

## Contents

<b>{Geo – Climatology – 2021/03} Effect of Asian Deserts dust on Indian Monsoon.....</b>	<b>2</b>
How Asian Desert Dust affects Indian Monsoon? .....	2
Other Influences on the Indian summer monsoon .....	4
Aerosols and Monsoon Rainfall.....	4
About Aerosols .....	4
Impact of Aerosols on Monsoon .....	6
Summary .....	9
<b>{Geo – Climatology – 2021/04} Tropical Cyclones &amp; Climate Change .....</b>	<b>9</b>
Wind Shear affecting Tropical Cyclones.....	10
<b>{Geo – Climatology – 2021/04} Mixing Height .....</b>	<b>10</b>
Variations in Mixing Height.....	11
<b>{Geo – EG – Water Resources – 2021/02} Ageing Dams &amp; Looming Crisis.....</b>	<b>11</b>
Consequences of ageing dams .....	12
<b>{Geo – EG – Water Resources – 2021/04} Jal Jeevan Mission (JJM).....</b>	<b>12</b>
Jal Jeevan Mission (URBAN) .....	13
<b>{Geo – HG – 2021/02} Migration: Types, Causes &amp; Consequences .....</b>	<b>14</b>
What is migration? .....	14
Causes of Migration .....	14
Different forms of migration .....	15
Spatial patterns of Migration in India .....	16
Indian Diaspora .....	17
Consequences of Migration .....	18
Questions .....	19
Way forward.....	20
<b>{Geo LBT – India – 2021/02} Andaman and Nicobar Islands .....</b>	<b>20</b>
Andaman and Nicobar Islands.....	20
<b>{Geo LBT – India – 2021/03} Millions depend on Teesta waters: Hasina tells Modi.....</b>	<b>22</b>

### Colour Codes:

- 1. Recently in News & Very Important**
- 2. Important for Prelims + Mains**

3. Important for Prelims

4. Very Important for Prelims

5. Important for Mains

6. Key Word or Key Phrase

## {Geo – Climatology – 2021/03} Effect of Asian Deserts dust on Indian Monsoon

[TH](#) | [Prelims + Mains](#) | [GS1](#) > geophysical Phenomenon | [Geography](#) > [Indian Geography](#) > [Monsoons](#)

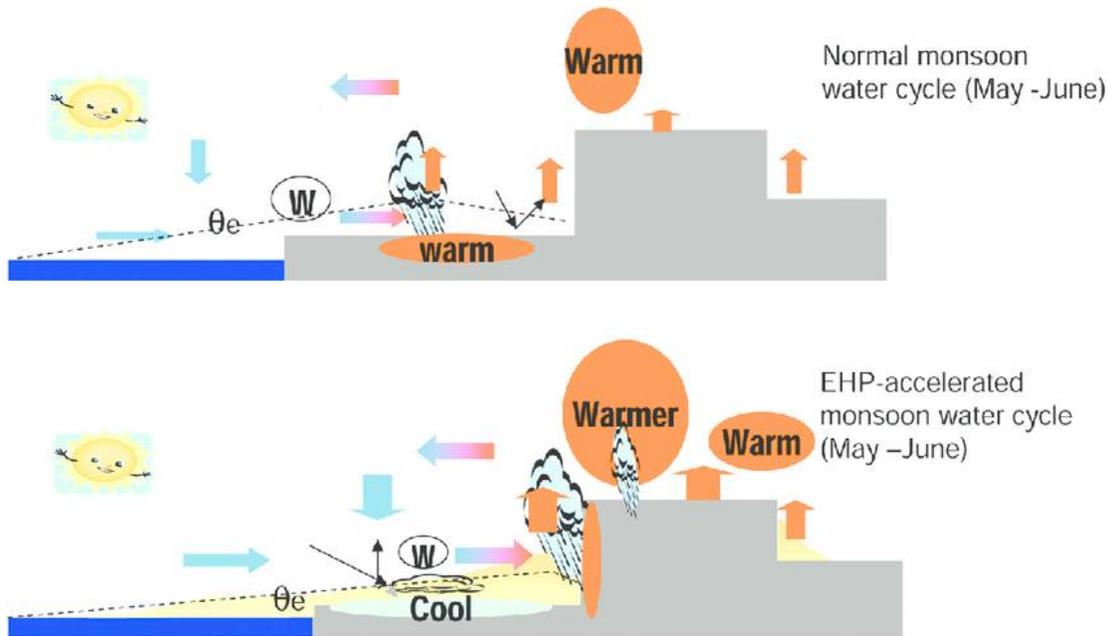
- **Context:** Recently, a study details how the **Indian monsoon gets influenced by the atmospheric dust particles swept up by winds from deserts in the Middle East (Asian Deserts).**



[Source and Credits](#)

### How Asian Desert Dust affects Indian Monsoon?

- Aerosols significantly affect the Earth's radiation budget and climate at both global and regional scales.
- Aerosol influence occurs through **scattering** and **absorbing radiation**.
- When carried by strong winds into the atmosphere, **dust particles (Aerosols) from the Middle East absorb solar radiation and become extremely hot.**
- The heat from these **particles raises the heat of its surrounding environment enough to change air pressure and circulation patterns of the wind.**
- This phenomenon is termed as **Elevated Heat Pump** i.e., responsible for driving more moisture from sea to the Indian sub-continent, and consequently **increasing precipitation.**



[Source and Credits](#)

## Positive Feedback Loops

- It is a loop where the **product of a reaction leads to enhancement of that very reaction.**
- In this case also positive feedback loop applies.
- **Dust particles boost the power of Indian monsoons and monsoons increase the winds in the Middle East and subsequently produce more dust aerosols.**

## How monsoon influences Dust?

- **With stronger monsoon there is heating in the upper atmosphere.**
- The convection associated with the monsoon can go up to a very high elevation (ex. 10 km).
- When this pattern of air over the monsoon is heated something like wave is produced.
- These waves have distinct parts facing either High Pressure or Low Pressure and are responsible for transporting air back to Middle East.
- **The air goes downwards and strikes the surface to pick up more dust particles.**

## Role of Iranian Plateau

- It is another source fueling the impact of aerosolized dust upon the Indian summer monsoons.
- Iranian Plateau is at **higher elevation which makes it easier for solar radiation to reach surface and increase its temperature.**
- Increase in surface temperatures causes **lower tropospheric winds to flow towards heated regions (because of the low pressure).**

- This leads to an accumulation of hot air above the Iranian Plateau which **strengthens the monsoon circulation over the deserts of Arabian Peninsula.**

## Other Influences on the Indian summer monsoon

---

- **Snow darkening Effect:** **black carbon and dust particles** suspended in the air known as Aerosols land in snow covered areas.
  - ✓ It darkens the snow.
  - ✓ Reduces the reflectivity.
  - ✓ Leading to more absorption of sunlight.
  - ✓ Process increases the warming of the land and troposphere above.
  - ✓ It leads to enhanced low-level southwesterly winds that amplify the dust accumulation over the Himalayas and Indo-Gangetic plain.
- **Solar Dimming Effect:** it is a process where **aerosols block the solar radiation** from reaching the surface.
  - ✓ It causes land surface temperature to cool down which interferes with hydrological processes by reducing evaporation and **in turn reducing rainfall.**

## Role of other deserts on monsoon

---

- **Deserts across the globe play important roles in monsoons:**
  - ✓ Dust aerosols from deserts in West China such as **Taklamakan Desert** and **Gobi Desert** can be transported eastward to eastern China and **influences the East Asia Summer Monsoons.**

## Aerosols and Monsoon Rainfall

---

- **Context:** Scientists have found that **aerosols** have led to **increased incidents of high rainfall events in the foothills of the Himalayan Region (→ causing regional disparity in rainfall distribution).**
- The region is associated with **high aerosol loading**, much of which is **black carbon** & **dust**.
- Here **air mass is forced from a low elevation to a higher elevation** (**rainfall due to orographic forcing**).

