

Tackling Air Pollution through Legislation

National experiences in participatory governance: the case of Philippines

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Engr. Jundy T. Del Socorro
Chief Air Quality Management Section



RA 8749-PHILIPPINE CLEAN AIR ACT OF 1999

Section 3. Declaration of Policies

d) Promote public information and education to encourage the ***participation of an informed and active public in air quality planning and monitoring;***

Section 4. Recognition of Rights

d) The right to ***participate in the decision-making process*** concerning development policies, plans and programs projects or activities that may have adverse impact on the environment and public health.

Section 7. Integrated Air Quality Improvement Framework. – The Department shall establish, with the ***participation of LGUs, NGOs, POs, the academe and other concerned entities from the private sector***, formulate and implement the Integrated Air Quality Improvement Framework for a comprehensive air pollution management and control program.

Section 8. Air Quality Control Action Plan. - The Department shall, with public participation, formulate and implement an air quality control action plan consistent with Section 7 of this Act



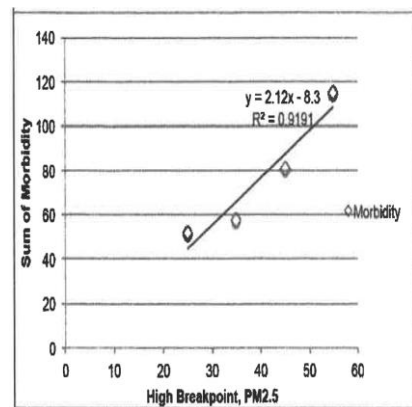
SUBJECT: ESTABLISHING THE BREAKPOINTS FOR PARTICULATE MATTER 2.5 (PM_{2.5}) AIR QUALITY INDEX (AQI) AND AMENDING SECTION 5(a) OF DAO 2013-13 "ESTABLISHING THE PROVISIONAL NATIONAL AMBIENT AIR QUALITY GUIDELINE VALUES FOR PARTICULATE MATTER 2.5 (PM_{2.5})"

Pursuant to DAO 2013-13, otherwise known as the Provisional National Ambient Air Quality Guideline Values for Particulate Matter 2.5 (PM_{2.5}), the following AQI Breakpoints shall describe the six (6) levels of air quality for PM_{2.5} defined as particles 2.5 and less in micrometers in diameter and their cautionary statements for the general public:

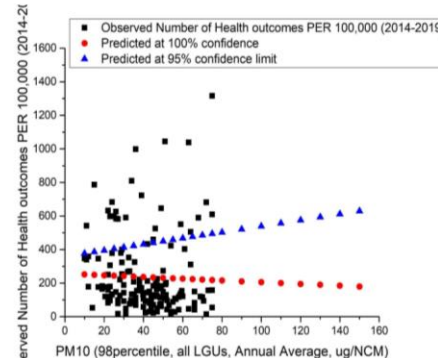
| Category | Color | RGB Color Code | Hex Color Code | PM _{2.5} (µg/m ³) BP _{Low} - BP _{High} | Cautionary Statements |
|--------------------------------|--------|----------------|----------------|--|---|
| Good | Green | (0, 228, 0) | #00E400 | 0 - 25 | None |
| Fair | Yellow | (255, 255, 0) | #FFFF00 | 25.1 - 35.0 | None |
| Unhealthy for sensitive groups | Orange | (255, 126, 0) | #FF7E00 | 35.1 - 45.0 | People with respiratory disease, such as asthma, should limit outdoor exertion. |
| Very Unhealthy | Red | (255, 0, 0) | #FF0000 | 45.1 - 55 | Pedestrians should avoid heavy traffic areas. People with heart or respiratory disease, such as asthma, should stay indoors and rest as much as possible. Unnecessary trips should be postponed. People should voluntarily restrict the use of vehicles. |
| Acutely unhealthy | Purple | (143, 63, 151) | #8F3F97 | 55.1 - 90 | People should limit outdoor exertion. People with heart or respiratory disease, such as asthma, should stay indoors and rest as much as possible. Unnecessary trips should be postponed. Motor vehicle use may be restricted. Industrial activities may be curtailed. |
| Emergency | Maroon | (126, 0, 35) | #7E0023 | Above 91 | Everyone should remain indoors, keeping windows and doors closed unless heat stress is possible. Motor vehicle use should be prohibited except for emergency situations. Industrial activities, except that which is vital for public safety and health, should be curtailed. |

