



Mains Practice Question

Q. Evaluate the role of traditional Indian architectural principles in promoting sustainable urban development in modern India. **(150 words)**

02 Sep, 2024 GS Paper 1 Indian Heritage & Culture

Approach

- Introduce by highlighting the significance of Traditional Indian architecture
- Give key Traditional Architectural Principles and their applications
- Highlight the challenges in Implementation
- Conclude suitably.

Introduction

Traditional Indian architecture, rooted in centuries of wisdom and experience, offers valuable lessons for sustainable urban development in modern India. By incorporating these principles into contemporary design, we can create more **resilient, environmentally friendly, and culturally sensitive cities**.

Body

Key Traditional Architectural Principles

- **Climate-responsive Design: Courtyard houses (havelis) in Rajasthan** providing natural ventilation and cooling
 - **Application:** Incorporating courtyards and open spaces in modern apartment complexes
- **Use of Local, Eco-friendly Materials: Cob architecture in Gujarat** using mud, clay, and straw
 - **Application:** Promoting **compressed stabilized earth blocks (CSEB)** in contemporary construction
- **Passive Cooling Techniques: Jaali screens in Mughal architecture** for air circulation and temperature control
 - **Application:** Using perforated facades in office buildings to reduce heat gain
- **Water Conservation and Management: Step wells (baolis)** for water harvesting and storage
 - **Application:** Integrating rainwater harvesting systems in urban planning
- **Integration with Nature: Sacred groves (devrai)** in Maharashtra preserving biodiversity
 - **Application:** Creating urban forests and green corridors in city master plans

Challenges in Implementation:

- **Economic Constraints: High initial costs** often deter the adoption of sustainable technologies, such as **solar panels or rainwater harvesting systems**, which are perceived as less cost-effective compared to traditional methods.
- **Regulatory Hurdles: Outdated building codes** and a lack of incentives hinder the approval and integration of traditional sustainable practices in modern construction, making it challenging to implement designs like rammed earth structures.
- **Skill Gap and Knowledge Transfer:** There is a shortage of **craftsmen skilled in traditional**

techniques and a lack of formal education combining traditional and modern architecture, leading to the decline of practices like intricate jali work.

- **Scalability Issues:** Traditional designs, while effective on a small scale, **struggle to adapt to large urban projects**, such as the courtyard concept, which is difficult to implement in high-rise complexes.
- **Cultural Shifts:** Changing social norms and **preferences for modern aesthetics** reduce the appeal of traditional designs, like courtyard houses, especially as joint family homes become less common.
- **Increased Extreme Weather Events:** The increasing intensity of extreme weather events like **heat waves challenges the application of traditional Indian architectural principles**, which were tailored to past climatic conditions.
 - Traditional designs, such as courtyards, may no longer suffice under today's extreme heat.

Conclusion

Traditional Indian architectural principles offer valuable insights for **sustainable urban development in modern India**. By incorporating these principles into contemporary design, we can create more **resilient, environmentally friendly, and culturally sensitive cities**. While adapting traditional practices to modern needs, it is crucial to strike a balance between **preserving heritage and embracing innovation**.

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