THE DELIVERY OF ENVIRONMENTAL HEALTH SERVICES IN MALAYSIA

MAEH Journal of Environmental Health eISS
Jurnal Kesihatan Persekitaran MAEH
Published By Malaysian Association of Environmental Health
http://www.maeh4u.org.my/journal

Environmental Health Delivery in Malaysia: Environmental Health Law Enforcement

Mohd Ridzuan Busmah[a], Nik Nur Amalin Zahirah Nik Ab. Rahim[a], Noor Nadiah Abdul Kadir[a], Tawfeeq Abdullah Saleh Tawfeeq[a], Mohammad Rafiq Baderu Khisam[a], Farah Ayuni Shafie[a,h*], Nazri Che Dom[a,b], Mohd Ruhaizie Riyadzi[c], Loo Poh Lai[d], Nozaizeli Abu Samah[e], Siti Shahara Zulfakar[f], Nasri Hisyam Mohamed[g]

[a] *Centre of Environmental Health and Safety, Faculty of Health Sciences, Universiti Teknologi MARA Puncak Alam, Selangor, Malaysia*
[b] *Integrated Mosquito Research Group, Faculty of Health Science, University Teknologi MARA Cawangan Selangor, Bandar Puncak Alam, Selangor.*
[c] *Institut Kesihatan Umum, Institut Kesihatan Negara, Kementerian Kesihatan Malaysia, Setia Alam, Selangor.*
[d] *Langkawi District Health Office, Complex LADA, Kuah, Langkawi.*
[e] *Cawangan Kawalan Amalan Perubatan Swasta (CKAPS), Bahagian Amalan Perubatan, Kementerian Kesihatan Malaysia.*
[f] *Program Kesihatan Persekitaran dan Keselamatan, Fakulti Sains Kesihatan, Universiti Kebangsaan Malaysia (Kampus KL)*
[g] *Sektor Inspektorat dan Perundangan, Bahagian Perkembangan Kesihatan Awam, Kementerian Kesihatan Malaysia*
[h] *Malaysian Association of Environmental Health*

**Corresponding author: farahayuni@uitm.edu.my*

INTRODUCTION

In Malaysia, the Ministry of Health (MOH) and Ministry of Housing and Local Government (MHLG) are the main backbone to enforce public health legislation. The main objective or intention of public health enforcement which is conducted from time to time is to protect the public from threat or health hazards, besides creating awareness and promoting the public to comply with national laws. Currently the public health enforcement laws are Prevention and Control of Infectious Diseases Act 1988 (Act 342), Food Act 1983 (Act 281), Destruction of Disease-bearing Insects Act 1975 (Act 154), and the Hydrogen Cyanide Act 1953 (Act 260).

Department of Health is responsible to protect public health by conducting intervening activity which includes premises inspection, issuance of writing order to destroy disease-bearing insects or pathogens and writing order the closure of the infected premises, compounding offenders who harboured breeding mosquitoes, compounding who flout the no-smoking rule at non-smoking gazetted areas and selling tobacco products to persons under the age of 18 or school children who have possession of tobacco product. Order of closure (cleaning and hygiene improvement) needs the premises to temporarily close for the purpose of prevention and control activities in case of massive mosquito breeding, stop transmissible disease pathogen or unhygienic food premises. MOH also coordinated fumigation courses, examination and issuance of fumigation licenses for fumigation operators, in accordance with the requirements of the Hydrogen Cyanide Act 1953 (Act 260). The Sector of Inspectorate and Legal (SIP) at the Ministry of Health (MOH) is responsible for monitoring the public health law enforcement activities conducted throughout the state health departments and district health offices.

Environmental Health Consultation Division (EHCD) in Local Government Authorities plays a key role in the implementation of environmental health policy and monitoring the roles and functions of local authority based on the provisions of the law. The EHCD is responsible to allocate funding to municipal bodies for prevention and environmental health control programs. Local Government Act 1976 (Act 171) is the 'parent laws' regulating city councils, municipal councils and district councils. By-laws (UUK) related to environmental health as provided under Section 73 and Section 102 Local Government Act 1976 (Act 171), has been approved on the 32nd National Council Meeting on Local Government which held on 16 October 1987 to be adopted by Local Authorities and State Authorities. The local authority has the right to create, amend or revoke the by-laws in accordance with the interest of the administrative area of the local authority. According to Ministry of Housing and Local Government (MHLG), there are currently 149 local authorities, consisting of 12 city councils, 39 municipal councils, 98 district councils and five special and modified local authorities in Malaysia (MHLG, 2019). While there are quite a number of local authorities constituted in Malaysia, there are few concerns that need to be resolved to ensure that their roles are completely utilized. Today, public health programs and activities such as food safety systems and dengue outbreak control within the local authority is not fully practiced under their jurisdiction. The local authority in Malaysia needs the Ministry of Health (MOH) to conduct environmental health protection activity in their authority area.

Enforcement officers at the district health office and local authority, authorized under several separate laws, carried out enforcement activities and actions that may vary according to each law. Authorized officers or enforcement officers consist ofEnvironmental Health Officers (EHO), Assistant Environmental Health Officers (AEHO), and Public Health Assistants (in particular laws only) are responsible for improving the environment and protecting human health. In terms of performing enforcement task, all enforcement officers were issued an 'Identification Card' including in the Local Authority. In the Food Act, authorized officers are only to be appointed by the Minister of Health. While in other laws, Director General and District Health Officer are provided in the law to delegate in writing any or all the power in appointment of an authorized officer with the definition of public health inspector and health inspector.

