

# Topics

- Canopy Bridge for Gibbon
- About Gibbon
- Heat waves
- Goldfinch
- Lodz
- Mains



By saurabh Pandey



# Target Mains -2024/25 -essay topic

**“Self-knowledge turns to ash all actions of dualities on your mind and brings you inner peace.”**

**“आत्म-ज्ञान आपके मन में द्वंद्व के सभी कार्यों को राख कर देता है और आपको आंतरिक शांति प्रदान करता है।”**

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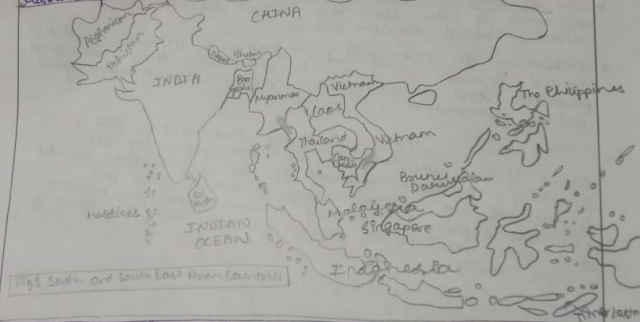
# UPSC

Answer Questions in NOT MORE THAN the Word Limit specified for each in the Parenthesis.  
(Specimen Answer Booklet - For Practice Purpose Only)

(2) "Hydro diplomacy will shape relationship between countries in South and Southeast Asia". Discuss.

In the last yrs, the role of water in international relations has grown exponentially. Such a situation is due to extreme relevance of water, the so called "blue oil", for basic human needs as well as in terms of production and consumption of clean energy. Because of that, now-a-days hydro resources are often used by govt. to implement foreign policies or to mold diplomatic strategies.

Hydro-diplomacy comprises two conceptual frameworks - water diplomacy and science diplomacy - which define ways in which countries can work together to resolve water resource problems at their shared borders.



## • Transboundary rivers, shared water resources and disputes:

- Ganges River system - India and Pakistan.
  - Brahmaputra River system - source of contention between India and China [also affects Bangladesh].
  - Disagreements over Fawazka Biosage, Teesta river system project and River linking project to connect Ganges river to Brahmaputra India and Bangladesh.
  - Mekong River inspires both conflict and cooperation among Cambodia, Laos, Thailand and Vietnam.
  - Treaties negotiated with Nepal over sharing Mahakali, Kosi, Gandaki, Karnali Rivers. - India and Nepal.
  - Salween River water - Myanmar, China and Thailand.
- Any many other river systems in South East Asia like the Irrawaddy, the Red and Chao Phraya, etc...

# UPSC

Answer Questions in NOT MORE THAN the Word Limit specified for each in the Parenthesis.  
(Specimen Answer Booklet - For Practice Purpose Only)

- Key Commitments of Hydro Diplomacy:
    - To combat climate change effects and ensure water availability to down streams, because with increasing global warming and climate change there will be a shrink in water bodies and less availability of water.
    - Water Management and water security: manage water resources efficiently to fulfill increasing demand of water due to population explosion, economic activities, etc. and ensure the water availability, accessibility and affordability and avoid water crisis. eg. Mekong River Commission.
    - To adhere to the Constitutional Provisions: Article 51 of the Indian constitution direct state to promote international peace and security and maintain just & honorable relations between nations, which can be attained by addressing relevant political issues of water resource management, prevent conflicts, ensure regional stability and yields considerable 'peace dividends'.
    - Economic Development: there is a close link between water and economic growth of the country. It is vital for energy generation, industrial activities and its expansion, agricultural & irrigation activities, maintaining health, managing environment and creating jobs.
  - Initiatives to be taken:
    - Institutionalizing hydro diplomacy through Multilateralism: To recreate regional conventions such as the South Asia water Initiative (SAWI). To get maximum regional support and consensus from member nations and to overcome trust deficit. In organisations like UN watercourses convention (UNWC) and UN convention on Non-Navigational Use of International water-courses (NNUIW).
    - Location of Confidence Building measures that categorically focus on river water sharing, mitigating water pollution in line with the 6th Sustainable Development goal (Ensure access to water and sanitation for all) and navigational use of these rivers for trade and commerce with South Asian region.
    - Transboundary water governance is a domain that should elicit great interest in Foreign Policy community. This will help to build trust and reduce the thought of hydro-hegemony of upper riparian countries over the lower riparian countries.
    - To strengthen the institutions like ASEAN, BIMSTEC and ensure cooperation.
    - To make sustainable use of water resources across the boundaries.
- As the transboundary basins cover 46% of the earth's land surface, they seem to be very vital hence the treaties and agreements must be continued in this direction.

