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For the 1st Week

of

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(5th July to 10th July)

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1. Geography

1.1. Graded Response Action Plan

Issue

- In 2014, when a study by the World Health Organisation found that Delhi was the most polluted city in the world, panic spread in the Centre and the state government.

Resolution

- Approved by the Supreme Court in 2016, GRAP plan was formulated after several meetings that the Environment Pollution (Prevention and Control) Authority (EPCA) held with state government representatives and experts.

Graded Response Action Plan (Grap)

- The result was a plan that institutionalised measures to be taken when air quality deteriorates.
- The Graded Response Action Plan (GRAP), is a set of curbs triggered in phases as the air quality deteriorates, which is typical of the October-November period.

CATEGORY	ACTION PLAN
 Moderate to Poor PM2.5 – 61-120 µg/m³ PM10 – 101-350 µg/m³	<ul style="list-style-type: none"> ➤ Stop garbage burning, impose heavy fines ➤ Enforce pollution regulations in all industries ➤ Do periodic mechanised road sweeping ➤ Stop plying of visibly polluting vehicles ➤ Enforce SC order on diversion, ban on crackers ➤ Ensure fly ash ponds are watered every alternate day from Mar – May ➤ Use apps to inform people and register complaints 
 Very Poor PM2.5 – 121-250 µg/m³ PM10 – 351-430 µg/m³	<ul style="list-style-type: none"> ➤ Stop use of diesel gensets ➤ Enhance parking fee by 3-4 times ➤ Increase bus and Metro services ➤ Stop use of coal/firewood in hotels and restaurants ➤ RWAs to provide electric heaters to security staff to stop bonfires ➤ Issue media alerts and advisories  
 Severe PM2.5 – 250 µg/m³ PM10 – 430 µg/m³	<ul style="list-style-type: none"> ➤ Close hot mix plants, stone crushers ➤ Shut down Badarpur power plant and maximise generation from natural gas-based plants ➤ Intensify public transport ➤ Mechanised cleaning of road and sprinkling of water 
 Emergency PM2.5 – 300 µg/m³ PM10 – 500 µg/m³ <i>(persist for 48 hours or more)</i>	<ul style="list-style-type: none"> ➤ Stop entry of trucks except those carrying essential commodities ➤ Stop construction ➤ Introduce odd-even scheme without exemptions ➤ Task Force to decide on additional steps  

Steps Taken (Delhi)

- Three major policy decisions that can be credited to EPCA and GRAP are the :
 - ✓ Closure of the thermal power plant at Badarpur
 - ✓ Bringing BS-VI fuel to Delhi before the deadline set initially
 - ✓ Ban on Pet coke as a fuel in Delhi-NCR.

Points to Remember

- The plan is incremental in nature – therefore, when the air quality moves from ‘Poor’ to ‘Very Poor’, the measures listed under both sections have to be followed.
- GRAP works only as an emergency measure. As such, the plan does not include action by various state governments to be taken throughout the year to tackle industrial, vehicular and combustion emissions.
- The plan requires action and coordination among 13 different agencies in Delhi, Uttar Pradesh, Haryana and Rajasthan (NCR areas).
- At the head of the table is the EPCA, mandated by the Supreme Court.

Mechanism

- GRAP was notified in 2017 by the Centre and draws its authority from this notification.
- Before the imposition of any measures, EPCA holds a meeting with representatives from all NCR states, and a call is taken on which actions have to be made applicable in which town.

Significance

- GRAP has been successful in doing two things that had not been done before –
 - ✓ Creating a step-by-step plan for the entire Delhi-NCR region, and
 - ✓ Getting on board several agencies: all pollution control boards, industrial area authorities, municipal corporations, regional officials of the India Meteorological Department, and others.
- The next big success of GRAP has been in fixing accountability and deadlines.
- For each action to be taken under a particular air quality category, executing agencies are clearly marked.

Criticism

- One criticism of the EPCA as well as GRAP has been the focus on Delhi.
- While other states have managed to delay several measures, citing lack of resources, Delhi has always been the first to have stringent measures enforced.

Way Forward

- For GRAP as well as EPCA, the next challenge is to extend the measures to other states effectively.