The post of EHO and AEHO was formally established by the Ministry of Health, while all posts of EHO and AEHO in Local Government are on Cadre Post basis by the Ministry of Health Malaysia. District Health Officer or Medical Officer of Health also an authorized officer, plays a supervisory role and local reference professional in terms of clinical and disease epidemiology aspect. EHO and AEHO enforces public health policies and laws, inspects environmental quality-related public facilities, and offers assistance to mitigate health and safety risks, and ensures that the public conform with all local, state and federal health legislation. Through the District's Inspectorate and Legal Unit, EHO or AEHO is responsible in performing the duties of enforcement and prosecution under public health law. EHO or AEHO also involved in preparation for court case, criminal prosecution and court proceedings activities in court against non-compoundable offences or violators who fail to pay any compound amount. Indirectly, EHO and AEHO were responsible to promote healthy lifestyle practices among society. Strengthening the role of EHO or AEHO in Public Health performance should be continuous improvement efforts. The Ministry of Health and local authority are responsible for monitoring and enforcing standards of environmental and public health, including food hygiene, any nuisance's complaint, noise and pollution control, disease and vector control activities and promoting good environmental practices. Environmental safety laws and strategies have been designed to safeguard the most susceptible community. Children, pregnant women and disabled persons are the most susceptible to negative health consequences from exposure to the climate. Environmental safety legislation demands focus and dedication of managers and staff to the environments where all challenges and remedies are apparent.

Enforcement is necessary to ensure compliance with laws, codes of practice, regulations, rules, standards, guidance and social norms. Many workplaces are using different legislation to ensure compliance and lessen ignorance of the law because voluntarism is not very strong. However, Malaysia is still not aggressive in enforcement of environmental policies and regulations as there are many issues arise, including a shortage of qualified personnel and logistics, inconsistencies between federal and state environmental health laws, implementation of new law and a lack of public involvement in solving environmental challenges due to lack of environmental awareness, and a profit-first business policy that promotes industrial development over the conservation of the environment. In the next section, discussions and details of the issues raised are focused on the involvement and role of EHO and AEHO in order to protect public health and exposure to health-damaging hazards.

ENFORCEMENT OF EXISTING ENVIRONMENTAL LAWS AND REGULATIONS

Malaysian legislative system is unique. Although the Federal Constitution is the supreme law of the nation, the Constitution also provides speciality referred to as the Federal List, the State List and the Concurrent List. Civil law, criminal law, finance, trading, communication and transportation are among matter listed in the Federal List, while matter regarding land use, agriculture and forest are among listed in the State List. The Concurrent List consists of several matters involving public health, sanitation, prevention and control of diseases as well as rehabilitation of mining land and land suffered from soil erosion. Concurrent List allows Parliament and the State Legislative Assembly to make laws for the same matters and so long as they are not in conflict with each other, they can exist and operate together. However, if there is a conflict, then Federal laws would prevail.

I. Bauxite Mining

In Malaysia, mining activities are governed by the Mineral Development Act 1994, which covers environmental protection steps for prescribed activities (effluent regulations, monitoring plans, and rehabilitation of mined areas after mine closure. The National Land Code incorporates activities involving the excavation and transportation of soil. Mining proposals and sustainable conservation are not part of the requirements for land usage under the National Land Code. As a result, there are major issues and conflicts in between the laws because many mining operations are listed only within the National Land Code. Failure of state and national government regulation enforcement in bauxite mining is said due to a lack of regulatory personnel and mining expertise in which the risk assessment stated that for 200 mining sites, only 8 government officials were tasked with regulatory enforcement (Scobell, 2019). Malaysian Chamber of Mines (2009) stated that the two main legal instruments that govern activities relating to mining are the Mineral Development Act (MDA) 1994 and the various State Mineral Enactments (SME). The MDA was implemented in August 1998. Each State has its own legislation governing mining activities. One of the objectives of the National Mineral Policy project was to match these States Laws and a Model State Mineral Enactment (SME) that was prepared. As of the end of 2008, ten States have implemented the SME. If the mining area is more than 250 hectares, then the Environmental Quality Act 1973 will be coming into action, where the Environmental Impact Assessment (EIA) is mandatory to be conducted. Applications for prospecting/exploration licenses and mining leases under the SME, a prospecting license, exploration license and mining lease may be granted to;

a. A person;
b. A company;
c. A body expressly empowered to hold mining land under any other written law of Malaysia; and
d. A foreign company as defined in the relevant legislation relating to companies, registered under the said legislation and authorized by its constitution to hold mining land.

Development of industry can be assured and encouraged, as this SME delivers an attractive, efficient, pleasant and stable mineral regulatory framework. It enacted existing laws to cover conditions allowing not only for small scale and labour-intensive mining but also for large scale exploration and capital-intensive modern mining that the country expects in the future (Ahmad Athsani, 2012). The issuance of licenses and leases by the State is subjected to certain conditions and restrictions as prescribed under the SME, are listed in Table 1.a. according to prospecting or exploration, and Table 1.b. according to the scale area of the mining operation.

Table 1.a: Prospecting/Exploration License as prescribed under the SME.

Applied Conditions	Prospecting License	Exploration License
Area for exploration work	25-400 hectares	400-20,000 hectares
Valid period	Maximum 2 years	Maximum 10 years
Extension period	+2 years	+5 years

Application for renewal	Not later than 6 months prior to expiry of the License	Not later than 12 months prior to expiry of the License.

Table 1.b: Small scale mining operation/large scale mining operation.

Applied mining conditions	Small scale operation	Large scale operation
Target for mining	Alluvial	Hard rock
Area for mining lease	Such size as reasonably required for the mine	
Requirement for EIA	Areas more than 250 hectares	
Term of renewed mining lease	Estimated remaining life of the ore body or 21 years whichever is shorter	
When to apply for renewal	12 months prior to expiry of the lease	

In the new SOP which is entitled and specifically has touch with the bauxite mining activities in Pahang, Environmental Impact Assessment has become mandatory to be conducted regardless the size of the involved land (previously mining is only become prescribed activity when the area is more than 250 hectares), mining sites must be considered the sensitive environmental area, enhancing the number of competent person (before this mining manager must be appointed, but now additional mining engineer and occupational, safety, health & environmental (OSHE) officer must be included) before mining company has been granted with mining license.

