

HARI ALAM SEKITAR NEGARA 2016

"Alam Sekitar Tanggungjawab Bersama"

Hari Alam Sekitar Negara (HASN) merupakan satu inisiatif penambahbaikan yang telah dibuat oleh Kementerian Sumber Asli dan Alam Sekitar daripada penganjuran Minggu Alam Sekitar Malaysia pada tahun-tahun sebelum ini. Sambutan HASN pada hari yang istimewa ini bertujuan untuk mengajak seluruh masyarakat agar sama-sama meraikan semangat kecintaan kepada alam sekitar. Selain itu, sambutan pada hari yang spesifik berbanding sambutan Minggu Alam Sekitar Malaysia selama satu minggu sebelum ini adalah lebih mencerminkan kepentingan untuk menjaga alam sekitar setiap masa sepanjang tahun.

Objektif HASN adalah untuk mempromosikan pendidikan dan kesedaran alam sekitar secara meluas serta memupuk kesedaran di kalangan masyarakat khususnya dalam pemeliharaan dan pemuliharaan alam sekitar. Selain itu, ianya juga merupakan 'platform' kepada warga Malaysia untuk bersama-sama menghayati alam sekitar dan mengiktiraf pihak yang telah memberi sumbangan dan jasa kepada pemeliharaan dan pemuliharaan alam sekitar.

Sambutan Minggu Alam Sekitar Malaysia (MASM) merupakan satu acara tahunan yang telah dianjurkan susulan termaktubnya Deklarasi Langkawi Mengenai Alam Sekitar pada 21 Oktober 1989. Semenjak tahun 1991, Kementerian Sumber Asli dan Alam Sekitar (Kementerian Sains, Teknologi dan Alam Sekitar ketika

LOGO HARI ALAM SEKITAR NEGARA

Latar Belakang Putih

Melambangkan keikhlasan dan kesungguhan masyarakat yang menyokong usaha pemeliharaan dan pemuliharaan alam sekitar

Rekabentuk Daun

Melambangkan peneraju pemuliharaan alam sekitar secara lestari untuk menarik segenap lapisan masyarakat menghayati dan menghargai alam sekitar

Warna Daun

Warna-warna gabungan pada daun melambangkan keceriaan dan rasa tanggungjawab dalam diri setiap individu untuk mengamalkan gaya hidup lestari bagi memastikan alam sekitar yang sejahtera. Warna tersebut juga diambil daripada warna logo NRE yang melambangkan program Hari Alam Sekitar Negara (HASN) anjuran Kementerian Sumber Asli dan Alam Sekitar (NRE).



itu) menerusi Jabatan Alam Sekitar telah merancang dan melaksanakan pelbagai aktiviti sebagai usaha berterusan Kerajaan untuk menerapkan dan meningkatkan kesedaran alam sekitar di kalangan masyarakat Malaysia. MASM disambut pada setiap tahun dari 21 hingga 27 Oktober bersempena Hari Alam Sekitar Malaysia yang jatuh pada 21 Oktober.

Atas cetusan idea YB Menteri Sumber Asli dan Alam Sekitar bersempena MASM yang ke-25 pada 17 Oktober 2015, Kementerian Sumber Asli dan Alam Sekitar telah bersetuju menjenamakan Minggu Alam Sekitar Malaysia (MASM) kepada Hari Alam Sekitar Negara, HASN (National Environment Day). Penjenamaan semula ini adalah bertujuan supaya masyarakat dapat menjivi rasa kecintaan yang tinggi terhadap alam sekitar.

Sempena HASN, satu Majlis Pra-Pelancaran Sambutan Hari Alam Sekitar Negara 2016 telah diadakan pada 25 September 2016 dan



Pengumuman penjenamaan semula Minggu Alam Sekitar Malaysia (MASM) kepada Hari Alam Sekitar Negara (HASN) dibuat pada Majlis Perasmian MASM 2015 Peringkat Kebangsaan



Majlis Pra-Pelancaran Sambutan Hari Alam Sekitar Negara 2016

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Implementing Quality Driven Improvement in Enforcement



One of the main mandated responsibilities and functions of DOE is to maintain and enhance the quality of the environment. Environmental quality is directly or indirectly impacted by the discharge of effluents, emission of air pollutants, and disposal of wastes into the environment. Various regulations have been promulgated under the EQA to regulate the activities which are responsible for discharging, emitting and disposing of the wastes (commonly known as “sources”). To determine if the sources comply with the legal requirements, enforcement is conducted. What is enforcement? What does enforcement cover? How should enforcement be conducted? However, do regulated sectors really understand the concept of enforcement?

By and large, most regulated sectors/stakeholders understand **enforcement to be inspection**. The two terms (enforcement and inspection) are practically understood to be synonymous hence they have the same meaning. They have been used also interchangeably in the DOE. The purpose of conducting enforcement is to determine if a regulated source is complying with the legal requirements imposed on it by the relevant regulations. There are several ways of achieving this, i.e. getting the information to establish the status of compliance of the source. One of the direct ways of getting first-hand information is by conducting an inspection of the premise of the regulated sources. Premise inspection is widely used by the DOE. **However, premise inspection is NOT the only way of getting the required information to establish compliance status**. Other methods include on-line monitoring and reporting (continuous emission monitoring of air emission and effluent discharge), periodic emission/discharge reporting, etc. What is clear is that **Inspection is NOT synonymous with enforcement**, but the former is a form of the latter (Inspection is one form of Enforcement).

With advancements in technology, information on discharges and emissions can be obtained more accurately and within a shorter time frame. DOE needs to explore more of this method of getting information and maximising its use for monitoring and enforcement. **In short, what I am trying to emphasise is that Enforcement and Inspection are not the same thing!**

The regulations made under the EQA, especially the relatively more recent ones do not only focus on the discharge or emission into the environment. Apart from the standards imposed at the discharge points, there are other requirements imposed on the sources in the regulations. These may include requirements on record keeping, training, performance monitoring, waste storage requirements, labelling, etc. The focus of the regulations are not anymore purely final discharge point (FDP) but include other elements that would help ensure that compliance to the FDP is maintained on a sustained basis. Attention during enforcement inspections must not be directed solely to the FDP, but also to other regulatory provisions and process control of pollution control systems upstream at the final discharge permission point. The latter are equally as important as the FDP discharge compliance. DOE officers and regulated communities must shed off the FDP mind-set, for good. Non compliance with any of the regulatory provisions is an offense which carries its own enforcement merit which should be dealt with accordingly. In essence, DOE officers and regulated communities must also give equal attention to the whole array of regulatory provisions stipulated in the Regulations as well as the process control of every unit operations and unit processes of the pollution control systems

Now, let's try to understand **Hard Enforcement versus Soft Enforcement**. To deliver effectively and efficiently, DOE is embarking on an enforcement approach which uses a mix of, or a balance of 'hard enforcement' and

'soft enforcement' strategies. Hard enforcement is the typical '**punitive-based**' (punishing) approach where field inspectors are fielded to conduct industry inspections to establish industries' compliance with regulatory requirements. Compliance status is typically narrowly focused on discharge or emission compliance. Non compliance will be **punished with administrative fines (compound fees) or court actions** which will carry even higher fines (including a prohibition order). Hard enforcement is also typified by heavy manpower and financial burden on the regulatory agency (DOE).

Soft enforcement refers to regulatory requirements imposed by the regulatory agency (DOE) on the industries to carry out a multitude of activities which would produce a net result of ensuring compliance on a sustained basis. **Soft enforcement can also be understood to be the tools of environmental mainstreaming**. DOE needs to utilise both the tools of 'hard enforcement' and 'soft enforcement' to ensure enforcement brings out the desired results: compliance and consequently enhanced environmental quality. 'Soft enforcement' is also a good approach, in fact it complements the 'Hard Enforcement' approach.

Another important aspect that DOE officers must build is their capacity to be able to institute **Quality Control Elements in Enforcement**. DOE officers are so obsessed with industry inspections to the extent that they neglect their important responsibility to ensure pollution control systems (Industrial Effluent Treatment System and Air Pollution Control System) installed by the industries are of acceptable quality which can be considered to be “best available technologies” (BAT). Since October 2009 when the 'Kebenaran Bertulis (KB) or Written Approval (WA)' procedure was removed, the IETS and APCS notifications have been submitted to DOE offices. In the 'KB or WA free' period, those notifications need to be checked to verify that they comply with the minimum standards and specifications stipulated in the Guidance Documents issued by the DOE. This is a quality control element which has been embedded in all the new regulations of the DOE. This quality control function needs to be discharged by the DOE officers. The checking for compliance with the stipulated specifications is an enforcement function and activity which has direct implications on the quality of final treated effluent discharge. Enforcement actions can be taken on installations of IETS and APCS which are Guidance Document-non compliant. Engineers involved in submitting such notifications must be taken to task. DOE officers must carry-out quality control during enforcement such as compliance monitoring, performance monitoring, impact monitoring, and ambient monitoring. Only then does the enforcement duty of DOE becomes effective. To be good in executing **Quality Control** in ensuring compliance, DOE officers must have good attitude (behavioural change), towards fortifying their skills and knowledge to be technically sound! **I believe if DOE officers have all the required technical competency, the regulated communities will respect us!** Thus, quality driven improvement initiatives (QDI2) program has been introduced to all DOE officers to improve their technical knowledge and skills as well as establish mass of subject matter experts (SMEs) in the respective functional areas of DOE such as water pollution control, air pollution control and waste management.

