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ANALYSIS**

TOPIC

**Role of Modern Technologies
in India's Affordable**

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ROLE OF MODERN TECHNOLOGIES IN INDIA'S AFFORDABLE HOUSING

In Context

- In the interim Budget 2024, the Finance Minister announced the construction of two crore additional houses over the next five years under the **Pradhan Mantri Awas Yojana Gramin (PMAY-G)** and the introduction of a new housing scheme for the middle class.

About PMAY-G

- It is being implemented with effect from 1st April, 2016 to provide assistance to eligible rural households with an overall target to construct 2.95 crore pucca houses with basic amenities by 31st March 2024.
- Beneficiaries under PMAY-G are identified on the basis of housing deprivation parameters and exclusion criteria prescribed under Socio Economic Caste Census (SECC)-2011.
- Under PMAY-G, beneficiaries are provided financial Assistance of Rs.1.20 lakh in plain areas and Rs.1.30 lakh in hilly States (including North-eastern States and UTs of Jammu & Kashmir and Ladakh), difficult areas and Integrated Action Plan (IAP) districts.

Importance of Modern technologies

- Within the framework of the PMAY mission, **Light House Projects (LHPs)** are underway as part of the **Global Housing Technology Challenge (GHTC)**, spanning six sites across six States.
 - ♦ These LHPs leverage modern technology and innovative processes so as to **reduce construction time** and **build more resilient** and affordable houses for the underprivileged.
- Additionally, there are ongoing efforts to utilise alternative construction technologies such as **Mivan**.
 - ♦ This technology utilises advanced aluminium formwork, which is **recyclable and reusable**, to cast and construct various building elements.
 - ♦ It surpasses traditional construction methods in **terms of speed and quality** and has a **relatively lower environmental impact** due to reduced wastage in the construction phase.

Challenges

- The extensive use of cement and steel without proper insulation results in **increased heat gain from the building envelope**, causing thermal distress.
- Consequently, occupants resort to increased use of cooling appliances such as air conditioners.
 - ♦ This reliance on cooling appliances triggers a surge in electricity consumption, thereby contributing to **elevated greenhouse gas (GHG) emissions**.
- Further, the predominant use of **lower efficiency appliances** (despite the availability of high efficiency appliances) owing to lower purchase costs leads to **higher electricity consumption** and **resultant greenhouse gas emissions**.
- One major hurdle in promoting the adoption of passive designs is the lack of tangible benefits perceived by the end-users owing to a lack of awareness.
- **Value Chain related Issues emerge because** This involves architects, engineers, contractors, material suppliers, and end-users, each with their own priorities, constraints and levels of awareness regarding sustainable practices.

Solutions

- The pathway to achieving a harmonious balance among multiple goals lies in the **obligatory implementation of guidelines** embedded within building codes, as demonstrated by initiatives such as **Eco Niwas Samhita**.
 - ♦ This framework directs attention towards refining building envelope characteristics pertaining to specific climate zones, thereby facilitating a thermally comfortable environment within built spaces.
- The **Smart Ghar III project** in Rajkot, an affordable housing initiative under the PMAY Untenable Slum Redevelopment project, serves as a prime example of achieving indoor thermal comfort through passive design implementation.

Conclusion

- Considering the growing significance of the building sector and its contribution to GHG emissions, the need to **address the environmental impact** of construction activities is imperative.
- By **weaving environmental consciousness** into the fabric of housing initiatives, we can ensure that the homes we build not only shelter individuals but are also robust structures that make residents resilient to a warming climate.
- Therefore, to make vulnerable **communities resilient to heat stress**, it is imperative that building houses go beyond provisioning basic amenities by integrating passive design strategies for thermal comfort.
- An **ecosystem change** is needed across the entire value chain to encourage the adoption and rightful implementation of the codes.
 - ♦ This requires raising awareness and fostering collaboration among stakeholders and incentivising developers to prioritise passive designs.

Mains Practice Question

How Modern Technology Can Play a Crucial Role to Create Affordable Housing In India? In light of the statement, evaluate the impact of Pradhan Mantri Awas Yojana Gramin (PMAY-G)..