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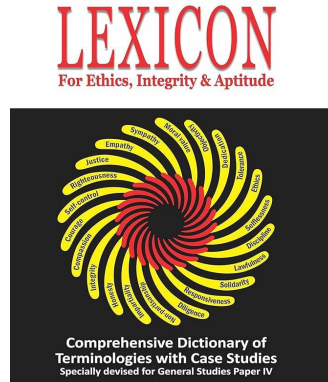
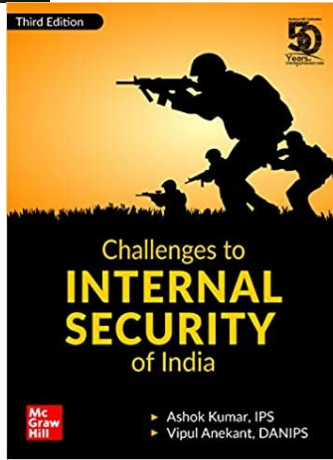
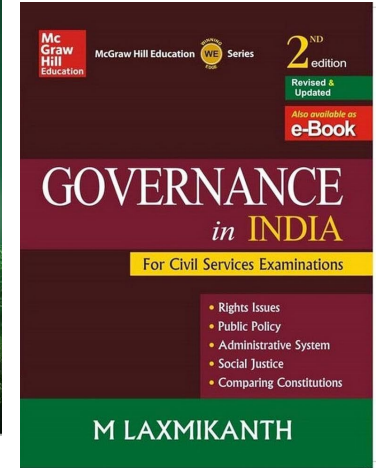
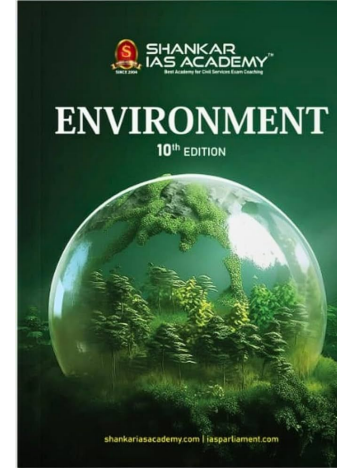
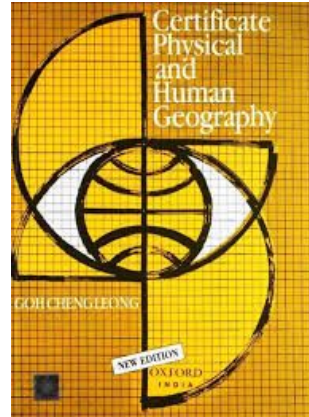
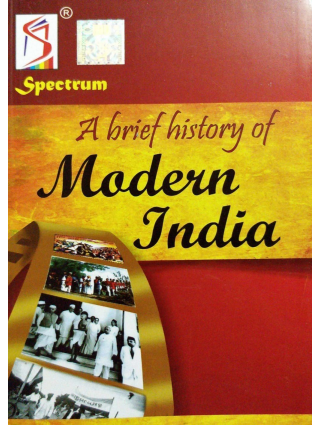
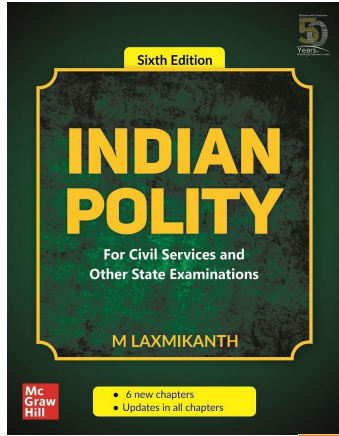
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# Railways to construct canopy bridges across track in Assam gibbon habitat

**The Hindu Bureau**  
GUWAHATI

The Northeast Frontier Railway (NFR) has earmarked funds to construct canopy bridges for India's only ape to move across a railway track bifurcating its prime habitat in eastern Assam.

