742.48	1.41
6	Trienekens (Sarawak) Sdn Bhd	19,330.00	0.65
7	Off-site Clinical Waste Incinerators	18,201.05	0.61
8	Foreign Facilities (Export)	3,708.07	0.13
TOTAL		2,965,611.65	100

Table 1: Scheduled Waste Handling in Malaysia

Types of Treatment & Disposal	Percentage (%)
Incinerated	45
Landfill	43
Solidification	9
Treated physically & chemically	3

Table 2: Types of Treatment & Disposal of Waste

It was also noted that there is a decrease in the amount of scheduled waste being recovered and there is some amount of waste was being stored at waste generator's premises. Scheduled waste that is not fully recovered and treated plus being stored not at proper storage facilities could post a harmful threat to the environment.

PGT could avoid this type of situation because the process of scheduled waste treatment using PGT is done in a fully enclosed and safe environment. The only by-product of PGT or Gasifier is syngas and solid glass-like slag. Further explanation on the benefits of implementing PGT will be discussed below.

Featured Article

The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

3.0 Benefits of Plasma Gasification Technology

Several authors such as LaDou (1987) shared American's experience in treating hazardous waste using PGT. It has been proven to detoxify almost any kind of toxic chemical. Canada and the UK are also experimenting with advanced thermal technologies such as Plasma Arc Gasification (UNEP, 2011A). Kim, Park, & Kim (2003) also agreed that the steam plasma torch that process hazardous waste-to-energy is more effective than the conventional incineration process.

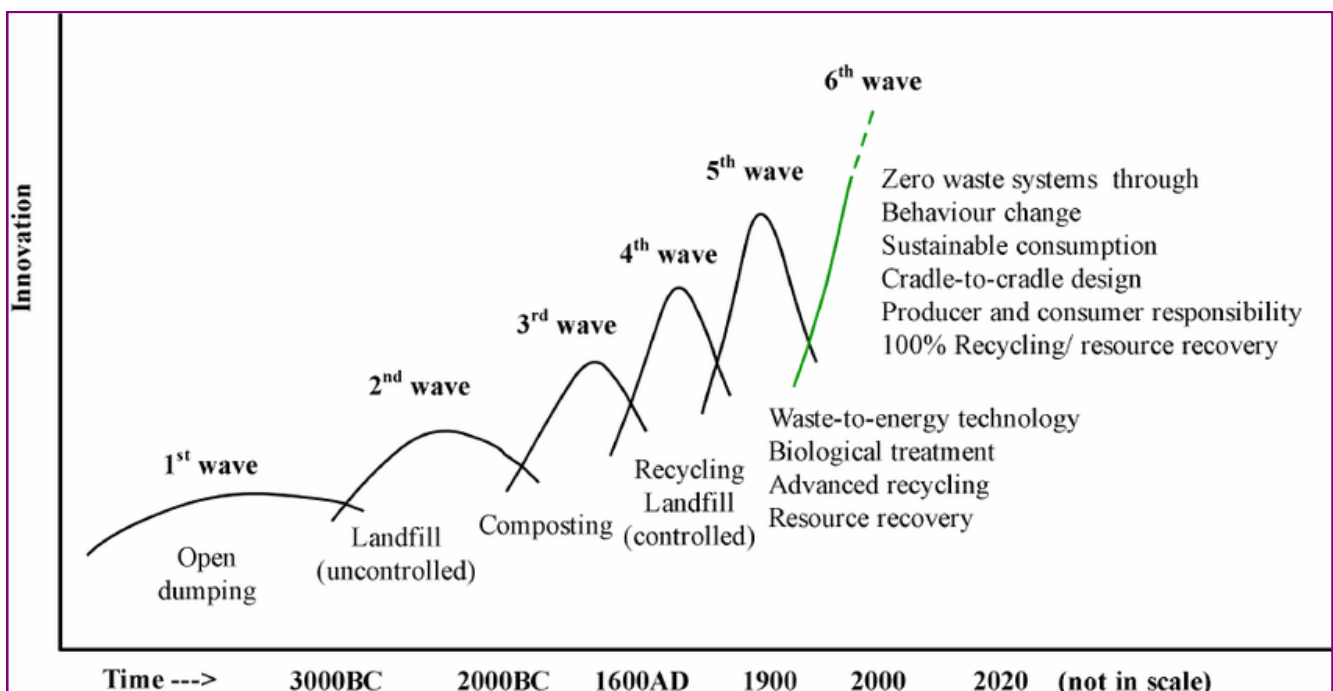


Figure 4: Wave of Innovation in Waste Management System (Zaman & Lehmann, 2011)

This technology is also supported by a research done by Zaman & Lehmann (2011) on their studies entitled "Challenges and Opportunities in Transforming a City into a Zero Waste City". The PGT has been identified as part of the 5th wave of innovation in waste management system as shown in **Figure 4** above.