2. Polity & Governance

2.1. What are the Drone Guidelines in India?

- **Context:** On 27th June 2021 the Indian Air Force Station in Jammu faced a drone attack. Drones were spotted at three places on the outskirts of Jammu city on 29th June 2021 keeping the security forces on tenterhooks. In wake of the same, PM Modi chaired a meet to review India's drone policy and the security implications of civilian use of drones.
- A policy framework for opening up the skies for civil use of drones is already in the pipeline and the meeting was focussed on how to build in a strong mechanism to disarm security threats, while continuing its civil purposes.
- According to the recent guidelines under the Unmanned Aircraft System Rules, 2021, issued by the Ministry of Civil Aviation, no license or permit is needed to fly drones weighing less than 250 grams.

What are the guidelines under Unmanned Aircraft System Rules, 2021?

- The ability to fly a drone in India is subject to the type of drone and the corresponding permit and license needed for it. As per the size of the drone, the following categories have been listed under the Gazette:
 - ✓ **Nano Drones:** Drones weighing less than or equal to 250 grams fall under this category. The Unmanned Aircraft System Rules, 2021, state that no license or permit is needed to fly such drones.
 - ✓ **Micro and Small Drones:** Micro drones are those weighing more than 250 grams but less than 2 kg. The latter, Small drones, indicates UAS weighing more than 2 kg but under 25 kg. Pilots of such drones require a UAS Operator Permit-I (UAOP-I) for all flying purposes.
 - ✓ The drone pilots will have to follow the Standard Operating Procedure (SOP) as accepted by the Directorate General of Civil Aviation (DGCA). The permit will allow the operation of such drones limited to the visual line of sight without any payload.
 - ✓ **Medium and Large Drones:** The guidelines specify medium drones as those weighing more than 25 kg but less than 150 kg, while large drones have been classified as those weighing more than 150 kg. For the operation of either one of them, one would require UAS Operator Permit-II (UAOP-II).
- Operators are also required to implement a Safety Management System (SMS) as standard practice for ensuring safe operation. UAOP-II permits the carriage of goods as well as dangerous goods as per the Aircraft (Carriage of Dangerous Goods) Rules, 2003.
- UAOP-II holders can also use Micro and Small drones to carry goods subject to Operations Manual and clearances from DGCA. Both UAOP-I and UAOP-II will remain valid for a period of not more than ten years.

Drone Pilot License

- There are two types of licences that will determine the issuance of an operator's permit. These are Student Remote Pilot License and Remote Pilot License. Applicants of any of these licences should be at least 18 years of age and not more than 65 years of age if flying a drone for commercial activity.
- The applicants should have passed class X or "its equivalent examination from a recognised Board." Applicants are also required to clear a DGCA specified medical examination and a background check.

- ❖ **Student Remote Pilot License:** Valid for a maximum period of 5 years from the date of issuance, Student Remote Pilot License is issued for a fee by an authorised training organisation. These can be renewed for an additional period of 2 years.
- ❖ **Remote Pilot License:** These licences are issued for a fee by the DGCA itself and stand valid for a total of 10 years from issuance. These are issued on the basis of training and skill tests from an authorised training organisation. A Remote Pilot License can be renewed for another 10 years once expired.

Drone use conditions

- There are, of course, several restrictions on drone use even if you manage to attain these licences and permits. DGCA has also put up conditions for flying such drones, and the pilots are required to abide by them. For instance, such drones cannot be flown within closed spaces. They also need prior clearance from Air Traffic and Air Defence Control before being flown.
- The most obvious one is that no drones should fly over a Prohibited Area. The Gazette specifies “Prohibited Area” as “the airspace of defined dimensions, above the land areas or territorial waters of India within which the flights of unmanned aircraft are not permitted.”
- Other than the area restrictions, there are limitations on the altitude and speed at which drones can be flown. These are mostly based on the type of drones. A Micro drone, for instance, cannot be flown beyond a height of 60 meters above ground level (AGL) or over a speed of 25 meters per second. The same restrictions for Small drones stand at 120 meters AGL and 25 meters per second.
- The Gazette highlights penalties on several acts that go against the guidelines issued in the Gazette. These range from flying a drone without a licence and permit to flying them over prohibited areas.
- Individuals flying any drone other than those in the Nano category, for instance, without a valid license or permit, will have to pay a fine of Rs 25,000. Flying an unmanned aircraft over no operation area will attract a penalty of Rs 50,000. Such penalties extend up to Rs 5 lakh for the manufacturers of drones.