## About Aerosols

---

- An **aerosol** is a **suspension of fine solid particles or liquid droplets in air or another gas.**
- Aerosols can be natural or anthropogenic.
  1. Examples of **natural aerosols** are **fog, mist, dust, forest exudates & geyser steam.**
  2. Examples of **anthropogenic aerosols** are **particulate air pollutants & smoke.**

## Why in News?

Scientists have found that aerosols have led to increased incidents of high rainfall events in the foothills of the Himalayan Region (causing regional disparity in rainfall distribution).

© PMF IAS

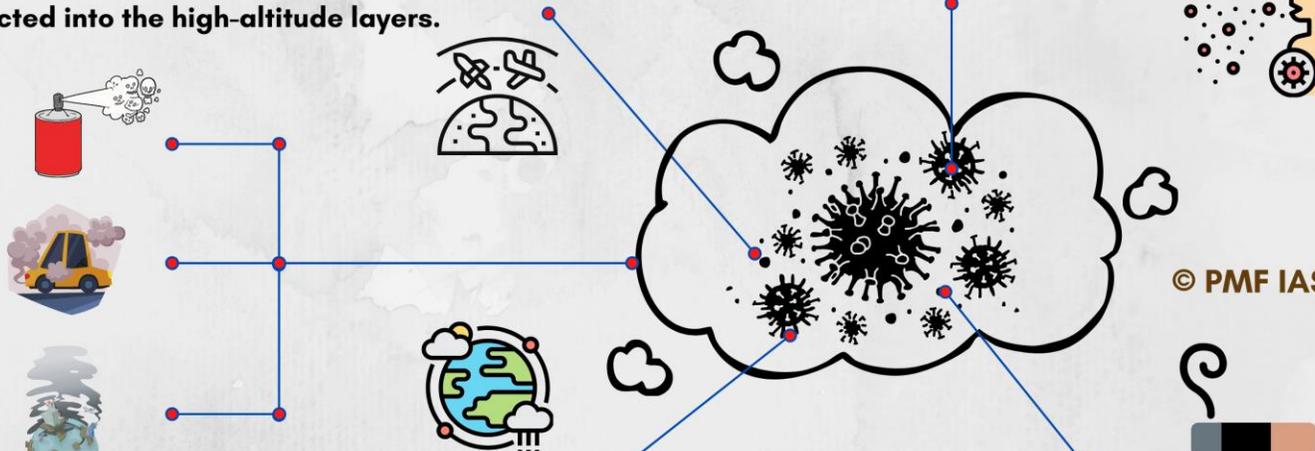


# WHAT ARE AEROSOLS?



Certain aerosols can still be found in the **stratosphere**, especially volcanic aerosols ejected into the high-altitude layers.

An aerosol is a **suspension of fine solid particles or liquid droplets** in air or another gas.



In the atmosphere, these particles are mainly situated in the **low layers of the atmosphere** (< 1.5 km).

Aerosols can be **natural** (fog, mist, dust, forest exudates & geyser steam) or **anthropogenic** (particulate air pollutants & smoke).

© PMF IAS

# EFFECTS OF AEROSOLS

They serve as nuclei for cloud droplets or ice crystals in ice clouds.

They affect the atmospheric chemical composition.

Affects radiative balance of Climate Change (by Scattering or Absorbing)

They can reduce the visibility.

Modify Optical properties & Lifetime of Clouds

They have important impacts on air quality & human health.

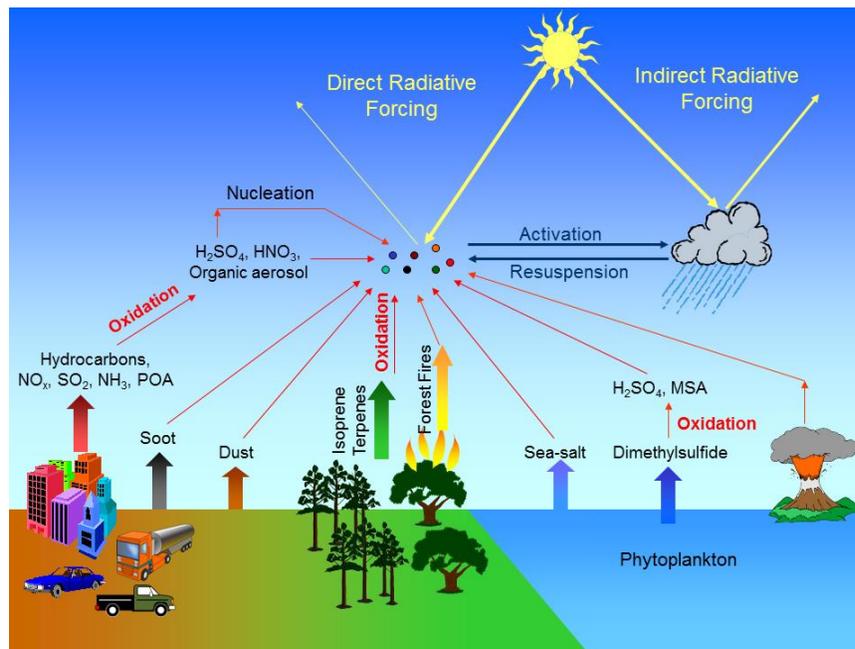


© PMF IAS

- In the atmosphere, these particles are mainly situated in the **low layers of the atmosphere** (< 1.5 km) since aerosol sources are located on the terrestrial surface.

- However, certain aerosols can still be found in the [stratosphere](#), especially **volcanic aerosols** ejected into the high-altitude layers.
- Effects of aerosols:
  1. They affect the atmospheric chemical composition.
  2. They can reduce the visibility.
  3. They have important impacts on air quality & human health.
  4. They serve as **nuclei for cloud droplets or ice crystals** in ice clouds.