Dato' Dr. Ahmad Kamarulnajib Che Ibrahim
Ketua Pengarah, Jabatan Alam Sekitar
Putrajaya

disempurnakan oleh YB Datuk Ir. Dr. Haji Hamim bin Samuri, Timbalan Menteri Sumber Asli dan Alam Sekitar. Majlis yang telah diadakan di Dewan Transformasi, SMK Tun Mamat, Tangkak, Johor tersebut merupakan simbolik kepada bermulanya aktiviti-aktiviti dan program serta kempen-kempen promosi yang dijalankan bersempena dengan penganjuran Sambutan Hari Alam Sekitar Negara 2016.

Salah satu program yang dijalankan sempena bermulanya sambutan HASN adalah Broga Challenge 2016. Program anjuran bersama RHB Group dan Jabatan Alam Sekitar yang melibatkan peserta seramai 300 orang ini telah diadakan pada 8 Oktober 2016 di Bukit Broga, Semenyih, Selangor. Dalam program Broga Challenge 2016, peserta perlu menghadapi cabaran untuk melengkapkan



tugasan di semua checkpoint yang disediakan sepanjang trek sejauh lebih kurang 9 km dan pada masa yang sama, peserta berpeluang untuk menikmati keindahan alam sepanjang perjalanan terutamanya di puncak Bukit Broga.

Sambutan HASN buat julungkalinya pada tahun 2016 telah dianjurkan secara serentak di seluruh Negara pada 22 Oktober 2016 dengan tema "Alam Sekitar Tanggungjawab Bersama". Benchmark atau mercu utama program sambutan ini adalah Envirowalk / Envirorun/Enviroride/Envirohunt sementara gimik umum pelancaran adalah berasaskan "Pungutan e-Waste Dari Isi Rumah".

Sambutan HASN Peringkat Kebangsaan telah diadakan di Kuching Waterfront,



Majlis Perasmian Hari Alam Sekitar Negara yang disempurnakan oleh Yang Amat Berhormat Ketua Menteri Sarawak



Persembahan Choral Speaking oleh SMK St. Mary, Kuching, Sarawak dan SMK Convent Bukit Nenas, Kuala Lumpur, serta Bicara Berirama oleh SK Bukit Beruang, Melaka



Pelepasan peserta Kayuhan Program Berbasikal Cabaran KayuhanHijau 24 Jam Tanpa Henti, Sarawak

Sarawak dan Majlis Perasmian telah disempurnakan oleh Yang Amat Berhormat Datuk Patinggi Tan Sri (Dr) Haji Adenan bin Haji Satem, Ketua Menteri Sarawak. Elemen pembaharuan dan transformasi ini akan memberikan impak yang lebih tinggi dalam meningkatkan kesedaran rakyat Malaysia berkenaan tanggungjawab untuk memelihara alam sekitar secara bersama.

Pelbagai aktiviti pengisian menarik dijalankan semasa sambutan HASN, seperti persembahan choral speaking dan bicara berirama, pertandingan rekacipta bahan baharu daripada bahan buangan, pertandingan mewarna, pemeriksaan kesihatan, pemeriksaan percuma kenderaan dan ujian pelepasan asap kenderaan, pameran alam sekitar dan sebagainya.



Pameran Alam Sekitar

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Program Pensijilan Profesional Alam Sekitar di Kalangan Industri



Kementerian Sumber Asli dan Alam Sekitar melalui Jabatan Alam Sekitar telah membangunkan dan melaksanakan program-program kompetensi dan pensijilan kepada personel industri dan pengamal alam sekitar.

Program Pensijilan Profesional Alam Sekitar telah mula dilaksanakan sejak tahun 2006 bermula dengan dua jenis program pensijilan sahaja. Sehingga kini sudah terdapat tujuh Program Pensijilan Profesional Alam Sekitar yang merangkumi bidang-bidang kawalan pencemaran udara, air, buangan terjadual dan kumbahan.

Objektif

Objektif utama Program Pensijilan Profesional Alam Sekitar adalah untuk menghasilkan modal insan berpengetahuan tinggi dan berkemahiran yang sangat diperlukan bagi pengoperasian dan selenggaraan sistem kawalan pencemaran serta pengurusan buangan terjadual yang baik dan selamat di premis-premis perindustrian.

Pematuhan sendiri yang melengkapkan pendekatan command and control, dapat memupukkan semangat pemilikan (ownership) serta meningkatkan komitmen terhadap alam sekitar dan seterusnya mencapai pematuhan terhadap perundangan alam sekitar oleh komuniti yang dikawal.

Latar Belakang

Program Pensijilan Profesional Alam Sekitar di kalangan industri telah dibangunkan selaras dengan matlamat Kerajaan untuk memperkasakan modal insan dalam semua bidang bagi menyokong pelan-pelan pembangunan negara dan juga bagi mencapai Wawasan 2020 iaitu ke arah negara berpendapatan tinggi.

Program Pensijilan Profesional Alam Sekitar ini juga menyokong inisiatif Kerajaan dalam melaksanakan Pematuhan Kendiri (Self Regulation) selaras dengan keperluan Seksyen 49A, Akta Kualiti Alam Sekeliling, 1974 (Pindaan) 2012 dan Teras Strategik Kedua, Pelan Strategik Jabatan Alam Sekitar

2011-2020 iaitu menggalakkan amalan kawalan sendiri.

Pematuhan sendiri telah diterima pakai oleh Kementerian Sumber Asli dan Alam Sekitar sebagai matlamat jangka panjang yang perlu dicapai dan satu budaya yang perlu diterapkan di kalangan komuniti yang dikawal (regulated communities) dengan mengarusperdanakan agenda alam sekitar.

Program-program Kompetensi dan Pensijilan kepada Personel Industri dan Pengamal Alam Sekitar

Bagi meningkatkan kompetensi personel industri dalam pengurusan alam sekitar,

Certification Course- a Management Vehicle

The certification course is a technical as well as a management vehicle to mainstream environmental agenda and cultivate self-regulation culture within the industrial sector which would result in continuous regulatory compliance and cost saving in enforcement and pollution control recovery work. The certification procedure which entails commitment from all levels in the management as well as changes and improvement in working procedures will result in the mainstreaming of environmental agenda and compliance issues in the industrial sector.

Training Programs/ Competency Course for Industries Water Pollution Control System

1. Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Physical Chemical Processes) – CePIETSO–PCP
2. Course for Certified Environmental Professional in the Operation of Industrial Effluent Treatment Systems (Biological Processes)–CePIETSO–BP
3. Course for Certified Environmental Professional in the Treatment of Palm Oil Mill Effluent–CePPOME
4. Course for Certified Environmental Professional in Sewage Treatment Plant Operation–CePSTPO

Air Pollution Control System

1. Course for Certified Environmental Professional in Bag Filters Operation–CePBFO
2. Course for Certified Environmental Professional in the Scrubber Operation –CePSO

Scheduled Waste Management

1. Course for Certified Environmental Professional in Scheduled Waste Management - CePSWaM

Pendekatan Program

Pendekatan terkini Kementerian ini bagi meningkatkan pematuhan sendiri oleh komuniti yang dikawal ialah melalui Peraturan Kendiri Terpimpin (Guided Self Regulation) serta mengarusperdanakan alam sekitar di dalam semua proses perniagaan, di semua peringkat membuat keputusan dan hierarki organisasi, dan di semua fasa operasi sesuatu pengeluaran. Bagi mencapai hasrat ini, salah satu elemen aruspardana terpenting ialah mempunyai Orang Yang

Outcome Based Learning

The contents of the certification course focus on developing competency in the performance monitoring of the pollution control system, an important area which has been given less attention by the majority of industries in Malaysia. In order to ensure effective learning process and achievement of the desired learning outcomes, the training modules, the style of course delivery and the mode of competency assessment have taken into account the outcome based and student centred learning approach as well as adult learning styles. Additionally, the competency assessment package encompasses the evaluation of the effectiveness of training up to level III, that is "the change of behaviour".

Berwibawa (OYB) atau Competent Person yang dilahirkan melalui Program Pensijilan Profesional Alam Sekitar.

Dengan adanya OYB di sesuatu premis industri dan Peraturan Kendiri Terpimpin dilaksanakan oleh premis-premis berkenaan:

- 1 Dapat meningkatkan pematuhan terhadap perundangan alam sekitar serta memastikan pencemaran dapat diminimumkan;
- 2 Menyokong dan melengkapkan kaedah penguatkuasaan sedia ada;
- 3 Mengurangkan serta menjimatkan kos yang diperlukan oleh Kerajaan untuk melaksanakan penguatkuasaan dengan kerap kerana OYB memainkan peranan yang penting bagi melaksanakan sebahagian tugas-tugas penguatkuasa mengikut kaedah yang telah ditetapkan oleh pihak Kementerian melalui Jabatan Alam Sekitar;
- 4 Mengoptimumkan penggunaan teknologi maklumat (ICT) di dalam pemantauan alam sekitar, antaranya melalui penggunaan sistem pemantauan secara atas talian bagi tujuan penguatkuasaan kualiti udara dan effluen yang dilepaskan dari industri, serta buangan terjadual yang dijana oleh industri;
- 5 Premis-premis industri yang mempunyai OYB dan melaksanakan pemantauan prestasi (performance monitoring) terhadap peralatan kawalan pencemaran dapat memastikan peralatan-peralatan ini sentiasa dalam keadaan optimum dan berfungsi dengan baik;
- 6 Premis-premis industri yang mempunyai OYB juga dapat mewujudkan satu prosedur yang sistematik dan sistem penyimpanan rekod yang baik mengenai operasi, selenggaraan dan prestasi peralatan kawalan pencemaran serta rekod penggunaan bahan-bahan kimia;

7 Orang-orang Yang Berwibawa ini juga berkemampuan untuk menganalisis dan menginterpretasikan data-data pemantauan prestasi, pematuan serta data operasi dan selenggaraan yang seterusnya digunakan bagi tujuan membuat keputusan oleh pengurusan atasan premis.

