



# NREB STANDARD OPERATING PROCEDURE ON HAZE



**NATURAL RESOURCES AND ENVIRONMENT BOARD  
SARAWAK**

Updated 2020

## Message from the Controller of Environmental Quality



I am indeed very pleased to be able to say a few words and introduce this publication of the NREB Standard Operating Procedure on Haze.

Since the haze disaster in 1997, smoke haze has become almost a perennial problem in Sarawak. Although it comes mostly from open burning of vegetation in neighbouring country, the NREB is taking proactive measures to lessen the causes and effects of the smoke haze at the State level. The fine particulate matter in the smoke haze can be detrimental or even hazardous to human health. Although smoke haze results from human activities, it

is considered a natural environmental disaster when it reaches or goes beyond unhealthy level, and is treated as such.

The purposes of this Standard Operating Procedure (SOP) On Haze are: (1) to meet the requirement of the “*Arahan No. 20 – Dasar Dan Mekanisma Pengurusan Dan Bantuan Bencana Negara*” under the “*Majlis Keselamatan Negara, Bahagian Keselamatan Negara, Jabatan Perdana Menteri*”, and (2) to provide action plan for the NREB in dealing with smoke haze. It is also aimed to prevent or reduce the occurrence of smoke haze and at the same time provides awareness and warnings to the general public at large during the haze period.

The SOP is derived from three main parameters i.e. (1) number of hot spots; (2) air pollutant index (API); and (3) fire weather index (FWI). These inputs are obtained from the satellite imageries, Air Quality Monitoring Stations (AQMS) and weather stations run and maintained by the Department of Environment, the NREB and the Meteorological Department or from local weather stations. The combinations of these factors will determine the fire danger level or fire weather index. This in turn will determine the window for controlled open burning during which time the NREB can issue such permits.

It also outlines the roles, functions and duties of NREB officers and provides information, guidance and action plan during haze period. It is our hope that this document can be used to complement the State and National Action Plans on Haze.

**JUSTINE JOK JAU EMANG**  
Controller of Environmental Quality  
SARAWAK

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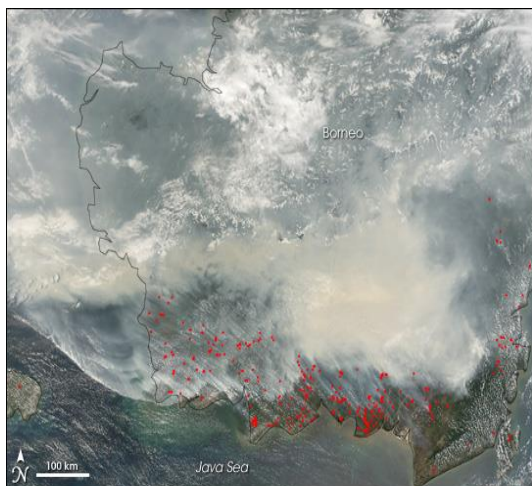
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## 1. INTRODUCTION

The Natural Resources and Environment Board Sarawak (NREB) was established on 1<sup>st</sup> February 1994 pursuant to section 3(1) of the Natural Resources and Environment Ordinance, 1993 (Cap.84 – Laws of Sarawak). The NREB has its Headquarters at Floors 18<sup>th</sup> to 20<sup>th</sup>, Menara Pelita, Petra Jaya, Kuching. It has seven other Offices in Kuching, Betong, Sibul, Mukah, Bintulu, Miri and Limbang.

The NREB envisions towards a clean, green and healthy Sarawak while the state achieves its socioeconomic advancement. Its mission is striving to develop a community that advocate environmental stewardship to achieve its vision. NREB's main objective is to protect and enhance the environmental quality of the state, towards achieving sustainable and balanced development in Sarawak.

In its effort to ensure the quality of the environment is maintained in a condition conducive for the development and prosperity for the inhabitants of the State of Sarawak, the NREB has taken proactive roles in controlling open burning to prevent the occurrence of hazy conditions.



Haze is a perennial problem in Sarawak due to both local and transboundary air pollution, especially during dry season from March until August. In 1997, the state of Emergency was declared in Sarawak when air quality is more than 500 API. The NREB is proactively controlling open burning in land clearing activities in the state to prevent further deterioration of air quality especially during haze episode. In view of the annual occurrence of smoke haze, the NREB has formulated **Standard Operating Procedure (SOP) On Haze**, to be used by the NREB Officers throughout the State during the incidence of haze.

The SOP clearly outlines the action plan for the NREB in dealing with smoke haze situations throughout the State. It also outlines the organisational structures of the Haze Committees at the Headquarters and the Offices in the other parts of Sarawak and interprets the significance of Air Pollutant Index (APIs) and Fire Weather Index (FWIs) readings, and calls for immediate and appropriate actions at the different levels of APIs and FWIs. It also outlines the roles of NREB and provides information and guidance for the NREB officers of their duties and responsibilities in cases of emergencies.

## 2. AIM

The purpose of the NREB SOP On Haze is to meet the requirement of the “*Arahan No. 20 – Dasar Dan Mekanisma Pengurusan Dan Bantuan Bencana Negara*” of the “*Majlis Keselamatan Negara, Bahagian Keselamatan Negara, Jabatan Perdana Menteri*”. It is meant

also to provide proper procedures in handling disaster caused by smoke haze so as to avoid extravagance, confusion, conflicts and biases in line with the guideline provided for in “*Arahan No. 20*”.

The aim of this SOP on haze is to provide guidelines on actions to be taken by the NREB officers in dealing with problems encountered in incidence of smoke haze.

### **3. OBJECTIVE**

The objective of the SOP on haze is to ensure that the NREB is well prepared to deal with all aspects of activities involved in receiving, disseminating information and in taking the right actions.

Hence, it is to prevent or reduce the occurrence of smoke haze in Sarawak and in the event that it comes to a level rendering air quality to be hazardous to human, the SOP will deal with lessening the effects on human health.

### **4. DEFINITION OF SMOKE HAZE**

Smoke haze refers to a cloud of fine particles that occurs in the air as a result of open burning of large tracts of land. The consequence of sudden and severe smoke haze is the reduction or loss of visibility, impairment of human health, disruption of human economic activity, public order, government administration, school, and the cause of environmental disaster. Hence its management requires huge amount of resources, which must be efficient and effective and needs complex plan of action and lengthy time.

For the purpose of this SOP, the NREB categorises haze condition into two levels from the perspective of spatial occurrence, that is, Level 1 and Level 2.

#### **4.1 Smoke Haze Level 1**

Smoke haze level 1 is when smoke haze occurs within one Division or/and District. The smoke haze is caused by localised large-scale open burning. It may also be caused by transboundary haze but affects only one Division or/and District. The action will be carried out by the affected NREB office with the assistance from the other Offices or Headquarters when necessary. The NREB office has to work closely with the respective Resident Office and the *Ketua Police Daerah*.

#### **4.2 Smoke Haze Level 2**

Smoke haze level 2 is when smoke haze occurs in more than one Division or/and District and up to the occurrence throughout the State. The smoke haze is caused by large scale open burning and by transboundary haze and affects more than one Division or/and District. The action will be carried out by the Headquarters and all the affected NREB Offices with the assistance from other NREB Offices when necessary. The NREB Headquarters has to coordinate efforts with the State Disaster Management Committee (SDMC). The NREB offices



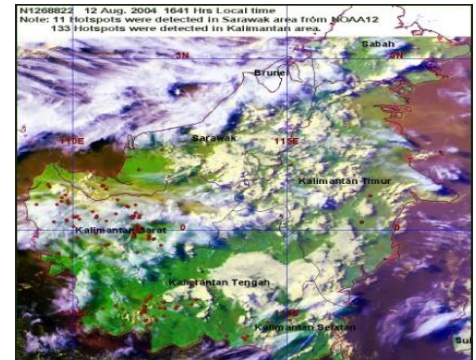
have to work closely with the respective Resident Offices, District Offices and the *Ketua Police Daerah*.

