

MPOB Commitment Towards Clean Air Regulatory Compliance

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ISSUES

The Department of Environment (DOE) has gazetted a new Environment Quality Act (Clean Air) Regulation on 4 June 2014 covering various sectors of industries. This new regulation has direct impact on palm oil mills, particularly under the clause which requires particulate matter (PM) emission level to be less than 150 mg m^{-3} . While many mills are still struggling to meet the current emission level of 400 mg m^{-3} consistently, this new regulation becomes a great challenge to those mills processing biomass (100% fibre and shell) as boiler fuel instead of using non-renewable energy sources. The period for palm oil mills to comply with the new regulation mandate is approaching, which is 3 June 2019. However, air pollution control systems (APCS), such as wet scrubber, bag filter, electro static precipitator (ESP) and multi cyclone system (Vorsep), which claimed to be capable of treating the particulate emission have yet to be verified and those systems are very subjective to different palm oil mill processing. Starting from 2014, MPOB has been actively communicating and engaging with DOE in resolving all environmental issues which covered survey, technology verification and negotiation. In relation to clean air regulation, MPOB has negotiated with DOE in revising the regulations implementation. This article highlights the effort and commitment by MPOB towards clean air regulatory compliance.

CHRONOLOGY OF MPOB ENGAGEMENT WITH DEPARTMENT OF ENVIRONMENT (DOE)

4 June 2014 - Environment Quality Act (Clean Air) Regulations 2014 was gazetted by DOE without proper consultation with palm oil industry and MPOB. The information and notification were not sufficiently and directly conveyed to the related parties although DOE has claimed that public consultation was held beforehand.

20 August 2014 - A meeting was held between MPOB and DOE to seek clarification on the new clean air regulations. It was clarified that this new regulation is not only for palm oil mills but covers all general factories and vehicles. New mills and boilers are required to comply to this regulation, whereas existing mills must comply with the regulation within 5 years grace period from 2015 until June 2019.

2015 until 2016 - Various interactions were held between MPOB and industry. A series of field studies were conducted by MPOB, but mostly focused on the new proposed regulations for palm oil mill effluent (POME), such as BOD limit of 20 mg litre^{-1} , colour issues and new Environmental Quality (Prescribed Premises) (Crude Palm Oil Mill) Regulations 201X.

Feature Article

9 October 2017 - A meeting with DOE was held regarding the compliance of palm oil mills to this new clean air regulations. MPOB emphasised that the industry is striving to give their full commitments to comply with the sustainability requirement set by DOE. However, due to high investment cost (as the mills also need to resolve palm oil mill effluent issue) and unavailability of reliable APCS, these factors will affect compliance by the set deadline (June 2019).

21 December 2017 - MPOB-POMA Dialogue: Issues Related to DOE for palm oil mills was conducted. Complaints and arguments from palm oil mill representatives were addressed, mainly due to unavailability of reliable APCS in the market. A representative from POMA asserted that the implementation of new regulation with stringent limit should be supported by reliable/feasible technology tested by the mills.

26 April 2018 - Upon proposal from MPOB, a seminar on 'Towards Full Compliance of Clean Air Regulations 2014' was held by DOE in Putrajaya. DOE has reiterated their stand to proceed with the implementation of the new regulations. Technology providers presented the technology for APCS based on the operational concept and advantages of the technology. However, actual performance for each technology based on case study was not highlighted.

6 September 2018 - The last discussion between MPOB and DOE was held at MPOB, Bangi to inform



Figure 1. Participation of palm oil millers and associations in technical committee meeting.



Figure 2. Datuk Dr. Ahmad Kushairi Din, Director-General of MPOB chairing the meeting.

DOE that the available technologies for APCS have yet to be intensively tested at the mills based on a survey from MPOB. Mills that have installed the new APCS were unable to achieve PM emission limit of 150 mg m^{-3} consistently. DOE was informed that the effectiveness of the technology for particulate emission reduction depends on mill processing specifications, especially capacity and performance of boiler. A system which is applicable to one mill may not imply similar performance with other mills. Although 5 years grace period was given to the industry, the available technologies for APCS at present (proposed by DOE during roadshows) only emerged in the market for less than 5 years. As the regulations compliance continues, DOE provided an option of applying the '*lesen pelanggaran peraturan*' which requires the mills to pay certain schedule fees (has yet to be finalised) during the granted license period. Commitment from the industry to comply with the new regulations is anticipated by DOE.

30 October 2018 - A technical committee meeting which served as a stakeholders' engagement platform, was held with palm oil millers and associations in MPOB, Bangi chaired by the Director General of MPOB (Figures 1 and 2). The objective of the engagement was to seek opinions and inputs on the regulatory issues on environment regarding the implementation of the Environment Quality (Clean Air) Regulations 2014 (CAR 2014) by DOE. Members of committee came into agreement that the Environmental Quality (Clean Air) Regulations (CAR

2014) were gazetted without proper consultation with palm oil industry as well as MPOB. Although it was claimed that public consultation was conducted by DOE, the industry and MPOB were not directly notified.

Issues discussed during the meeting are as follows:

1. Issue on Mandatory MSPO implementation by 2020 in which all palm oil mills must comply with all legal requirements (under Principle 3). If this new standard of clean air is regulated and mills failed to comply; then the mills will not be MSPO certified.
2. The committee highlighted the stringent requirement to place one competent operator each for POME treatment (CePPOME), scheduled waste (CePSWaM) and smoke emission system (CePSO). This in total requires three competent operators at one mill. In order to be certified as competent operators, they have to fulfil the requirement of 50 continuous-professional-development (CPD) hours by attending

competency courses managed by Environment Institute of Malaysia (EiMAS) and recognised by DOE, where each course costs about RM 4000- RM 5000.