Bauxite mining in Kuantan, Pahang, started in 2013, but has controversial issues of environmental pollution, public health and road safety in 2015. Federal Government of Malaysia through Minister of Natural Resources and Environment together with the Menteri Besar of Pahang (State Government of Pahang) has ordered moratorium in bauxite mining for three months (has been extensive for years) until new standard operating procedure finalized and placed into the enforcement by the responsible Ministry (Mazlan et al., 2019). According to Abdullah *et al.,* (2016), has briefly listed out the potential of public health threat due to the bauxite mining activities in Kuantan. The airborne dust not only is the major source for the respiratory health problems but also contributed to road accidents due to visual pollution, burden in water supply system as the dust and leachate deposited into the water source and exposed people with toxicant from the heavy metals that flows with it as well as nuisances to the noise pollution.

II. Logging Activity

In 1996, logging operations and the subsequent environmental destruction at Lojing Highlands in Kelantan made headlines among the media as the condition was deemed "serious" and the Kelantan Government was ordered to conduct urgent restoration work, including replanting of trees. The Department of Environment identified 55 development projects, involving a total area of 135,000 hectares, which were going on in the area. The operation of federal and state authority on environmental concerns can often contribute to contradictions between federal and state laws. Inconsistency arises when two laws on the same subject applied to the same facts produce conflicting results. These may also be contradictory as specific penalties are levied on the execution of identical environmental crimes. In order to address issues of confusion between federal and state laws, courts can at first attempt to find a harmonious understanding of what appears to be a contradictory federal and state law (Saleem, 2005).

The implementation of National Forestry Act (1984) is to strengthen the management of planning and operations, also to strengthen the provisions for safeguarding and protecting forest resources from illegal logging. It was amended in 1993 to provide penalties for forest offenders. It gave a huge impacts to the forestry sector especially illegal logging. Illegal logging is still under control, which is 226 cases or average 38 cases per year (2005 – 2010). But long-term strategies need to be prepared, as the trend increasing from year to year (Gani et.al, 2013).

Direct impact of logging activities related to revenue to the state government in the form of premium, royalty and cess. The associated damage to forest and wildlife are the indirect impacts. Forestry department cooperates with other state departments in the enforcement of forest law. Some of the animals get benefits from these activities, such as elephant,sprouting and regeneration of the new plants in logged forest. While, the small animals are affected. The presence of mammals in unlogged forest are higher than logged forest (Jamhuri et.al, 2018). Due to logging activities, the populations of carnivores are decreased due to habitat fragmentation and hunting. However, hoofed mammals such as deer can endure these activities by taking advantages of the variety of fruits, forest and non-forest plants. But still they would not be surviving for a longer period. The lack of large trees in these areas is likely to impact the survival of mammal species from the forest, since they provide animals and their predators with habitat and food resources. Unlogged forests are characterized by a high level of complexity in vegetation that provides a heterogeneous habitat for wildlife and increases biodiversity, especially of species that rely on large, mature trees. Also according to the studies, they found that logging forests, even after many decades, did not recover to preharvest levels of biodiversity.

INCONSISTENCIES BETWEEN FEDERAL AND STATE ENVIRONMENTAL HEALTH LAW

I. Food Act And Regulations

Food Act 1983, along with its regulations (Food Regulations 1985 and Food Hygiene Regulations 2009) are the key components of the food health policy under the Ministry of Health and very comprehensive law providing protection to the public against health hazards and addressing wrongdoings. This includes the registration of food premises, conducting food sampling, inspections of food premises, investigating complaints of food premises to make sure that safety standards are maintained. In other words, the purpose of the Food Act 1983 is to safeguard the public against potential health risks and misconduct in manufacturing, packaging, food supply, selling and usage at the level of human use and retail. Malaysia's food safety legislation is being enforced throughout the food chain from farm to table. The function of the Food Safety and Quality Division (FSQD) under the Ministry of Health is to establish an efficient food protection safety system and offers advice and guidance for the food chain through tripartite coordination between government agencies, industries and consumers.

Though the responsibility for food protection lies with the Ministry of Health, other government entities are also responsible for food security in Malaysia. Jurisdiction under the Ministry of Agriculture and Food Industry such as Pesticide Act 1974, Fisheries Act 1983, Veterinary Surgeon Act 1974 and the Animal Ordinance 1953 enforced at the primary production level of raw material for food production. In order to ensure a clearer choice of food labels and improved consumer safety against deceptive and fraudulent labelling of food items, the Malaysian Government implemented the Food Act 1983, the Consumer Protection Act 1999 and the Trade Descriptions Act 2011, in which both were put under the Ministry of Health and the Ministry of Domestic Trade and Consumer Affairs. The individual in control of health inspections shall be "authorized officers" under the Food Act 1983 and shall be described as "... any medical officer or any assistant environmental health officer of the Ministry of Health or of any local authority or any qualified person named by the Minister to be an approved officer under Section 3". EHOs and AEHOs in the Ministry of Health are responsible to carry out more regular

inspection, as analysis examination done by lab analysts appointed by the Ministry of Health, and closure of food premises by EHOs in the local authority. In recent years, the burden and needs of enforcement activities, food inspection and closure of food premises not only entrusted to Food Safety and Quality Division (FSQD), undeniably involvement of EHO, AEHO and District Health Officers from Public Health Program.