8 Tempoh menjalankan penguatkuasaan di sesuatu premis dapat dikurangkan sekiranya penyimpanan rekod yang baik dilaksanakan oleh premis-premis industri yang mempunyai OYB. Dengan cara ini, bilangan premis yang dapat dilawat oleh pegawai penguatkuasa dalam satu-satu hari dapat bertambah dan bilangan premis yang dapat dikuatkuasakan secara keseluruhannya sudah tentu akan meningkat berbanding masa-masa yang lampau.

Sehingga kini, Program Pensijilan Profesional Alam Sekitar telah berjaya melatih seramai

Becoming a Competent person

- **Step 1:** Registration to attend relevant Competency Course.
- **Step 2:** Attending the Competency Course.
- **Step 3:** Completing the course assignments.
- **Step 4:** Passing the comprehensive assessments.
- **Step 5:** Getting the Certificate of Competency (first level)
- **Step 6:** Preparing the Field Training Report (FTR).
- **Step 7:** Submission of the FTR.
- **Step 8:** Appearance at the professional interview.
- **Step 9:** Certified as Competent Person (by the Director General of DOE)

11,925 peserta daripada industri dan menghasilkan seramai 6843 Orang Yang Berwibawa (OYB) yang kompeten.

Kementerian Sumber Asli dan Alam Sekitar juga telah berjaya membangunkan satu sistem dalam talian iaitu National Registry of Certified Environmental Professionals (NRCEP) yang digunakan oleh Orang Yang Berwibawa (OYB), Jabatan Alam Sekitar dan juga pihak penyedia latihan. Sistem ini digunakan sebagai pangkalan data yang memaparkan profil OYB dan sebagai platform untuk OYB mengemaskini maklumat mengenai Continuing Professional Development (CPD) bagi tujuan mengekalkan pensijilan mereka.

A Legal Requirement for a Competent Person

- A Competent person must be certified by the Director General of DOE that he/she is duly qualified to supervise the operation of a pollution control system.
- Responsibility of an owner or occupier to employ a Competent Person to conduct the operation of a pollution control equipment, management of scheduled wastes, studies or prepare and submit documents, reports etc.
- Governed under the Environmental Quality Act, 1974

Responsibilities of a Competent Person in a Premise

- Operation of a control equipment
- Management of scheduled wastes
- Conduct of studies
- Preparation and submission of reports, plans, proposals, engineering drawings or other documents relating to environmental matters

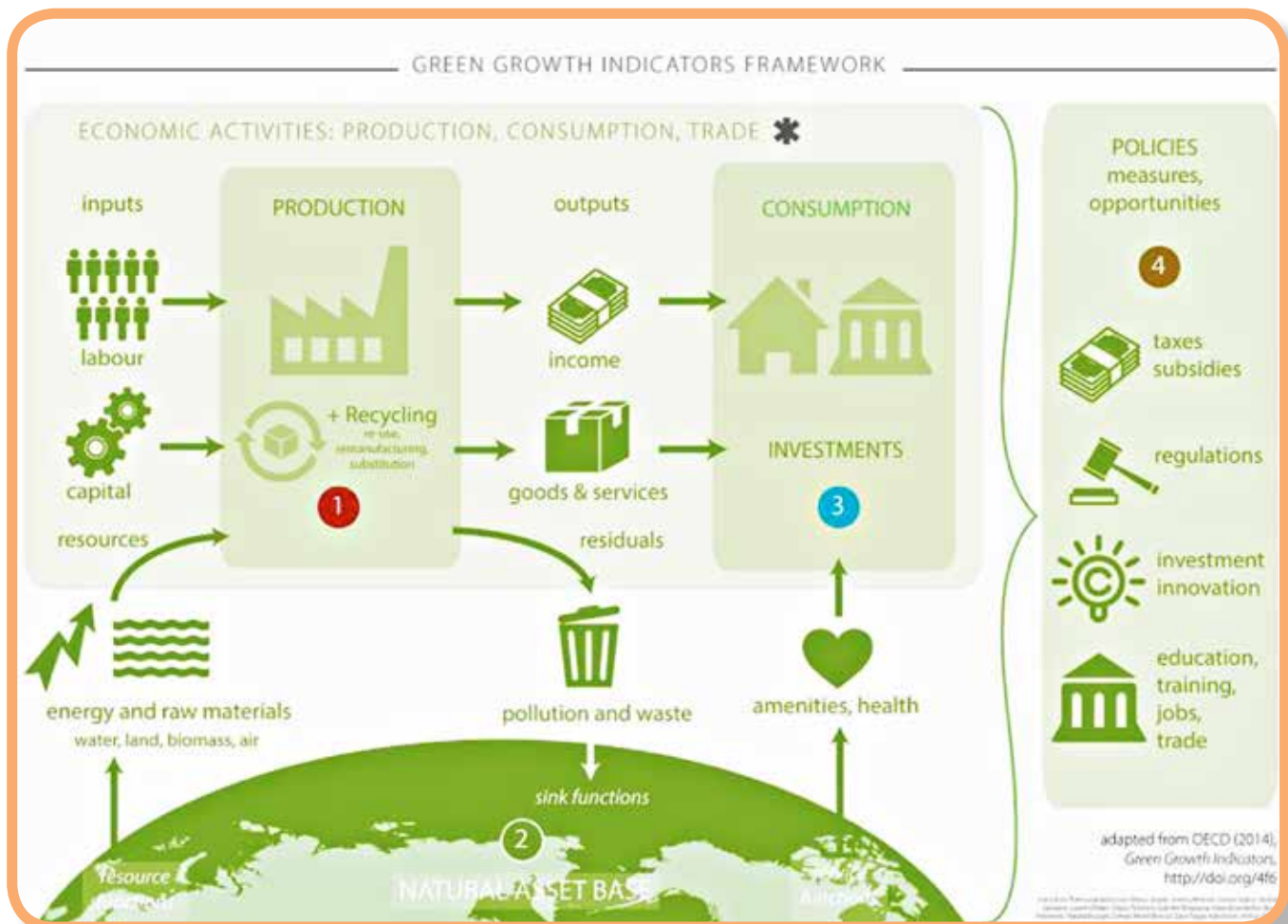
Ethics and Integrity

A Competent Person is a responsible profession which provides valuable services to the society. The privilege of the profession imposes a high degree of obligations of morality, responsibility, professional knowledge and conduct as well as personal honor and integrity.

Source

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Green GDP Accounting Towards Sustainable Development



The gross domestic product (GDP) is the common measure to gauge the health of a country's economy. It represents the total value of all goods and services produced over a specific time period. The more the growth in GDP for certain periods, the more goods and services produced in the country. It is common to observe that GDP has a positive association with welfare indicators of a country such as standard of living, life expectancy and literacy rate. The conventional approach to measuring the GDP, however, ignores the valuation of natural resources and environmental degradation because it essentially only records monetary flows. The growth in GDP is claimed to be unsustainable if the production of goods and services leads to resource depletion and harms the environment.

Economic activities and environment interact with each other. For example, the production of goods and services by producers requires raw materials from other producers as well as from the environment in the form of energy, water and land. Inputs

entered into the production process would result in wastes (e.g. air emissions and landfill) discharged into the environment.

Growing economic activities for both production and consumption requires larger inputs of raw materials and natural resources, and in turn generates larger quantities of waste. The increase in extraction of natural resources, the accumulation of waste and concentration of pollutants will therefore overwhelm the carrying capacity of the ecosystem and result in the degradation of environmental quality which will in turn affect human health. Also, it is observed that degradation of the environment eventually will put the economic activity itself at higher risk. For example, the phenomena of El-Nino in the Philippines and acid rain is affecting production of food crops.

The growing concern of environment impacts associated with production activities has led to the introduction of the concept of "green economy" or commonly referred to as green Gross Domestic Product (gGDP). It specifically refers to the conventional Gross

Domestic Product (GDP) that is adjusted for environmental degradation and depletion. Green GDP commonly and perhaps most correctly, has been used to designate a "corrected" GDP value or sometimes a "corrected" GDP growth rate. The correction seeks to take into account the depletion of natural resources and different kinds of damage to the environment due to pollution to air, water, land, and ecosystem services as a consequence of production activities. Hence, adjusting the GDP in this manner resembles the calculation of environmental adjusted gross domestic product.

Green GDP = GDP – Natural Resources Depletion – Environmental Degradation

Valuation of natural resources is problematic because they are usually not traded in markets, which in turn makes accounting for costs to environment difficult. However, such valuation is absolutely essential if we are to adjust GDP or any other economic indicator for changes in the state of the environment. There are two common alternative measures to account for environmental costs.



The “Source-oriented” Approach

In the production of a certain goods, a factory uses water from the river and discharges the wastewater into the river. Suppose also that a town situated downstream uses the river for the supply of drinking water. To value the estimated environmental costs for water that is wasted, the cost of purifying the water to an acceptable drinking quality can be applied. In other words, the value of the water is determined on the basis of the cost of procuring pure drinking water. This approach can be applied to different regions and different industrial sectors.