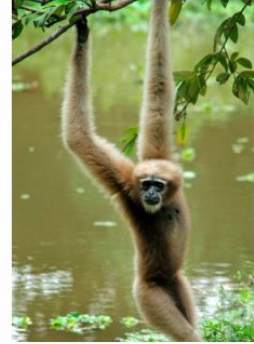
A 1.65-km-long track – set to be doubled and electrified – divides the 2,098.62-hectare Hollongapar Gibbon Sanctuary in Jorhat district. The sanctuary has the largest concentration of the Hoolock gibbon, one of 20 species of apes on earth.

The gibbon, known for its vocalisation, spends much of its time on the upper canopy of tall trees, mostly the hollong (*Dipterocarpus macrocarpus*). The fragmentation of the forest along the track has disturbed the arboreal nature of the ape, putting it at risk while crossing the track.

“We decided to install canopy bridges inside the sanctuary to facilitate the



The canopy bridge designed by the Wildlife Institute of India for installation in a gibbon sanctuary in Assam, and, right, a Hoolock gibbon. SPECIAL ARRANGEMENT



movement of the gibbons across the track. The decision was made in consultation with the Assam State Forest Department, Wildlife Institute of India (WII) and other stakeholders,” NFR spokesperson Sabyasachi De said.

These canopy bridges, designed by the WII in consultation with the NFR, will be constructed at identified points to facilitate easy movement of the arboreal species between the two halves of the sanctuary partitioned by the Mariani-

Dibrugarh railway track.

“The ends of the canopy bridges, as well as the knots, will be secured and clamped or tightened using appropriate and high-grade fastening materials and techniques. As a fail-safe mechanism, safety nets will be installed below the main twin-rope bridge to save the species accidentally falling off the bridges,” Mr. De said.

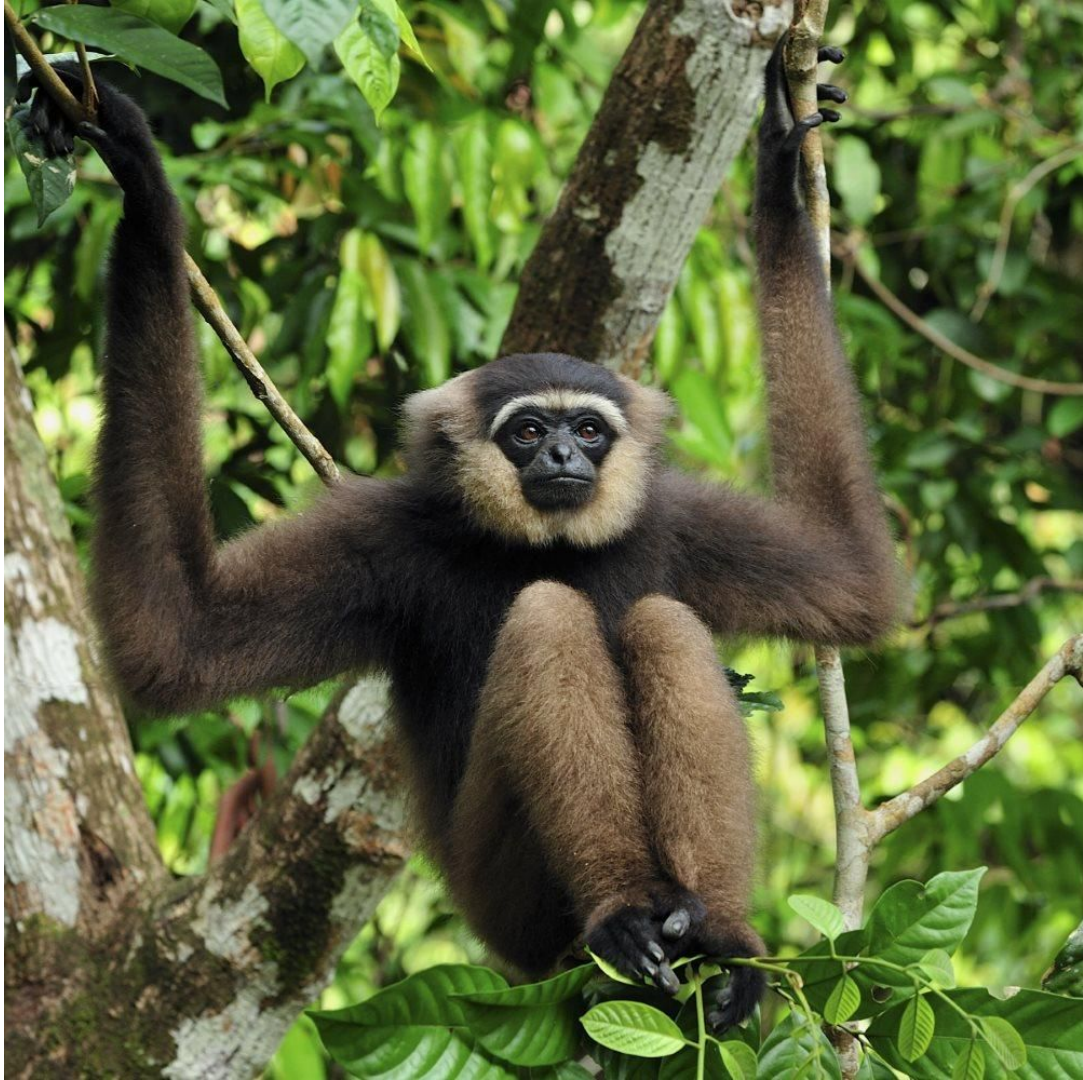
The canopy rope bridges will be installed in such a way that lianas and creepers can be guided