Food Control and Safety Unit in the local council is also responsible for preparing, monitoring, and reviewing environmental health practices. This requires the licensing of food premises, the execution of food processing, the review of food premises, and the examination of reports from food premises and the protection of health requirements. Under Section 73 of the Local Government Act 1976, all food business operators are required to register their food establishments with the local authority and all premises are liable for inspection by the EHO. It covers all premises used for preserving, manufacturing, serving or cooking produce. Cooperation and collaboration initiatives between the Ministry of Health and local authorities also played a positive role.

Table 2: Law and Regulations (By-Law) in Local Council Related to Food Safety System

No.	Local Council	Law and Regulations
1.	DBKL (Kuala Lumpur)	Food Act 1983 (Act 281) Food Regulation 1985 Local Government Act 1976 (Act 171) *By Law* i. Food Handler By-Law (WP) 1979; ii. Local Government (Compounding Offenses) By-Law (WPKL) 1986; iii. Food Establishment By-Laws (WPKL) 2017 iv. Trades, Business & Industrial By-Law (WPKL) 1986; v. Licensing of Hawkers & Stalls By-Law (WPKL) 1989
2.	MBSA (Shah Alam)	Food Act 1983 (Act 281) Food Regulation 1985 Local Government Act 1976 (Act 171) *By Law* i. Food Handling Law (MBSA) 2007 ii. Food Establishment Licensing Law (MBSA) 2007; iii. Hawker Labour Law (MBSA) 2007 iv. Food Establishment By-law (MBSA) 2007 v. Commercial Trade and Licensing By-law (MBSA) 2007
3.	MBI (Ipoh)	Food Act 1983 (Act 281) Food Regulation 1985 Local Government Act 1976 (Act 171) *By-Law* i. Food Handlers (Ipoh Municipal Council) By-Laws 1981; ii. Control and Monitor of Food Centres By-Law [MPI] 1981; iii. Trades, Business and Industry By-Law (MBI) 2017; iv. By-Law (Compounding Offences) (MBI) (Amendment) 1992.
4.	MPKj (Kajang)	Food Act 1983 (Act 281) Food Regulation 1985 Local Government Act 1976 (Act 171) *By Law* i. Trades, Business and Industry By-Law (Mpkj) 2007 ii. Hawkers By-Law (Mpkj) 2007
5.	MDS (Setiu)	Food Act 1983 (Act 281) Food Regulation 1985 Local Government Act 1976 (Act 171) *By Law* i. Compounding Offenses of Local Government By-Law (Setiu District Council) 1987 ii. Public Hygiene By-Law (Setiu District Council) 1985 iii. Hawker By-Law (Setiu District Council) 1988 iv. Food Operator By-Law (Setiu District Council) 1988 v. Trades, Business and Industry By-Law (Setiu District Council) 1989

MBI, DBKL, MBSA, MDS and MPKj are required to carry out a technical and regulatory inspection, monitoring and compliance on food premises. 'Improvement Notices' are used by local councils to resolve a range of non-compliance in a food company. For instance, urgent solutions for sanitation, repairs or systemic contraventions or hazardous food handling activities should be used. Improvement notices must have a fair timeline for food premises to address any recorded non-compliance.

Local authorities do not investigate any food poisoning or food water-borne illness as listed in First Schedule (infectious disease) which is required to be notified under the Prevention and Control of Infectious Disease Act 1988. Therefore, the notification of food poisoning outbreaks should be reported and investigated by the Ministry of Health (MOH). In local councils, EHOs only examines concerns regarding food safety in food premises and unauthorized food premises such as hawkers' stands, restaurants and others in compliance with the Food Establishment By-law (2007), the Food Handling By-law (2007), the Commercial Trade and Licensing By-law (2007) and the Municipal Government Act 1976. EHO shall prepare for legal action to be taken against the accused. Table 4 shows the review of the work activities in food safety systems by EHO in selected local councils.

Table 3: The Review of Work Activities Conducted by EHO's in Local Council.

Local Council	Work activities					
	Food premise inspection	Food hygiene inspection	Food sampling	Seize	Food poisoning investigation	Health education
DBKL	√	√	√	x	x	√
MBSA	√	√	√	√	x	√
MBI	√	√	√	√	x	√
MPKj	√	√	x	x	x	√
MDS	√	√	x	x	x	√

EHOs are responsible for monitoring, enforcing standards of environmental, carrying out measures including administering for protecting public health. These include food hygiene, any nuisance's complaint, noise and pollution control, preventing environmental health conditions injurious to health and promoting good environmental practices. Health education and promotion are used as

vital tools to promote environmental health or influence the health behaviour and bring about improvements.

Food Hygiene Regulations 2009 was gazetted on 28 February 2009, provides an infrastructure to control the hygiene and safety of food sold to the consumer and protect from food-borne diseases. To achieve goals and objectives, EHOs carry out regular checks on all registered food and beverage establishments to ensure that the public health is protected with high standards and meet legal requirements. Inspections and evaluation of food and beverage establishment's focus on cleanliness, food handling methods, food storage, sanitation of equipment and utensils, toilet facilities, food handlers (vaccinated against typhoid and attended the basic food handling course), waste disposal and management, floors, walls, ceilings and ventilation system. The guidelines on the grading system of food premises in the local authority and standard operating procedure have been approved for adoption by the Ministry of Housing and Local Government (MHLG). Figure 1 shows the examples of Grade "A" accreditation certifications under several local council and Standard ABC accreditation certifications approved by the Ministry of Housing and Local Government (MHLG) for food and beverage establishments.