## 5. SOURCES OF INFORMATION USED IN THE STANDARD OPERATING PROCEDURES

There are basically three major sources of information which are used in determining the danger levels of smoke haze, namely hot spots, air pollutant index (API), and fire weather index (FWI).

### 5.1 Hot Spots

Hot spots information is obtained from weather satellites. The information is beamed from weather satellites received from ASEAN Specialised Meteorological Centre (ASMC) which produces satellite imageries and to locate positions of hot spots on the ground.



### 5.2 Air Pollution Index (API)

Air Pollutant Index is detected through a series of Air Quality Monitoring Stations installed by both the Department of Environment (DOE) and the NREB throughout Sarawak. The detail and updated API information can be accessed through the DOE and NREB websites at [www.apims.doe.gov.my](http://www.apims.doe.gov.my) and [www.nreb.gov.my](http://www.nreb.gov.my) respectively.

Air Pollutant Index indicates the **amount of particulate matter of 2.5 micron and below in the atmosphere**. This particulate matter is bad for the air passages and lungs in humans. It can be dangerous or hazardous if it occurs in very large amount in the air we breathe. The NREB uses and interprets the API readings to determine:

Index	Status
0 - 50	Good
51 - 100	Moderate
101 - 200	Unhealthy
201 - 300	Very unhealthy
301 - 400	Hazardous
401 - 500	Very hazardous
>500	Haze Emergency

- Suitable time for burning and to issue open burning permits;
- State of alertness/readiness;
- Intensification of enforcement and surveillance activities; and
- Time to impose ban on open burning.

The interpretation of the Air Pollutant Index and the action plan related to it is attached as **Appendix 1**.

### 5.3 Fire Danger Rating System (FDRS)

The Fire Danger Rating System (FDRS) introduced in Sarawak through the Natural Resources and Environment (Fire Danger Rating System) Order, 2004 is a system to determine the fire weather indices at local levels. The system is applied to determine the fire hazards so that precautions are taken to prevent the occurrence of forest and wild fires.



#### 5.3.1 Fire Weather Index (FWI)

Fire Weather Index (FWI) is an indicator of fire intensity and fire danger that combine Initial Spread Index (ISI) parameter and Build Up Index (BUI) parameter. It is derived from factors that have direct influence on **ignition, spread** and **intensity** of fire. This includes **temperature, relative humidity, wind** and **precipitation (rain)**. The higher the temperature, the lower the relative humidity, the stronger the wind speed and the less the rain, the higher will be the FWI, which means the easier is the ignition, bigger is the spread, and the greater is the intensity of the fire. And of course, the harder it is to put off. The interpretation of the Fire Weather Index and the action plan related to it is attached as **Appendix 2**.

#### 5.3.2 Application of FWI

The NREB uses FWI information for:

- limiting the window of burning in land clearing activities;
- preventing fire occurrences and spread;
- guiding developers and the members of the public on instances of high or low fire hazards; and
- determining time for imposing ban on open burning.

## 6. ROLES, DUTIES AND RESPONSIBILITIES OF RELEVANT NREB OFFICERS

The SOP on haze also aims to clearly define the roles, duties and responsibilities of relevant officers of the NREB during periods of haze. Details can be found in **Appendix 3**.

During the peak haze period, all relevant officers will be mobilised. It is expected that each officer will know what to do.



## **Post Haze Episode**

The Controller of Environmental Quality Sarawak may order a post mortem meeting after the haze episode. The reports on haze episode, as well as the implementation of SOP and action plans would be reviewed during the meeting. Similarly, the Head of NREB offices may conduct post mortem meeting at regional level.

## **7. NREB HAZE COMMITTEE**

A Committee on haze is critical for the NREB. It is here that important decisions are made. The functions and roles of the committee are to ensure that the standard operating procedure on haze is strictly followed and to ensure that all officers concerned are performing their tasks expected of them.

For each level of haze category, a committee is set up. Below are the core roles and responsibilities of each type of committee:

### **7.1 Roles and Responsibilities of the Haze Committee at Headquarters**

The Controller is the Chairman of the Committee. His responsibility is to ensure that all action plans and activities are carried out smoothly. He is assisted by the Deputy Controller. The Secretary is the Head of Compliance and Enforcement (C&E) Section. Members are drawn from the Heads of all the other Sections and relevant officers. The organisational chart and the roles and responsibilities of the Committee are attached as **Appendix 4a and 4b**.

### **7.2 Roles and Responsibilities of the Haze Committee at other NREB Offices**

The Head of NREB Office is the Chairman of the Committee. His responsibility is to ensure that all action plans and activities are carried out smoothly at local level. The Secretary is the officer in charge of compliance and enforcement activities at the local level. Members are drawn from the other members of the staff. The organisational chart and the roles and responsibilities of the Committee are attached as **Appendix 5a and 5b**.

## **8. DISASTER MANAGEMENT COMMITTEE**

### **8.1 Activation of Disaster Management Committee**

The Disaster Management Committee at National / State / Division / District level will be activated by the National Disaster Management Agency (NADMA) when the API is 151 and above for more than 24 hours. The procedure of activation is based on the "*Pelan Tindakan Jerebu Kebangsaan*". In the case of Sarawak, the State Disaster Management Committee (SDMC) is chaired by the Deputy Chief Minister and the secretariat is headed by Unit Keselamatan dan Penguatkuasaan Negeri (UKPN) Sarawak. The Division and District Management Committee is chaired by the Resident and District Officer respectively. The action plan to be executed by the Disaster Management Committee at National / State / District

level is as per detailed out in the “*Pelan Tindakan Jerebu Kebangsaan*” and “*Pelan Tindakan Pembakaran Terbuka Kebangsaan*”.

## **8.2 Representation of the NREB in the National and State Disaster Management Committee**

The NREB is represented in the State and National level by the Controller of Environmental Quality Sarawak. The NREB is also represented in the Divisional and District levels by the Head of NREB office.

## **9. MANAGEMENT OF OPERATION ROOMS**

Once the API reaches 100 in any or all the Divisions, the respective NREB Operation Rooms will be activated. It may open during office hours only or for an extended period depending on the severity of the haze, number of hot spots, and the fire weather indices.

Structurally the management and manning of the operation room at the Headquarters or any other offices will be similar (please refer to **Appendix 7 and 8**). There must be an officer-in-charge and officer(s) on duty. The officer-in-charge is to make sure all necessary mass communication and monitoring equipment are made ready and that the operation room is fully equipped and manned at all time during its operating period.



*Manning of operation room during haze period*

Daily logs must be entered and reports must be produced.

### **9.1 Operation Rooms - Staff Responsibilities, Facilities, Equipment and Other Requirements**

#### **9.1.1 Officer-in-charge**

- Preparation and organisation of operation room;
- Ensure all necessary logistics, equipment, facilities and officers are made available in the operation room;
- Ensure all receiving and transmitting equipment are in working order;
- Ensure officers on duty are at their stations;
- Ensure cleanliness of the operation room; and
- Preparing duty roaster for the operation room.

#### **9.1.2 Officer(s) on Duty**

- Answering and recording calls, public complaints, fax messages;

- Check and compile information in preparation for transmission or forwarding to appropriate officers for further action;
- Transmit information to other agencies, outside organisations;
- Ensure all information received and transmitted are properly recorded;
- Ensure all receiving and transmitting equipment are in working order;
- Ensure cleanliness of the operation room; and
- Receive and transmit call and information from and to staff in the fields.
- Any other tasks as per required.