Public Consultation in Formulation of Clean Air Policies

1. Review of PM2.5, PM 10 Guideline Values and Air Quality Index - Policy was formulated in partnership with UP IESM and WHO and undergone consultation with IACEH



| Annual PM 10, ug/NCM | Actual (Predicted, 95%UCL) Number of Health Outcomes per 100,000 people | WHO (2021) | Remarks |
|--------------------------|---|-------------------|--|
| 20 | 251 (395) | | Recommended Annual GV 2-4 in 10,000 |
| 30 | 241 (413) | | 2-4 in 10,000 |
| 40 | 236 (431) | | 2-4 in 10,000 |
| 50 | 231 (449) | | 2-4 in 10,000 Recommended revised DAILY GV |
| 60 (current annual GV) | 226 (467) | 15 ug/m3 (Annual) | 2-5 in 10,000 |
| 90 | 210 (521) | | 2-5 in 10,000 |
| 120 | 194 (575) | | 2-6 in 10,000 |
| 150 (current Statistics) | 179 (620) | 45 ug/m3 (Daily) | 2-6 in 10,000 |



1 in 10,000 : High risk
1 in 100,000: Moderate risk
1 in 1,000,000: Low risk
(US EPA, 2005)

Health Outcomes: COPD, Asthma

| Summary | Value | Standard Error | Intercept | 95% LCL | 95% UCL | Value | Standard Error | Slope | 95% LCL | 95% UCL | R-Square(COO) | Adj. R-Square |
|--|-----------|----------------|-----------|-----------|----------|---------|----------------|---------|---------|----------|---------------|---------------|
| Observed Number of Health outcomes PER 100,000 | 256.91832 | 51.84162 | 154.49514 | 359.34151 | -0.51873 | 1.17376 | -2.83772 | 1.80029 | 0.00128 | -0.00529 | | |

Determination of Nationwide HAZAP levels

| | | |
|-----|-----------------------|---|
| 58% | Black Carbon | Uses Multi-wavelength absorption black carbon instrument (MAB) in which scans are initially performed on unexposed "blank filters" to determine the absorption at each wavelength from the filter substrate. |
| 20% | As, Cd, Hg, Pb | Applicable* filter samples submitted to ERLSD in batches since August 25, 2021 for analysis of As, Cd, Hg and Pb using XRF. *TEOM Teflon filters does not fit the XRF sampler, hence, excluded. |
| 5% | PAHs | The processing involves portioning of the filters (Quarter of 47 mm diameter), spiking with surrogate standard before extraction (Tamayo et al., 2017). The DENR-EMB-ERLSD provided the necessary consumables (GC-MS vials, glass inserts, internal standards and pesticide free solvents) to UP-IESM-EPSL. |
| 99% | H ₂ S, BTX | In-situ monitoring data from the Differential Optical Absorption Spectrophotometer (OPSI5) were used for the analysis of BTX data. On-site H ₂ S data from DENR-EMB monitored geothermal airsheds were provided for subsequent analysis. |



Implemented Clean Air Policies

2. DAO 2016 – 23: Adoption of Euro IV / 4 Vehicle Standards

Consultation with the transport sector (MDPPA, CAMPI, TMA) and NGAs was conducted

DENR ADMINISTRATIVE ORDER
No. 2016 - 23

JUN 28 2016

SUBJECT : Adoption of Euro 4/IV Emission Limits / Standards

Pursuant to DAO 2015-04 also known as "Implementation of Vehicle Emission Limits for Euro 4/IV, and In-Use Vehicle Emission Standards", effective January 1, 2016, all new vehicles equipped with Euro 4 engine prior to issuance of Certificate of Conformity shall comply with the annexed United Nation Regulations (UNR)83-05B and UNR 49-04.