From literature, as listed in this section and from the author's own experience, PGT provides a number of key benefits over incineration systems. They are:

- i. Mixed feedstocks are possible, such as mixed organic municipal solid waste, biomass, hazardous or even radioactive waste. The capability of accepting these type of wastes could really save a lot of downstream costs related to the waste treatment process.
- ii. It is an efficient process due to its capability to release the highest amount of energy from waste.
- iii. It does not produce greenhouse gases that are harmful to the environment.

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The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

iv. It does not produce leachate and ashes that are harmful to the environment like the incineration process.

v. Prevent the solid waste to reach landfill site due to its capability to treat the waste entirely.

vi. Free from any harmful gas emission to the environment.

vii. The by-product from the system is solid glass-like slag, a very stable composition which can be used as construction or road building material and other uses. The by product is chemically stable that it is even safe to even dump it in a river or at sea.

viii. The system also produces combustible syngas which later can be used to generate electricity and heating energy.

ix. Some of the PGT systems are also capable of producing metal slag which can be useful for other processes.

A PGT system can harvest the existing waste in the landfill site as its feedstock, thus reducing the amount of waste lying in the landfill site and enabling them to be sold for other purposes such as construction. The carbon footprint for this system is almost zero or even negative. Analysis of the PGT process has been proven to have a negative carbon footprint in comparison to other forms of energy generation, making it very valuable for local authorities. Even though plasma technology has been in used for many years, it has only recently been developed as a solution to waste treatment and management. This is because the landfill site still possesses cheaper alternative even though it can be very harmful to the environment (Uttag Technology, 2018).

3.1 Cost-benefit analysis of using PGT

In this section, a simple cost-benefit analysis of PGT application is done according to available reference and practical usage of the system. According to Morrissey & Browne (2004), for a waste management to be sustainable, it needs to be environmentally effective, socially acceptable and economically affordable. A few kinds of research such as from Columbia University's Technical and Economic Analysis of Plasma-Assisted Waste to Energy (WTE) Processes in the US and Japan done in 2010 argued that the capital costs to operate a plasma gasification plant are impressively high. The base plasma plant operational cost in Japan is estimated to be USD76.80 per ton of municipal solid waste (MSW) processed. This is about 28% more expensive compared to the capital costs of USD60.00 per ton for grate combustion WTE plant.

Several other kinds of research such as from Uttag Technology (2018) claims that the higher cost of PGT can be compensated with other main financial benefits such as:

- The monetary gain for the waste it receives.
- The system could fully treat the waste thus get rid of any leftover recyclables
- Electricity generated can be sold to other local power providers through a long- term purchase agreement.
- Multiple by-products can be produced from the system such as metal and glass material for construction and road building material.
- It is possible to build a mobile PGT plant due its small footprint and can be mounted on a long-haul truck or fit into a sea vessel such as a cargo ship. This technology makes it possible to treat on-site hazardous wastes that cannot be transported outside of its premise and dramatically lower the risk and the logistic cost.

Featured Article

The Implementation of Plasma Gasification Technology for a Sustainable Scheduled Waste Management in Malaysia

By: Zaipul Anwar Zainu

In the next five to ten years, this technology will be developed and improved further to make it more reliable, easy to use and cost effective thus making PGT becomes an attractive and interesting technology with mass potential for future application.

4.0 Conclusion

The journey towards a sustainable scheduled waste management in Malaysia faced multiple challenges. The methods used in treating scheduled waste still pose threats to the environment in Malaysia. The background and basic concepts of plasma gasification technology are presented. Potential future applications, challenges and opportunities are discussed. Looking at the results of several operations of the PGT in the US, Canada and the UK as well as commercial operations in Japan, it has been proven that plasma gasification is a promising technology in WTE applications and could be one of the best methods to eliminate the landfills and incinerators. It will alleviate the greenhouse gas emission problems and save underground water too.