### **9.1.3 Equipment**

- Computer;
- Printer;
- Laptop;
- Tablet;
- Handphone
- Fax machine;
- Telephone;
- Copier;
- GPS;
- Camera;
- Drone; and
- Any other equipment.

### **9.1.4 Other Requirements**

- Daily Haze Watch Report (Please refer to **Appendix 9**);
- Log book;
- Telephone register;
- Tables and chairs;
- Map;
- Mass media;
- White boards;
- Leaflets/posters;
- Important telephone and fax numbers;
- Names, address, telephone numbers of relevant officers of the NREB;
- Copies of SOP and other instructions/manuals, legislation;
- Full list of officers on duty; and
- Any other requirement;

## **10. ENFORCEMENT AND MONITORING PROGRAMMES DURING HAZE**

The enforcement and monitoring programmes adopted by the NREB to prevent and to minimise open burning and to cope with the haze are as follows:

- a) The NREB throughout the State will intensify patrolling and surveillance within the residential areas, villages, small holdings, plantations and other fire prone areas such the

peat areas. All patrolling and surveillance shall be coordinated and the necessary preparations must be made for emergency cases. The schedule must be updated and reviewed and changed depending on the haze situation;

- b) The NREB Kuching is responsible for surveillance and enforcement within Kuching, Serian and Samarahan Divisions; NREB Betong covers Sri Aman and Betong Divisions; NREB Sibul covers Sibul and Sarikei Divisions and part of Kapit Division; NREB Mukah covers Mukah Division; NREB Bintulu covers Bintulu Division and part of Kapit Division; NREB Miri covers Miri Division whereas NREB Limbang covers Limbang Division.
- c) The NREB will conduct joint patrolling and monitoring with the Department of Environment (DOE) or Local Authorities in certain areas;
- d) Air surveillances will be activated using helicopters or fixed wing aircrafts in remote areas (please refer to **Appendix 10** for the form to apply aircraft services) to detect open burning in the plantations and forest or peat areas;
- e) The NREB will liaise and cooperate with the PDRM, DOE, BOMBA, and the Health Department in information sharing, planning and operational activities;
- f) The NREB will also work closely with the Forestry Department, Local Authorities and other relevant agencies in areas of common interests;
- g) The NREB will closely communicate with the Residents and District Offices;
- h) The NREB and the Local Authorities will monitor the waste dumping grounds and landfills;
- i) The NREB readies on standby face masks to be distributed to schools, hospitals, senior citizens, government agencies and other organisations, when required;
- j) Where there is a clear case of violation of the Natural Resources and Environment Ordinance (Cap. 84-Laws of Sarawak, Ed. 1958), Directive or Order or Notice issued by the NREB, legal action will be taken.

## **11. PUBLIC AWARENESS AND EDUCATION PROGRAMME**

The NREB will intensify its public awareness and education activities on the need to protect the quality of the environment and not conducting open burning during the dry and haze periods. The target groups are general public, which will include the shifting cultivators and small holders. Environmental talks and dialogues will be carried out at Kampung and long houses in collaboration with Resident and District Offices, the Local Authorities and schools.

Radio talks or announcements will be made through local radio stations e.g Radio and Television Malaysia (RTM) - Malay, Iban, Bidayuh, Melanau, Chinese, Kayan-Kenyah Sections etc. or NREB's social medias (facebook and website). Press release will be made through the newspapers and other electronic media. Leaflets and posters on ban or stop of open burning will be widely distributed.



Posters of NREB

## 12. HOTLINE FOR PUBLIC COMPLAINTS

NREB is always ready to receive and to act on, or investigate public complaints. When the API reaches or exceeds 100, NREB Operation Rooms State-wide will be activated. These operation rooms also act as Control Centres for the Headquarters and other Offices in the State respectively. The NREB will be put in a state of readiness. The following hot lines will be used:

Hotlines Whatsapp	:	013 – 759 5866
Kuching	:	082-365972 / 082-365541
Betong	:	083-471901 / 083-471895
Sibu	:	084-337428 / 084-338428
Mukah	:	084-873485
Bintulu	:	086-334448
Miri	:	085-437488 / 085-427419
Limbang	:	085-216488

NREB can also be reached through email [webmasternreb@nreb.gov.my](mailto:webmasternreb@nreb.gov.my)

## 13. STATE OF ALERT/READINESS

- NREB is in full alert for any eventuality;
- All NREB operation rooms throughout the State are opened daily until 8pm (depending on the API reading);
- Ground patrol may intensify until 8pm (depending on the API reading) or later, as well as during the weekends;
- The Centre for Remote Environmental Monitoring (CREM) at the NREB HQ is manned until 8pm (depending on the API reading) to capture, analyse and compile data from the satellite;

- Air surveillance will be conducted at the shortest possible notice as and when required; and
- The NREB puts on standby face masks to be distributed to schools, homes for the aged and the public when the situation warrants while all the NREB Offices throughout Sarawak have stocks which may be distributed as and when required.



Face masks

#### **14. ADVICES GIVEN TO THE PUBLIC DURING PEAK HAZE PERIOD**

During the haze period, the public is strongly advised to refrain from starting or carrying out any form of open burning. The NREB will not hesitate to take legal actions against those who contravene the Environmental laws, including compounds and prosecution.

The public is reminded that the maximum fine for open burning is RM100,000.00 and imprisonment for five years.

While it is not possible to eradicate haze totally, the public can contribute to reduce haze impact to the minimum level. During the hazy period, the public is advised to:

- Stay calm and follow closely the announcement through the mass media on the air pollution index (API), hotspot, visibility, fire weather index and other relevant information;
- Refrain from carrying out any open burning activities. Open burning shall be totally stopped if the API reaches the unhealthy level of exceeding 100;
- Report to NREB Sarawak on any open burning activities; and
- Follow the Health Guidelines issued by the Health Authority.



## 15. REFERENCES

1. Natural Resources and Environment Ordinance, 1993 (Cap 84 – Laws of Sarawak, Ed. 1958)
2. Natural Resources and Environment (Prescribed Activities) Order, 1994
3. Natural Resources and Environment (Prohibition of Clearing and Burning of Vegetation and Combustible Materials) Order, 1997
4. Natural Resources and Environment (Compounding of Offences) Rules, 1997
5. Natural Resources and Environment (Fire Danger Rating Systems) Order, 2004
6. Environmental Investigation, Administrative Enforcement and Prosecution Manual
7. Arahan No. 20 – Dasar Dan Mekanisma Pengurusan Dan Bantuan Bencana Negara” under the “Majlis Keselamatan Negara, Bahagian Keselamatan Negara, Jabatan Perdana Menteri
8. Pelan Tindakan Jerebu Kebangsaan
9. Pelan Tindakan Pembakaran Terbuka Kebangsaan
10. Prosedur Tetap Operasi Melaksanakan Program Mencegah Kebakaran Tanah Gambut Untuk Jerebu di Malaysia