along them to make the bridges look as natural as possible, railway officials said.

The NFR had undertaken efforts in the past to build an artificial canopy bridge while the State Forest Department and Assam-based biodiversity conservation organisation Aaranyak had erected a natural canopy bridge in a part of the sanctuary frequented by the gibbons. The gibbons did not use the artificial bridge but used the natural canopy.

# Canopy Bridge for Gibbon

- **The Northeast Frontier Railway (NFR) has earmarked funds to construct canopy bridges for India's only ape to move across a railway track bifurcating its prime habitat in eastern Assam.**
- **The gibbon, known for its vocalisation, spends much of its time on the upper canopy of tall trees, mostly the hollong (*Dipterocarpus macrocarpus*).**
- **The fragmentation of the forest along the track has disturbed the arboreal nature of the ape, putting it at risk while crossing the track**





# About Gibbon

- **Gibbon, (family Hylobatidae), any of approximately 20 species of small apes found in the tropical forests of Southeast Asia.**
- **Gibbons, like the great apes (gorillas, orangutans, chimpanzees, and bonobos), have a humanlike build and no tail, but gibbons seem to lack higher cognitive abilities and self-awareness.**
- **They also differ from great apes in having longer arms, dense hair, and a throat sac used for amplifying sound. Gibbon voices are loud, are musical in tone, and carry over long distances.**

- The most characteristic vocalization is the “great call,” usually a duet in which the female leads and the male joins in with less complex notes, used as a territorial marker by both sexes.
- The various species of gibbons can be divided into four genera: *Hoolock*, *Hylobates*, *Nomascus*, and *Symphalangus*.
- Molecular data indicate that the four groups are as different from one another as chimpanzees are from humans.

- **Gibbons are arboreal and move from branch to branch with speed and great agility by swinging from their arms (brachiating).**
- **On the ground, gibbons walk erect with the arms held aloft or behind.**
- **They are active during the day and live in small monogamous groups that defend territories in the treetops. They feed mainly on fruit, with varying proportions of leaves and with some insects and bird eggs as well as young birds.**

- The dark-handed gibbon (*Hylobates agilis*), which lives on Sumatra south of Lake Toba and on the Malay Peninsula between the Perak and Mudah rivers, may be either tan or black and has white facial markings.
- The white-handed gibbon (*H. lar*), of northern Sumatra and most of the Malay Peninsula northward through Thailand into Yunnan, China, is similar but has white extremities.

- The pileated gibbon (*H. pileatus*), of southeastern Thailand and western Cambodia, has white hands and feet; the male is black and the female buff with a black cap and chest patch.
- The difference in colour comes about with age; the juveniles are buff and both sexes darken with age, but the male does so much more rapidly.
- Kloss's gibbon (*H. klossii*), from the Mentawai Islands west of Sumatra, is completely black throughout its life.

# Heat-baked Chennai can set an example for India

The year 2023 was by far the hottest ever according to a recent World Meteorological Organization (WMO) report. Global average temperatures reached 1.45° C higher than pre-industrial levels, almost touching the 1.5° C limit set in the Paris Agreement. Scientists predict that 2024 could be similar. With global emissions still growing, climate impacts are worsening. Heatwaves are sweeping through the Indian sub-continent. And, more hotter and longer-lasting heat waves are being predicted in the years to come.