Scope:
All manufacturers, importers, dealers, shall strictly observe with the requirements.

Repealing Clause:

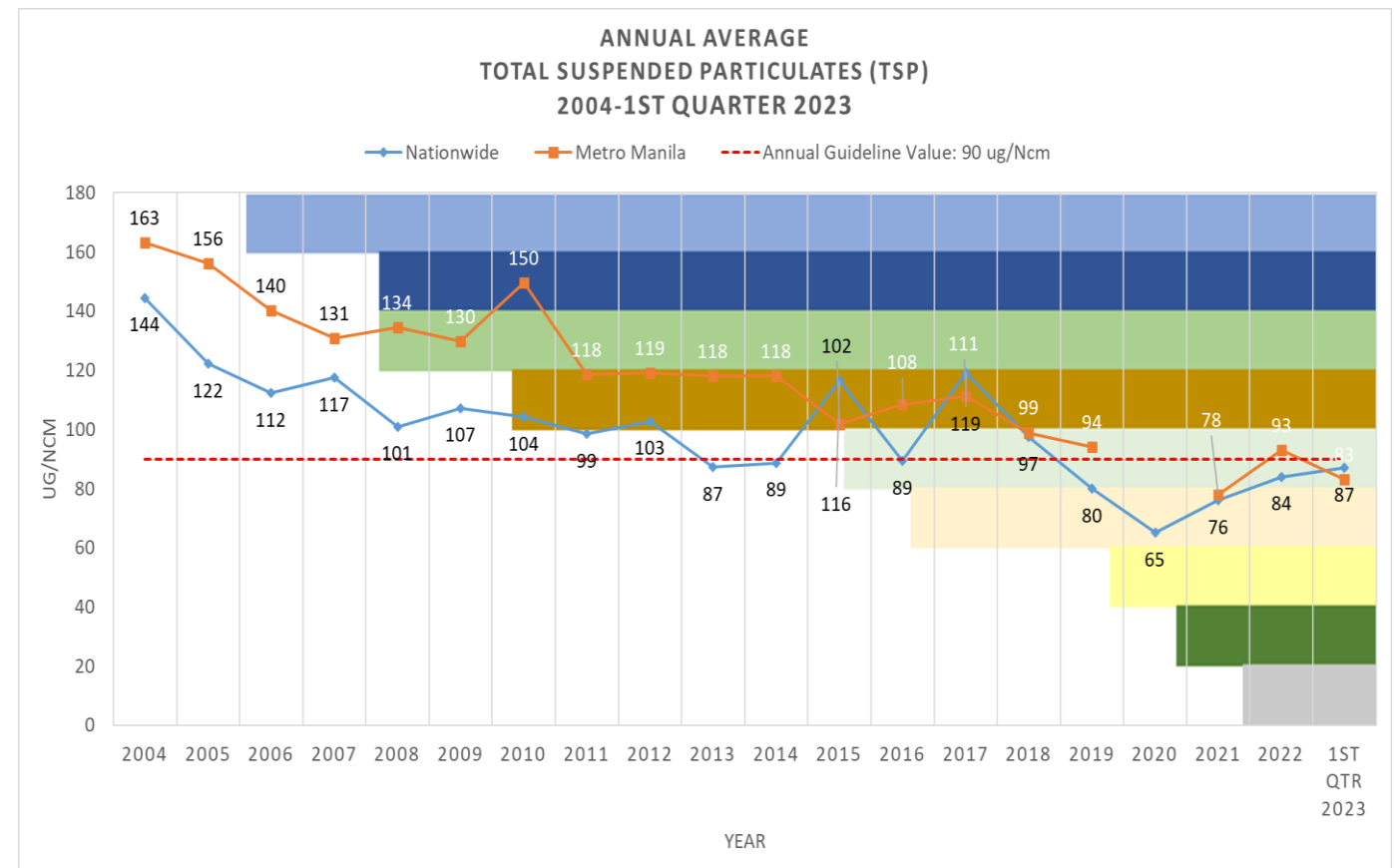
All orders, circulars, and instructions inconsistent herewith are hereby repealed or amended accordingly.