### THE INTERPRETATION OF THE AIR POLLUTANT INDEX (API) AND THE ACTION PLAN

Warning Level	API	STATUS	LEVEL OF POLLUTION	HEALTH MEASURES	ACTION PLAN
No Warning	0-50	Good	Low, no ill effects on health	No restrictions of activities for all groups	<ul style="list-style-type: none"> <li>▪ Normal and routine monitoring</li> <li>▪ Open burning permit may be issued</li> </ul>
No warning	51-100	Moderate	Moderate, no ill effect on health	No restrictions of activities for all groups	<ul style="list-style-type: none"> <li>▪ Normal and routine monitoring with a certain degree of alert</li> <li>▪ Issuance of open burning permit may be restricted or suspended depending on the FWI/API</li> <li>▪ Ban on Open Burning at Agriculture, Forestry, Landfill etc (when required) depending on FWI/API.</li> <li>▪ Patrolling intensified, if necessary.</li> <li>▪ Routine awareness &amp; education activities programme for local communities and industries.</li> <li>▪ Dissemination of information through radio, website, mass media etc (when required)</li> <li>▪ Activation of SOP for Peat Fire Prevention And Suppression for Private Landowners depending on FWI/API</li> </ul>
Early Warning 1	101-150	Unhealthy	Aggravation of symptoms among high risk groups e.g. those with heart or lung diseases	<ol style="list-style-type: none"> <li>1. Restriction of outdoor activities for high risk persons</li> <li>2. General population should reduce vigorous outdoor activities</li> <li>3. Stop outdoor activities for school children.</li> </ol>	<ul style="list-style-type: none"> <li>▪ State of full alert</li> <li>▪ Freeze open burning permit</li> <li>▪ Total ban on open burning</li> <li>▪ Activate operation rooms (operating during office hours) when API reaches 100.</li> <li>▪ Monitoring and patrolling intensified</li> <li>▪ Conduct air surveillance (when required)</li> </ul>

					<ul style="list-style-type: none"> <li>▪ Face masks on standby</li> <li>▪ Intensify awareness &amp; education activities e.g. awareness programme for local communities and industries, distribution of posters / leaflet etc</li> <li>▪ Dissemination of information through radio, website, mass media etc</li> <li>▪ Recommend to and advise the Government to impose restrictions on outdoor activities</li> </ul>
Early Warning 2	151-200	Unhealthy	Aggravation of symptoms among high risk groups e.g. those with heart or lung diseases	<ol style="list-style-type: none"> <li>1. Restriction of outdoor activities for high risk persons</li> <li>2. General public should reduce vigorous outdoor activities</li> </ol>	<ul style="list-style-type: none"> <li>▪ State of full alert</li> <li>▪ Freeze open burning permit</li> <li>▪ Total ban on open burning</li> <li>▪ Operation rooms open during office hours</li> <li>▪ Monitoring and patrolling intensified</li> <li>▪ Conduct air surveillance</li> <li>▪ Distribution of face masks (when required)</li> <li>▪ Intensify awareness &amp; education activities e.g. awareness programme for local communities and industries, distribution of posters / leaflet etc</li> <li>▪ Dissemination of information through radio, website, mass media etc.</li> <li>▪ Disaster Management Committee activated at District/Divisional/State level by District Office/Resident/SDMC</li> <li>▪ Recommend to and advise the Government to impose restrictions on outdoor activities</li> </ul>
Warning 3	201-300	Very unhealthy	Severe aggravation of symptom and decreased exercise tolerance in persons with heart or lung diseases	<ol style="list-style-type: none"> <li>1. Elderly and persons with known heart and lung diseases should stay indoors and reduce physical activity.</li> </ol>	<ul style="list-style-type: none"> <li>▪ State of full alert</li> <li>▪ Freeze open burning permit</li> <li>▪ Total ban on open burning</li> <li>▪ Operation rooms open for extended period of time</li> </ul>

				<p>2. General population should avoid vigorous outdoor activity</p> <p>3. School closes when API reaches 200 (procedure as per <i>Pelan Tindakan Jerebu Kebangsaan</i>)</p>	<ul style="list-style-type: none"> <li>▪ Monitoring and patrolling intensified</li> <li>▪ Intensify air surveillance when visibility permits</li> <li>▪ Distribution of face masks</li> <li>▪ Intensify awareness &amp; education activities e.g. awareness programme for local communities and industries, distribution of posters / leaflet etc</li> <li>▪ Dissemination of information through radio, website, mass media etc.</li> <li>▪ Recommend to and advise the Government to impose restrictions on outdoor activities</li> </ul>
<p>Stern Warning</p> <p>4</p>	301-400	Hazardous	<p>Severe aggravation of symptoms and a danger to health</p>	<p>1. Elderly and persons with known heart and lung diseases should stay indoors and reduce physical activity.</p> <p>2. General population should avoid vigorous outdoor activity</p> <p>3. Schools close (procedure as per <i>Pelan Tindakan Jerebu Kebangsaan</i>)</p>	<ul style="list-style-type: none"> <li>▪ State of full alert</li> <li>▪ Freeze open burning permit</li> <li>▪ Total ban on open burning</li> <li>▪ Operation rooms open for extended period of time</li> <li>▪ Monitoring and patrolling intensified</li> <li>▪ Intensify air surveillance when visibility permits</li> <li>▪ Distribution of face masks</li> <li>▪ Intensify awareness &amp; education activities e.g. awareness programme for local communities and industries, distribution of posters / leaflet etc</li> <li>▪ Dissemination of information through radio, website, mass media etc.</li> <li>▪ Recommend to and advise the Government to impose restrictions on outdoor activities</li> </ul>

Emergency 5	401-500		Severe aggravation of symptoms and a danger to health	<ol style="list-style-type: none"> <li>1. Elderly and persons with known heart and lung diseases should stay indoor and reduce physical activity.</li> <li>2. General population should avoid vigorous outdoor activity</li> <li>3. Schools close (procedure as per <i>Pelan Tindakan Jerebu Kebangsaan</i>)</li> </ol>	<ul style="list-style-type: none"> <li>▪ State of full alert</li> <li>▪ Freeze open burning permit</li> <li>▪ Total ban on open burning</li> <li>▪ Operation rooms open for extended period of time</li> <li>▪ Monitoring and patrolling intensified</li> <li>▪ Intensify air surveillance when visibility permits</li> <li>▪ Distribution of face masks</li> <li>▪ Intensify awareness &amp; education activities e.g. awareness programme for local communities and industries, distribution of posters / leaflet etc</li> <li>▪ Dissemination of information through radio, website, mass media etc.</li> <li>▪ Recommend to and advise the Government to impose restrictions on outdoor activities</li> </ul>
Emergency 5	>500	Hazardous	Severe aggravation of symptoms and a danger to health	General population advised to follow the orders of the National Security Council and always follow announcements through the mass media	<ul style="list-style-type: none"> <li>● Ditto</li> <li>● <i>Jawatankuasa Pengurusan Bencana Pusat</i> advises Prime Minister to declare State of Emergency if API exceeds 500</li> </ul>

**THE INTERPRETATION OF THE FIRE WEATHER INDEX (FWI) AND THE ACTION PLAN**

<b>Fire Weather Index (FWI)</b>	<b>Interpretations</b>	<b>Remarks</b>	<b>Action Plan</b>
0 -1.0 (Blue)	Low Fire Hazard	Ideal for burn	Open burning permit may be issued
2.0 – 6.0 (Green)	Moderate Fire Hazard	Ideal for burn	Open burning permit may be issued
7.0 – 13.0 (Yellow)	High Fire Hazard	Restricted burn only	Open burning permit may be restricted depending on API value
>13 (Red)	Extremely High Fire Hazard	Total ban on any open burning	Open burning permit is suspended