## The reality of the urban heat island

In cities, this problem is exacerbated by a phenomenon termed the Urban Heat Island (UHI) effect. Temperatures in large, crowded urban settings can be several degrees higher than in surrounding rural areas, and even hotter at night. Concrete structures and tarmac roads retain heat which stays trapped inside this “urban bubble” along with air pollutants. A lack of green spaces and waste heat from air conditioners and other machinery add to the UHI.

Chennai, a coastal city, is affected by yet another feature which is cause for worry. Humidity reduces the cooling effect of perspiration, leading to a person experiencing an elevated body temperature, debilitating heat stress, exhaustion, and even a potentially fatal heat stroke.

As shown by available heat maps, the UHI in Chennai adds between 2° to 4° C to temperatures in nearby rural areas. So, when the maximum temperature is 40° C elsewhere, parts of Chennai could register between 42° to 44° C. Under high humidity conditions, wet-bulb temperature (indicating the extent to which evaporation can take place and facilitate cooling) of around 38.5° C is considered by the World Health Organization to be “near the limits of human survivability”.

In India, a heatwave is officially declared in coastal areas when the maximum temperatures are over 37° C and 4.5° C above normal. Clearly, with an UHI, heatwave conditions are quite easily breached in Chennai. The effects could be much worse, even dangerous, when compared to inland, rural areas.

India has National, State and even some district-level Heat Action Plans (HAP) to reduce morbidity and mortality, especially among the vulnerable poor, infants and the elderly. The National Disaster Management Authority (NDMA) Guidelines, which are being upgraded, and those of several States, outline measures to deal with heatwaves including early warning bulletins, and staggered work hours at outdoor construction sites, with shaded areas and temporary shelters, and strategic provisioning of drinking water and oral rehydration salts. Besides such post facto responses to heatwaves, longer term measures are needed to deal with UHI and reduce urban heat. The Chennai Metropolitan Development



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ClimACT-Chennai



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was formerly Project  
Associate, Inhaf  
ClimACT-Chennai

The city is one of the few to have adopted a Climate Action Plan but there is scope for much improvement towards better liveability

Authority (CMDA) has recently commissioned the preparation of presumably more detailed heat maps than what are available now. While awaiting more localised planning and actions, several broad brush measures may be readily thought of and implemented. The Chennai Climate Action Plan (CCAP) offers several meaningful suggestions including those discussed here, albeit scattered under different sections. In our view, they underscore the causative factors and, therefore, remedial measures and targets.

## A study and findings

Our study on Chennai and climate change (see Proposed Action Plan under [www.inhaf.org/climact](http://www.inhaf.org/climact)) looks at UHI as one among several inter-linked multi-dimensional issues. Our major findings and recommendations are discussed here.

Increasing green cover, obviously, tops the list. Green areas such as urban forests, large greens and parks, avenue and other trees, even lawns, release moisture which evaporates and cools the environs. Well-distributed green areas also influence local micro-climate, reduce air pollution, and promote health and well being. Tree-lined and shaded walkways and tracks provide pedestrians, cyclists and itinerant workers shelter from the blazing sun, and also encourage non-motorised transportation. With such multiple benefits, green areas are considered essential for sustainable urban development by UN Habitat, which recommends that green spaces be available for all citizens within 400 metres from their residence.

Regrettably, Chennai has among the lowest percentage of green cover of all the metros in India. The area under the Corporation is greener, with promising initiatives such as “*miyawaki* forests”, although questions remain about the species planted. However, the expansion of the city has heavily depleted green areas and waterbodies.

Varied figures are cited for green cover in the larger Chennai Metropolitan Area (CMA) depending on the assessment methodology. But an estimated 12% appears reasonable (subject to correction), compared to an estimated over 20% in Bengaluru, Kolkata, Mumbai and Delhi. The densely populated city-state of Singapore has an astounding 47% under green cover. Many European cities have green cover that is well over the EU norm of 30%.

Congested, poorly ventilated localities and informal settlements of the urban poor suffer the most from UHI and would benefit from green areas, parks and waterbodies that are nearby. The Master Plan III should provide for inviolable green areas and local parks with equitable access.

Rough estimates indicate that increasing green cover in the CMA to a well-distributed 25% could significantly reduce UHI by about 1.5° C or more. This could also absorb around 10% of its carbon

dioxide emissions and assist moving towards a “net zero” future.