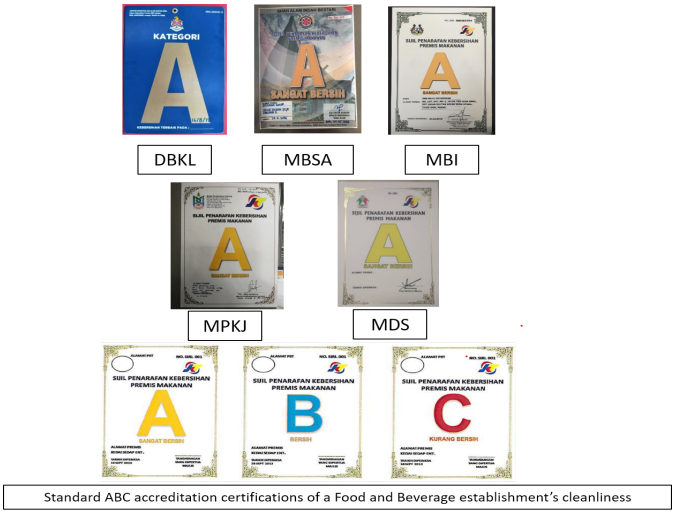

Figure 1: Grade "A" accreditation certifications under several local council and standard ABC accreditation certifications of a food and beverage establishment's cleanliness

Accreditation under the local council classification scheme for food premises also varies from one district to another and often varies in the percentage ranking method norm. In general, grade A is granted to a clean premise that obtains a mark of 86 to 100 percent. Grade B is given to relatively clean food premises with a label ranging between 71 and 85 per cent. Grade C grades are for scores of 51 to 70 points and less than 50 points is eventually provided to the unclean food premises and this premise will be immediately shut down for two weeks. A further review of the premises should be carried out to assess if this premise is competent to manage the business again.

Control of Tobacco Product Regulation (PPKHT) also falls under Food Act 1983. Malaysia officially bans tobacco advertising and sponsorship since the introduction of PPKHT in 2004. Amendment done for Reg. 7 (related to tobacco products as free gift or free gift of other item with purchase of tobacco product) in 2009 and for Reg. 5A (promotion of tobacco products directly or indirectly) in 2013). Smoking in non-smoking designated areas is an offence that is regularly enforced and issued with an offense compound. Others enforcement activities include sale of cigarette in loose packages or loose sticks, sale of cigarettes to persons under the age of 18 (minors or adolescent), sale of cigarettes product without posing health warning, smoking among minors or underage, minors have possession to tobacco product, smoking in food premises, food premises failed to display no smoking signage, sale of cigarettes without posing health warning, sale of tobacco products online and selling cigarettes product without prior approval. Sale of tobacco products to people under the age of 18 (minors or adolescent) and sale of tobacco products online are subjected to non-compoundable offence, including tobacco advertising, promotion and sponsorship (TAPS). The offenders have to attend a court hearing, sentenced a fine or imprisonment or both. Started 1 January 2019, a ban on smoking at any eating place whether inside or outside building including open-air hawker stalls came into effect in Malaysia. Enforcement of smoking ban includes surrounding eating place and extendable to a radius of three (3) meters from the outer table or chair where eating took place. The number of offenses under The Control of Tobacco Product Regulations 2004 has increased from 35,757 notices issued in 2014 to 57,268 notices in 2018 as in Table 2. For 2018 alone, overall accumulated compound value of RM 3.215 million recorded with 25, 834 compounds were issued throughout Malaysia.

Table 4: Enforcement of Tobacco Products Control Regulations 2004

Year	Notice of section 32B is issued	No. Compound Issuance	Total amount of compound paid (RM)
2014	35,757	17,451	RM1,892,555
2015	35,350	22,542	RM2,067,501
2016	40,965	19,393	RM2,139,661
2017	45,799	23,571	RM2,511,621
2018	57,268	25,834	RM3,215,366

Source: Ministry of Health, 2018

The frequent offenses under Control of Tobacco Products Regulations 2004 include smoking in non-smoking designated areas, the sale of cigarettes to minors (persons under the age of 18), the sale of loose cigarettes packs, the sale of cigarettes without specific graphic health warnings, the smoking offense among minors (persons under the age of 18) and the sale of tobacco products online (internet and mail order). In 2017, the Magistrate of Petaling sentenced RM 6000.00 of fine or 6 months imprisonment against the accused for selling tobacco products through social media. Currently, there are 23 types of public places or non-smoking designated area has been gazetted as smoke-free under Regulation 11, Control of Tobacco Products (Amendment) Regulations 2018. Smoke-free area such as all type of eateries or food establishments, airports, shopping complexes, entertainment centres, elevators, any religious building or public place used for the purpose of assembly, public transport, and any area of government premises. Enforcement of law is intended to make sure the public comply with the law and avoid second-hand as well as third-hand smoke effects among non-smoker or vulnerable population (pregnant women and young children). Furthermore, Sunway Group Auxiliary Police in Bandar Sunway were given a delegate of power under the Food Act 1983 from Director General and trained to enforce the enforcement The Control of Tobacco Products (Amendment) Regulations 2018 within their custody vicinity (Mohd Muslimin, 2019)

II. Vector Control (Disease-Bearing Insects Act)

Millions of people were threatened as vector-borne diseases continued to escalate. Mosquitoes are the species found throughout the tropics and moderate regions and partake almost in the worldwide distribution. Globally, about 1.4 million deaths per year and 17.0% of all infectious diseases were related to mosquito-borne diseases which make it the most important public health problem. There has been a substantial increase in reports of dengue infections in 2019 compared with 2018 and become one of the major problems in urban area. Majority of dengue cases was reported by Brazil, Mexico, Nicaragua, Philippines and Malaysia. In Malaysia, there have been 127,407 cases, including 176 deaths between January and December 2019, this is

higher than the 78,066 cases including 140 deaths reported during the same period in 2018.