Nevertheless, major Malaysian government agencies related to environment such as Department of Environment (DOE) do not recognize the plasma gasification technology. In the latest plan of action for scheduled waste treatment in Malaysia, the plasma gasification has not been even mentioned as one of the available treatment technologies for scheduled waste. In order to achieve the sustainable objective, scheduled waste has to be managed and treated using the best available technology. The government has to seriously look into the application of alternative technology (such as PGT) to solve some of the issues on waste management, especially on some type of waste that cannot be treated using the existing conventional technology.

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Food Waste - A Criminal Waste

By: Ravindran Raman Kutty

We welcome our new government that feels the pulse of the people who are awed by the reform agenda and the daily shake-ups taking place. I am inspired to draw the attention of the newly appointed Housing and Local Government Minister to the serious issue of food waste in our country.

One in every nine people in the world has no access to sufficient food to lead a healthy life. More are reported to die from hunger every day in comparison to AIDS, malaria and tuberculosis combined. On the other hand, nearly one-third of the food that is produced in the world is lost or wasted. Food wastage, which includes both food loss and food waste, is not only morally irresponsible but a huge contributor to economic loss and damage to the world environment.

Food loss takes place as a result of insufficient skills, natural calamities, lack of proper infrastructure and poor practices. Food waste occurs when edible food is intentionally discarded by people when they fail to plan their meals or store food properly until it goes past the expiry date. Food waste can also happen due to oversupply in markets. Retailers tend to reject food that does not conform to their quality and aesthetic standards. The Food and Agriculture Organisation (FAO) reports that nearly one-third of all food produced in the world for human consumption does not find its way to our tables.

More than 50 per cent of the waste occurs during the post-harvest handling and storage phase, whilst another 50 per cent is wasted during the processing, distribution and consumption stage. The FAO report presents a clear pattern in food waste at the global level. While the middle- and higher-income regions showed greater food loss and waste at the consumption level, developing countries were more likely to lose or waste food due to lack of proper harvest techniques and low-quality infrastructure.

When food is wasted along the chain, its environmental impact is greater due to the energy and natural resources expended in processing, transporting, storing and cooking it.

If the United States and China are the leading countries ranked according to their greenhouse emissions, food waste would come in the third spot.



Malaysians waste 15,000 tonnes of food per day, which includes 3,000 tonnes that are still edible

SWCorp Malaysia revealed in their report that Malaysians waste 15,000 tonnes of food per day - 8,000 tonnes of which consist of avoidable food waste, including 3,000 tonnes that are still edible - which is enough to feed around two million people.

Food waste that ends up in landfills produces a large amount of methane; excessive amounts of methane, carbon dioxide and chlorofluorocarbons can absorb infrared radiation and heat up the earth's atmosphere, causing global warming and climate change.

Around 1.4 billion hectares of land, which is roughly one-third of the world's total agricultural land area, is used to grow food that is wasted. Millions of gallons of oil are also wasted every year to produce food that is not eaten. And all these do not even take into account the negative impact on biodiversity due to activities like mono-cropping and converting wild lands into agricultural areas.

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Food Waste - A Criminal Waste

By: Ravindran Raman Kutty

Changes can only take place if we have a law passed by Parliament to prevent food waste, both at the production and consumption level.

In 2016, France became the first country in the world where supermarkets were required by law to channel their surplus food to charities and food banks instead of throwing them away or destroying them. Those who violate this law will be fined between 3,750 Euro (RM18,000) and 75,000 Euro (RM360,700), or two years in prison. Can our lawmakers study this good practice of France and see how we can implement it in Malaysia?

To stop food waste, changes must be brought in at every stage of the process - from the farm to supermarkets and individual customers. As a first step, priority should be given to balancing production with demand. This essentially translates to the lesser use of natural resources to produce food which is not needed. Avoid any oversupply of food, especially vegetables, grains or fruits. The Agriculture Ministry must step in to ensure that there is a balance not only during festive periods but at all times.



Secondly, more effort should go into developing better food harvesting, storing, processing and distributing processes. If oversupply happens, steps should be taken to redistribute the food or to divert it to people who are in need of it. Oversupply must be managed in an equitable manner through the intervention of the government and food producers. It must be made compulsory for all large restaurants, supermarkets and retail outlets to implement their "food footprint". Individual consumers can also reduce their "food footprint" by identifying where waste occurs and taking steps to tackle the issue.

Fruits which are misshaped or "ugly" are not necessarily bad and can still be bought and used in dishes like soups or even juices or animal feedstock. This must also be monitored by the Agriculture Ministry.