## On the use of air-conditioners, energy saving

A less understood factor behind UHI is waste heat from air-conditioning. In Chennai, as in other Indian metros, roughly 50% of electricity consumption during summer is for air-conditioning alone, which vent heat out. The more the UHI, the greater the use of air-conditioning, generating even more heat in a nasty feedback loop. It is estimated that moving towards more energy-efficient (EE) air-conditioning, through a combination of mandates for the purchase of five-star or split EE air-conditioners and incentives for the exchange of older air-conditioners for new EE units (as offered by the electricity distributor in Delhi, to reduce peak load, a win-win for distributor and consumer), could reduce UHI by as much as 1.5° C.

Cities such as Shanghai and Seoul have reported a significant reduction in UHI through such strategies. Several east Asian cities have in addition mandated other energy-saving measures for air-conditioning such as having a thermostat setting of 25° C in offices and commercial buildings. Energy savings can also accrue from switching off air-conditioners (and other appliances) from the mains rather than by remote control (this leaves appliances on low power-consuming stand-by mode). Greater consciousness about climate change would undoubtedly help but savings of roughly 25% on electricity charges, would also act as a powerful driver of change.

Further, if buildings are better insulated and ventilated, and constructed using appropriate designs and materials according to “green” building codes, they would require less air-conditioning and generate less waste heat.

Total energy savings could then rise to roughly 40%-50% and reduce UHI by, say, around 3° C. There would also be a significant co-benefit – of emissions reduction from thermal power plants in Chennai.

Having permeable pavings and walkways using alternative materials, increased shrubbery along sidewalks, berms and dividers, and reflective paint on roofs, walls and streets, are other measures to reduce UHI. A sharp reduction in personal vehicles (most four-wheelers have powerful engines and airconditioners), through a rapid scaling-up of effective public transport with electric buses, would be another major contribution.

Chennai is one of a very few cities in India to have adopted a Climate Action Plan, but there is considerable scope for improvement. The city and its residents should utilise this opportunity to ensure long-term policies and measures to cool the city, improve liveability, and set an example for the rest of India.