The Environmental Degradation Cost Approach

This approach is based on comprehensive surveys on pollution losses and utilises special methods to attach monetary values on the physical impacts, such as the costs of drop in crops output, impaired health and ecological disturbance. These environmental degradation costs then would be subtracted from the GDP.

The Best Approach to Measure Green GDP

There are several studies that have attempted to estimate green GDP using the above formula. In our view, the estimated green GDP is aggregated and inclined towards the application of an ad-ho approach. Recall that the green GDP is an extension of the conventional GDP. The conventional GDP is constructed by the National Statistical Offices (NSO) and governed by the United Nations under the System of National Accounts (SNA). The application of an ad-hoc approach to estimate green GDP has its shortcomings. (i) It does not ensure the estimates are consistent with the SNA and thus findings are hard to justify. The sources of inconsistencies are mainly contributed by two main forces. First, data that is used to estimate green GDP under the ad-hoc approach are limited in term of quality and quantity compared to the estimates from the SNA. Second, methodologies that are applied in an ad-hoc approach may not represent the national level. In contrast, SNA has provided established methodologies that are comparable across all countries. (ii) It is less relevant for policy analysis because it does not explain the generation of the green GDP as depicted in the above figure. In particular,

there is a growing concern across countries to estimate environmental footprint indicators such as water footprint, carbon footprint and material footprint. A carbon footprint is defined as the total amount of greenhouse gases that is directly and indirectly produced along the supply chain for a product. The ad-hoc approach is aggregated and thus unable to provide environmental footprint indicators.

The most appropriate approach to account for green GDP is by estimating the GDP using the integrated System of Environmental-Economic Accounting (SEEA). SEEA is an extension of the conventional SNA and is governed by the United Nations. It collects and compiles, in a systematic and coherent way, the precisions and conceptual limitations of the cost of physical flows linked to the environmental sphere and its connection with monetary flows associated with production activity and consumption. It integrates physical natural resources (e.g., energy and water), circular flow and emissions discharged to the environment, together with the economic flow sourced from the national products accounting at disaggregated production activities. The relationship between SEEA and policy is shown in this article. It does not only provide a comprehensive database but also gives input for policy analysis through proper methodological development.

Why is Green GDP Important for Malaysia?

Malaysia is considered a resource-dependent country because approximately one-third of the GDP is derived either directly or indirectly from oil and gas. Being a resource-dependent country, there are two main problems underlying the desire for sustainable economic development that should be carefully addressed, that is, shortage and dilution of resource quality, and imbalance in ecosystem health. These concerns can be translated into questions about whether environmental endowments are being used responsibly. Is their use posing a threat to economic development now, either by being used up too quickly with no prospects of replacement or by generating a level of pollution which threatens human health and the existence of species? Even if the current behaviour (business as usual (BAU)) does not pose such a threat at present, would it do so if continued without change into the future?

The green GDP provides an indication of how “clean” the Malaysian economy is. Environmental pressure from climate change agencies has several implications on the economic survival of a nation. For example,

developed countries tend to relocate their industries to developing countries due to weak environmental regulations. This action is commonly referred to as “pollution haven hypothesis”. Under globalisation, the relative lax in environmental regulation in the developing countries becomes an attractive comparative advantage to the pollution-intensive industries seeking for a “pollution haven” to avoid paying costly pollution control compliance expenditure domestically. Studies across developing countries tend to support this hypothesis. A good example is China. The market-oriented economic reform has gradually turned China into one of the most attractive destinations for foreign direct investment (FDI). However, China’s remarkable openness seems to be accompanied by obvious environmental pollution problems. It is known that FDIs seek out production platforms permitting lower pollution abatement cost. A number of studies confirms this expectation by providing convincing supportive evidence for the pollution haven hypothesis. Green GDP that is derived from SEEA can inform, for example, to what extent imports of raw materials from other countries contribute to the CO₂ emissions in Malaysia.

The green GDP gives valuable information for market access of Malaysian exports to developed countries. It is common to find cases where the global environmental pressure also leads to the formulation of non-tariff trade barriers for some countries. Malaysia is not exempted from this non-tariff barrier. Previously, developed countries claimed that the increase in demand for biofuels from Malaysia has led to changes in the use of land, which in turn, has implications on greenhouse gas emissions. The land use change from the present into use for palm oil biofuels is called direct land use change (dLUC). The conversion of land for palm oil cultivation or displacement of agricultural production is generally known as indirect land use change (iLUC). The basic concept of iLUC is that natural ecosystems might be converted to palm oil or croplands to replace crops that are lost due to biofuel production. Several studies show that iLUC has the potential to be one of the primary sources for greenhouse gas emissions. Both direct and indirect land use changes have serious implications for the reduction in biofuel exports from Malaysia.

If SEEA and green GDP have already been implemented, the claim of direct and indirect land use changes caused by the production of biofuel can be justified empirically.

Source

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Virtual Water Trade in Industrial Products: The Malaysian Scenario

The term 'virtual water' (also known as embedded water) was coined by Allan in the 1990s to represent the volume of water used in the different stages of production for a 'product' (a commodity, goods or services). The virtual water concept was frequently associated with agricultural products. This concept was introduced when Allan was studying the option of importing virtual water (as opposed to real water) as a partial solution to the problems of water scarcity in the Middle East. Allan elaborated on the idea of using virtual water imports (food imports) as a tool to release the pressure on the scarcely available domestic water resources (Allan, 1998).

The Difference Between Water Footprint and Virtual Water

When we speak about the water footprint of a consumer, we are looking at the water footprint of the goods and services consumed or about the water footprint of a producer (business, manufacturer, service provider) by looking at the water footprint of the goods and services produced by the producer. The water footprint concept does not simply refer to a water volume only, like in the case of the term 'virtual water content' of a product. The water footprint is a multidimensional indicator, not only referring to the volume of water used, but also explicitly indicating where the water footprint is located, what source of water is used, and when the water is used. The water footprint shows the extent of water use in relation to consumption of people. The water footprint of a country is defined as the volume of water needed for the production of the goods and services consumed by the inhabitants of the country. The internal water footprint is the volume of

water used from domestic water resources; the external water footprint is the volume of water used in other countries to produce goods and services imported and consumed by the inhabitants of the country.

The virtual water volumes, for example, are used to calculate water footprints - estimates of direct and indirect water use by producers and consumers - which has been used as a tool to raise public awareness of environmental sustainability. As an example, the virtual water content of rice (broken) that a consumer buys in the shop is 3420m³/ton. This is larger than the virtual water content of paddy rice as harvested from the field because of the weight loss if paddy rice is processed into broken rice. Livestock products have higher virtual water content than crop products because a live animal consumes a lot of feed crops, drinking water and service water in its lifetime before it produces some output (Hoekstra & Chapagain, 2007).

When assessing the water footprint of a nation, it is important to quantify the flows of virtual water leaving and entering the country. If we take the use of domestic water resources as a starting point for the assessment of a nation's water footprint, we should subtract the virtual water flows that leave the country and add the virtual water flows that enter the country.

Virtual Water Trading in Agricultural and Industrial Products

A country that exports an agricultural commodity is said to be exporting water in a virtual form because certain volumes of water that were extracted from the domestic

sources were used in the production of the commodity. A country that imports the water-embedded product is said to have purchased water in a virtual form, since the water that was needed to produce the imported goods could have been used for other purposes. Therefore, when products are traded from one country to another country, the virtual water resource flows are redistributed spatially and temporally. Empirical evidence suggests that trading in virtual water should be encouraged in order to promote global water redistribution. Trade plays a significant role in redistributing water resources between countries because virtual water embodied in international trade is equivalent to nearly one-third of global water withdrawal. To preserve water resources, a water-stressed country can import water-intensive products instead of producing it locally. The 'water savings' can be put into better use, such as to produce higher value-added crops as well as for domestic use. For example, it was found that exporting agricultural products from USA to Japan and Mexico managed to save global water use by 11 %. Virtual water primarily focused on water embodied in food commodities because the production of these commodities utilises a large share of water withdrawal.

Virtual water in industrial products, unfortunately receives less attention, although the amount of virtual water embodied in industrial products is substantially large. Approximately 57 % of the international virtual water flows is embodied in the trade of industrial products, which highlights the importance of considering these products in studying the distribution of global virtual water. Although the average volume of water embodied in an individual industrial products is lower than that of agricultural products, the higher volume of trade in industrial products (mining and manufacturing products) implies a larger water withdrawal. A report from the World Trade Organization indicated that in 2013, exports and imports of industrial products accounted for approximately 90 % of global trade.

Can Malaysia Trade in Industrial Products to Improve Global Virtual Water Distribution?