Effectivity date:

This order shall take effect immediately fifteen (15) days after its publication in a newspaper of general circulation or submission to the office of the National Administration Registry (ONAR).

Ramon J. P. Faje
Secretary

PUBLICATION : THE PHILIPPINE STAR
JULY 5, 2016
ACKNOWLEDGEMENT : UP LAW CENTER
JULY 13, 2016



Implemented Clean Air Policies

3. MC 2020 – 17: OPMS for PTO v2

The launch of the new system was held virtually and via Facebook live



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EMB MEMORANDUM CIRCULAR No. 2020 - 17

SUBJECT: GUIDELINES ON THE ISSUANCE OF PERMIT TO OPERATE (PTO) FOR AIR POLLUTION SOURCE INSTALLATION OR EQUIPMENT (APSI/APSE) THROUGH THE ONLINE PERMITTING AND MONITORING SYSTEM (OPMS)

DATE : May 11, 2020

Pursuant to Republic Act No. 11032 otherwise known as the "Ease of Doing Business and Efficient Government Service Delivery Act of 2018" and its Implementing Rules and Regulations (IRR), which mandates government agencies to adopt a zero-contact policy; and Republic Act No. 8749, otherwise known as "The Philippine Clean Air Act of 1999" and its IRR, the acceptance of applications for and issuance of Permit to Operate (PTO) for Air Pollution Source Installation or Equipment (APSI/APSE), as provided under Department Administrative Order (DAO) No. 2000-81 and DAO No. 2004-26 through the Online Permitting and Monitoring System (OPMS) is hereby adopted, subject to the following guidelines:

SECTION 1. OBJECTIVES

The issuance of this Memorandum Circular (MC) aims to:

- Provide time and cost-efficient procedure for the processing of application through the use of OPMS, reducing red tape and expediting transactions in every EMB Regional Office (EMB-RO);
- Harmonize the process flow in the application for PTO in every EMB-RO using a secured central server to be managed by the DENR-EMB Central Office, through its Statistics and Information System Management Section (SISMS) and the Regional Planning and Information System Unit (PISMU) of the EMB-RO; and
- Strictly implement the Zero-Contact Policy under Rule V of Republic Act No. 11032 and its IRR.

SECTION 2. OPERATIONAL MECHANISM

The EMB-RO shall be responsible for the following:

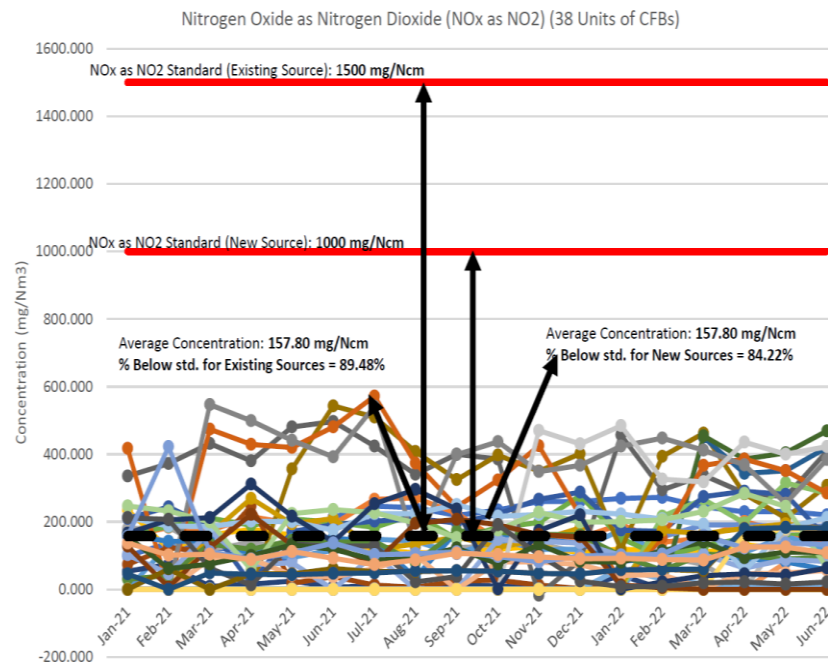
- Evaluation of the application upon receipt of the complete required documents and permit fees;
- Immediate notification of the applicant, through the OPMS, for any deficiencies