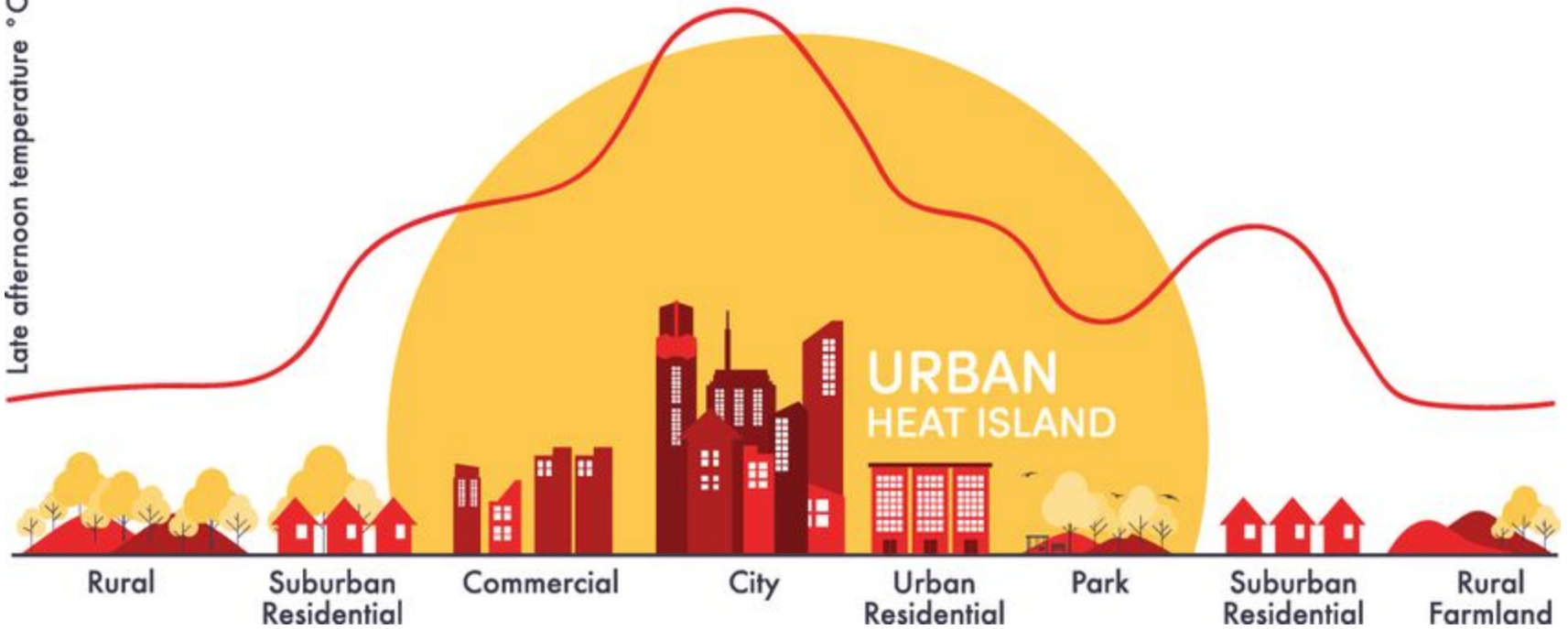
# HEAT WAVES

**In cities, this problem is exacerbated by a phenomenon termed the Urban Heat Island (UHI) effect.**

**Temperatures in large, crowded urban settings can be several degrees higher than in surrounding rural areas, and even hotter at night.**

**Concrete structures and tarmac roads retain heat which stays trapped inside this “urban bubble” along with air pollutants.**

Late afternoon temperature °C





- **A lack of green spaces and waste heat from air conditioners and other machinery add to the UHI.**
- **Chennai, a coastal city, is affected by yet another feature which is cause for worry.**
- **Humidity reduces the cooling effect of perspiration, leading to a person experiencing an elevated body temperature, debilitating heat stress, exhaustion, and even a potentially fatal heat stroke.**

- **. Under high humidity conditions, wet-bulb temperature (indicating the extent to which evaporation can take place and facilitate cooling) of around  $38.5^{\circ}\text{C}$  is considered by the World Health Organization to be “near the limits of human survivability”.**
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-

- **The effects could be much worse, even dangerous, when compared to inland, rural areas.**
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-

- **The National Disaster Management Authority (NDMA) Guidelines, which are being upgraded, and those of several States, outline measures to deal with heat waves including early warning bulletins, and staggered work hours at outdoor construction sites, with shaded areas and temporary shelters, and strategic provisioning of drinking water and oral rehydration salts.**
- **The Chennai Climate Action Plan (CCAP) offers several meaningful suggestions including those discussed here, albeit scattered under different sections.**
- **In our view, they underestimate causative factors and, therefore, remedial measures and targets.**

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- **Tree-lined and shaded walkways and tracks provide pedestrians, cyclists and itinerant workers shelter from the blazing sun, and also encourage non-motorised transportation.**
- **With such multiple benefits, green areas are considered essential for sustainable urban development by UN Habitat, which recommends that green spaces be available for all citizens within 400 metres from their residence**

- **The greater the use of air-conditioning, generating even more heat in a nasty feedback loop.**
- **It is estimated that moving towards more energy-efficient (EE) air-conditioning, through a combination of mandates for the purchase of 5-star or split EE air-conditioners .**
- **Energy savings can also accrue from switching off air-conditioners (and other appliances) from the mains rather than by remote control (this leaves appliances on low power-consuming stand-by mode)**

- **if buildings are better insulated and ventilated, and constructed using appropriate designs and materials according to “green” building codes, they would require less air-conditioning and generate less waste heat.**
- **Having permeable pavings and walkways using alternative materials, increased shrubbery along sidewalks, berms and dividers, and reflective paint on roofs, walls and streets,**



## *Little room for leisure*



An Afghan man watches goldfinches compete in a birdsong duel at a basketball court in Kabul. Under the Taliban regime, entertainment options have drastically shrunk in line with their austere interpretation of Islam — but the birdsong duels remain immensely popular. AFP

# Goldfinch

- Goldfinch, any of several species of the genus *Carduelis* (some formerly in *Spinus*) of the songbird family Fringillidae; they have short, notched tails and much yellow in the plumage.
- All have rather delicate sharp-pointed bills for finches. Flocks of goldfinches feed on weeds in fields and gardens.
- They have high lispings calls, often given in flight



- **American goldfinches are granivores, which means they mainly eat seeds. Some of their favorites include sunflower, thistle, and elm seeds.**
- **The goldfinch is a diurnal bird, meaning it's most active during the day.**
- **It has excellent flying skills, dipping and rising in a wavelike pattern as it soars.**
- **When it's not airborne, or perched on plants, the bird hops along the ground searching for seeds to eat.**
- **These animals have six different vocalizations, including their “po-ta-to-chip” call.**