We chose Malaysia to be a focal point of discussion. Malaysia is considered to be a water-abundant country with a total rainfall of 59,518 mm in 2010. Although water-scarce countries are commonly chosen for

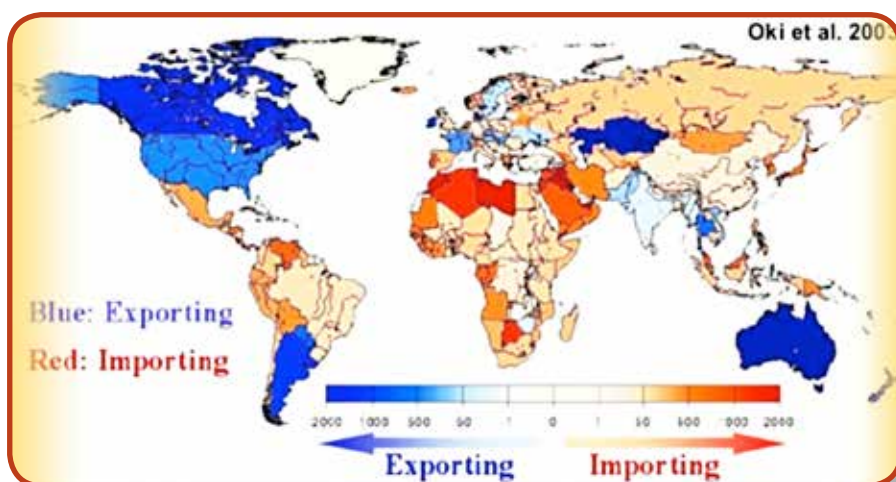


Figure 1. Virtual water balance in countries (m³/c/y) in 2000

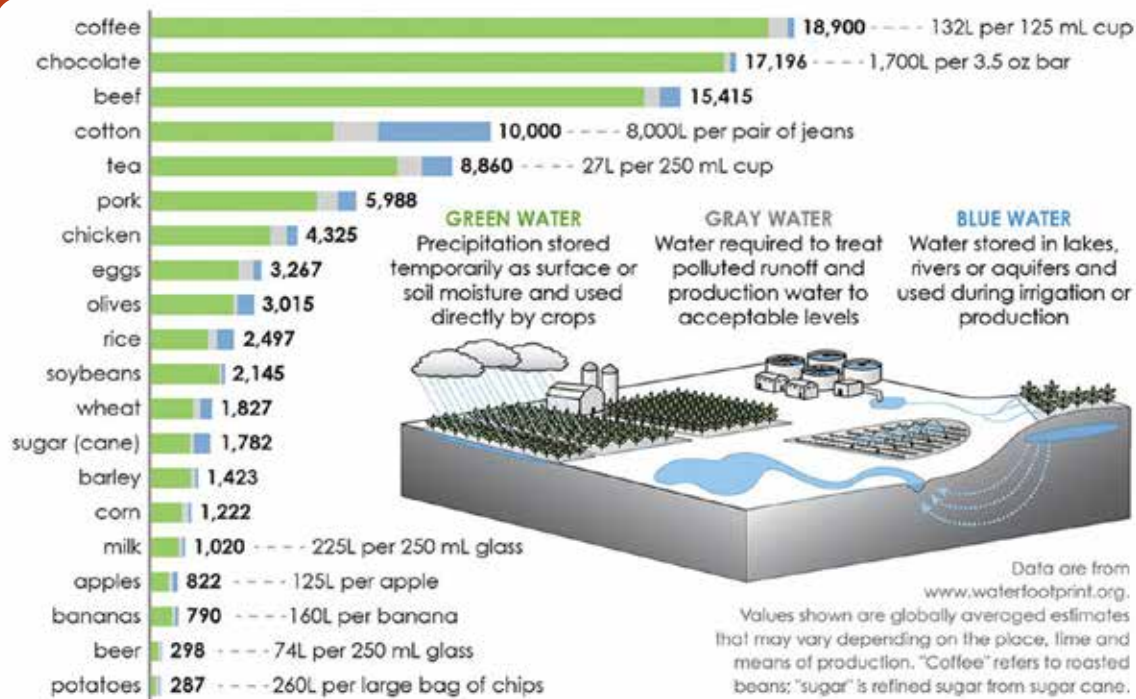


Figure 2. How much water does it take to produce these common goods (Litres of water per kilogram of product and some examples of how that translates into a single serving)

virtual water analysis, it is equally important to examine how a water-abundant country can improve the distribution of global virtual water by exporting virtual water through water embodied products to water-scarce countries.

1 Although Malaysia has a surplus in virtual water trade, the surplus can mostly be explained by the exports of non-water-intensive products. For example, three non-water-intensive sectors include (1) semiconductor devices, tubes, and circuit boards; (2) office, accounting and computing machinery; and (3) TV, radio receivers, transmitters and associated goods, are the major contributors to the total surplus in virtual water trade. The water-intensive sectors, such as meat production, iron and steel, and soft drinks sectors, show a deficit in virtual water trade (i.e. virtual water inflows are larger than virtual water outflows). In these sectors, imports of goods are larger than exports, and therefore, the virtual water content in imports is larger than the virtual water content in exports. A similar pattern was observed for almost all sectors, that is to say, sectors that record a deficit in virtual water trade also experience a deficit in the trade of goods. The forces that determine trade patterns are the sectors with a lower water intensity ($m^3/1000$ Ringgit of output), which have higher export shares than sectors with higher water intensity. Higher value-added intensity implies that these sectors have a higher economic return for each unit

of output produced and vice versa. It can be argued that export activities are essentially dominated by the higher value added sectors. Moreover, it is likely that the higher value-added sectors are associated with lower water intensity. This is consistent with evidence from other countries, where water-abundant countries are virtually net water importers, while water-scarce countries are net water exporters.

2 Despite being water abundant, Malaysia traded mostly in industrial products (essentially non-water-intensive products) rather than agricultural products (essentially water-intensive products). In 2010, trade surplus in industrial products was 235.7 billion Ringgit (approximately USD 61.8 billion), compared to a trade deficit of 1.9 billion Ringgit in agricultural products. In the international market, the Malaysian industrial products accounted for 1.3 and 1.1 % of world imports and exports in 2010, respectively. Malaysian trade in industrial products involves water flowing mostly to water-abundant countries. For example, trading with the USA contributes towards the largest surplus in virtual water, which records 51.5 mm^3 or 39 % of total surplus. Trade in non-water-intensive products, such as office, accounting and computing machinery, semiconductor devices, and TV, radio receivers and transmitters, explains 68 % of the surplus in virtual water trade with the USA. The surplus (deficit) in the net virtual water trade

is influenced by the surplus (deficit) in the volume of trade in goods. For example, a deficit of 2.3 billion Ringgit of trade in goods with Canada explains the deficit of 9.0 mm^3 of virtual water trade (Hassan et al., 2016).

3 The distribution of global virtual water depends highly on the trade pattern, while the trade pattern itself is subjected to a country's comparative advantage. The current trade structure does not improve global virtual water distribution to countries, such as Mexico, Saudi Arabia, South Africa and Spain. However, evidence suggests that the trade of industrial products with Malaysia benefited some water-scarce countries, such as Australia, China and the Netherlands. Although Malaysia has a large endowment of water resources, the costs of water-intensive production may be higher than other countries due to the differences in production technologies and primary factors of production. Nevertheless, technological improvement is possible through innovation. With supportive growth policies and investment in research and development, new techniques can be developed to reduce costs of production for water-intensive products. Through these efforts, international trade between Malaysia and other countries can help to improve the distribution of global water.

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Waste Embodiment in the Malaysian Economy

Statistics on the recycling rate in the economy contributed by consumers and industries is mostly available. However, the extent to which waste is being used as recycled materials in the economy for production of goods is unknown. Embodied recycled materials in a product can be defined as the amount of recycled waste being used as inputs into the production process of a certain product. The more the recycled materials embodied in the products, the more sustainable the economy.

Growing economic activities for both production and consumption requires larger inputs of raw materials and natural resources, which in turn generate larger quantities of waste. The increase in extraction of natural resources, accumulation of waste and concentration of pollutants will therefore overwhelm the carrying capacity of the ecosystem resulting in the degradation of the environment. Degradation of the environment will eventually put economic activity at risk. The utilisation of recycled materials or waste in the production process offers significant potential for reducing environmental degradation which left unchecked will lead to the emergence of scarcity issues (Marshall & Farahbakhsh, 2013). Reusing of waste as recycled materials in the production process not only helps in reducing scarcity of raw materials but also greenhouse gas (GHG) emission. (Figure 1).

Among the ASEAN countries, the rate of recycling is the highest in Singapore with an estimated rate of 61% in 2015, a slight increase from 60% in 2014. Recycling of waste is important for this country due to the lack of natural resources. In the European Zone, the recycling rates for year 2010 are the highest in Austria (63%) followed by Germany (62%), Belgium (58%), Netherlands (51%) and Switzerland (51%) (Ngoc & Schnitzer, 2009).

Waste Generation Malaysia

Waste in Malaysia is generally categorised into three categories and regulated by three agencies:

Municipal solid waste - regulated by the Ministry of Housing and Local Government

The main sources of municipal solid waste (MSW) are households, industries, construction activities and imports. Based on the 2014 annual report from the Ministry of Urban Wellbeing, Housing and Local Government (2015), the amount of MSW collected in 2012 was equivalent to 33,130 tonnes which surpassed the projection made for the year 2020. This amount has increased from 18,180 tonnes in 2005. The significant



Figure 1. Using waste in the production process

increase in MSW collection can be attributed to the increase in the Malaysian population from 20.2 million people in 2005 to 28.3 million in 2012. The biggest contributor towards MSW was food waste, that made up 45% of the amount of waste generated daily in Malaysia.

Scheduled waste - regulated by the Department of Environment

The Compendium of Environment Statistics that is published by the Department of Statistics Malaysia (2015) has reported that the amount of scheduled waste generated for the period 2013-2014 has increased tremendously by 20% from 1,387,861.6 tonnes in 2013 to 277,485.3 tonnes in 2014. The significant increase is mostly attributed to the operations of the chemical industry. In 2013, this industry produced a total of 162,781.3 tonnes of waste and this increased to 344,660.4 tonnes in the following year. Another industry that has contributed to the rising amount of waste is the metal refinery industry with the amount of waste generated in 2013 and 2014 being 83,518.8 tonnes and 172,264.2 tonnes, respectively.

Clinical waste - regulated by the Ministry of Health.