Implemented Clean Air Policies

4. MC 2021 – 14: EMB CEMS/COMS DAHS and Data Center

The launch of the new system was held virtually and live



EMB MEMORANDUM CIRCULAR
No. 2021 - 14

SUBJECT : ESTABLISHMENT OF AN INTEGRATED AIR QUALITY NETWORK CENTER THAT MONITORS AND SERVES AS REPOSITORY OF REAL-TIME INDUSTRIAL EMISSION FROM FIRMS REQUIRED TO INSTALL CONTINUOUS EMISSIONS MONITORING SYSTEMS (CEMS)/CONTINUOUS OPACITY MONITORING SYSTEM (COMS) THROUGH THE USE OF A UNIFORM DATA ACQUISITION AND HANDLING SYSTEM (DAHS), AND IN RELATION TO CLARIFY PERTINENT PROVISIONS OF DEPARTMENT ADMINISTRATIVE ORDER NO. 2017-14

SECTION 1. RATIONALE

Section 38 of the Philippine Clean Air Act of 1999 (RA 8749), the Department through the Bureau shall require any person who owns or operates any emission source to (a) establish and maintain relevant records; (b) make relevant reports; (c) install, use and maintain monitoring equipment or methods.

Continuous Emissions Monitoring Systems/Continuous Opacity Monitoring Systems (CEMS/COMS) are globally recognized technology used to measure emissions/opacity in stacks of industrial sources.

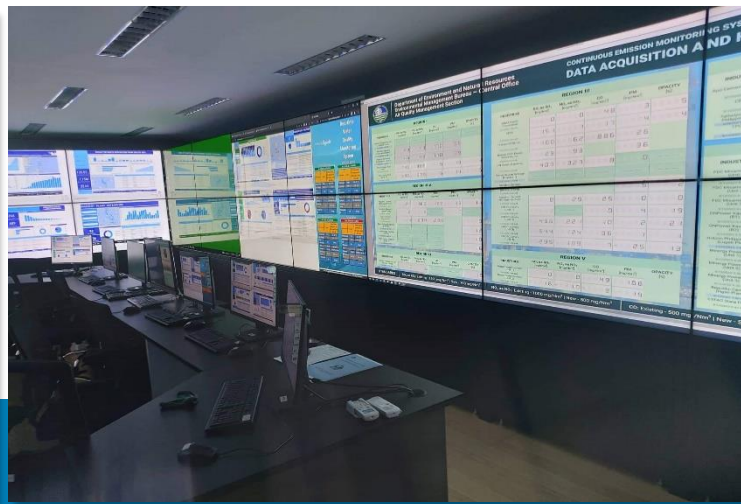
Under Department Administrative Order No. 2000-81, in relation to Department Administrative Order No. 2007-22 "Guidelines on the Requirements for Continuous Emission Monitoring Systems (CEMS) and Other Acceptable Protocols, thereby Modifying and Clarifying certain Provisions of Section 5, Rule X of DAO 2000 - 81 and Other Related Provisions", major industries are required to install CEMS/COMS to monitor their industrial emission.

Furthermore, Department Administrative Order No. 2017-14 was enacted to require major industries to transmit their CEMS/COMS data to the EMB's data server and act as a repository of all industrial emissions data.

Pursuant to the said provisions and to further effectively and efficiently provide a seamless transmission and monitoring of industrial emissions data from the major industries stated above, the EMB hereby promulgates this Circular for the establishment of an integrated air quality monitoring network that serves to upgrade the existing EMB data server.