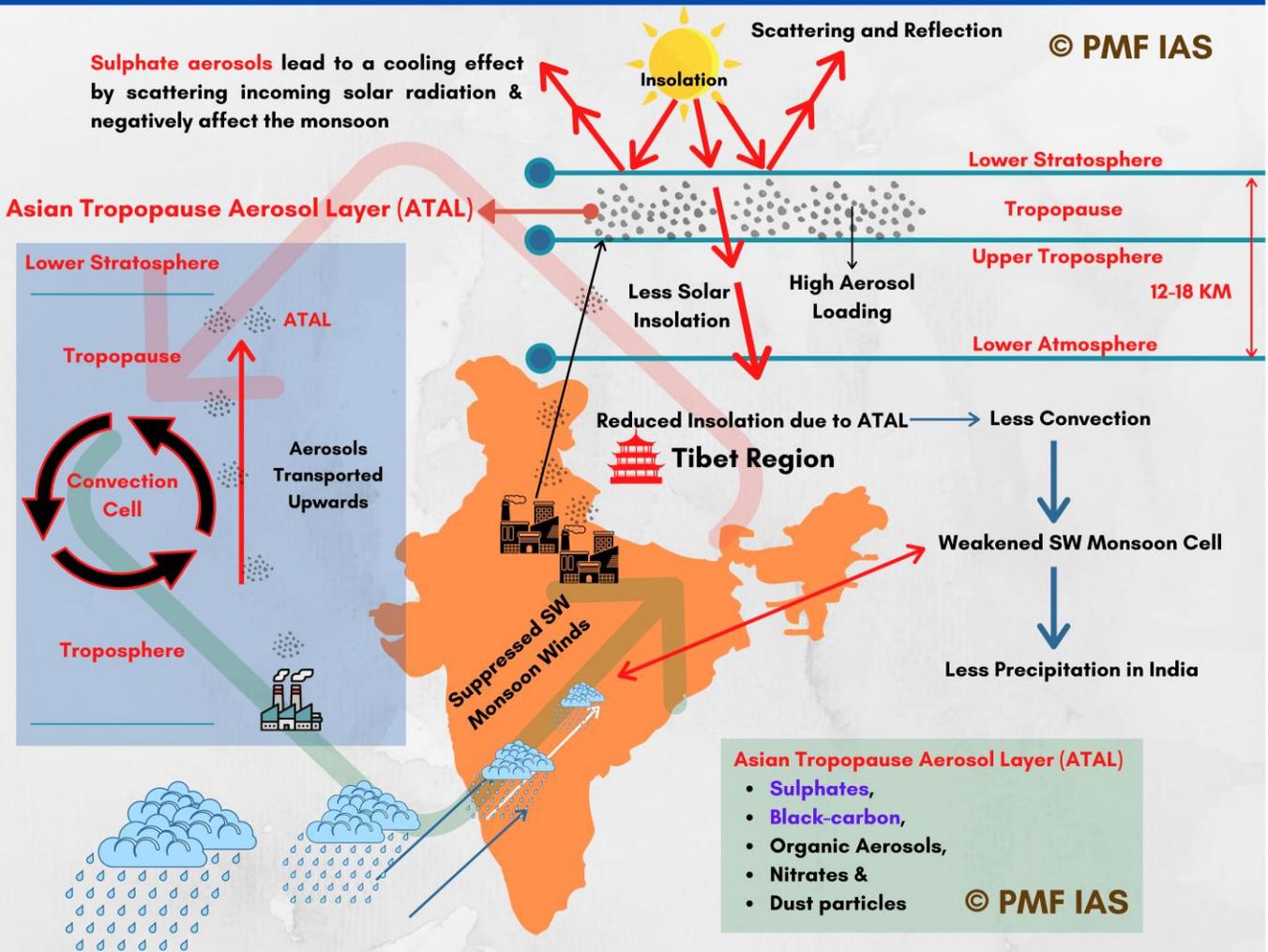
## Impact of Aerosols on Monsoon



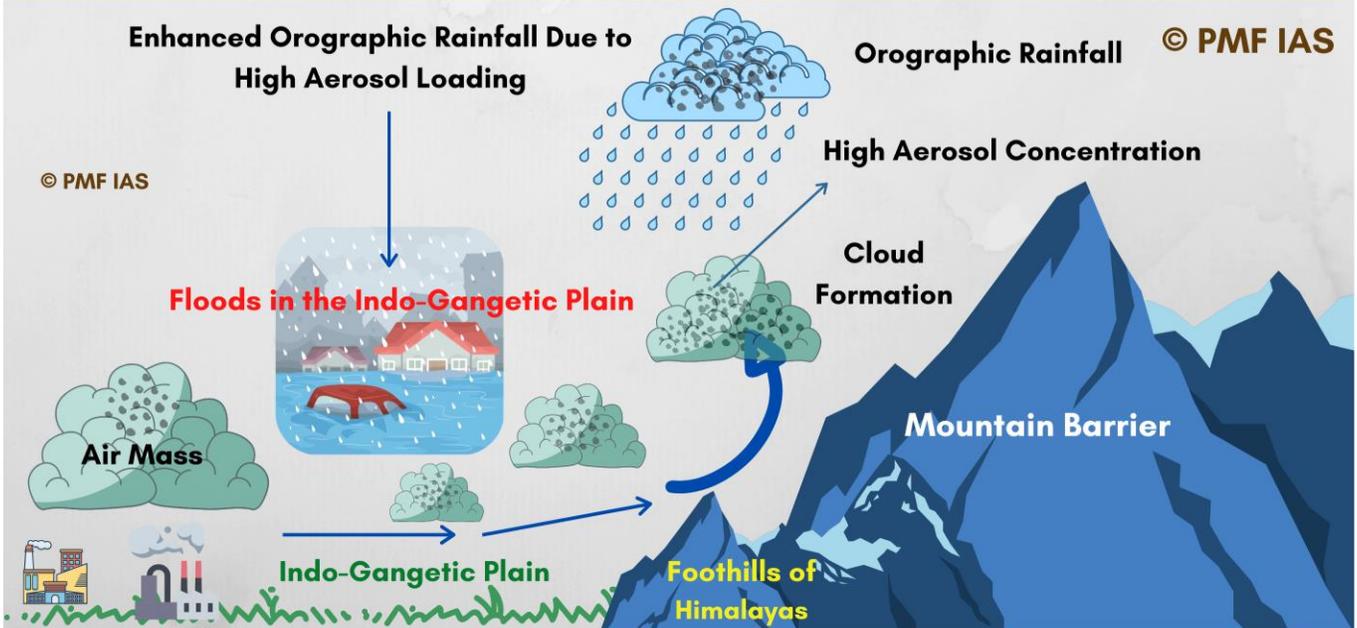
[Source & Credits](#)

- Aerosol remains one of the most uncertain factors in climate projection.
- Aerosol can **affect the radiative balance** of the climate system by
  1. **directly scattering or absorbing sunlight**, or
  2. acting as **cloud condensation nuclei** & ice nuclei & thus **modify the optical properties** as well as **lifetimes of clouds**.
- **Aerosols lead to enhancement or suppression** of the Indian summer monsoon rainfall depending on
  - ✓ their duration & scale along with their **tendency to scatter sunlight** directly back into space, or
  - ✓ by **changing the size of cloud particles**, thus negatively affecting their capacity to absorb sunlight.
- This leads to reduced temperatures over land (due to [smog](#)), resulting in **weaker land-sea temperature gradient**, which is an essential force required to pull the monsoon circulation from ocean to land.