## Saying it with flowers



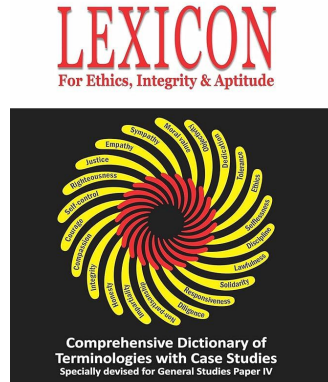
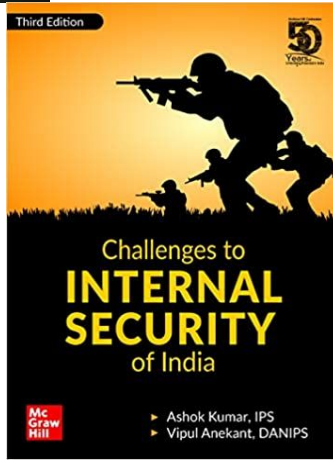
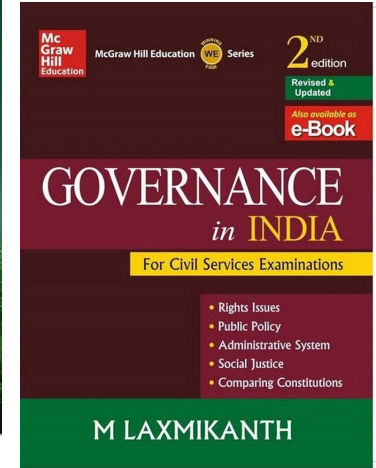
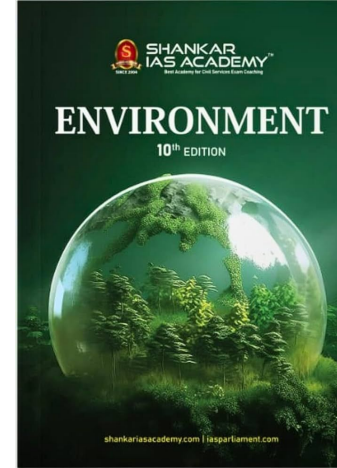
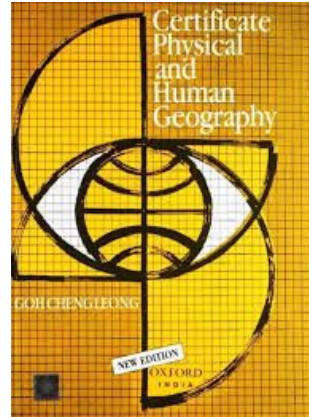
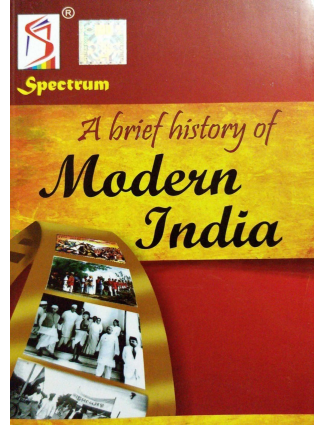
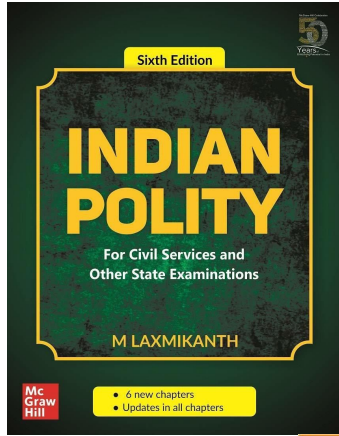
**Colours of tradition:** People walking past a flower carpet prior to the Corpus Christi in Spycimierz, Lodz region in Poland. For over 200 years, local residents here create colourful flower carpets, almost 1-km long, along the Corpus Christi procession route. AFP

# Lodz

Lódź is a city in central **Poland** and a former industrial centre. It is the capital of **Lódź Voivodeship**, and is located 120 km (75 mi) south-west of **Warsaw**.



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**“आत्म-ज्ञान आपके मन में द्वंद्व के सभी कार्यों को राख कर देता है और आपको आंतरिक शांति प्रदान करता है।”**

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