Integrated vector control management including legal approach has been implemented in Malaysia as measures to fight vector-borne diseases. Environment management also has been conducted so as to control disease outbreaks towards urban sustainability in Malaysia (Zakaria *et al.,* 2013). Urban sustainability is defined as an ability to support the quality or development of life, or that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Destruction of Disease-bearing Insects Act 1975 was enforced since 23rd August 1982, intended to provide for the destruction and control of disease-bearing insects. Aedes survey was conducted by appointed inspectors during enforcement of the law. Premises were inspected and warning notices were issued to those who possessed *Aedes sp.* larvae in their premises. Aedes-positive habitats were significantly higher in urban areas than in suburban and rural areas *(Li, et al., 2014)* In the urban setting, artificial containers were abundantly located close to human habitation and were potentially more durable than natural containers. *Aedes sp.* found breeds and exploiting stagnant water in man-made containers around the home such as flowerpots, vases, vehicles tires, water storage containers, clogged rain gutters and drums. Communities also tend to store water in containers ranging from flowerpots, flowering can, plastic containers and pail for long periods of time for domestic use. *Aedes sp.* also found utilising outdoor underground collections of water such as septic tanks and storm drains. Humid and poorly maintained gives the perfect breeding place for mosquitoes to produce hundreds to thousands of mosquitoes each day. Adaptation of *Aedes sp.* to outdoor underground structures or collections of water lead to an increase of population numbers therefore difficulty in implementation of control measures (CDC, 2016).

Planned serial 'Aedes Gempur' activities and integrated enforcement operations are carried out simultaneously in time intervals throughout Malaysia with specific operational theme activity, centralised guidelines, field enforcement monitoring and reporting. Throughout 2018, a total of 13 serials 'Aedes Gempur' were conducted including week-long intensive 'Aedes Gempur' operation in August.

Table 5: Enforcement of Disease Bearing Destruction Act 1975

Year	2014	2015	2016	2017	2018
No. Checked Premises	5,419,476	6,167,767	5,502,748	4,623,927	4,688,302
No. Positive Breeding Premises	79,863	98,565	116,862	122,927	119,418
No. Compound Issuance	25,095	18,298	18,017	24,450	21,370
No. Premises Closed	243	416	314	196	120
No. Court List Case	2,414	1,585	1,885	1,867	2,599
Court penalties (RM)	318,242	902,700	1,293,140	1,800,560	3,130,300

Source: Ministry of Health, 2018

In 2018, the total number of inspected premises showed an increase while number of positive premises harbouring mosquito breeding showed a slight decrease. Public Health Policy emphasized that the repeat offenses harbouring mosquito breeding on the site of the premises is no longer offered for compounding and directly being prosecuted in court.

Point of Entry

While diseases have a potential to cross borders, International Health Regulations (IHR) is the international law used to provide a public health response in handling public health occurrences and emergencies. It comprises of legal framework that defines countries' rights and obligations to control, prevent and protect against any potential spread of disease cross the borders. Outbreaks and public health risks or disease are often unpredictable and a range of responses are legally binding in ways that are commensurate in order to avoid interruption with international travel and trade. The International Health Regulations (IHR) aim for active international collaboration for effective implementation and avoid any emergence or re-emergence of international disease threats. Historically, it has been first adopted by the World Health Assembly in 1969 which primarily only covered six "quarantinable diseases" to reduce to three (yellow fever, plague and cholera).

Today, application of IHR (2005) is getting wider and not limited only to certain specific disease, emergence or manner of transmission. The IHR (2005) encompass any illness or medical condition which could present health or safety harm to humans irrespective of origin or source. In the face of the ongoing disease and virus's evolution over the time, the provisions in the IHR (2005) have been updated at all time to establish rules, improved detection and responses to stop them from spreading among WHO's Member States. Surveillance through obligations series of health documents including certificates applicable to international trade and transport such as 'Ship Sanitation Control Certificates' or 'Aircraft General Declaration', and also requirements for international ports, airports and ground crossings such as international certificate of 'vaccination' or 'prophylaxis' for travellers (World Health Organization, 2007).

Main purpose of IHR at points of entry is to reduce-eliminate sources of infection, contamination, spread of disease and protect travellers and population at ports, airports and ground crossings terminal and also in aircrafts, ships and ground vehicles. State agency or national structures are placed at designated points of entry based on their core capacities and functioning. Capacity in place for surveillance, reporting, notification, verification, response to emergency and other collaboration activities such as limiting unnecessary health-based restrictions on trade and travel important for early detection of violation and containment at source. IHR implementation at ports, airports and ground crossings needs integrated cross – border collaboration, maritime sector and air sector to synergies in public health interest. Public health activities at points of entry includes:

i. Risk assessment - fostering capacities in inspection, assessment and notification, getting information and verification, and early detection of relevant health risk or events.
ii. Risk management - Routine control of "sanitary conditions" such as vector surveillance and control, ship and vessel sanitation control, and infection control such as vaccination, prophylaxis and related certificates. Provide WHO Certification for IHR of capacities at airports and ports
iii. Event management - Support for investigation and preparedness capacity development to emergency response, embrace contingency plans and adopt control measures to abolish public health emergencies.
iv. Foster international collaboration in a multi-sectoral approach, coordination between WHO and other Organizations.

IMPLEMENTATION OF NEW LAW

I. Implementation Of Electrical And Electronic (E&E) Waste Management.

Rapid economic growth in the region, together with rapid urbanization, has significantly increased the usage and production of electrical and electronic (E&E) appliances (Shumon *et al.,* 2014). Among the developed countries such as Japan, Europe, and the USA, strict legislation and initiatives have been undertaken for the proper management of Waste of Electric and Electronic Equipment (WEEE). In Malaysia, this stage is in early phase as much as management of WEEE is still concerned. DoE had identified whole WEEE units as e-waste. However, the e-waste contractors that were appointed by DoE did not process the waste which is considered as e-waste. In many cases of E&E manufacturing, production of e-waste is not measured as whole units of WEEE, but rather taken as disassembled components (e.g., plastic fittings, chipboards, metal parts, cables, etc.), which are then collected by these contractors (Department of Environment, 2009).