# IMPACT OF AEROSOLS ON A MACROSCALE (INDIAN MONSOON)



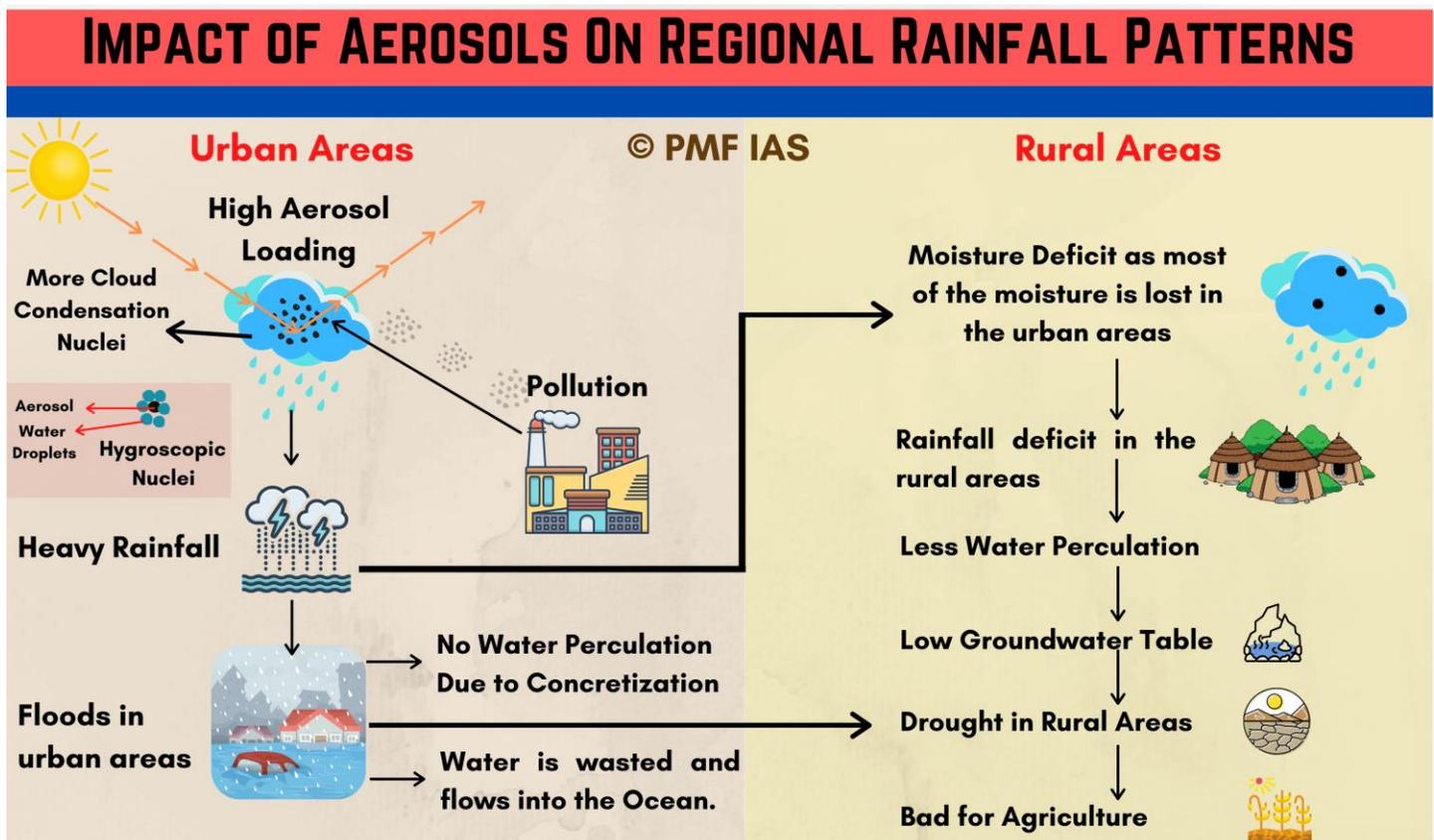
# IMPACT OF AEROSOLS ON MONSOONS IN THE HIMALAYAN FOOTHILLS



## Asian Tropopause Aerosol Layer (ATAL) – negatively affects Indian monsoon

- **Asian Tropopause Aerosol Layer (ATAL)** covers **South Asia** during the **monsoon season** & has been suspected to have a role in controlling the monsoon precipitation.
- ATAL is formed because of the **convective transport of aerosols** from the lower atmosphere to the **upper troposphere & lower stratosphere (UTLS — 12–18 km range)**.
- It is made up of **sulphates** along with **black-carbon, organic aerosols, nitrates** & dust particles.
- Black carbon aerosols in ATAL are transported from **North India & East China** during **El Niño**.
- **Sulphate aerosols** are transported from **East-Asia**.
- The increase of these pollutants in the UTLS leads to the thickening & widening of the ATAL.
- The **higher amounts of sulphate aerosols** in the UTLS lead to a **cooling effect of the earth's surface** by scattering incoming solar radiation & **negatively affect the monsoon**.
- While the **El Niño leads to a decrease in rainfall over India, inclusion of aerosols amplifies decrease in rainfall by 17% over the central India**.

## Impact of aerosols on regional rainfall patterns



- The **incidents of high rainfall events** are **increasing in the urban areas** due to high aerosol loading (**high pollution** → **high aerosol loading** → **more cloud condensation nuclei** → **more precipitation** → **floods**).

- This is causing a rainfall deficit in the rural areas (**drought in rural areas & floods in urban areas → less water percolation → lower groundwater table → bad for agriculture**).

## Summary

---

- **Aerosol** → suspension of fine solid particles or liquid droplets in air or another gas
  - ✓ **Natural aerosols** → fog, mist, dust, forest exudates & geyser steam
  - ✓ **Anthropogenic aerosols** → air pollutants like **sulphates, black carbon, dust & smoke**
- Aerosols are mainly situated in the low layers of the atmosphere (< 1.5 km).
- **High aerosol loading** → increased incidents of high rainfall events in the foothills of the Himalayan Region → regional disparity in rainfall distribution
- Urban areas → **high pollution** → **high aerosol loading** → **more cloud condensation nuclei** → **more precipitation** → **floods**
- High rainfall in urban areas → **drought in rural areas & floods in urban areas** → **less water percolation** → **lower groundwater table** → **bad for agriculture**
- Aerosols **affect the radiative balance** by **directly scattering sunlight** or acting as **condensation nuclei**.
- **Aerosols lead to enhancement or suppression** of the Indian summer monsoon rainfall depending on
  - ✓ their **tendency to scatter sunlight** directly back into space, or
  - ✓ by **changing the size of cloud particles**, thus negatively affecting their capacity to absorb sunlight.
- This leads to **weaker land-sea temperature gradient** leading to a **weak monsoon cell**.
- **Asian Tropopause Aerosol Layer (ATAL)** covers **South Asia** during the **monsoon season**.
- **ATAL** is made up of **sulphates, black-carbon, organic aerosols, nitrates** & dust particles.
- The **higher amounts of sulphate aerosols** lead to a **cooling effect** by scattering incoming solar radiation & **negatively affect the monsoon**.
- **El Niño loaded with aerosols amplifies decrease in rainfall over central India**.

## {Geo – Climatology – 2021/04} Tropical Cyclones & Climate Change

---

**D2E** | Prelims + Mains | GS1 > Important geophysical phenomenon | Geography > Climatology

- **Context:** As per recent study, the **intensity of cyclones, hurricanes and typhoons might increase** in the next century **due to global warming**.
- There could be a **5% cent increase** in **maximum cyclonic wind speeds** if the world warmed by 2°C by 2100.
- Stronger storms might occur in areas closer to poles which mean that **seas in these regions are becoming warmer**.

- Countries which had never felt the impacts of cyclones might start witnessing them.
- In the North Pacific Ocean, the intensity of tropical cyclones making landfall along the coasts of eastern and south eastern Asia **had increased** by 12-15 per cent.
- In the Indian Ocean Region, cyclonic disturbances on the sea surface have **increased** in the Arabian Sea.
- In 2019, five out of the eight cyclones that impacted India formed in the Arabian Sea. ([Usually, the cyclones that impact India originate from Bay of Bengal](#))
- This has happened because of a decrease in vertical wind shear.

## **Wind Shear affecting Tropical Cyclones**

---

- These are **localized winds** around the cyclones.
- It is of **2 types**:
  - ✓ **Vertical wind shear** is a change in wind speed or direction with a change in altitude.
  - ✓ **Horizontal wind shear** is a change in wind speed with a change in lateral position for a given altitude.
- These winds affect the intensity of cyclones.
- When the **wind shear is weak, cyclones grow vertically**, and the [latent heat from condensation](#) is released into the air directly above the storm, **aiding in development**.
- **Strong winds usually de-stabilize a cyclone and make it less intense**.
- It means that the **storms become more slanted/tilted** and the **latent heat release is dispersed over a much larger area**.

Basics: [Conditions Favourable for Tropical Cyclone Formation](#)

**Mains Practice: With change in climate, tropical cyclones have become more frequent accompanied by great intensity. Comment (150 words)**

## **{Geo – Climatology – 2021/04} Mixing Height**

---

[PIB](#) | Prelims + Mains | GS1 > Important geophysical phenomenon | Geography > Climatology

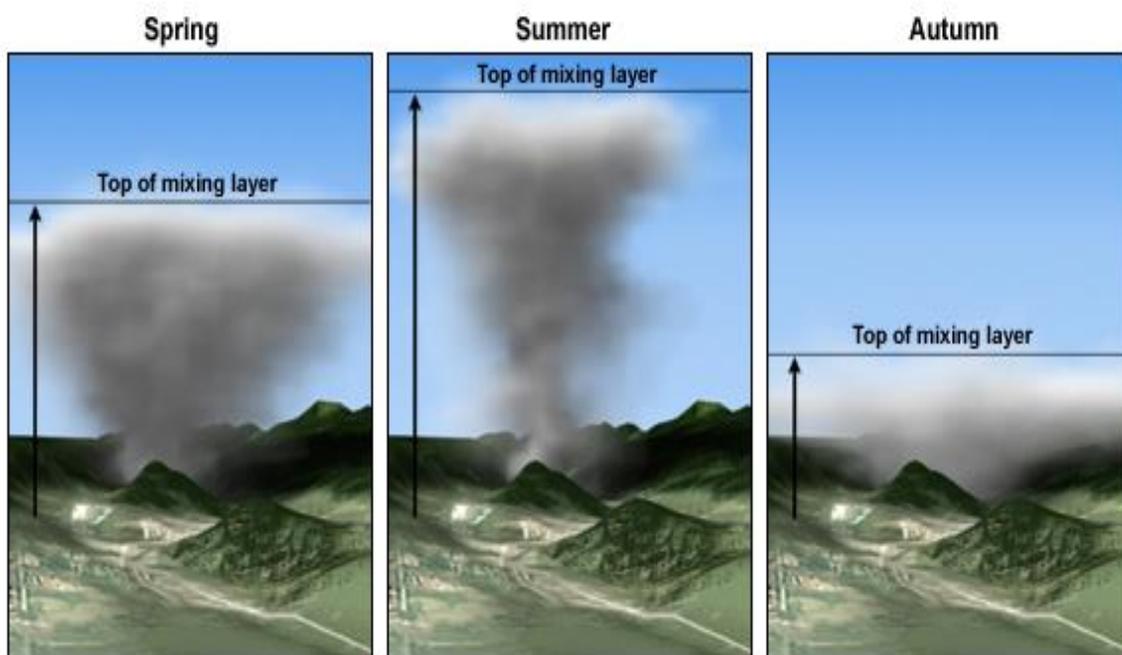
- The mixing height is the **height of vertical mixing of air and suspended particles above the ground**.
- This height is **dependent upon atmospheric temperature profile**.
- A parcel of air rising from the surface will rise at a given rate (called the [dry-adiabatic lapse rate](#)).
- As long as the parcel of air is warmer than the ambient temperature, it will continue to rise.
- However, once it becomes colder than the ambient environment, its rise will eventually stop.
- **It is at this junction where mixing height is determined**.