**ROLES, DUTIES AND RESPONSIBILITIES OF RELEVANT OFFICERS OF THE NREB DURING PERIOD OF HAZE**

Officer	API <50	API 51 -100	API 101 - 200	API 200 - 300	API >300
Controller of Environmental Quality Sarawak			<ul style="list-style-type: none"> <li>• Operation Room (office hours)</li> <li>• Attend State Disaster Management Committee and National Disaster Committee meetings.</li> <li>• Advise the Committees and the Ministers on the haze situation and NREB's enforcement and monitoring action and progress</li> </ul>	<ul style="list-style-type: none"> <li>• Operation Room (extended hours)</li> <li>• Attend State Disaster Management Committee and National Disaster Committee meetings.</li> <li>• Advise the Committees and the Ministers on the haze situation and NREB's enforcement and monitoring action and progress</li> </ul>	<ul style="list-style-type: none"> <li>• Operation Room (extended hours)</li> <li>• Attend State Disaster Management Committee and National Disaster Committee meetings.</li> <li>• Advise the Committees and the Ministers on the haze situation and NREB's enforcement and monitoring action and progress</li> </ul>
Head of C&E Section	<ul style="list-style-type: none"> <li>• Routine coordination and supervision of enforcement and monitoring activities</li> <li>• Coordinate verification of hotspot and investigation of complaints with regards to air pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Inform relevant officers to be on state of alert and be on stand-by mode</li> <li>• Order intensification of surveillance, enforcement and monitoring activities</li> <li>• Advise Controller and Deputy Controller on the haze situation and NREB's enforcement and monitoring action and progress</li> </ul>	<ul style="list-style-type: none"> <li>• Advise Controller on the activation of NREB Operation Rooms throughout the State</li> <li>• Coordinate activities and information with regards to all NREB Operation Rooms throughout the Sarawak</li> <li>• Order intensification of surveillance, enforcement and monitoring activities</li> <li>• Coordinate and carry out air surveillance</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate activities and information with regards to NREB Operation Rooms all throughout the Sarawak</li> <li>• Order intensification of surveillance, enforcement and monitoring activities</li> <li>• Coordinate and carry out air surveillance</li> <li>• Coordinate joint enforcement activities with relevant agencies</li> <li>• Advise Controller and Deputy Controller on the haze situation and NREB's</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate activities and information with regards to NREB Operation Rooms all throughout the Sarawak</li> <li>• Order intensification of surveillance, enforcement and monitoring activities</li> <li>• Coordinate and carry out air surveillance</li> <li>• Coordinate joint enforcement activities with relevant agencies</li> </ul>

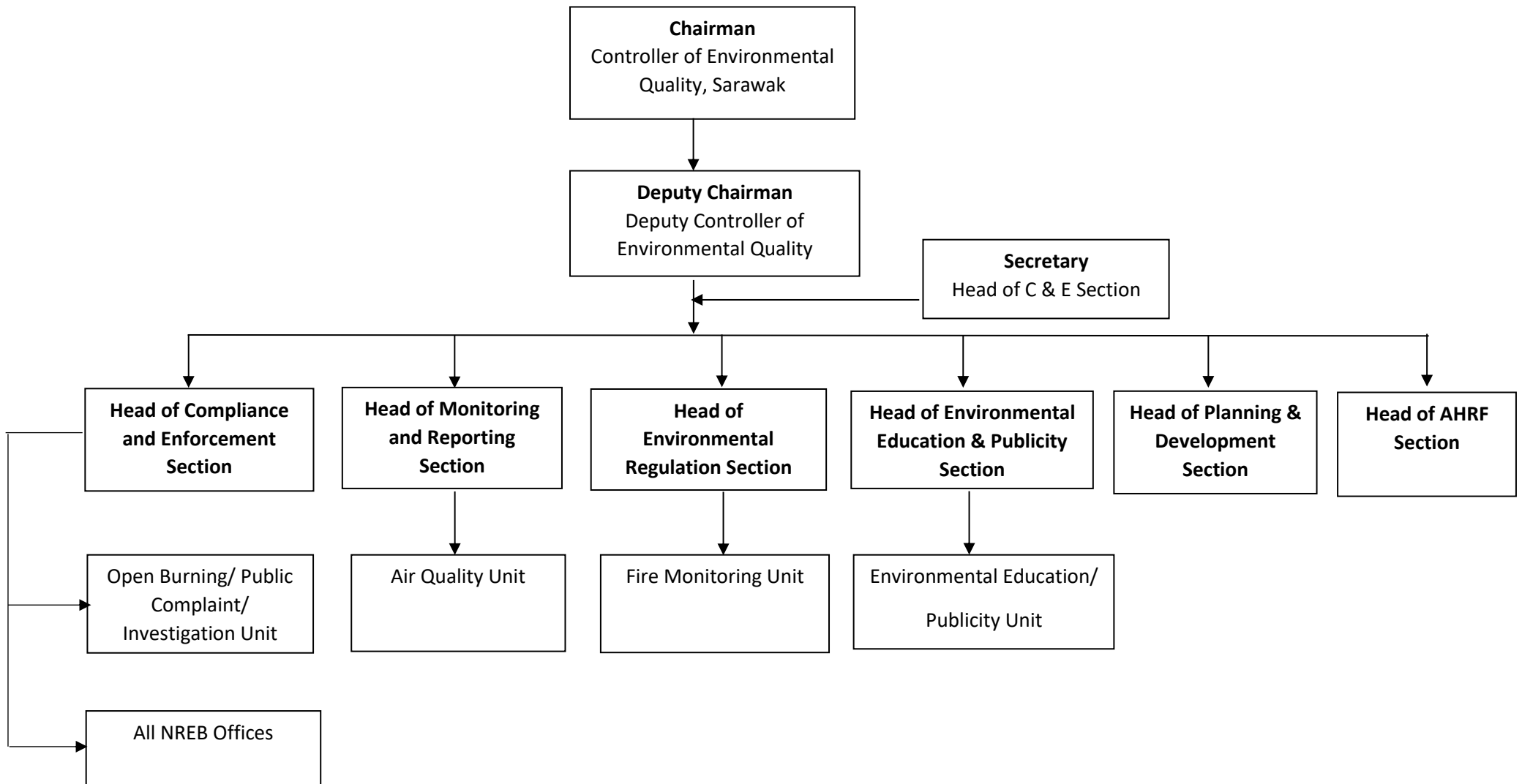
			<ul style="list-style-type: none"> <li>• Coordinate joint enforcement activities with relevant agencies</li> <li>• Advise Controller and Deputy Controller on the haze situation and NREB's enforcement and monitoring action and progress</li> <li>• Coordinate preparation of IPs and reviewing of IPs</li> <li>• Coordinate the distribution of facemask (when required)</li> </ul>	<p>enforcement and monitoring action and progress</p> <ul style="list-style-type: none"> <li>• Coordinate preparation of IPs and reviewing of IPs</li> <li>• Coordinate the distribution of facemask</li> </ul>	<ul style="list-style-type: none"> <li>• Advise Controller and Deputy Controller on the haze situation and NREB's enforcement and monitoring action and progress</li> <li>• Coordinate preparation of IPs and reviewing of IPs</li> <li>• Coordinate the distribution of facemask</li> </ul>
Head of M&R Section	<ul style="list-style-type: none"> <li>• Routine monitoring of ambient environmental quality</li> <li>• Daily Haze Watch Report</li> </ul>	<ul style="list-style-type: none"> <li>• Routine monitoring of ambient environmental quality</li> <li>• Daily Haze Watch Report</li> </ul>	<ul style="list-style-type: none"> <li>• Routine monitoring of ambient environmental quality</li> <li>• Daily Haze Watch Report</li> <li>• Daily manning of CREM during office hours</li> </ul>	<ul style="list-style-type: none"> <li>• Routine monitoring of ambient environmental quality</li> <li>• Daily Haze Watch Report</li> <li>• Daily manning of CREM over extended period of time</li> </ul>	<ul style="list-style-type: none"> <li>• Routine monitoring of ambient environmental quality</li> <li>• Daily Haze Watch Report</li> <li>• Daily manning of CREM over extended period of time</li> </ul>
Head of ER Section	<ul style="list-style-type: none"> <li>• Processing and issuing open burning permit subject to FWI/API</li> <li>• Provide daily FWI reading and forward to M&amp;R Section for Haze Watch Report.</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and issuing restricted open burning permit subject to FWI/API</li> <li>• Provide daily FWI reading and forward to M&amp;R Section for Haze Watch Report.</li> </ul>	<ul style="list-style-type: none"> <li>• Stop issuing open burning permit</li> <li>• Provide daily FWI reading and forward to M&amp;R Section for Haze Watch Report.</li> </ul>	<ul style="list-style-type: none"> <li>• Stop issuing open burning permit</li> <li>• Provide daily FWI reading and forward to M&amp;R Section for Haze Watch Report.</li> </ul>	<ul style="list-style-type: none"> <li>• Stop issuing open burning permit</li> <li>• Provide daily FWI reading and forward to M&amp;R Section for Haze Watch Report.</li> </ul>