SECTION 2. OBJECTIVES

To effectively and efficiently transmit emissions data from the CEMS/COMS of industrial sources to the EMB DAHS server for the purpose of monitoring its compliance with the emission standards set forth under the Philippine Clean Air Act.



Way Forward Policies

1. EMB GUIDELINES IN ENDORSEMENT OF EXISTING AIRSHED AS ATTAINMENT AREA REQUIRES PUBLIC CONSULTATION

Proposed Non Attainment Area has undergone Public consultation in identifying sources or air pollution and hotspot areas

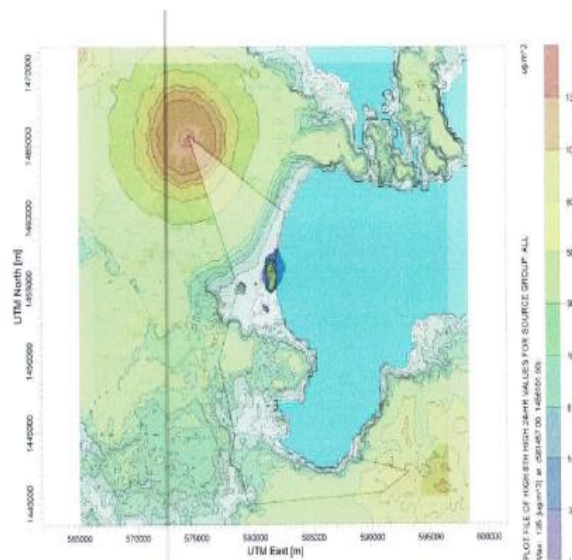


Figure 1. Contours of Predicted PM10 Concentrations of the site domain with 24-Hour Averaging (8th Rank-98th Percentile) based on the MM5 and worst-case impact.

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
Regional Office No. V
Regional Center Site, Rawis, Legazpi City

Management System
ISO 9001:2015
www.dem.gov.ph

MEMORANDUM

FOR : ENGR. WILLIAM P. CUÑADO
Director
ENVIRONMENTAL MANAGEMENT BUREAU
DENR Compound, Visayas Ave., Diliman, Quezon City

FROM : THE REGIONAL DIRECTOR
Environmental Management Bureau V
Regional Center Site, Rawis, Legazpi City

SUBJECT : ENDORSEMENT ON THE DESIGNATION OF ATTAINMENT AREA IN LEGAZPI CITY AIRSHED LOCATED AT REGION V

DATE : May 18, 2022

Endorsed herewith is the Designation of Attainment Areas in the Legazpi City Airshed pursuant to Department Memorandum Circular 2015-013 "Guidelines for the Designation of Attainment and Non-Attainment Areas in the Airshed". Shown below are the technical basis for the airshed designation:

1. Map of the Legazpi City Airshed



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Visit us at <http://www.emb.gov.ph>

MEMORANDUM

TO : ALL EMB REGIONAL DIRECTORS

FROM : THE OIC – DIRECTOR

SUBJECT : INSTRUCTION TO DESIGNATE ATTAINMENT AND NON-ATTAINMENT AREAS PURSUANT TO DEPARTMENT MEMORANDUM CIRCULAR 2005 - 013

DATE : 03 DECEMBER 2020

This has reference to the Designation of Attainment and Non-Attainment Airshed Areas related the COVID 19 Pandemic Situation and Submit Contingency Action Plan.

Pursuant to Rule XV of DAO 2000 - 81, an airshed shall be comprised of a Governing Board (Section 4), Executive Committee (Section 7), Technical Working Group (Section 8), and a Technical-Administrative Secretariat (Section 9).

Please be guided with the recommended Process Flow of Airshed Designation pursuant to Department Memorandum Circular 2005-013 "Guidelines for the Designation of Attainment and Non-Attainment Areas in the Airshed".

Step 1: The Airshed Technical Secretariat – Technical Working Group (TS-TWG) and Technical-Administrative Secretariat (TAS) shall initiate the conduct of pre-designation activities (emission inventory, air dispersion modelling, collection of ambient air quality data, etc.).