- Mixing Height signifies the **height throughout which a pollutant such as smoke can be dispersed**.

## Variations in Mixing Height

- Mixing heights are usually the **highest (i.e., in the 1000–2000 m range) during daytime periods** that are characterized by strong solar heating and the **lowest (about 100m) during the night**.
- During times of surface **temperature inversions** (typically night times with clear skies), the **mixing height goes to zero** and **smoke dispersion is minimal** ([link between pollution and temperature inversion](#)).
- The mixing layer is **generally**:
  - ✓ **Deepest over the interior of continents and tropical regions.**
  - ✓ **Shallowest over the oceans, coasts, and polar Regions.**
- The depth of the mixing layer **also changes with the seasons**.

### Seasonal Variation in the Height of the Mixing Layer



©The COMET Program

[Source and Credits](#)

## {Geo – EG – Water Resources – 2021/02} Ageing Dams & Looming Crisis

[TH](#) | Mains | Geography > Economic Geography > Water Resources | GS2 > Government policy

- India's dams are now ageing and concomitantly (at the same time), reservoir water is being replaced by **silt**.

- Of the over 5,200 large dams built so far, about 1,100 large dams in India have already reached 50 years of age and some are older than 120 years.
- The number of such dams will increase to 4,400 by 2050.
- This means that **80% of the nation's large dams face the prospect of becoming obsolete by 2050.**
- The situation with thousands of minor dams is even more precarious as their shelf life is even lower.
- Krishna Raja Sagar dam was built in 1931 and is now 90 years old.
- Similarly, Mettur dam was constructed in 1934 and is now 87 years old.
- Both these reservoirs are in the water-scarce Cauvery river basin.
- To make matters worse, studies show that the design of many of our reservoirs is flawed.
- The designed flood cushion within several reservoirs across many river basins may have already depleted substantially due to **siltation**.

## Consequences of ageing dams

---

- Due to siltation **floods have become more frequent** downstream of dams.
- The flooding of Bharuch in 2020, Kerala in 2018 and Chennai in 2015 are a few examples attributed to downstream releases from reservoirs.
- The nation will eventually be unable to find sufficient water in the 21st century to feed the rising population by 2050, grow abundant crops & create sustainable cities.
- This will increase social and political tensions in the water scarce regions.

## {Geo – EG – Water Resources – 2021/04} Jal Jeevan Mission (JJM)

---

[PIB](#) | [Prelims + Mains](#) | [GS3 > Conservation](#) | [GS2 > Government Policy](#)

- Jal Jeevan Mission, **launched in 2019**, envisions to **provide safe and adequate drinking water through individual household tap connections by 2024** to all households in **rural India**.
- The programme will also implement **source sustainability measures** as mandatory elements, such as **re-charge and reuse** through **grey water (used wastewater that has not come into contact with faeces) management, water conservation, rain water harvesting**, etc.
- JJM will be based on a **community approach to water (Jan Andolan for water— making water everyone's priority)** and will include extensive Information, education, and communication as a key component.
- The **Mission will converge** with other **Central and State Government Schemes** to achieve its objectives of sustainable water supply management across the country.
- The **Jal Shakti Ministry** is the nodal ministry for the implementation of the mission.

- The **fund sharing pattern between the Centre and states** is **90:10** for Himalayan and North-Eastern States, **50:50** for other states, and **100%** for Union Territories.



Source and Credits

## Jal Jeevan Mission (URBAN)

- JJM Urban has been announced under the **Housing and Urban Affairs Ministry**.
- It aims to provide universal coverage of water supply to all households through functional taps in all statutory towns in accordance with **Sustainable Development Goal- 6 (clean water and sanitation for all)**.
- It complements the Jal Jeevan Mission (Rural).

## Objectives

- It proposes to cover estimated gap:
  - ✓ 2.68 crore in urban household tap connections.
  - ✓ 2.64 In sewer connections in 500 AMRUT cities.
- Rejuvenation of water bodies to augment sustainable fresh water supply and **creating green spaces**.
- To reduce floods and enhance amenity value through an **Urban Aquifer Management plans**.
- To promote **circular economy of water** through focusing on **recycle/reuse** of treated sewage, rejuvenation of water bodies and water conservation.
- To spread awareness among masses through **Information, Education & Communication campaign**.
- To conduct **Pey Jal Survekshan** in cities to ascertain:
  - ✓ Equitable distribution of water.
  - ✓ Reuse of wastewater.

## {Geo – HG – 2021/02} Migration: Types, Causes & Consequences

---

Prelims + Mains | Geography > Human Geography | GS1 > population, poverty & developmental issues

- **Context:** COVID induced migration (urban to rural, reverse migration, atrocities faced by migrant workers due to the suspension of movement) & refugees from the neighbouring countries.
- The onset of the pandemic has exposed the migrants to a greater displacement risk alongside factors such as climate change (flooding of riverbanks, soil degradation, cyclones, rise in sea level etc.)

### What is migration?

---

- Migration is responsible for the redistribution of population over time and space.
- **National sample survey organisation (NSSO)** periodically conducts the '**All India household survey on Employment, Unemployment and Migration**'.
- NSSO defines, "a migrant is an individual **who changed his or her usual place of residence** anytime preceding the survey".
- As per 2001 census, out of 1,029 million people in the country, 307 million (**30 per cent**) were reported as **migrants by place of birth**.
- However, this figure was 315 million (**31 per cent**) in case of **place of last residence**.

### Causes of Migration

---

- These reasons can be put into two broad categories:
  1. **push factor**, these cause people to leave their place of residence or origin; and
  2. **pull factors**, which attract the people from different places.
- In India people migrate from **rural to urban** areas mainly due to poverty, high population pressure on the land, lack of basic infrastructural facilities like health care, education, etc.
- Apart from these factors, **natural disasters** such as, flood, drought, cyclonic storms, earthquake, tsunami, wars and local conflicts also give extra push to migrate.
- On the other hand, there are **pull factors** which attract people from rural areas to cities.
- The most important pull factor for majority of the **rural migrants to urban areas** is the better opportunities, availability of regular work, better healthcare and educational facilities and relatively higher wages.

### The reason for migration of males and females are different

---

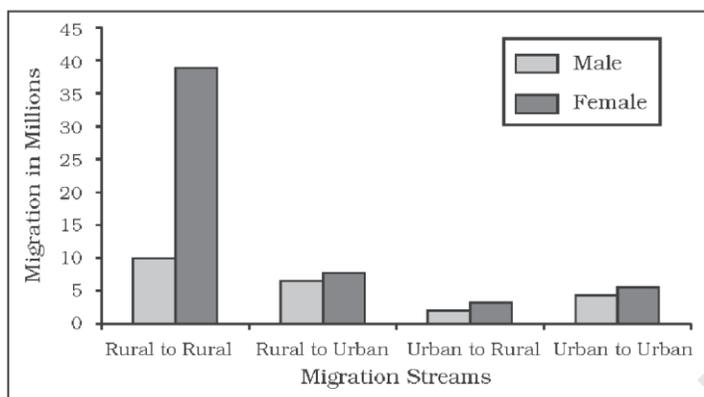
- **Work and employment** have remained the main cause for male migration (38 per cent) while it is only three per cent for the females.

