Fire Safety in India

Source: TH

Why in News?

Recently, fire accidents at the Rajkot game-center have raised concerns about fire safety regulations and their enforcement.

- These incidents, including a market fire in Pune and a hospital oxygen blast in Delhi, show a possible need for stronger safety checks and clearer rules.

What is the Model Code for Fire Safety in India?

- **Data on Fire Accidents:**
  - According to the **Accidental Deaths and Suicides in India (ADSI)** report by the **National Crimes Records Bureau (NCRB)**, as many as 7,435 people were killed in over 7,500 fire accidents in 2022.
  - The fire accidents continue to cause heavy casualties, with no lessons learned from past tragedies like the **Uphaar Cinema fire in 1997** and the **Kumbakonam fire in 2004.**
- **National Building Code (NBC):**
  - India has a **National Building Code (NBC)** that serves as the central standard for fire safety.
    - It was published by the **Bureau of Indian Standards (BIS)** in 1970 and last updated in 2016.
    - It provides detailed guidelines on general construction requirements, maintenance, and fire safety of buildings.
    - **Fire safety instructions** are mentioned in **Part 4 of the NBC,** which deals with safety from fire.
  - The NBC is a mandatory requirement for state governments to incorporate into their local building bylaws.
    - This is because **fire services are a state subject**, included as a municipal function in the **12th Schedule** of the **Constitution.**
    - State governments are responsible for fire prevention and ensuring the safety of life and property.
- The '**Model Building Bye Laws 2016'** issued by the Ministry of Housing and Urban Affairs guide states and Union Territories to **frame their respective building bylaws.**
  - These laws also prescribe norms for **fire protection and safety requirements.**
- The **National Disaster Management Authority (NDMA)** has also laid out guidelines on fire

safety at homes, schools, and hospitals.
  - The NDMA guidelines include instructions on **maintaining minimum open safety space**, protected exit mechanisms, dedicated staircases, and crucial evacuation drills.

What are the Key Fire Safety Rules Laid by NBC in India?

- The NBC specifies the **demarcation and restrictions** on the construction of buildings in fire zones:
  - Residential areas, educational, and institutional buildings fall under **Fire Zone 1** to ensure they **do not coexist with industrial and hazardous structures** (like factories, warehouses, data centres, and facilities for power and repair).
- The NBC mandates the use of **non-combustible materials** for construction, including for the internal walls of staircase enclosures, with a minimum **120-minute fire** resistance rating.
- It also outlines requirements for **maximum height, floor area ratio, open spaces,** and provision of openings in walls and floors to prevent the spread of fire.
- **Electrical installations** must have **flame-retardant wiring and cabling**, with high, medium, and low voltage wiring run in separate shafts/conduits and sealed with fire-stop materials.
  - All metallic items like **steel structural members must be properly bonded** to the earthing system.
- The Code requires an **emergency power-supplying** distribution system, including exit signage, emergency lighting**, fire alarm systems, and public address systems for emergencies.**
  - It also specifies **requirements for exit access, exits, escape lighting,** and exit signage to ensure safe evacuation.
- The Code recommends incorporating technologies like **automatic fire detection** and down-comer pipelines, **dry riser pipelines, automatic sprinklers, and water sprays.**

NDMA Guidelines on Fire Safety

- **Do's**
  - **Prepare:** Have a fire escape plan and practise it regularly. Ensure all exits are clear and functional.
  - **Alert:** In case of fire, stay calm and raise the alarm. Alert everyone in the building and prioritise escape over belongings.
  - **Escape:** Use the designated escape routes and staircases. Never use elevators during a fire.
  - **Crawl Low:** Stay low to the ground to avoid smoke inhalation.
- **Don'ts**
  - **Panic:** Stay calm and think clearly. Panicking can hinder your ability to make good decisions.
  - **Re-enter:** Never go back into a burning building for any reason.
  - **Use elevators:** Elevators can malfunction during a fire, leaving you trapped.
  - **Open doors/windows without caution:** Opening doors/windows can feed the fire. Only do so if you can escape through them safely.

What are the Compliance Challenges with Fire Safety Rules in India?

- **Ignoring Fire Safety Rules:**
  - While national guidelines (National Building Code) exist, they aren't mandatory, leading to inconsistent enforcement across localities.
    - Even mandatory certifications have loopholes, as the code allows fire services to grant exemptions due to practical difficulties.
  - **Eg**: In **Rajkot Tragic Accident,** the building was constructed using metal sheets, creating a large structure. **The owners failed to get a mandatory NOC from the fire department**, lacked proper fire-fighting equipment on the premises.
- **Underutilisation of Fire Safety Audits:**
  - Authorities responsible for fire safety norms are usually understaffed, and they rarely

conduct audits, allowing fire hazards to persist.
- **Lack of Preparedness and Apathy of Authorities:**
    - A 2020 report by the **National Institute of Disaster Management (NIDM)** criticised authorities for their inaction and failure to learn from previous fires accidents.
        - NIDM highlighted that adhering to building codes and implementing effective urban planning could have averted the tragedy and saved lives.
        - NIDM also stressed the significance of **fostering strong communities** to enhance disaster preparedness.

Way Forward

- **Legislative Reform and Enforcement:**
    - **Mandatory Fire Safety Code:** Enact a uniform and **mandatory** national fire safety code binding on all states and local authorities.
    - Implement a system of **mandatory fire safety audits** for all buildings (as per NBC and NDMA) with strict penalties for non-compliance.
- **Bolstering Firefighting Capabilities:**
    - **Modernisation of Fire Services:** State governments must prioritise investments in upgrading firefighting equipment, firefighter training, and overall fire service capacity.
- **Empowering Communities:**
    - **Public Awareness Campaigns:** Launch extensive **public awareness campaigns** to educate citizens on fire safety measures, evacuation procedures, and the **importance of building code compliance.**
    - Integrate fire **safety education into school curricula** to cultivate a culture of fire safety awareness from a young age. This will empower communities to be **active participants in disaster risk reduction.**
- **Other Measures:**
    - **Mock Drills:** The fire services must conduct regular **fire safety drills** so that people are aware of what to do in the event of such a tragedy.
    - **Self-extinguishing Furniture and Building Materials:** Implement furniture, carpets, and wall coverings made from fire-resistant or self-extinguishing materials that can slow the spread of flames.
    - **Advanced fire Suppression Systems:** Encourage installation of advanced fire suppression systems like **automatic sprinkler systems and misting technologies.**
    - **Installing Advanced Equipments to Prevent Smog:** Few equipment needs to be installed in buildings, such as devices for **containing smog generated from fires to prevent suffocation of individuals.**

Drishti Mains Question:

Q. What is the state of fire safety in India, and what measures need to be taken to improve it?