3. Environment

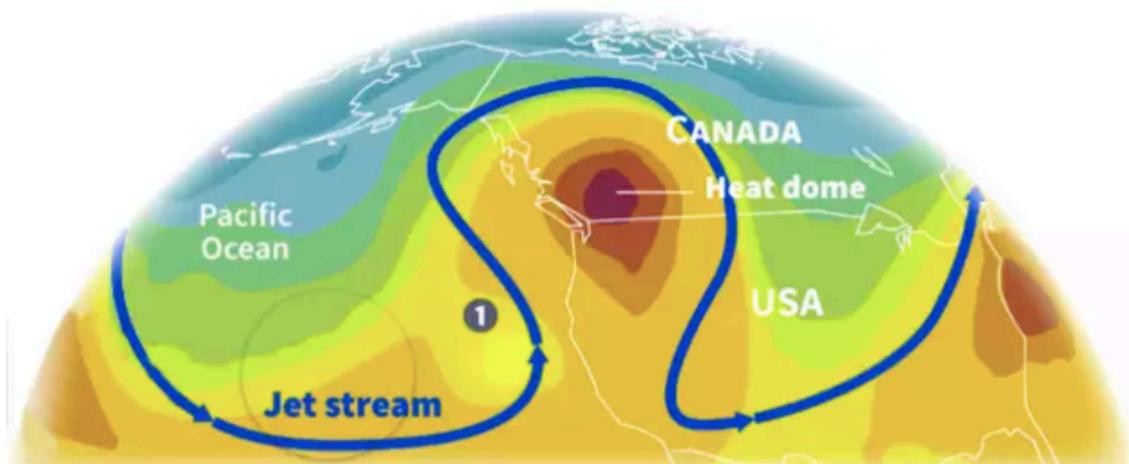
3.1. Heat Dome

Introduction

- In a climate-changed world, the things that once seemed impossible are not just possible, they are probable.
- Temperatures in the US Pacific Northwest cities of Portland, Oregon and Seattle, Washington reached levels not seen since record-keeping began in the 1940s: 115 degrees in Portland and 108 in Seattle, according to the National Weather Service.
- Lytton in British Columbia broke the record for Canada's all-time high Monday, with a temperature of 118 degrees Fahrenheit (47.9 degrees Celsius), just one day after the village set the previous record at 116 degrees.