- About 65 per cent of females move out from their parental houses following their marriage.
- The case is opposite in **Meghalaya**.
- In comparison to these, **marriage migration** of the male is only 2 per cent in the country.

## Different forms of migration

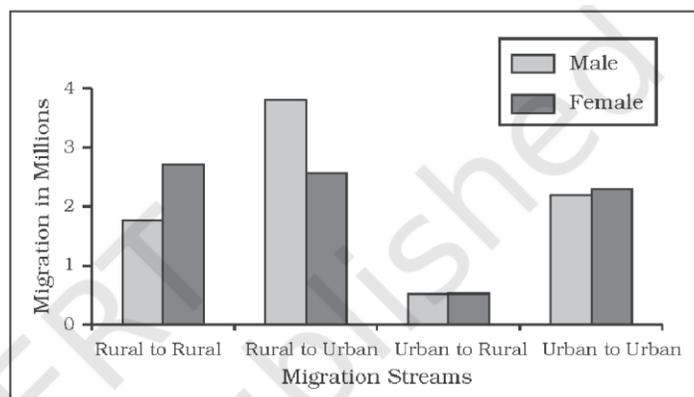
### Internal migration

- Internal/domestic migration is human migration within the specified geopolitical nation-state.
- According to the Census of 2011, there were 139 million interstate migrants relocating to urban hubs in search of education, marriage, employment etc.
- **Uttar Pradesh, Bihar, Delhi, Gujarat, Maharashtra** are states which absorb most of the migrants.
- Internal migration is further divided into two categories:
  1. **Long term Migration:** Resulting in the relocation of an individual or household.
  2. **Short term Migration:** Comprising back and forth movement between the source and destination.
- **Females predominate the streams of short distance rural to rural migration.**
- **Men predominate the rural to urban stream or inter-state migration due to economic reasons.**



**Fig. 2.1 a : Intra-state Migration by Place of Last Residence Indicating Migration Streams (Duration 0-9 years), India, 2001**

Source: Census of India, 2001



**Fig. 2.1 b : Inter-state Migration by Place of Last Residence Indicating Migration Streams (Duration 0-9 years), India, 2001**

### External migration

- External migration occurs when a person(s) immigrates to another country.
- External migration in India poses a grave challenge due to reasons like **brain drain**.
- It also brings in valuable **foreign exchange** into the country.

### Refugee Migration

- There has been a significant trend of an **involuntary or forced immigration** to India in the form of refugees.
- According to the United Nations High Commissioner for Refugees (UNHCR), a total of 244,094 refugees and asylum seekers are provided protection and assistance in India.
- In recent times India has become host to the **Rohingya Muslim refugees** fleeing from Myanmar.
- Over a million Rohingya Muslims now live in the world's largest refugee camp in Cox's Bazar, Bangladesh.

### Immigrants by last residence from neighbouring countries by all duration in India, 2001

Countries%	No of immigrants	% of total immigrants
Total international migration	5,155,423	100
Migration from neighbouring countries	4,918,266	95.5
Afghanistan	9,194	0.2
<b>Bangladesh</b>	<b>3,084,826</b>	<b>59.8</b>
Bhutan	8,337	0.2
China	23,721	0.5
Myanmar	49,086	1.0
<b>Nepal</b>	<b>596,696</b>	<b>11.6</b>
<b>Pakistan</b>	<b>997,106</b>	<b>19.3</b>
Sri Lanka	149,300	2.9

### Weather induced migration

- According to the Intergovernmental Panel on Climate Change, (IPCC) the single greatest impact of climate change will be on human migration.
- Experts believe that by 2050, more than 200 million people will be forced to flee their homes and are called "**Climate refugees**".
- In 2020 the world has witnessed a large-scale destitution resulting in human movement due to climate catastrophes.
- Examples: Bushfires in Australia, floods in China, Japan and Europe and the costliest cyclone – Amphan (with an economic impact of more than \$13 billion) hitting the coast of Odisha and West Bengal in 2020.

### Spatial patterns of Migration in India

- Some states like **Maharashtra, Delhi, Gujarat and Haryana** attract migrants from other states such as **Uttar Pradesh, Bihar**, etc.

- **Maharashtra** occupied first place in the list of in-migrants, followed by Delhi, Gujarat and Haryana.
- On the other hand, Uttar Pradesh (-2.6 million) and Bihar (-1.7 million) were the states, which had the largest number of net outmigrants from the state.
- Among the urban agglomeration (UA), Greater Mumbai received the higher number of in migrants.
- While facing jobless growth, India is administering various trends in migration activities:
  1. **Uttar Pradesh** and **Bihar** are the largest sources of inter-state migration who face developmental disparities like poverty, unemployment, lack of education.
  2. **Gujarat** and **Maharashtra** become ideal for migrants due to employment opportunities in the Manufacturing sector and Industries which require very minimal training.
  3. Around 40% of the population of NCR are migrants from different Indian states.
  4. Since 2013, Kerala has become a destination for **low skilled migrants**. This is due to **low birth rate, literacy rate, human development, and a rapid increase in ageing population of the state**.
  5. Recently migrants from Odisha and West Bengal are choosing to migrate to states like Maharashtra and Gujarat in order to avoid loss of life and property caused by irregular weather extremities.

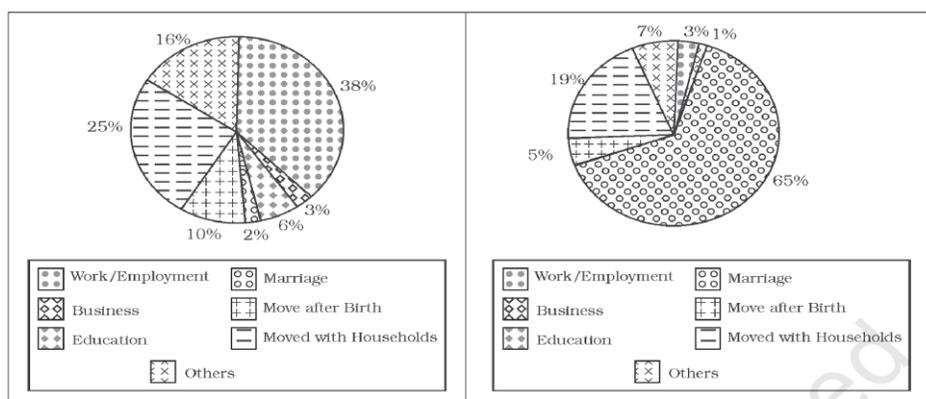


Fig. 2.2 a : Reasons for Male Migration by Last Residence with Duration (0-9 years), India, 2001

Fig. 2.2 b : Reasons for Female Migration by last Residence with Duration (0-9 years), India, 2001

## Indian Diaspora

- As far as emigration from India is concerned it is estimated that there are around 20 million people of Indian Diaspora, spread across 110 countries.
- During colonial period millions of Indians were sent as **indentured labourers** to work on plantations in tropical countries.
  - ✓ The British set people from Bihar and Uttar Pradesh to **Mauritius, Caribbean islands (Trinidad, Tobago and Guyana), Fiji** and **South Africa**.
  - ✓ The French and the Dutch sent Indians to **Reunion Island, Guadeloupe, Martinique** and **Surinam**.
  - ✓ The Portuguese sent people from Goa, Daman & Diu to **Angola** and **Mozambique**.

- All such migrations were covered under the time-bound contract known as **Girmit Act** (Indian Emigration Act).
- There was a steady outflow of India's semi-skilled and skilled labour in the wake of the **oil boom in West Asia** in the 1970s.
- There was also some outflow of entrepreneurs, storeowners, professionals, businessmen to Western Countries.
- Third wave of migrants comprised professionals like doctors, engineers (1960s onwards), software engineers, management consultants, financial experts, media persons (1980s onwards), and others migrated to countries such as USA, Canada, UK, Australia, New Zealand and Germany, etc.