The quantity of clinical waste generated for the period 2013-2014 increased by 15% to reach 21,975.60 tonnes in 2014. The main producers of this type of waste are located in Selangor, Kuala Lumpur and Johor. Looking at the major contributors by state, the assumption of economic prosperity, degree of industrialisation and population determine the amount of waste produced and this can be validated by Gross Domestic Product (GDP) figures (Ngoc & Schnitzer, 2009). This is particularly true when these three states have the largest share of the GDP, population numbers and serve as the nuclei for several industries.

How much waste is embodied in output and GDP?

An industry that collects waste, processes and distributes recycled materials to other industries is termed as recycling activity. We measure the significance of this industry to the economy by looking at its contribution



Figure 2. % recycled materials embodied in output and value added

to output and value added. The contribution is assessed through modeling using the most recent available input-output tables in Malaysia (2005 and 2010 base-years).

The input-output analysis is applied using the Malaysian input-output table 2010, consisting of 124 industries. The Hypothetical Extraction Method (HEM) is used to extract the waste industry which is identified as sewerage, waste collection and remediation activities. With the extraction, the changes of total output and value added in each of the 124 industries are recorded and disaggregated into direct and indirect changes. Our analysis revealed two important findings (Chakrin Utit et al., 2015):

i. The use of recycled materials that go into the production process is considerably low with less than 1%. In 2010, recycled materials embodied only 0.13% of the total output and value added generated in the economy. We are not able to compare the level of utilisation of recycled materials in Malaysia with other countries because specific studies on this issue are unavailable.

ii. The level of utilisation of recycled materials in the economy increased between the years 2005 and 2010. This indicates that there is a growing concern among industries in Malaysia to absorb the recycled materials into the production process as part of the efforts to reduce environmental degradation.

Industries that Absorb Recycled Materials in the Production Process.

Let us examine the most important industries that show significant levels of recycled materials in the production process between the years 2005 and 2010. Figure 3 shows the top-10 industries with the highest level of absorption for recycled materials in output and value added. From the total amount of recycled materials embodied in output and value added in 2005 was RM585.47 million and RM247.69 million respectively, with the figures expressed in percentage points for each industry. The Wholesale & Retail Trade industry was found to absorb the highest amount of recycled materials into its production process in 2005. The recorded embodiment was equivalent to 26.43% (RM154.72 million) from the total embodiment in output of RM585.47 million. Another industry that absorbed or utilised the largest amount of recycled materials was the Utilities industry with a total embodiment of 20.77% (RM121.57 million). These two industries also showed the most significant contribution to GDP.

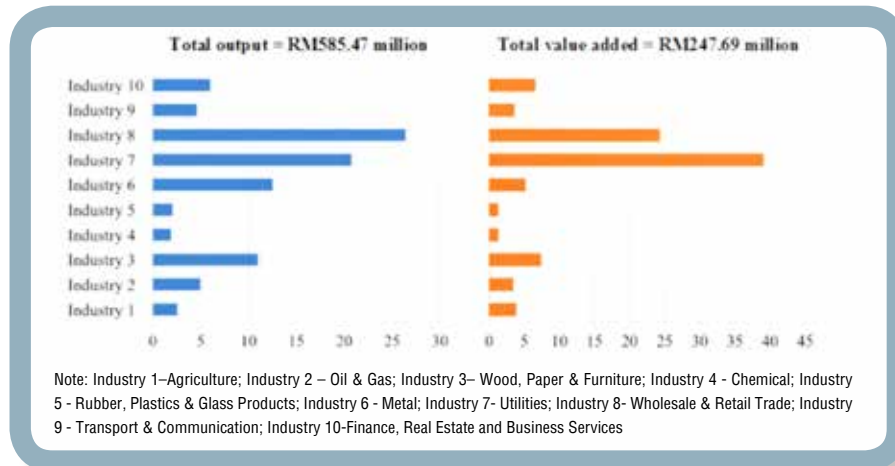


Figure 3. Top 10 industries with highest level of recycled materials embodied in output and value-added in 2005

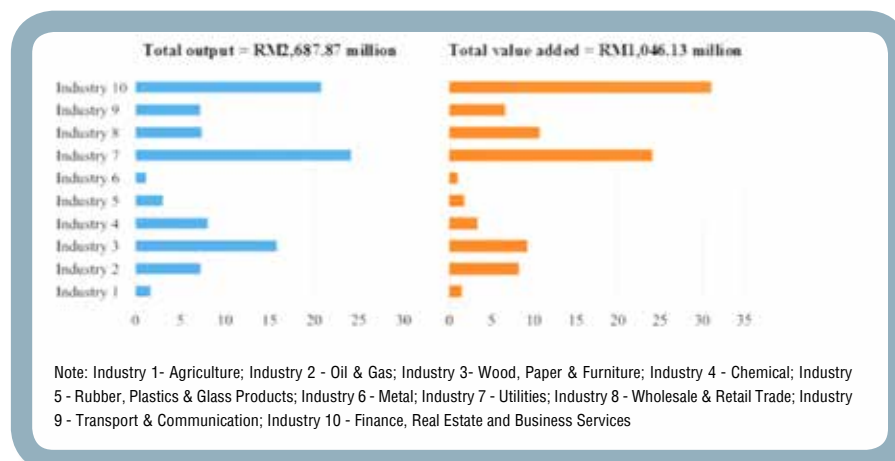


Figure 4. Top 10 industries with highest level of recycled materials embodied in output and value-added in 2010

Figure 4 presents the top-10 industries with the highest level of absorption for recycled materials in output and value added in 2010. The percentage of embodiment at the industrial level is expressed as a percentage from the total embodied amount of RM2,687.87 million for output and RM1,046.13 million for value added.

In 2010, the Utilities industry used the largest amount of recycled materials, followed by Finance, Real Estate & Business Services. Of the total production output, the respective amounts of recycled materials in these industries were 24.17% and 20.82% from the total recycled materials embodied in the output of RM2, 687.87 million. Similar patterns hold for the contribution to value added.

Recycling is as an alternative solution to reducing the amount of waste generated through production activities. However, the precise level of waste embodiment in each of the industries is unknown. Using the Hypothetical Extraction Method to extract the waste industry data, our study reveals that the level of embodied waste is highest in the Wholesale and Retail Trade industry.

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Source

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Environmental Mainstreaming of the PALM OIL MILL SECTOR

Introduction

Palm oil milling is a major processing industry in Malaysia and an important sector in the economy of the country. There are 456 palm oil mills licensed by DOE with the highest numbers of mills located in Sabah. In 2015, there were about 5.64 million hectares planted with oil palm in Malaysia. Figure 1 shows the distribution of palm oil mills in Malaysia in 2015.



Figure 1. Licensed palm oil mills in Malaysia (2015)

Though the palm oil industry is a major contributor to the economy, it is well known that the palm oil milling industry does cause pollution to our environment. Uncontrolled discharge from palm oil mills threatens our surroundings. DOE has received several complaints on pollution from palm oil mills. In 2015, there were 41 complaints on discharge of effluent from palm oil mills compared to 15 cases in 2014.

Legislation

To overcome river pollution from untreated palm mill oil effluent (POME), the idea of licensing palm oil mills came about resulting in the gazettement of the Environmental Quality (Licensing) Regulations in 1977, followed by the Environmental Quality (Prescribed Premises)(Crude Palm Oil) Regulations in the same year. Other regulations followed over the years. Amendments have been made to existing provisions as well as new provisions were added to the Environmental Quality (Amendment) Act and to the regulations under the Act.

Under the new DOE management team, there have been several developments in environmental management particularly in the context of enforcement and legislation. The priority and focus have shifted from enforcement by DOE officers to the implementation of Self-Regulation (SR). The SR approach to pollution control is described as Guided Self-Regulation (GSR), whereby the regulated sectors are taken by the hand, so to speak, towards achieving the goal of self-regulation through environmental mainstreaming tools.

The Way Forward

In order to care for the environment in a more holistic way, the DOE management has

adopted the GSR approach. GSR is a new initiative that calls for greater involvement of palm oil mill owners in enforcement. Under GSR, attitude, skills, and knowledge (ASK) will become the prerequisites to ensure regulatory compliance on a sustained basis. Mill operators will now be guided by DOE officers to train their own officers to ensure they are equipped with knowledge and are technically competent

to comply with environmental rules and regulations. Command and control to enforce environmental compliance on the part of the palm oil mill industries is no longer viable given the magnitude of the problem.

The GSR initiative requires DOE officers and mill operators to have technical knowledge. Both parties must be technically competent in their jobs and have a thorough understanding of their task. They must also be ready to acquire new skills.

The Command and Control approach where DOE officers take samples of pollution sources and on noting non-compliance, take action, has over the years shown very little improvement in compliance levels. Under the GSR approach, the responsibility of complying with DOE regulations will rest with the mill operators who will now be helped by DOE officers to acquire the necessary competencies and positive attitude towards self-regulation. Self-regulation will help the millers themselves in several ways. A palm oil mill requires a huge investment and mills have to be maintained through proper maintenance for efficient functioning. GSR will result in ensuring that all components of the mill are in working order.

Palm oil mills have long come under several environmental regulations. But, now DOE has taken the bold step of initiating SR in palm oil mills in an attempt to build a culture of concern for the environment. For a start, palm oil millers will need to implement all environmental mainstreaming (EM) tools at all levels in their organisation. What this means is that compliance to regulations will not be confined to management but to all stages of production and all levels of staff. are for the environment is at the centre of production and it is the hope of DOE

that environmental excellence will prevail. Successful implementation of SR in their premise should eventually lead to a reduced number of DOE visits to palm oil mills.