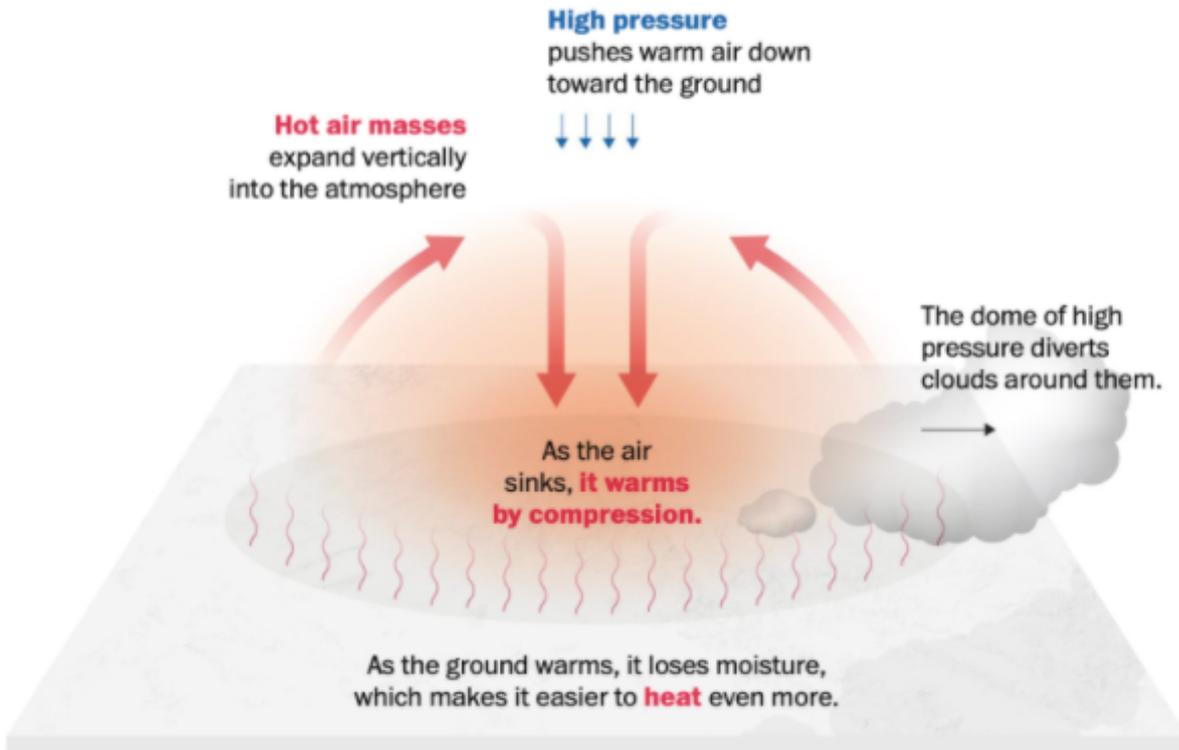
What is heat Dome

- A heat dome is caused when atmosphere traps hot ocean air, as if bounded by a lid or cap.
- They can be linked to climate change.



Mechanism

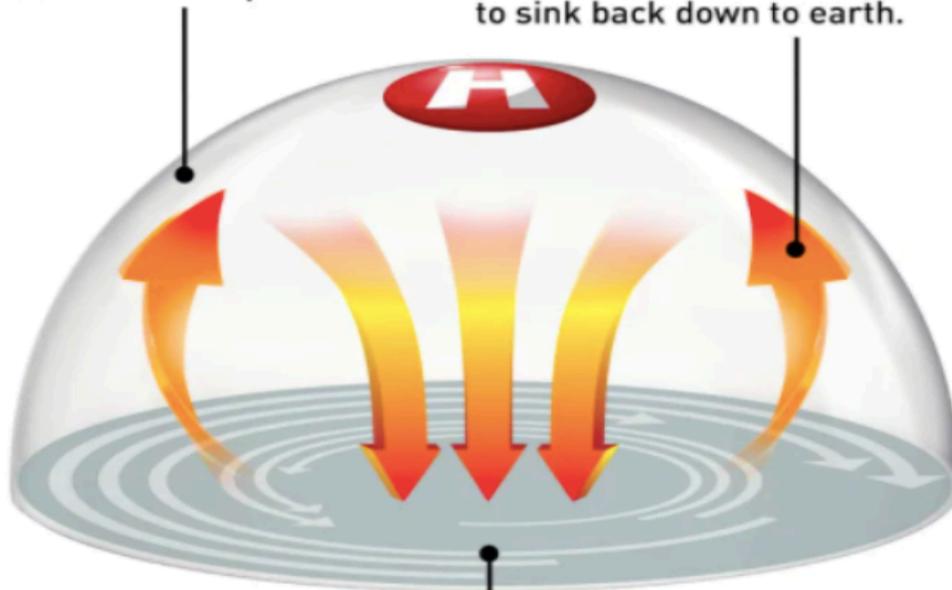
- The main cause was a strong change (or gradient) in ocean temperatures from west to east in the tropical Pacific Ocean during the preceding winter.
- The western Pacific's temperatures have risen over the past few decades as compared to the eastern Pacific, creating a strong temperature gradient, or pressure differences that drive wind, across the entire ocean in winter.
- In a process known as convection, the gradient causes more warm air, heated by the ocean surface, to rise over the western Pacific, and decreases convection over the central and eastern Pacific.
- As prevailing winds move the hot air east, the northern shifts of the jet stream trap the air and move it toward land, where it sinks, resulting in heat waves.



Heat Dome

High-pressure atmospheric conditions combine to **act as a lid** on the atmosphere.

In a process known as **convection**, warm air attempts to escape but the high-pressure dome causes it to sink back down to earth.