The program for collecting and handling e-waste in Malaysia has not yet been well developed. E-wastes can theoretically be systematically recycled by three recycling systems: voluntary agencies, suppliers, and retailers. In Malaysia, these structures are to take on a shape similar to those in developed countries and it is also beginning to take place in Malaysia; however, only a few manufacturers and retailers have joined in this initiative recently. In addition, the efforts conducted by the Government and other approved organizations are badly organized and constrained, whilst other interventions cannot adequately guarantee the final and efficient handling of e-waste. Collection systems and procedures are very insecure. Besides that, there is no proper market for finished products resulting from recycling (Tengku and Adeline, 2011). Due to the lack of staff (enforcement officers) and communication (support) among workforces (especially from other government sectors), enforcing the law can be the main issue, which leads to potential major weakness of the current e-waste management system (Shumon *et al.,* 2014).

Toxic elements in e-waste such as lead and lithium can be released to the environment due to improper disposal, which are commonly mixed together with domestic solid waste. As a result, these elements contaminated the soil as well as underground water sources, even to air as toxic fumes when burned. Health effects vary according to elements involved such as respiratory failure, nervous damage and even cause cancer (Tengku, *et al.,* 2011). Improper recycling of e-waste can release Hg into the environment in its elemental form of vapour. Bacteria that turn inorganic Hg into organic form in water bodies (i.e., methylmercury [MeHg]) And MeHg are bio accumulated in fish. MeHg contaminated fish feeding is the primary route of consumption in the general population (Azad, *et al.,* 2017).

In Malaysia, the publication of the 2005 Regulations on Environmental Quality (Scheduled Wastes), which replaced the 1989 revoked Environmental Quality (Scheduled Wastes) Regulations. In the latest regulation, e-waste had identified as a scheduled waste listed under the code SW110, while the specified e-waste, such as lead-acid battery waste, heavy metal batteries, and fluorescent lamps, is listed under code SW102, SW103, and SW109 respectively. Because of this classification, any e-waste treatment is limited and must be conducted at an approved on-site treatment facility, and e-waste disposal must be done at the only specified premise, Kualiti Alam Sdn. Bhd. As Malaysia is one of the members to the Basel Convention, it is strictly prohibited to export or import e-waste (Suja, *et al.,* 2014).

II. National Cleanliness policy

The National Cleanliness Policy is a holistic and integrated approach through the concept of Blue Ocean Strategy (BOS) between ministries, agencies, NGOs and the public. Malaysia is targeted to be one of the cleanest countries in the world and free from infectious diseases while focusing on better waste disposal and clean environment.

Through establishing this policy, there are 9 visions of these National Cleanliness Policy *(Dasar Kebersihan Negara, 2019)* :

1. Changing the behavior and mindset of the community regarding aspects of their self hygiene, family, community and environment.
2. Increasing the level of National Cleanliness
3. Reducing environmental pollutions
4. Reducing waste to be sent to disposal site & increase the rate of recycling.
5. Decreasing the cases of vector borne diseases.
6. Enhancing the quality & worker's skill in the hygienic sector.
7. Enlarging the active involvement of community, NGOs, and private sectors in programmes and initiatives that are done.
8. Strengthening the governance management of solid waste and public hygiene.
9. Reducing in government funds for management of solid waste & public hygiene.

Through the introduction of these policies, practitioners especially those from the background of Environment Health can gain benefits, by reducing their workload. This method can be expected by minimizing the amount of waste generated by the community as well as reducing vector borne disease cases such as dengue and leptospirosis especially in urban settings. Besides that, an effective collaboration between EH staff and community, especially the residents can be built, thus the importance of environmental care can be achieved. These would involve a proper health education and knowledge provided by the practitioners to the community, as they try identifying and combating factors that may become an issue for the poor environment. Improper domestic waste by residents from apartments and lack of garbage disposal facilities are example issues faced by the community. In case of vector borne disease of dengue, it is shown in previous studies that Aedes mosquitoes tend to be highly related in areas with improper housing conditions, poor or unhygienic system surroundings, low income and vector control availability (Ghani, et al., 2018). By identifying these factors on the hotspot area, effective mitigation and preventive measurements can be adapted as part of the cleanliness policies. The National Cleanliness Policy emphasized on 5 main core areas:

1. Establishment of National Cleanliness Policy.
2. Establishment and adopt a National Cleanliness Index.
3. Expanding the implementation of solid waste management and public cleansing as provided under the Solid Waste Management and Public Cleansing Act 2007 (Act 672) throughout the country
4. Banning or limiting the use of plastic bags and containers.
5. Declaration of the National Cleanliness Week and hold a celebration every year.

Extended Producer Responsibility (EPR) strategy implemented to manufacturers that utilized any plastics packaging will be imposed a small fee for it so that they will reuse the bottles for their packaging (Yusof, 2019). Other adaptations to this policy may include promoting a culture of recycling to source of income (waste to money), which also side with the country's initiative to implement Sustainable Development Goals (SGD) 2030.

CONCLUSION

Law enforcement is one of the important aspects in dealing with maintaining environmental health around us. Authorized officers or enforcement officers consist of Environmental Health Officers (EHO), Assistant Environmental Health Officers (AEHO), and Public Health

Assistants (in particular laws only) are responsible for improving the environment and protecting human health. By focusing the enforcement of existing laws, extraction of earth natural resources such as bauxite and logging can be controlled, with minimum risk dealt to the environment. This includes implementation of new rules regarding e-waste which involve parts of unused electronic components that may induce toxicity if no proper disposal is practiced. Therefore, well planning and act is necessary, either governmental or non-governmental, community or individual, to be included as well, in order to achieve proper management methods. To ensure the effectiveness of the current law, procedure and implementation of environmental health related laws (Destruction of Disease-bearing Insects Act and Control of Infectious Disease Act) should be reviewed as well from time to time, so that it will be appropriate when dealing with current issues and situation on nowadays as well as for the future. Any flaw within the law should be assessed as well. Besides that, enforced personnel such as EHO and AEHO should be provided with its proper jurisdiction and fits in with the right ongoing cases. Other suggestions include reforming the environmental health law unit under ministry level, with registered Environmental Health Practitioners, suitable allocation budget so that any activities can be taken efficiently and effectively.