EM is a tool for accomplishing the goal of cultivating the self-regulation culture in the regulated sectors. The three main environmental concerns of palm oil mills are effluent, air pollution and scheduled waste management. EM refers to the integration of environmental concerns, aspects, and considerations in all business processes, at all stages of decision making, at all levels of organisational hierarchy, and at all phases of the operation of a development project or a manufacturing industry. Through EM, the manufacturing company owner is shouldered with greater environmental responsibility and accountability for ensuring environmental friendly options are chosen in the course of operation of his project or a manufacturing facility.

Injecting Environmental Mainstreaming

The environmental mainstreaming tools that will need to be implemented at palm oil mills can be categorised into 13 elements.

1 Competent person (CP)

This is the most important element in implementing SR at every premise. Premises must make sure they have technically knowledgeable competent persons on the subject matter of pollution control and who are sufficiently skilled to manage the pollution control systems like waste water treatment plant and air pollution control system. Without a competent person, premises will not be able to operate their mills in compliance with the regulations and many violations may occur. The ultimate aim is for DOE to reduce the number of court cases and move to a more friendly approach by making premises responsible for protecting the environment.

2 Environmental policy (EP)

Mills must have an environmental policy. It is critical and important to demonstrate to all stakeholders that palm oil mills are committed to complying with the regulations. As one of the main industries in Malaysia, Malaysian palm oil is exported to a good many countries in the world.. As most of the importer countries have very stringent environmental compliance regulations, it is important that palm oil mills show their commitment to protecting mother earth.

3 Performance monitoring (PM)

Performance monitoring must be carried out routinely at premises. Regular monitoring of mill discharge will lead to less visits by DOE to undertake sampling to regulate compliance. This also results in less legal action being taken against mill owners. As palm oil millers have invested heavily in their

pollution control systems, it is important to make sure it performs well and the discharge complies with the standards. Millers should monitor and do maintenance routinely to make sure every process runs smoothly. If violations occur, corrective action must be taken immediately to ensure less harm to the environment.

4 Environmental performance monitoring committee (EPMC)

An environmental performance monitoring committee is to be established at the operational level to monitor the operation, maintenance, and performance of the pollution control systems. This committee is important as it will be tasked with monitoring environmental issues at the mill. A competent person needs to report to the committee regularly. The EPMC is to be chaired by a senior officer and all members need to be officially appointed by the company management. This committee must meet once a month at a minimum and all meetings need to be recorded.

5 Environmental regulatory compliance monitoring committee (ERCMC)

This permanent committee is to be chaired by the General Manager or CEO of the company. As a policy committee, the ERCMC is responsible for monitoring the implementation and effectiveness of the environmental policy and for including additional policy elements if necessary. The committee must meet once in a quarter, at a minimum, and all meetings need to be recorded.

6 Record keeping

A systematic procedure and record keeping system has to be in place to maintain records related to the operation, maintenance and performance of pollution control systems, violations and chemical usage. An example would be the F/M ratio data and VSS as they are important to make sure the aerobic pond functions well. If there are instances of non-compliance, corrective action needs to be taken immediately.

7 Data analysis and interpretation

Data on performance monitoring, compliance monitoring, upset conditions ??? operation and maintenance need to be interpreted and converted to meaningful information. It must be presented during EPMC meetings for decision-making purposes.

8 Mini laboratory

If necessary, mills must also be equipped with a mini laboratory to support the operation and facilitate the mill in preparing monitoring data. The laboratory can conduct in-situ tests or simple tests that require urgent data. The mini laboratory must be equipped with the necessary performance monitoring equipment and be adequately staffed.

9 Discharge and emission monitoring

Discharges of effluent or air emissions to the environment must be monitored on a scheduled basis and reported according to

regulatory requirements. Palm oil mills are required to install an emission monitoring system (CEMS) at their plant to monitor discharge from their stack. Until 2015, 452 premises had installed CEMS but only 70% frequently updated their data. Millers are responsible for making sure all systems are in working order.

10 Reporting and communication

Mills must set up a procedure for internal communication. For example, how and when should the competent person report to the manager. This will help to create company-wide awareness and concern for the environment and lead to better environmental performance. By having continuous and consistent communication between the competent person and top management, millers will find it easier to understand the problems and undertake corrective actions immediately.

11 Budget allocation & staffing requirement

All millers must make sure they have a budget for purposes of the environment as well as for training staff. For example, they will need to have a contingency fund for standby equipment and to purchase reagents or chemicals. Millers must have the post of a competent person and make sure all competent persons play their roles effectively.

12 Implementation schedule & monitoring

Palm oil mills must set up a proper schedule for monitoring purposes. It is a need to identify the location and draw up a schedule for monitoring of the location(s). They must also identify the maintenance schedule for pollution control systems in order to make sure it runs accordingly. This can be supervised by the competent person.

13 Reporting to Department of Environment (DOE)

It is important that mills send regular reports to DOE to make sure the Department has sufficient information to gauge the overall condition of the mill and plan the necessary course of action.

Competent Person

Every palm oil mill would need at least two categories of a competent person. A person is termed as Competent if he has successfully attended the Certified Environmental Professional in the Palm Oil Mill Effluent (CePPOME) and Certified Environmental Professional in Scheduled Waste Management (CePSWAM) training courses and has been awarded these certificates. Overall, 470 participants have attended the CePPOME courses and 42 are considered fully competent. For CePSWAM, 198 participants from palm oil mills have attended the course and 39 are considered



Figure 2. Process cycle to become a Competent person

as fully competent. Figure 2 above shows the process to become a competent person with DOE. For further details, millers can directly contact the Environment Institute of Malaysia (EIMAS).

Responsibilities of the Department of Environment

The main responsibility of DOE is to facilitate compliance with the regulations by all millers. DOE also needs to understand and fulfill stakeholder expectations. What this means is that DOE must be able to identify their major problems and come up with the best solutions.

While DOE maintains consistency in enforcement strategy, it will now begin to reduce the frequency of Command and Control visits in order for the mills to self-regulate and make this concept a success. Meanwhile, DOE will continue to foster rapport and maintain constant communication with all millers.

However, if the millers still flout the law after all this facilitation, DOE has no other choice but to compound or take them to court.

Conclusion

In conclusion, the responsibility to ensure a clean, safe and effective environment does not fall on the government alone, in particular DOE. It is important that we all work together. Palm oil millers must get ready to embrace the Environmental Mainstreaming elements/tools to achieve the Self-Regulation target and to gain the ultimate pride of environmental excellence.

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Land and The Environment



Images of land use



A Legal Perspective

There can be no abuse of rights if the rights do not exist in the first place. Thus this brief article traces the various aspects of land ownership in Malaysia before touching on the environmental problems so intimately connected with the ownership of the land. Malaysia, although one nation under the Federal Constitution, has for historical reasons three different laws governing land ownership and use .

Peninsular Malaysia, consisting of Perlis, Kedah, Penang, Perak, Kelantan, Terengganu, Pahang, Selangor, Negri Sembilan, Malacca, Johor and the Federal Territories of Kuala Lumpur and Labuan, is governed by the “National Land Code”(Act 56 of 1965 with subsequent amendments).

Sabah has its Sabah Land Ordinance for the classification and governance of rights and titles concerning land matters. This law incorporates the “Land Rules” of 1930, the “Land (Temporary Planting Permit) Rules 1948 and the Rent Revision Rules of 1968.

Sarawak too has its laws in the form of the “The Land Code of Sarawak”, which came into effect in 1957 while Sarawak was still a separate British Colony and before the formation of Malaysia.

Land as a Resource

Land being a finite resource has always being coveted by both the rulers and the ruled. Malaysia being a former British Colony has been heavily influenced by historical English concepts and events concerning land ownership. It would therefore be safe to say that today every inch of land in Peninsular Malaysia has an “owner” whether an individual or groups of individuals, companies or statutory bodies or the State.

Land ownership comes in the form of “freehold” which in a very technical sense means it is free of restrictions as to the time period imposed on this land ownership.

Leasehold is the other variant of land ownership and this means that the owner of the land can lease out his land which in Peninsular Malaysia is for a maximum of 99 years. For historical buffs, it has to be noted

that the Railway line and the adjoining land which cut through Singapore was leased to our KTM for a period of 999 years by the British colonial overlords through an agreement signed in 1918.

However the State (or the Crown) is still the ultimate owner of all land in Malaysia. Thus the title holder of the land, be he a free holder or lease holder, has to pay a nominal fee to the State in the form of “Quit Rent”. Quit Rent payment reminds the title holder that the land over which he is currently exercising certain rights is not his and that the ultimate owner is still the State!

Categories of Land Ownership

While the title to the land can either be in the form of a free-hold or a lease-hold, the State by being the ultimate owner can and does impose restrictions as to the actual usage of the land. Thus one comes across land being classified as “Agricultural”, “Commercial” and “Residential”. Once a particular piece of land is classified under any one of these three categories, the land owner or the proprietor as the case maybe is restricted to the specified usage of the land. Simply put,

a property owner of a piece of land classified as "Agricultural" has no rights and is running foul of the National Land Code if he puts up a luxury apartment for sale on that piece of land. All the penalties prescribed in the National Land Code can be imposed on a recalcitrant owner and thus it is the wise owner who stays within the limitations imposed on the land. Sections 422 to 429B of the National Land Code provide for the powers of arrest, seizure and penalties that can be imposed on the errant title holder or on anyone else even if he is not a title holder. Fines and imprisonment can be imposed on the errant party .