Consumers should also try to buy food in accordance with a meal plan so that they don't end up wasting edible food.

France became the first country in the world to channel their surplus food from supermarket to charities. Is it feasible to be implemented in Malaysia?

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Food Waste - A Criminal Waste

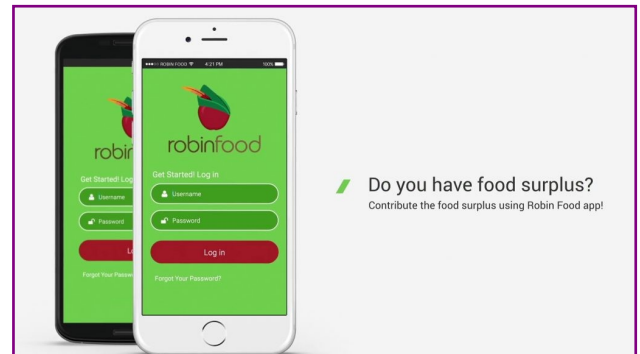
By: Ravindran Raman Kutty

If the food still ends up unfit for human consumption, it can be used for feeding livestock, thus saving precious resources that would have otherwise been used for producing commercial feed. If the food cannot be reused at all, then we should at least try to recycle it in a responsible manner instead of sending it to the landfills where it continues to rot. An average home can divert about 150 kg of food waste a year from local waste disposal facilities by adopting home composting.



Home composting is a good practice to reduce food waste in a natural way

The amount of food waste generated during the fasting month or by hotels during its events is even more heart-wrenching as we see kilograms of food waste going into the garbage trucks and finally ending up in the landfills. There must be adequate laws to curb such wastages to ensure that no one takes more than their capacity. Every inch of a meat discarded, every ounce of fluid wasted, every grain that is thrown must be charged to the customer, thus creating a sober and sensible consumer society that's "food waste savvy".



Food Aid Foundation is the main parent of the Robin Food app , which is one of the initiatives to reduce food surplus in Malaysia

According to an article by Malaysian Digest in December 2017, social enterprises are now looking at food waste in a more comprehensive manner. Locally, the Robin Food app connects supermarkets, hotels, restaurants and other parties with surplus food to food banks via its platform. They collect the surplus food and repackage it before distributing it to the urban poor and homeless. As of October 2017, via the Robin Food app, 600,000 meals have been distributed. Aside from distributing food to other charity and welfare organisations, dinner is also served at the transit centre for the homeless located at Titivangsa, here, every Tuesday. It is the hope of every Malaysian that a law to curb food waste will be tabled in Parliament to address this long-overlooked issue.

Source: Bernama

Past Events & Activities

Seminar on “Application of Continuous Emission Monitoring System (CEMS) as an Environmental Management (EM) Tool for Guided Self-Regulations (GSR)”

~Testimonial~

This is by far one of the most informative and fruitful seminar that I had ever attended. The seminar content is carefully-put together to give a good mix from the authorities, industries, consultants as well as CEMS suppliers. This gives a comprehensive overview of the application of CEMS from different perspectives.

As an Environmental Consultant and also Environmental Auditor who had the opportunity to witness first hand the use of CEMS in various industries, I find that the application of CEMS in the industries are still rife with fundamental issues which relates back to the lack of knowledge from the suppliers and industries. For example, the key issues are as follows:-

- A) Industries tend to select the cheapest CEMS option in the market without checking whether the supplier are registered with DOE, especially for projects involving turn-key contracts whereby the installation of CEMS are awarded in the main contract;
- B) The final data transmitted to DOE server are not corrected to the conditions stipulated in the Environmental Quality (Clean Air) Regulations 2014 i.e. standard conditions for temperature and pressure for dry gas (volume at 273 K, 101.3 kPa) and reference oxygen level for the applicable industry, making comparisons with the limits in CAR difficult;
- C) Difficulty in securing spare parts especially related to gas conditioning systems and replacement sensors; and

- D) Guidelines for installation of CEMS by DOE are not closely followed by CEMS suppliers during installation stage, resulting in the industries having to resolve the issues during compliance audit events.

Most for the above issues were discussed during the seminar and I managed to better understand the challenges in resolving the above issues from the authority's point of view (DOE) as well as from the CEMS suppliers.

I hope ENSEARCH will organise more of such seminars in the future to better equip everyone towards a more effective Guided Self-Regulation (GSR) in other regulatory aspects.