## Consequences of Migration

---

- Migration is a response to the **uneven distribution of opportunities over space**.
- Consequences can be observed in economic, social, cultural, political, and demographic terms.

## Economic Consequences

---

- A major benefit for the source region is the **remittance** sent by migrants.
- Remittances from the international migrants are one of the **major sources of foreign exchange**.
- In 2002, India received US\$ 11 billion as remittances from international migrants.
- **Punjab, Kerala and Tamil Nadu** receive very significant amount from their international migrants.
- The amount of remittances sent by the **internal migrants** is very meagre as compared to international migrants, but it plays an important role in the growth of economy of the source area.
- For thousands of the poor villages of Bihar, Uttar Pradesh, Odisha, Andhra Pradesh, Himachal Pradesh, etc. remittance works as life blood for their economy.
- Migration from rural areas of Eastern Uttar Pradesh, Bihar, Madhya Pradesh and Odisha to the rural areas of Punjab, Haryana, Western Uttar Pradesh accounted for the **success of their green revolution strategy** for agricultural development.
- Besides this, unregulated migration to the metropolitan cities of India has caused **overcrowding**.

## Demographic Consequences

---

- Rural urban migration is one of the important factors contributing to the population growth of cities.
- Age and skill selective out migration from the rural area have **adverse effect on the rural demographic structure**.

- High out migration from Uttarakhand, Rajasthan, Madhya Pradesh and Eastern Maharashtra have brought **serious imbalances in age and sex composition** in these states.
- Similar imbalances are also brought in the recipient's states.

## Social Consequences

---

- Migrants act as **agents of social change**. The new ideas related to new technologies, family planning, girl's education, etc. get diffused from urban to rural areas through them.
- Migration leads to intermixing of people from diverse cultures.
- It has positive contribution such as **evolution of composite culture** and breaking through the narrow considerations and **widens up the mental horizon of the people** at large.
- But it also has serious negative consequences such as anonymity, which creates social vacuum and sense of dejection among individuals.
- **Continued feeling of dejection** may motivate people to fall in the trap of anti-social activities like crime and drug abuse.
- Others Migration (even excluding the marriage migration) affects the status of women directly or indirectly.
- In the rural areas, male selective out migration leaving their wives behind puts extra physical as well mental pressure on the women.
- Migration of 'women' either for education or employment **enhances their autonomy** and role in the economy but also **increases their vulnerability**.

## Environmental Consequences

---

- Overcrowding of people due to rural-urban migration has put pressure on the existing social and physical infrastructure in the urban areas.
- This ultimately leads to unplanned growth of urban settlement and formation of slums shanty colonies.
- Apart from this, due to over-exploitation of natural resources, cities are facing the acute problem of depletion of ground water, air pollution, disposal of sewage and management of solid wastes.

## Questions

---

- Which one of the following is the main reason for male migration in India? (a) Education (b) Business (c) Work and employment (d) Marriage
- Which one of the following states receives maximum number of immigrants? (a) Uttar Pradesh (b) Delhi (c) Maharashtra (d) Bihar

- Which one of the following streams is dominated by male migrants in India? (a) Rural-rural (b) Urban-rural (c) Rural-urban (d) Urban-Urban
- Which one of the following urban agglomeration has the highest share of in migrant population? (a) Mumbai UA (b) Delhi UA (c) Bengaluru UA (d) Chennai UA

## Way forward

---

- India needs to introduce migration centric policies and institutional mechanisms in order to ensure inclusive growth while **reducing distress induced migration**.
- This could result in increasing India's prospects for poverty reduction and achieving SDG-Goal 1: No poverty.
- The Government needs to provide social protection for the migrants punctured with the issues of poor housing, insecure & underpaid hazardous work, and the threat of women and child involvement in trafficking.
- States like **Karnataka and Kerala** have introduced schemes for migrant workers like Mathru Poorna scheme (benefitting the pregnant and lactating migrant women in the state) and **Kerala becoming the only state in the country to treat migrant workers as 'the duty of the state'**.
- Public private partnership (PPP) shall be promoted in this sector to ensure safe internal migration by creating a conducive ecosystem by providing rental housing facilities for migrant labourers working near Industrial areas. (Eg – While linking it to schemes like PMAY; Pradhan Mantri Awas Yojana)
- The state shall ensure a life of dignity, equality and liberty for the migrants and hence providing them a sense of belonging and social security.
- Eg – "**One Nation, One Ration Card**" scheme will enable the migrant workers and their family to access Public distribution system (PDS) benefits from any Fair price shop in India.

## {Geo LBT – India – 2021/02} Andaman and Nicobar Islands

---

### TH | Prelims | Geography Mapping/Location Based Topics – India

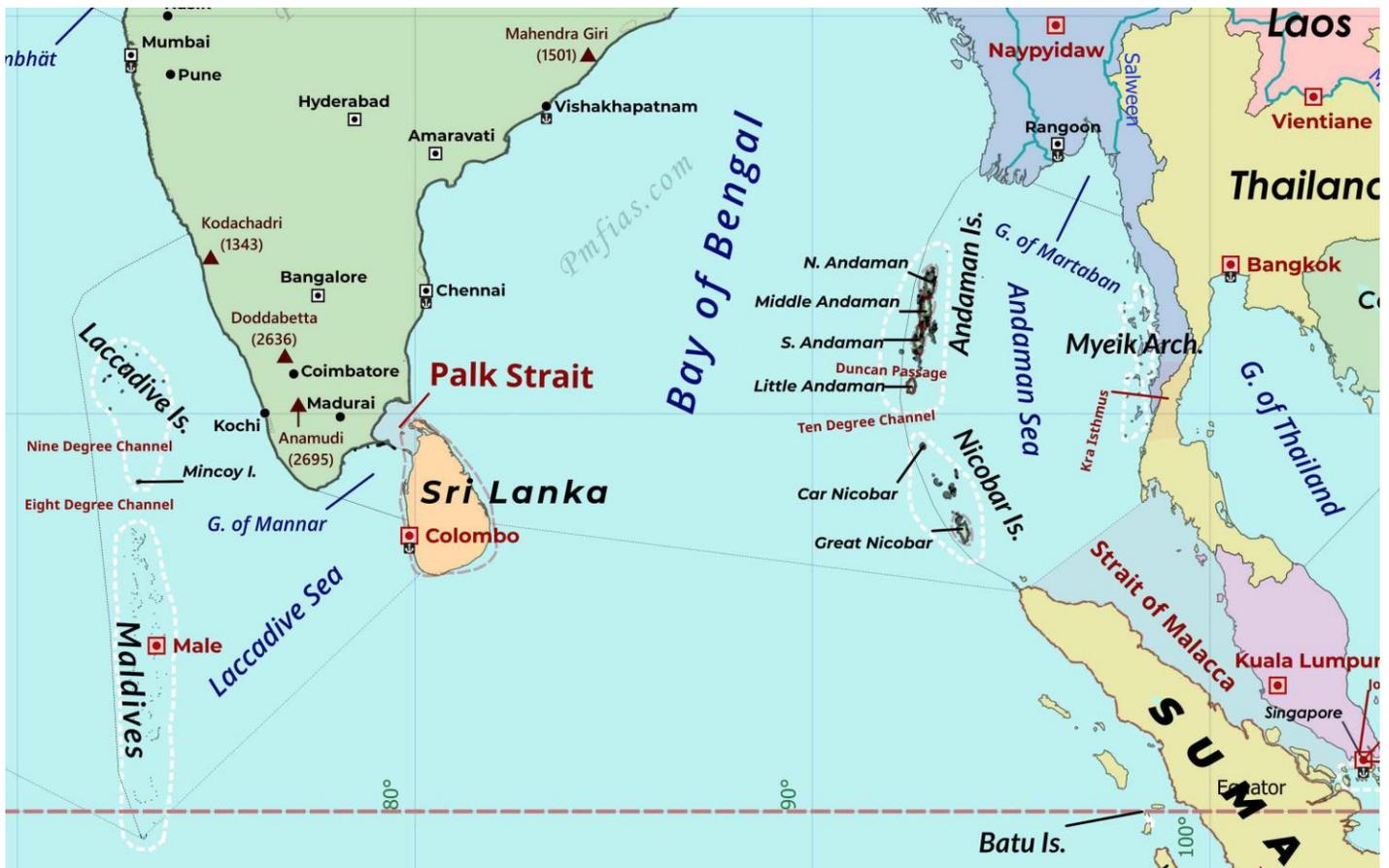
- **Context:** The 'Sustainable Development of Little Andaman Island - Vision Document', is the NITI Aayog's proposal to leverage the strategic location and natural features of the **Little Andaman island**.
- This, the vision says, will be done by building a new **greenfield coastal city** there, that will be developed as a **free trade zone and will compete with Singapore and Hong Kong**.
- The vision document has raised the alarm among conservationists.