It has to be pointed out the land use classifications are not cast in stone and thus depending on the needs of the time (be they political, economic or commercial) the State has the right to change the classification categories provided the procedures laid in the National Land Code are adhered to. Thus if there is a need to provide land for housing purposes, the State can always change the classification of the "agricultural use" purposes to that of "residential purposes"! However it has to be noted that it seems to be unheard of, for abandoned commercial or residential land to be re-classified as "agricultural" land! Against this backdrop of developments, the 3rd Malaysia Land Conference was held as recently as in October this year.

The peculiar feature of the National Land Code is that title owners had in theory, rights over their land extending all the way to the core of the Earth! A foreign Project Manager of a tunneling project in the Klang Valley was bemoaning this fact some-time ago on international TV. In view of the massive infrastructure projects being undertaken now (and in the future), the amendments to the various laws, namely the National Land Code (Amendment) Act 2016 takes note of this peculiarity and under the amendment it is now possible to have residential, commercial and other uses on the same plot of land. Thus with this amendment it seems that it would be entirely possible to carry out tunneling works and use underground land without the consent of the land owner whose land is above this. The full extent and scope of these amendments will only known when cases come before the Judicial Courts for clarification and compensation, if any.

Penalties for Abuse of the Land

Abuse of land belonging to the State attracts heavy penalties and in this regard It has to be noted that unlawful occupation or use of State land, reserved land and mining land is a serious offense which attracts a penalty of a fine not exceeding ten thousand ringgit or imprisonment for a term not exceeding one year or both as per Section 425 of the National Land Code. Even the air space above State land is a matter not to be trifled with. Unlawful use

of air space above State land or reserved land can result in a fine of two thousand ringgit or imprisonment for a term not exceeding six months or both as per Section 425 A of the National Land Code. Removal, extraction, transportation, possession or custody of rock material from any land (and not just State land) attracts a far heavier penalty with a fine not exceeding fifty thousand ringgit or a jail term not exceeding five years or both as per Section 426 of the National Land Code.

While land ownership and rights have a long history, It has to be noted that concern and care for the environment took some time to make its presence felt in Malaysia and even after the formation of Malaysia in 1963, there was no comprehensive law to cover issues pertaining to the environment.

Care for the environment, which one can argue had its genesis in Section 426 of the National Land Code of 1965, is very clearly embodied in the landmark act, "Environmental Quality Act, 1974 which applies to the whole of Malaysia. Part I of the 1974 Act says it is for "the prevention, abatement, control of pollution and enhancement of the environment..." The Act of 1974 has restrictions on pollution of the atmosphere (Section 22), restrictions on noise pollution (Section 23), restrictions on pollution of the soil (Section 24), restrictions on pollution of inland water (Section 25), restrictions on discharge of oil into Malaysian waters (Section 27) and restrictions on discharge of wastes into Malaysian waters (Section 29) among others.

While Malaysia has quite a number of laws pertaining to the environment (the National Forestry Act 1984, the National Parks Act 1980, the Town and Country Planning Act 1976), etc., the issue seems to be one of overlap and conflict between State rights and National rights as well as confusion among the various ministries and agencies as to where their rights and duties begin and end. As Azmi Sharom comments in his article "Environmental Laws in Malaysia: Time to Walk the Walk", the case "Tenggara Gugusan Holidays Sdn. Bhd. v Public Prosecutor highlighted the conflict between the Local Authority and the (Federal) Department of the Environment (DOE). In the same article Azmi cites the "Bakun Dam Case", where the Court of Appeal held that State laws took precedence over the Environmental Quality Act as the dam was being built on State land! Generally, it is well known that there are sufficient environmental laws, regulations and policies but a holistic implementation seems to be lacking.

Conclusion

While political lack of will and even apathy to tackle some of the glaring cases of brazen disregard of the environment can

be disheartening, there seems to be hope and light in the form of judicial activism. The Judiciary as a whole seems to be very conscious of the environment and in this aspect, the Chief Justice of Malaysia, Tun Arifin Zakaria in a statement, reported on 16th of October, 2015 in the *Malaysian Times*, highlighted the contributions of the Environmental Court established not by an Act of Parliament but judicial initiatives in 2012. These special Environment Courts deal with criminal matters in the Magistrates and Sessions Courts and the Chief Justice stated that these Courts have the jurisdiction to handle matters pertaining to 34 Acts and Ordinances and 17 Regulations, Rules and Orders. The Chief Justice was quoted as saying that the Judiciary hopes to set up similar Environmental courts to deal with civil cases. Hopefully with this, private citizens and other concerned groups could set the ball rolling in taking the initiative to seek redress for environmental transgressions .

Environmental consciousness seems to be increasing and recent citizen outbursts against illegal hillslope clearings and coastal land reclamations in land scarce Penang; citizen outrage against the "red" pollution caused by illegal bauxite mining in Pahang by overzealous miners are some of the examples of this rising consciousness.

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Source

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Improving Performance A Call to All DOE Officers

Alvin Toffler says: “The illiterates of the 21st century will not be those that cannot read and write, but those who cannot learn, unlearn and relearn.”

To unlearn and relearn, DOE needs to reflect on its past records and institute changes to overcome its weaknesses and shortcomings in order to maintain its relevance and improve its performance.

It is time that DOE benefits from the successes of other organisations. It is time that DOE benchmarks its technical capabilities, strategies, technologies, approaches and services against successful environmental protection agencies worldwide. How do we do this? We need to go through the process of learning, unlearning and relearning.

From DOE's perspective, it needs to:

- Unlearn the strategies it uses.
- Unlearn the way its activities are carried out.
- Unlearn the methodology it uses.
- Unlearn the goals it sets
- Unlearn the way it sets its key performance indicators
- Unlearn the technology it uses.
- Unlearn the way it approaches its clients.
- Unlearn the way it communicates with the stakeholders.
- Unlearn the way it reaches out to the public
- Unlearn the way it delivers its services
- Unlearn the skills and knowledge needed to get to the next level.
- Unlearn what its target is, what they want and why
- Unlearn how to get the most from its workforce.

“Those who state their deeds today worse than yesterday are cursed. They who today are the same as yesterday are losers. And whoever today is better than yesterday, they are the lucky ones.” (Shahih Al-Bukhari).

Traits Required of DOE Officers

Business must be done in an unusual way (business as unusual-BAUS). DOE officers now should play changing roles to effectively withstand the challenges of the new era. They therefore need to possess/acquire the following traits:

- Technically knowledgeable
- Facilitative
- Discussive
- Futuristic
- Problem-solver
- Firm, yet accommodative
- Objective-minded
- Ability to distinguish between “objectives and goals” and “ways of achieving objectives and goals”
- Open-minded
- Knowledge seeker
- Life-long learner
- Ability to see the “big picture”
- Analytical
- Thinker, not only a doer
- Rational not dogmatic (rigid)

Source

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1. Fortify DOE's internal technical capabilities (improved work procedure; certified DOE officers; subject matter experts-SMEs)
2. Develop regulatory understanding and environmental competencies of regulated sectors (certified industry personnel; certified consultants)
3. Ensure quality enforcement (comprehensive inspections and performance monitoring) of the DOE and exhaust all enforcement tools
4. Increase use by the regulated sector, of self-demonstration of regulatory compliance and constant communication with the DOE (on-line reporting; periodic reporting; performance monitoring and record keeping)
5. Integrate the environmental dimension in policy and decision making in regulated sectors (company environmental policy; environmental performance monitoring committees)
6. Guide through issuance of guidance documents
7. Review continuously regulations (now we want to revamp EQA)

Environmental Mainstreaming Tools or Elements

In this context, all regulated communities or sectors (RC/RS) must do/implement the following tools

- Environmental policy (EP)
- Competent person (CP)
- Performance monitoring (PM)
- Environmental performance monitoring committee (EPMC)
- Environmental regulatory compliance monitoring committee (ERCMC)
- Record keeping
- Data analysis and interpretation
- Mini laboratory
- Discharges of effluent or air emissions to the environment must be monitored
- Real time monitoring system (CEMS), or (PEMS),
- Reporting and communication
- Environmental budget and scheduling

The strategies must be translated into actions and cannot be viewed as stand-alone functions but on the contrary, they mutually reinforce each other to produce the desired results. Through implementing Environmental Mainstreaming (EM) elements, the regulated communities/sectors will be subsequently move to the next level of Self-Regulation (SR). Once regulated communities/sectors become self-regulated, they will finally reach Pride of Environmental Excellence as shown in Figure 1.

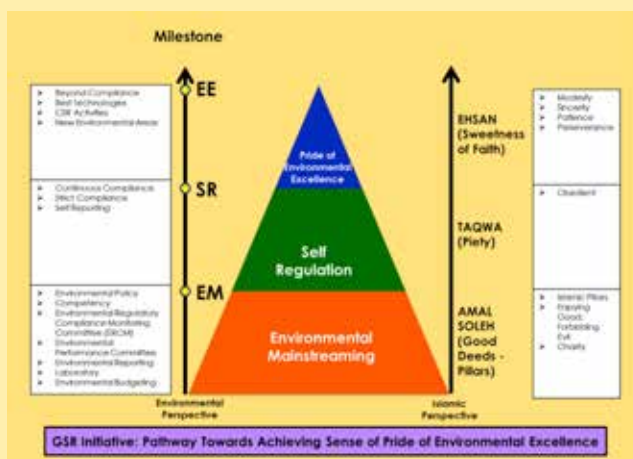


Figure 1. Pathway towards achieving the sense of pride of Environmental Excellence

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