CONTRIBUTION STATEMENT

MAEH Focus Group Discussion 2020 was held via teleconference from 25 June - 25 July 2020. MRB, NNAZNAR, MMAK, TAST, MRBK and FAS conceived the forum and drafted the first version of the discussion. NCD, MRR,LPL, NAS, SSZ and NHM analysed the topic. All participants produced the article and approved the final version.

REFERENCES

Abdullah, N. H., Mohamed, N., Sulaiman, L. H., Zakaria, T. A., & Rahim, D. A. (2016). Potential health impacts of bauxite mining in Kuantan. *The Malaysian journal of medical sciences*, *23*(3), 1-8.

Ahmad Athsani, R. (2012, June). Legal Framework of Mining Industry in Malaysia [Editorial]. *Azmi & Associates*, *2*(31), 10-11. Retrieved from https://s3.amazonaws.com/ProductionContentBucket/pdf/2012050705582613.pdf

Azad, M. A. K., Islam, M. A., & Hossin, M. I. (2017). Generation of electronic-waste and its impact on environment and public health in Malaysia. *Annals of Tropical Medicine and Public Health*, *10*(5), 1123-1127.

CDC. (2016). What is Dengue? - Entomology & Ecology, Division of Vector-Borne Diseases (DVBD). Retrieved June 14, 2020, from https://www.cdc.gov/dengue/ index.html

Department of Environment (2009). The e-waste inventory project in Malaysia. *Department of Environment, Malaysia & EX-Corporation, Japan*. Retrieved from http://www.nswai.com/docs/THE%20E-%20WASTE%20INVENTORY%20PROJECT%20IN%20MALAYSIA.pdf

Gani, I. Q. L. M., Wahab, R., & Rasat, M. S. M. (2013). An overview of illegal logging situation in Peninsular Malaysia. *Journal of Tropical Resources and Sustainable Sciences*, *1*(2), 24-30.

Ghani, N., Shohaimi, S., Kah Wei Hee, A., C., Emmanuel, O., & Alaba Ajibola, L. (2018). The Comparison of Environmental Conditions between Hotspot and Non Hotspot Areas of Dengue Outbreak in Selangor, Malaysia. *International Journal of Science and Healthcare Research, 3*(4), 197-201.

Jamhuri, J., Samantha, L. D., Tee, S. L., Kamarudin, N., Ashton-Butt, A., Zubaid, A., & Azhar, B. (2018). Selective logging causes the decline of large-sized mammals including those in unlogged patches surrounded by logged and agricultural areas. *Biological Conservation*, *227*, 40-47.

Li, Y., Kamara, F., Zhou, G., Puthiyakunnon, S., Li, C., Liu, Y.,Chen. (2014). Urbanization Increases Aedes albopictus Larval Habitats and Accelerates Mosquito Development and Survivorship. *PLoS Neglected Tropical Diseases, 8*(11). 3301-3312.

Ministry of Health Malaysia. (2018). Annual Report 2018. Ministry of Health Virtual Library. Retrieved from https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/ANNUAL%20REPORT/ANNUAL%20REPORT%202018.pdf

Ministry of Housing and Local Government. (2019). Environmental health consultation division, Local Government Department. Retrieved from http://jkt.kpkt.gov.my/en/MengenaiJKT/Bahagian/KetuaPerundingKesihatanPersekitaran

Mazlan, M. T., Ramly, K. A. B., & Harun, N. E. B. A. (2019). Bauxite Industries: Lesson Learn from Governance Perspective. *KnE Social Sciences*, 1214-1229.

Mohd Muslimin, A. (2019, September 26). What is Sunway doing to become a smoke-free city? *Sunway*. Retrieved from https://www.sunway.com.my/stories/what-is-sunway-doing-to-become-a-smoke-free-city/

Saleem, M. Y. (2005). Environmental issues in a federation: The case of Malaysia. *Intellectual Discourse*, *13*(2). 201-212.

Scobell, Malcolm B., (2019). "Malaysia's Natural Environment: Progress or Problem?". *Volume 37 - The New Malaysia)*. 7. Retrieved from https://preserve.lehigh.edu/perspectives-v37/7

Shumon, M. R. H., Ahmed, S., & Islam, M. T. (2014). Electronic waste: present status and future perspectives of sustainable management practices in Malaysia. *Environmental earth sciences*, *72*(7), 2239-2249

Suja, F., Abdul Rahman, R., Yusof, A., & Masdar, M. S. (2014). E-waste management scenarios in Malaysia. *Journal of Waste Management*, *2014*.

Tengku-Hamzah, T., & Adeline, A. (2011). *Making sense of environmental governance: a study of e-waste in Malaysia* (Doctoral dissertation, Durham University).

World Health Organization. (2007). *Interim Technical Advice for Inspection and Issuance of Ship Sanitation Certificates*. Retrieved from https://www.who.int/ihr/publications/TechnAdvSSC.pdf?ua=1

Yusof, T. A. (2019, November 2). Better waste disposal via National Cleanliness Policy. *New Straits Times*.

Zakaria, S. Z. S., Roslan, N. A. M., Mokhtar, M., Hadi, A. S., Razman, M. R., Jahi, J. M., … Nordin, N. H. (2013). Environmental management in dealing with dengue fever cases towards urban sustainability: Study on the prevention and control of infectious diseases act 1998 (Act 342). *Social Sciences*, 8(4), 295–299.