Head of EEP Section	<ul style="list-style-type: none"> <li>• Routine awareness and education activities</li> </ul>	<ul style="list-style-type: none"> <li>• Routine awareness and education activities</li> <li>• Awareness programmes for local communities and industries</li> <li>• Dissemination of information through radio, website, mass media etc</li> </ul>	<ul style="list-style-type: none"> <li>• Intensify awareness and education activities</li> <li>• Awareness program for local communities and industries</li> <li>• Dissemination of information (e.g. total ban of open burning) through radio, website, mass media etc</li> <li>• Distribution of pamphlets and posters</li> </ul>	<ul style="list-style-type: none"> <li>• Intensify awareness and education activities</li> <li>• Awareness program for local communities and industries</li> <li>• Dissemination of information (e.g. total ban of open burning) through radio, website, mass media etc</li> <li>• Distribution of pamphlets and posters</li> </ul>	<ul style="list-style-type: none"> <li>• Intensify awareness and education activities</li> <li>• Awareness program for local communities and industries</li> <li>• Dissemination of information (e.g. total ban of open burning) through radio, website, mass media etc</li> <li>• Distribution of pamphlets and posters</li> </ul>
Head of AHRF Section	<ul style="list-style-type: none"> <li>• Provide support for logistic, finance and administrative matters</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for logistic, finance and administrative matters</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for logistic, finance and administrative matters</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for logistic, finance and administrative matters</li> </ul>	<ul style="list-style-type: none"> <li>• Provide support for logistic, finance and administrative matters</li> </ul>
Head of NREB Office	<ul style="list-style-type: none"> <li>• Routine coordination and supervision of enforcement and monitoring activities at regional level</li> <li>• Coordinate verification of hotspot and investigation of complaints with regards to air pollution at regional level</li> </ul>	<ul style="list-style-type: none"> <li>• Routine coordination and supervision of enforcement and monitoring activities at regional level. Intensify surveillance when required</li> <li>• Coordinate verification of hotspot and investigation of complaints with regards to air pollution at regional level</li> <li>• Inform relevant officers at regional level to be</li> </ul>	<ul style="list-style-type: none"> <li>• Attend Divisional Disaster Management Committee meetings and advise the Committee on the haze situation at regional level</li> <li>• Activation of NREB Operation Rooms (when API reaches 100) and coordinate activities and information with regards to NREB Operation Room at regional levels</li> <li>• Order intensification of surveillance, enforcement and monitoring activities at regional levels</li> </ul>	<ul style="list-style-type: none"> <li>• Attend Divisional Disaster Management Committee meetings and advise the Committee on the haze situation at regional level</li> <li>• Activation of NREB operation Room and Coordinate activities and information with regards to NREB Operation Room at regional levels</li> <li>• Order intensification of surveillance, enforcement and monitoring activities at regional levels</li> </ul>	<ul style="list-style-type: none"> <li>• Attend Divisional Disaster Management Committee meetings and advise the Committee on the haze situation at regional level</li> <li>• Activation of NREB Operation Room and Coordinate activities and information with regards to NREB Operation Room at regional levels</li> <li>• Order intensification of surveillance, enforcement and monitoring activities at regional levels</li> </ul>

		<p>on state of alert and be on stand-by mode</p>	<ul style="list-style-type: none"> <li>• Coordinate and carry out air surveillance at regional levels</li> <li>• Coordinate joint enforcement activities with relevant agencies at regional levels</li> <li>• Report on NREB's enforcement and monitoring action and progress at regional levels</li> <li>• Advise Controller, Deputy Controller &amp; Head of C&amp;E Section on the haze situation at regional level</li> <li>• Compiling IP's for submission to HQ</li> <li>• Coordinate distribution of facemask at regional levels (when required)</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate and carry out air surveillance at regional levels</li> <li>• Coordinate joint enforcement activities with relevant agencies at regional levels</li> <li>• Report on NREB's enforcement and monitoring action and progress at regional levels</li> <li>• Advise Controller, Deputy Controller and Head of C&amp;E Section on the haze situation at regional level</li> <li>• Compiling IP's for submission to HQ</li> <li>• Coordinate distribution of facemask at regional levels</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate and carry out air surveillance at regional levels</li> <li>• Coordinate joint enforcement activities with relevant agencies at regional levels</li> <li>• Report on NREB's enforcement and monitoring action and progress at regional levels</li> <li>• Advise Controller, Deputy Controller and Head of C&amp;E Section on the haze situation at regional level</li> <li>• Compiling IP's for submission to HQ</li> <li>• Coordinate distribution of facemask at regional levels</li> </ul>
ECO / AECO	<ul style="list-style-type: none"> <li>• Heading routine enforcement and monitoring works in the fields and prepare reports</li> <li>• Compiling all data and information for the Head of Office / Head of Section</li> <li>• Verify hotspot and investigate public</li> </ul>	<ul style="list-style-type: none"> <li>• Heading enforcement and monitoring works in the fields and prepare reports</li> <li>• Compiling all data and information for the Head of Office / Head of Section</li> <li>• Verify hotspot and investigate public</li> </ul>	<ul style="list-style-type: none"> <li>• Manning the Operation Room and in charge of activities in the operation rooms at HQ/ regional levels</li> <li>• Heading intensified enforcement, monitoring and investigation works in the field and prepare reports</li> </ul>	<ul style="list-style-type: none"> <li>• Manning the Operation Room and in charge of activities in the operation rooms at HQ/ regional levels</li> <li>• Heading intensified enforcement, monitoring and investigation works in the field and prepare reports</li> </ul>	<ul style="list-style-type: none"> <li>• Manning the Operation Room and in charge of activities in the operation rooms at HQ/ regional levels</li> <li>• Heading intensified enforcement, monitoring and investigation works in the field and prepare reports</li> </ul>

	complaint with regards to air pollution	complaint with regards to air pollution	<ul style="list-style-type: none"> <li>• Compiling all data and information for the Head of Office / Head of Section</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Distributing face masks (when required)</li> </ul>	<ul style="list-style-type: none"> <li>• Compiling all data and information for the Head of Office / Head of Section</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Distributing face masks (when required)</li> </ul>	<ul style="list-style-type: none"> <li>• Compiling all data and information for the Head of Office / Head of Section</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Distributing face masks (when required)</li> </ul>
EA	<ul style="list-style-type: none"> <li>• Assisting ECO/AECO in carrying out routine enforcement and monitoring works in the fields and prepare reports</li> <li>• Assisting ECO/AECO in compiling data and information</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Assisting ECO/AECO in carrying out routine enforcement and monitoring works in the fields and prepare reports</li> <li>• Assisting ECO/AECO in compiling data and information</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Prepare reports</li> </ul>	<ul style="list-style-type: none"> <li>• Assisting ECO/AECO in manning the Operation Room</li> <li>• Assisting ECO/AECO in carrying out intensified enforcement and monitoring works in the fields and prepare reports</li> <li>• Assisting ECO/AECO in compiling data and information</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Prepare reports</li> <li>• Distributing face masks (when required)</li> </ul>	<ul style="list-style-type: none"> <li>• Assisting ECO/AECO in manning the Operation Room</li> <li>• Assisting ECO/AECO in carrying out intensified enforcement and monitoring works in the fields and prepare reports</li> <li>• Assisting ECO/AECO in compiling data and information</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Prepare reports</li> <li>• Distributing face masks</li> </ul>	<ul style="list-style-type: none"> <li>• Assisting ECO/AECO in manning the Operation Room</li> <li>• Assisting ECO/AECO in carrying out intensified enforcement and monitoring works in the fields and prepare reports</li> <li>• Assisting ECO/AECO in compiling data and information</li> <li>• Verify hotspot and investigate public complaint with regards to air pollution</li> <li>• Prepare reports</li> <li>• Distributing face masks</li> </ul>