Ir. Dr. Casey Ngo Saik Peng

ENSEARCH Member,

Technical Director of R-Sync Technical Resources

The Seminar attracted 100 attendees from various sectors, 3 sponsors and 7 exhibitors! ENSEARCH plans to organise a follow-up seminar in 2019.

Interested? Please drop us an e-mail at spo@ensearch.org or visit our website at www.ensearch.org for more information.

Past Events & Activities

K. Kumarasivam Endowment Fund : Memorial Public Lecture & Young Environmentalist Internship Award 2018

ENSEARCH successfully organised the K. Kumarasivam Endowment Fund (KKEF): Memorial Public Lecture & Young Environmentalist Internship Award 2018 on 13th December 2018 at Brickfields Asia College, Jalan Utara, Petaling Jaya. The programme supported by the Office of The Chief Registrar Federal Court of Malaysia received overwhelming attendance from various backgrounds.



Tan Sri Datuk Seri Panglima Richard Malanjum (Chief Justice of Malaysia) accompanied by Mr Gobinathan Kumaran Nair (ENSEARCH President), Dr Hari Ramalu Ragavan (KKEF Chairman), Mr Raja Singham (Managing Director of Brickfields Asia College) and Ms Farah Nadiah Zainudin (Representative of Azmi & Associates).

1.0 Memorial Public Lecture 2018

The Memorial Public Lecture featuring Tan Sri Datuk Sri Panglima Richard Malanjum was the highlight of the day. Prior to his appointment as Chief Justice of Malaysia in July 2018, Tan Sri Richard was the Chief Judge of the High Court of Sabah and Sarawak. Tan Sri Richard expressed sentiment towards the environment when he delivered the lecture,



Tan Sri Datuk Seri Panglima Richard Malanjum took the stage and delivered an interesting lecture on Environmental Courts: Lesson Learned and Future Directions.

reiterating the debilitating condition of the natural environment as compared to the pristine surroundings when he grew up. Recognising that the condition of the environment in Malaysia is in dire straits, Tan Sri Richard further emphasized the role Judiciary plays and how as civil society and law practitioner can work within the legal system to bring justice to the society and environment.

He cited a few notable controversial cases in Malaysia including the famous Bakun Dam and Kaiduan Dam projects which the authority claimed would benefit the people but ended as environmental calamity causing local community displacement, mass urban migration and the destruction of virgin jungle as well as loss of biodiversity. Through those cases, Tan Sri Richard highlighted that while our current need is fulfilled it is also essential to not compromise the need of our future generation. The use of natural resources and the natural environment for current generation shouldn't be in expense of our future generation.

Past Events & Activities

K. Kumarasivam Endowment Fund : Memorial Public Lecture & Young Environmentalist Internship Award 2018

As he explained about the role of environmental court, law makers and lawyers, he called upon public interest litigation and interaction between the Court and Executive for comprehensive approach in practicing environmental law in Malaysia to uphold the cause of justice.

He concluded the lecture by reminding the attendees to do individual part in raising environmental awareness. "I hope everyone here, including myself, walks out of this room feeling a greater sense of responsibility towards the environment."

2.0 Mr Sathis Venkitasamy's Presentation

Mr Sathis Venkitasamy, the recipient of KKEF: Young Environmentalist Internship Award 2017 delivered a presentation of his experience of the 2 weeks internship in India.

India as the second largest cement producer in the world after China, has installed cement manufacturing capacity of approximately 410 million tonnes per annum. The Industry is observed to be among the largest consumer of fly ash generated from coal based thermal power plants in India.

Hence, the KKEF Selection Committee decided to send Mr Sathis for an internship at JK Lakshmi Cement Limited in Gujarat, India to learn the green technology abroad. Apart from learning environmental practices at JK Lakshmi Cement Ltd, Mr Sathis offered his idea and worked on small projects namely biodiversity zoning and water auditing as part of JK Lakshmi Cement Ltd's corporate responsibility initiative. Mr Sathis expressed his gratitude to ENSEARCH for supporting him to the internship. He also conveyed appreciation

to JK Lakshmi Cement Ltd for hosting him and giving opportunity to share and materialise his ideas.



Mr Sathis with the solar harvesting system at one of JK Lakshmi Cement Factory in Kalol, Gujarat, India

3.0 Ms Chia Wen Shin's Presentation

As the winner of KKEF: Young Environmentalist Internship Award 2016, she completed the 2 weeks internship in Hong Kong. She shared with the audience her journey as a young entrepreneur kick-starting Green Yards, a green business and how winning the internship award helped both herself and her business progress.