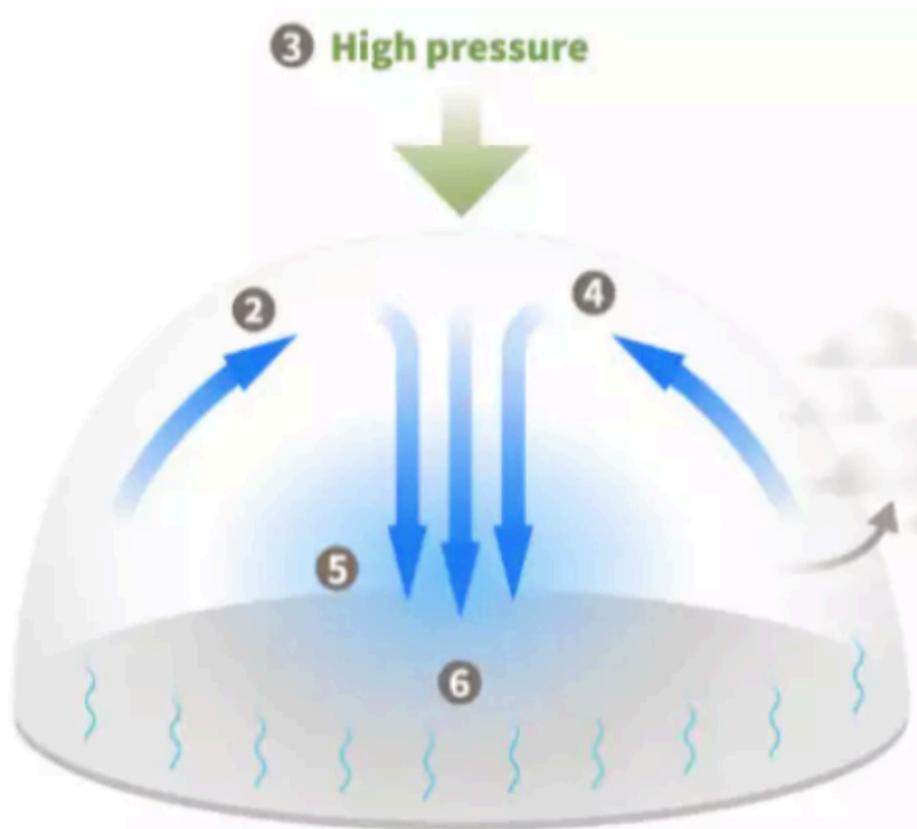


THE 'HEAT DOME'

Occurs when the atmosphere traps hot ocean air like a lid or cap



- 1 In summer, the jet stream (which moves the air) shifts northward
- 2 Hot and stagnant air expands upwards
- 3 Strong and high-pressure atmospheric conditions combine with influences from La Nina act like a dome or cap
- 4 In a process known as convection, hot air attempts to escape but high pressure pushes it back down
- 5 Under the dome, the air sinks and compresses, releasing more heat
- 6 As winds move the hot air east, the jet stream traps the air where it sinks, resulting in heat waves



- In still, dry summer conditions, a mass of warm air builds up.
- The high pressure from the Earth's atmosphere pushes the warm air down.
- As the air is compressed, it gets even hotter.
- As the warm air attempts to rise, the high pressure above it forces it down, to get even hotter, and denser.
- The high pressure acts as if a dome, causing everything below it to get hotter and hotter.

Are Heat Waves Dangerous?

- If a person is at rest, wearing minimal clothing in a very dry room with about 10 per cent relative humidity, and is drinking water constantly (so that sweat can be produced), they can avoid overheating at temperatures as high as 46 degree Celsius.
- So as long as the body is producing sweat, which is then able to evaporate quickly, the body will be able to remain cool even under high temperatures.
- But, there is a limit to this, a limit called the wet-bulb temperature –that considers heat and humidity– beyond which humans cannot tolerate high temperatures.
- Some heat-related illnesses include heat stroke, heat exhaustion, sunburn and heat rashes.
- Sometimes, heat-related illnesses can prove fatal.

Effects

- Sudden fatalities due to extremely high temperature.
- The trapping of heat can also damage crops, dry out vegetation and result in droughts.
- The heat domes can also act as fuel to wildfires.
- The sweltering heat wave will also lead to rise in energy demand, especially electricity, leading to pushing up rates.