**ORGANIZATION CHART OF NREB COMMITTEE ON HAZE AT HEADQUARTERS**

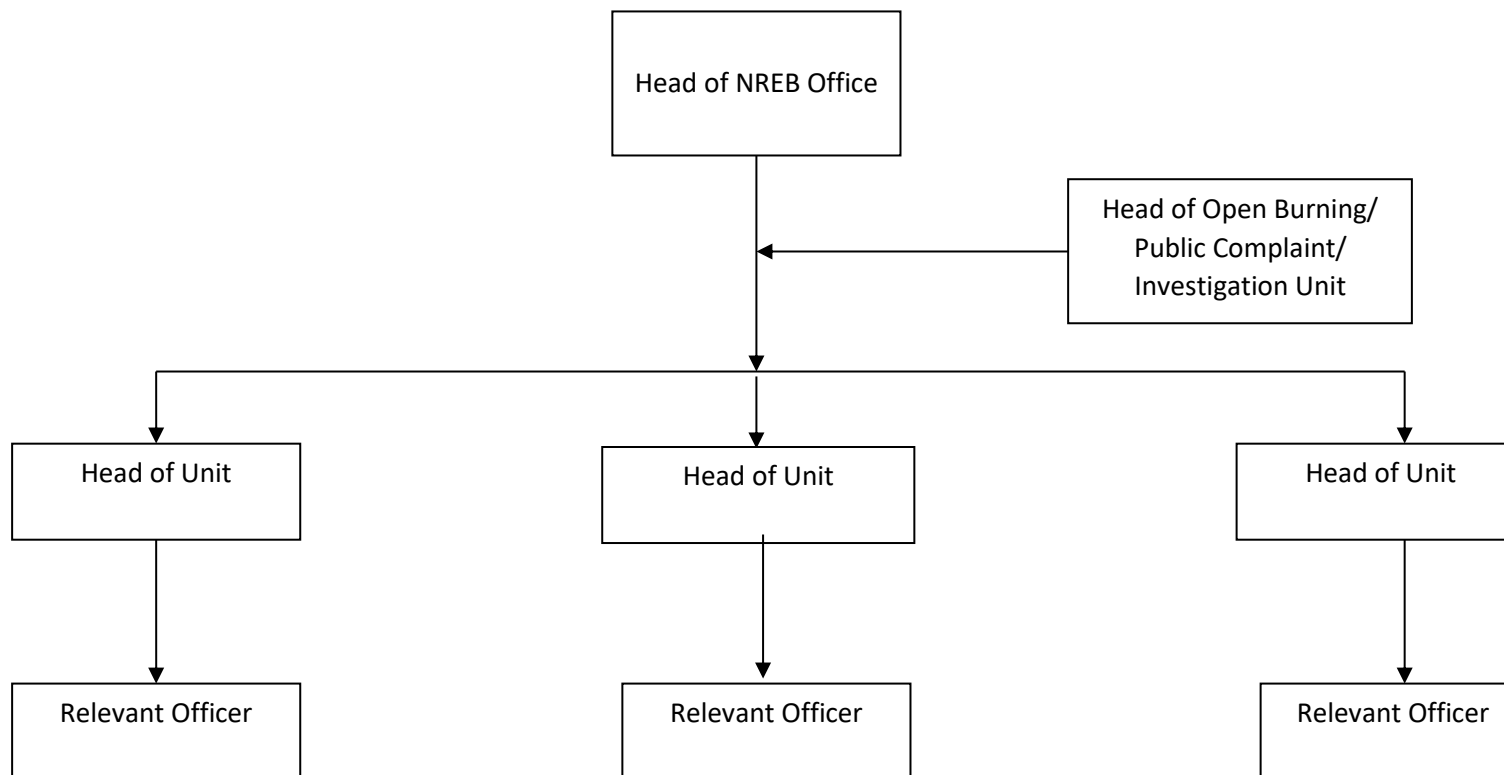




**Roles and responsibilities of the Haze Committee at Headquarters**

- a) Formulate strategy for preventing, controlling and stopping open burning
- b) Ensure strategies are carried out according to the standard operating procedure and the action plan
- c) Requesting or directing the Head of Sections, Head of NREB Offices, relevant Unit Head and officers to submit reports on actions that have been taken to prevent and control open burning in the State and in each respective region or sub-region.
- d) Requesting assistance from other agencies and relevant private sectors if necessary, in suppressing bush and forest fires and other types of assistance.
- e) Step up special investigation task force (if necessary).
- f) Ensuring implementation of open burning prevention exercise from time to time
- g) Provide whatever assistance to the operation commander where and when necessary
- h) Create movement record for equipment, expertise for open burning and haze control
- i) Carry out post mortem on haze episode
- j) Coordinate / conduct training programme for the NREB staff with regards to handling of disaster caused by open burning and haze
- k) Formulating programmes for environmental awareness and education
- l) Ensuring proper and smooth running of action plan for open burning and haze
- m) Review from time to time the strategy, directive and procedure in managing the prevention and control of open burning and haze
- n) Prepare report on the implementation and management of action plan and SOP on haze

**ORGANIZATION CHART OF NREB HAZE COMMITTEE ON HAZE IN OTHER NREB OFFICES**



**Note**

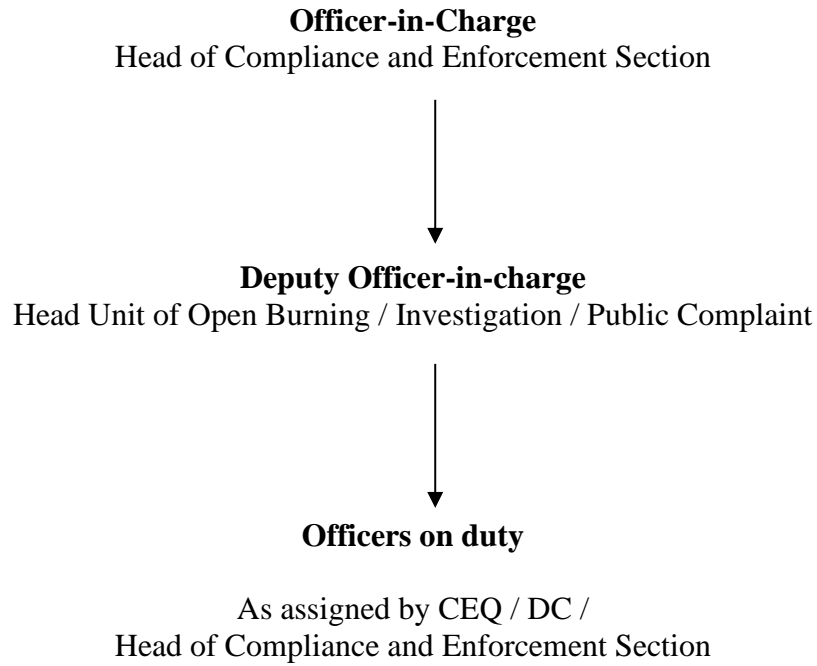
1. Head of Unit can be ECO / AECO / EA (depending on respective NREB Office)
2. All Head of Unit are assisted by Relevant Officers