3. The committee shared technical difficulty faced by the millers when attempted to match the new APCS with old boilers. Although regulations were gazetted on 2014, several trial-and-error installations of various systems were performed as the efforts from industry. These started from 2015-2017 but eventually failed. Having invested few millions ringgit but only to fail had slowed down the exploration of reliable APCS.
4. The committee proposed to DOE to have a comprehensive discussion with relevant parties when setting up new regulations limit for clean air and effluent discharge. Mills have invested more than RM 1.2 million to comply with certain regulations (*e.g.* BOD 20 mg litre⁻¹), but if the regulations often change in the future (*e.g.* colour 100 ADMI), all the investments made are

TABLE 1. COMPARISON ON PERFORMANCE OF DIFFERENT AIR POLLUTION CONTROL SYSTEM

System	Working Principal	Advantages	Disadvantages	Cost
Wet Scrubber	Particles are attached to the sprayed water and drop (settle) due to gravity	<ul style="list-style-type: none"> • Dust trapped more effectively by using water • Able to withstand high temperature • Capable of removing sulphur content 	<ul style="list-style-type: none"> • High moisture content leads to high opacity • Risk of acidic effluent without neutralisation • Acidic recycled water can contribute to boiler chimney erosion. 	CAPEX: Low (RM 1 million) OPEX: High
Electrostatic Precipitator (ESP) (1 field and 2 field)	Particles are attracted to positively charged plates (and stick to it) and later removed by scrapper	<ul style="list-style-type: none"> • Small footprint • Low power consumption • Capable of removing particles of all sizes due to electrostatic force • Dry type and only generates ash (50 mt / month) 	<ul style="list-style-type: none"> • High CAPEX, require at least 2 field to achieve PM below 150 mg m⁻³ • Sensitive to fluctuation of PM concentration 	CAPEX: High (RM 1.5 mil-2.5 mil) OPEX: Low
Vorsep	Clean air is separated from heavy particle due to centrifugal force created in the cyclone	<ul style="list-style-type: none"> • Low maintenance cost • No chemical treatment • Easy for inspection, service and maintenance • Small space requirement 	<ul style="list-style-type: none"> • Borderline PM limit 120-150 mg m⁻³ • Low efficiency on dust size <10 µm • Problem with sticky dust 	CAPEX: High (RM 1.5 million- RM 2.0 million) OPEX: Low

(considered) wasted as mills again need to look for additional instruments to meet another new regulation requirements again. In fact, palm oil mills are not only required to comply with DOE's regulations but also that of DOSH (safety), *Bomba* (fire) and *etc.*

5. Industry suggested to reconsider the implementation of the new regulations of particulate matters (PM) only to mills located at sensitive areas, *e.g.* near cities due to limited numbers of available vendor to supply APCS to more than 400 mills in Malaysia.
6. It was proposed that DOE should discuss with boilermakers when setting new (lower) limit as millers usually rely on boilermakers to meet the environmental regulations. Integration of suitable designed boiler with APCS is important to ensure the PM limit from biomass fuel boiler could comply with the requirement of each APCS.

Representatives from palm oil mills shared their hands-on experiences on the installation, operation and troubleshooting of several APCSs, namely Electrostatic Precipitator (ESP) (1-field and 2-field), Wet Scrubber and Vorsep. The working principle, advantages and disadvantages of each system are summarised in *Table 1*.

Based on stakeholders' consultation, the following recommendations have been proposed to be further discussed in the Ministry levels:

- i. To extend implementation of the new regulations to mid-2020 for mills with new boilers and/or located in sensitive areas (near to cities and residential areas).
- ii. To extend implementation of the new regulations to mid-2021 for other mills with existing boilers (not located in sensitive area).

In view of the above suggestions, the industry remains committed to promote sustainable palm oil as reflected in the mandatory implementation of the Malaysian Sustainable Palm Oil (MSPO) by the end of December 2019. It was proposed that the justification for implementation of new regulations by DOE should be in accordance with Environmental Quality Act 1974 under Section 11(4), stating that the Director General shall, before varying any condition attached to the licence or attaching new conditions thereto, take into consideration-

- a) whether it would be practicable to adapt the existing equipment, control equipment or industrial plant to conform with the varied or new condition;
- b) the economic life of the existing equipment, control equipment or industrial plant, having regard to the date of purchase;
- c) the quantity or degree of cut-back of emission, discharge or deposit of waste to be achieved by the varied or new condition;
- d) the estimated cost to be incurred by the licensee to comply with the varied or new condition; and
- e) the nature and size of the trade, process or industry being carried out in the premises.

On 18 March 2019, a special discussion held amongst agencies under Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) and Ministry of Primary Industries (MPI), representatives from Palm Oil Millers Association (POMA) and Malaysian Palm Oil Association (MPOA), *Figure 3* finalised the following considerations:

- i. An extended period of up to 30 months to be given to install air pollution control system which can comply with the clean air regulations of 150 mg m⁻³ starting from June 2019, irrespective of technologies used;

- ii. Palm oil industry players must show their commitment by providing and submitting their action plans towards complying with the new regulations to DOE;
- iii. A special taskforce, consisting of representatives from POMA, MPOA, MPOB, Sarawak Oil Palm Plantation Owners Association (SOPPOA) and Sawit Kinabalu, will be established to handle

issues on regulatory compliance related to clean air regulations 2014, technology installation and verification.

The Minister of MESTECC, YB Puan Yeo Bee Yin, supported by the Minister of MPI YB Puan Teresa Kok, firmly urged the palm oil industry players to play significant roles in ensuring the sustainability of the industry.



Figure 3. Discussion with agencies under MESTECC, MPI and representatives from POMA and MPOA.