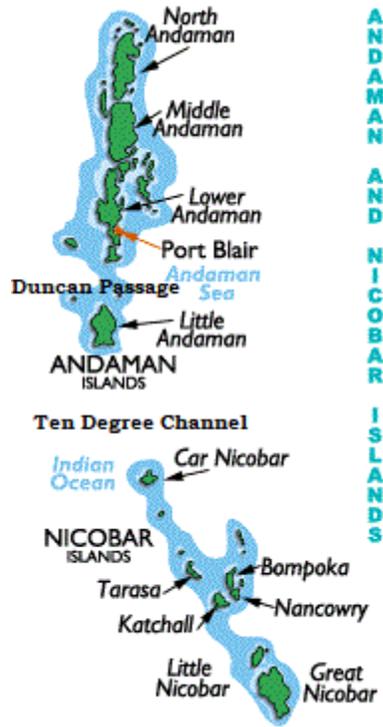
## Andaman and Nicobar Islands

---

- This archipelago is composed of more than 500 islands.

- They extend from 6° 45' N to 13° 45' N and from 92° 10' E to 94° 15' E for a distance of about 590 km.
- The Andaman Islands are divided into three main islands, i.e. **North, Middle** and **South**.
- **Duncan passage** separates **Little Andaman** from **South Andaman**.
- The **Great Andaman group of islands in the north** is separated by the **Ten Degree Channel** from the **Nicobar group in the south** (Prelims 2014).
  - ⇒ **Little Andaman** lies between the **Duncan passage** & the **Ten Degree Channel**.
- **Port Blair**, the capital of Andaman Nicobar Islands, lies in the **South Andaman**.
- Among the Nicobar Islands, the **Great Nicobar** is the largest.
- It is the **southernmost island** and is very close to **Sumatra island of Indonesia**.
- The **Car Nicobar is the northernmost island**.
- Most of these islands are made of tertiary sandstone, limestone and shale resting on basic and ultrabasic volcanoes (Similar to the Himalayas).
- **The Barren Island (the only active volcano in India) and Narcondam Islands (an extinct or dormant volcano)**, north of Port Blair, are **volcanic islands**.
- Some of the islands are fringed with **coral reefs**. Many of them are covered with thick forests. Most of the islands are mountainous.
- **Saddle peak (737 m)** in **North Andaman** is the highest peak.

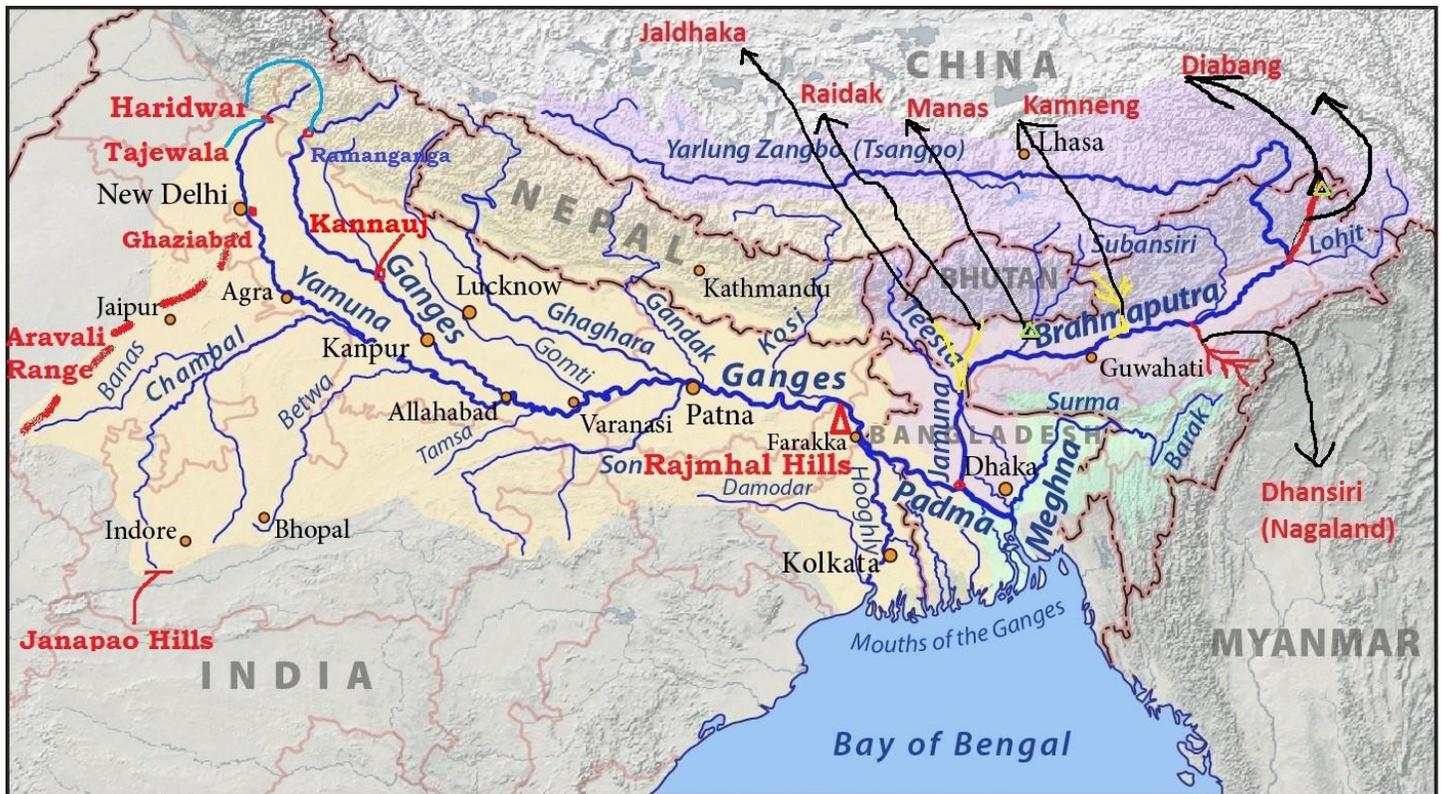




Andaman and Nicobar Islands

**{Geo LBT – India – 2021/03} Millions depend on Teesta waters: Hasina tells Modi**

[TH](#) | [Prelims](#) | [Geography](#) > [Location Based Topics/Mapping](#) > [India](#)



- Context: Bangladesh reiterated its long-pending request for concluding the interim agreement on the sharing of the waters of the Teesta river.
- The [Teesta River](#) flows through **India (Sikkim and West Bengal)** and Bangladesh.
- It was a tributary of the **Padma River (main channel of Ganga in Bangladesh)** prior to the floods of 1787 after which it diverted its course eastwards to join the **Brahmaputra (known as Jamuna in Bangladesh)**.
- Sharing the waters of the Teesta river remains a contentious issue between India and Bangladesh.
- Bangladesh has sought an “equitable” distribution on the lines of the **Ganga Water Treaty of 1996** (sharing of surface waters at the **Farakka Barrage** near their mutual border).
- However, due to resistance from the states (especially West Bengal), the agreement was never finalised.
- This arrangement remains a thorn in the Indo-Bangladesh relations.