Step 2: A public consultation with the concerned Local Government Unit (LGU) on the results of pre-designation activities shall be made. (Applicable to Notified Category 3 Airshed which has accomplished all Pre-designation Activities per Airshed Checklist)

Step 3: Submission of the proposed designation with supporting documents (e.g. results of pre-designation activities) to the EMB Central Office for review and for recommendation to the DENR Secretary

Step 4: Approval of DENR - Department Administrative Order signed by the Secretary of the DENR and published accordingly as required by the law.

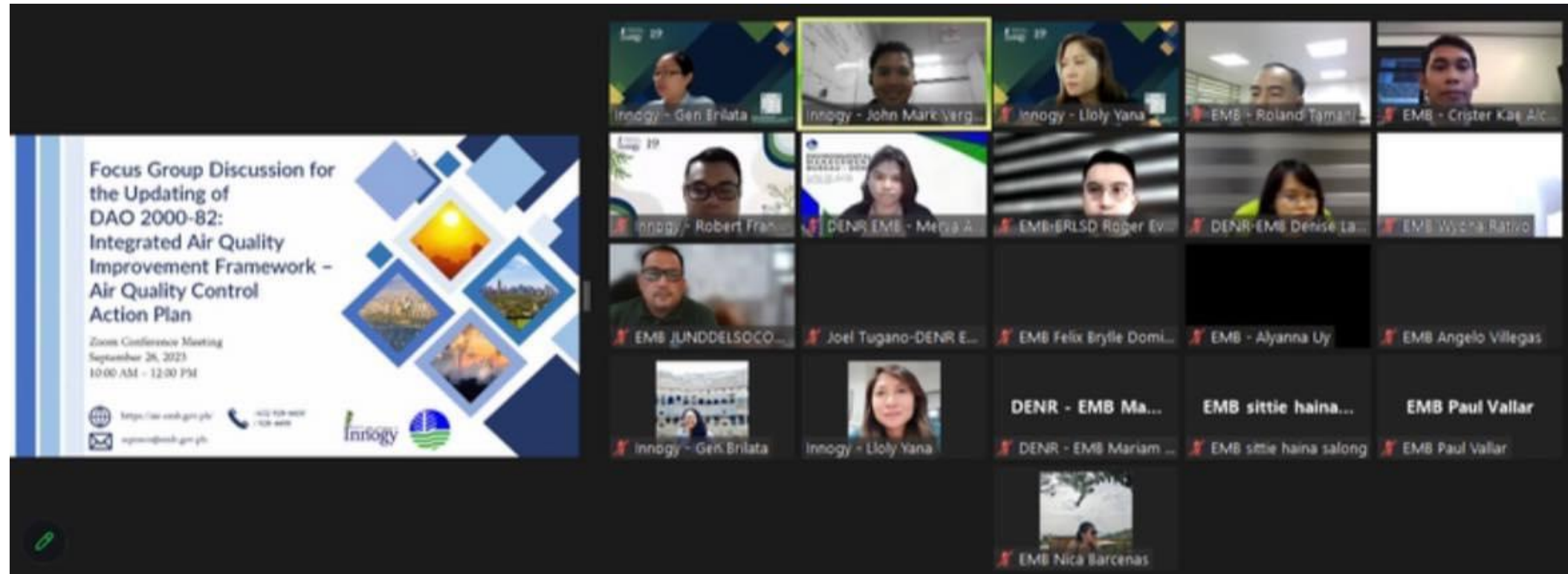
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a UNEP convened initiative

Way Forward Policies

2. Updating of the Integrated Air Quality Improvement Framework – Air Quality Control Action Plan



Thank you for Listening!



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Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU



- Please visit
- <https://air.emb.gov.ph/>
- For Air Quality Permits , Please visit
- <https://emb.gov.ph/air-quality-management-permits/>



- For Air Quality Statistics
- <https://emb.gov.ph/air-quality-management-data/>



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