**Roles and responsibilities of the Haze Committee of Other NREB Offices**

- a) Implement strategy for preventing, controlling and stopping open burning
- b) Ensure strategy are carried out according to the standard operating procedure and the action plan
- c) Prepare and submit reports on actions that have been taken to prevent and control open burning in the State and in each respective region or sub-region.
- d) Requesting assistance from other NREB offices or Headquarters if necessary, in suppressing bush and forest fires and other types of assistance.
- e) Carry out investigation into cause and effect of haze and make recommendations
- f) Ensuring implementation of open burning prevention exercise from time to time
- g) Provide whatever assistance to the operation commander where and when necessary
- h) Create movement record for equipment, expertise for open burning and haze control
- i) Carry out post mortem on haze episode
- j) Implementing at local level training programme for the NREB staff on handling of disaster caused by open burning and haze
- k) Implementing programmes at local level for environmental awareness and education
- l) Ensuring proper and smooth running of action plan at local level for open burning and haze
- m) Review at local level from time to time the strategy, directive and procedure in managing the prevention and control of open burning and haze
- n) Prepare report on the implementation and management of action plan and SOP on haze at local level
- o) Activate operation rooms at local level
- p) Allocate duties and responsibilities
- q) Carry out investigation into and collect data on potential risks of the haze disaster
- r) Liaise with and provide departmental representative at the District/Divisional Disaster Management Committee and District/Divisional Operation Room

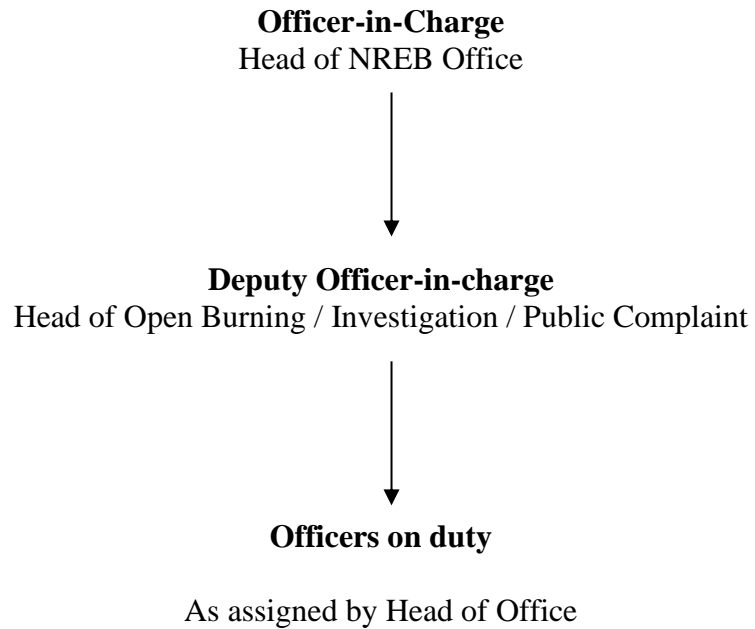
## MANAGEMENT OF OPERATION ROOM AT HEADQUARTERS

NREB Operation Rooms throughout the State will be activated once the API exceeds 100



## MANAGEMENT OF OPERATION ROOM AT OTHER NREB OFFICES

NREB Operation Rooms throughout the State will be activated once the API exceeds 100



## DAILY HAZE WATCH REPORT

### A) Fire Weather Index (FWI) on 27 May 2020 (Wednesday)

Station	FWI	Risk	Remarks
Kuching	1	Low Fire Hazard	Window for Burn
Sri Aman	0	Low Fire Hazard	Window for Burn
Sibu	0	Low Fire Hazard	Window for Burn
Bintulu	0	Low Fire Hazard	Window for Burn
Miri	4	Moderate Fire Hazard	Ideal for Burn

#### FWI Reference

0 - 1	Low Fire Hazard	Window for Burn
2 - 6	Moderate Fire Hazard	Ideal for Burn
7 - 13	High Fire Hazard	Restricted Burn Only
>13	Extremely High Fire Hazard	Total Ban On Any Burning

### B) Hotspot detected on 27 May 2020 (Wednesday)

Region	Number of Hotspot Detected
Sarawak	0
Sabah	5
Brunei	0
Peninsular Malaysia	0
Kalimantan	0
Sumatera	1

*Source: ASMC (NOOA-20) \*High Confidence Hotspot*

Division/Area	No. of Hotspot	Longitude	Latitude	File No.
		E	N	
Kuching	0			
Sibu	0			
Bintulu	0			
Miri	0			
Sarikei	0			
Limbang	0			
Samarahan	0			
Sri Aman	0			
Kapit	0			
Mukah	0			
Betong	0			



**C) Air Pollutant Index (API) PM<sub>2.5</sub> on 28<sup>th</sup> May 2020 @ 0800 hrs**

No.	Location	API as of 0800 hrs
1.	Limbang	22
2.	ILP Miri	29
3.	Miri	41
4.	Samalaju	38
5.	Bintulu	34
6.	Mukah	17
7.	Kapit	24
8.	Sibu	32
9.	Sarikei	25
10.	Sri Aman	20
11.	Samarahan	22
12.	Kuching	21
13.	IPD Serian (MCAQM)*	24
14.	Lundu	22
15.	Tebedu	-NA-
16.	Lubok Antu	-NA-
17.	Lawas	-NA-

\*Mobile Continuous Air Quality Monitoring

**API Reference**

Index	Status
<50	Good
51-100	Moderate
101-200	Unhealthy
201-300	Very unhealthy
>300	Harzadous

*Reported by:*

Air Quality Unit, Monitoring & Reporting Section  
Natural Resources and Environment Board Sarawak (NREB)

Tel : 082-442692/319536

Fax : 082-448631

*Source of data :*

*API - Department of Environment (DOE) Malaysia*

*Hotspot - Asean Specialised Meteorological Centre (ASMC)*

*Meteorological Department Malaysia*

**APPLICATION FORM FOR AIRCRAFT SERVICES**

(Revised 1997)

**APPLICATION FOR USE OF HORNBILL CHARTERED  
AIRCRAFT SERVICES**  
(To be filled in Triplicate)

**FROM: Lembaga Sumber Asli dan Alam Sekitar (NREB) Sarawak**

**TO : YB State Secretary,  
Sarawak.**

\_\_\_\_\_

I hereby apply for the use of chartered aircraft as per details specified overleaf.

I certify that funds are available to meet the flying costs and which is to be charged to (state name of) Ministry/Department/Agency **Lembaga Sumber Asli dan Alam Sekitar (NREB) Sarawak.**

Date : \_\_\_\_\_ Signature : \_\_\_\_\_

Name of Officer :

Designation: **Controller of Environmental Quality  
Sarawak**

\_\_\_\_\_

The application is approved / not approved

Date : \_\_\_\_\_  
Signature

- c.c: 1. Private Secretary to YAB Ketua Menteri  
2. Manager, Hornbill Skyways Sdn. Bhd.

## **Details of Requests**

1. Type of aircraft required

- i) Bell 206 helicopter (4-seater)
  - ii) Bell 206 – L4 helicopter (6-seater)
- 

2. Particulars of passengers

<b><u>No.</u></b>	<b><u>Name</u></b>	<b><u>Designation</u></b>	<b><u>Department/ Office</u></b>
1.			
2.			
3.			
4.			
5.			

3. Details of Flying schedule :

<b><u>Date</u></b>	<b><u>ETD</u></b>	<b><u>From</u></b>	<b><u>To</u></b>
--------------------	-------------------	--------------------	------------------

4. Give reasons and details of activity for which aircraft is required