Her effort and passion also led to the result as she was the proud recipient of the prestigious Queen's Young Leader Award 2018. The award was presented by Britain's Queen Elizabeth II herself at a special ceremony at Buckingham Palace, London. The 27-year-old founded Green Yards in 2016, an organisation which deters people from disposing household used cooking oil down drains by offering free soap in exchange for every 5kg of oil returned to them.

Past Events & Activities

K. Kumarasivam Endowment Fund : Memorial Public Lecture & Young Environmentalist Internship Award 2018

The used cooking oil is then recycled into eco-cleaning products and candles. As reported on the Queen's Young Leaders website, Green Yards prevented 4.7 tonnes of cooking oil from being disposed into the drains in just one year.

Her inspiring story as a young entrepreneur achieving business success and contributed to the environment lifted the spirit among the youth.



Ms Chia Wen Shin received the Award from Queen Elizabeth II during the Queen's Young Leader Award 2018 special ceremony at Buckingham Palace, London

4.0 KKEF Young Environmentalist Internship Award 2018

In commemoration of the late Ir. K. Kumarasivam, ENSEARCH has awarded the K. Kumarasivam's Endowment Fund (KKEF) : Young Environmentalist Internship Award 2018 to Ms Thachayni Dharmaraja, a young environmental enthusiast

currently working as Research Office at Penang Botanic Garden. She has in depth knowledge of ex situ conservation, with horticulture being her forte. Her internship will be held at Kings Park and Botanic Garden, Perth, Western Australia in March 2019.



Ms Thachayni Dharmaraja expressed gratitude to ENSEARCH and KKEF for the internship award



Dr Hari Ramalu Ragavan, KKEF Chaiman, presented the Young Environmentalist Internship Award 2018 to Ms Thachayni Dharmaraja

Past Events & Activities

K. Kumarasivam Endowment Fund : Memorial Public Lecture & Young Environmentalist Internship Award 2018

5.0 Token of Appreciation for the Chief Justice

The Memorial Lecture ended on a high after an interesting Q&A session. The attendees actively participated in the interactive session with Tan Sri Richard.

ENSEARCH thanks Office of the Chief Registrar of Federal Court of Malaysia and the Chief Justice of Malaysia, The Right Honourable Tan Sri Datuk Seri Panglima Richard Malanjum for the time and invaluable sharing of experience and judiciary insights. ENSEARCH also appreciate Tan Sri Richard's generosity for donating the token of appreciation back to K. Kumarasivam's Endowment Fund.



Mr Gobinathan Kumaran Nair (ENSEARCH President), assisted by Dr Hari Ramalu Ragavan (KKEF Chairman) presented Token of Appreciation to Tan Sri Datuk Seri Panglima Richard Malanjum.



Tan Sri Richard, together with Sponsors, Intern, ENSEARCH Council Members and Secretariat during the photo session

"I hope everyone here, including myself, walks out of this room feeling a greater sense of responsibility towards the environment."

Tan Sri Datuk Seri Panglima Richard Malanjum

ENSEARCH Training & Activities Calendar 2019

COMING SOON

- Water Quality Modelling

27th & 28th Feb 2019 (Tentative)

- Air Pollution Assessment-Level 1& 2

- Environmental Droners-Beginner & Intermediate

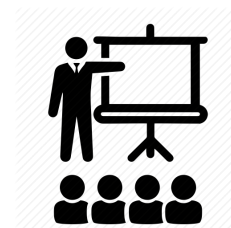
- Continuous Emissions Management System (CEMS) Seminar & Exhibition

- Quantitative Risk Assessment (QRA) Training

- International Conference & Exhibition- Waste Management (ICE-WM)

- Technical Field Visits

- Environmental Talks



ENSEARCH Trainings are **HRDF Claimable & EiMAS CPD Points Applicable**. For more information: Please visit www.ensearch.org or drop us an email at spo@ensearch.org.

ENSEARCH Seminar/ Training Room for RENT

RM350.00 PER DAY

Approximately 800 square feet

Classroom seating - 25 pax

Theatre seating - 40 pax

Time: 0830 - 1700

INCLUDING

Projector Screen

Whiteboard & Marker

Flip Chart

Water dispenser

High Speed WIFI Internet

Tables & Chairs

Prayer Room



Spacious classroom or theatre setting



Reading corner at the room's entrance



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ASSOCIATION OF MALAYSIA

For a Better Environment