

Rupesh Patnaik

L&B Registered Valuer

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B.Tech civil engg.

M.Sc (real estate valuation)



Climate Change is for Real: Opportunities and Challenges for Valuers

Climate change poses a complex and evolving threat to real estate markets worldwide, with India facing acute impacts across its diverse regions and urban centers. India's real estate market confronts both immediate risks and long-term challenges due to climate change. Catastrophic events have resulted in inundated towns, destroyed infrastructure, and mass displacement, which depress property values, impede market stability, and challenge resilience planning. Investors, buyers, and lenders are increasingly factoring climate vulnerability into location and pricing decisions, prompting demand for more climate-resilient properties. High-risk zones such as Mumbai, Chennai, and coastal regions are particularly exposed, leading to shifts in asset allocation and valuation practices to reflect heightened risk.

Without robust adaptation measures to protect existing assets, growing exposure to adverse climate events threatens long-term infrastructure and sector stability. As climate risks grow, regulators and investors across the globe are prioritizing more transparent climate disclosures through standards like the Task Force on Climate-related Financial Disclosures (TCFD), prompting property buyers and market participants to demand greater resilience in assets. International investors and

domestic REITs are now integrating climate risk into investment decisions, compelling market players to adapt valuation frameworks that reflect these exposures.

This article provides an overview of the main challenges and opportunities for valuers to proactively address the evolving influence of climate on real estate valuations in India.

Climate Risks in the Indian Real Estate Sector

Climate change poses significant risks to India's real estate market, including decreased property values in vulnerable areas, higher insurance premiums, tighter lending norms, and increased operational costs from extreme heat and flooding. Properties in coastal zones, floodplains, and heatwave-prone regions face physical damage and devaluation, leading to potential "stranded assets". Stranded Assets refer to properties located in high-risk zones that may be rendered unsuitable for habitation due to escalating threats with rising sea levels, saline water intrusion, chronic drought, etc. Such assets may become liabilities as they face mass vacancy, declining investor interest, and diminished utility.

Regional Climate Risks and Property Values in India

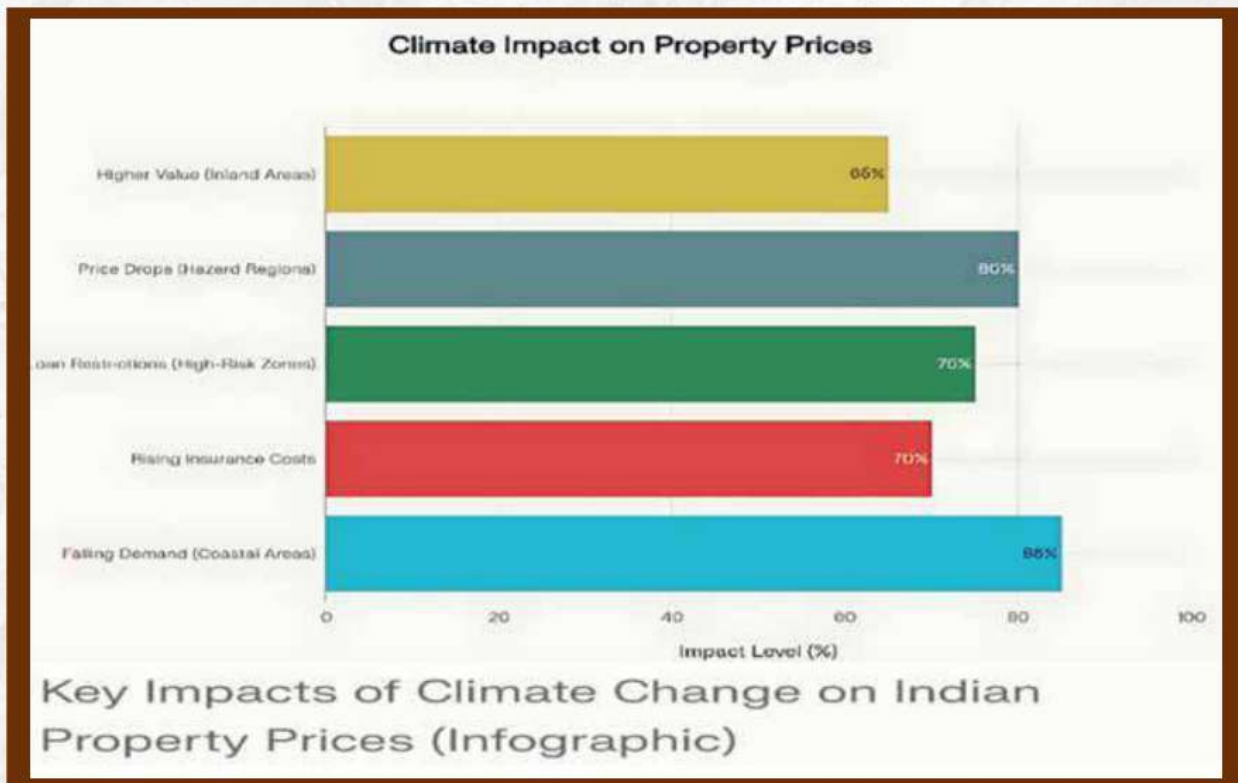
India's diverse geography exposes its real estate market to multiple environmental risks:

Coastal cities like Mumbai, Chennai, Kochi, and Thiruvananthapuram face rising sea levels, coastal erosion, and flooding, resulting in higher insurance premiums and price depreciation and threat to human life. Even as sea-facing and lake-facing homes retain their allure in cities like Mumbai, buyers of such properties must become aware of the risk associated with purchasing such properties. This suggests climate risks are not yet fully priced into premium coastal properties.

Flood-prone and low-lying urban areas such as Kurla and Vasai in Mumbai, and Velachery in Chennai see slower sales, reduced price appreciation, and rental declines due to recurring floods and water stagnation. For all flood-prone cities of India, there is an urgent need to develop flood inundation maps and adequate risk assessment tools for the real estate sector.

Regions prone to heatwaves and drought, including major metros like Delhi and Bangalore, face challenges in livability and increased building maintenance costs, influencing property desirability and values.

Areas susceptible to landslides and natural disasters, such as Uttarakhand, Himachal, J&K, Kerala often witness investor caution, restricted lending, and in some cases, property abandonment, which critically lowers property values.



Impact of Environmental Quality

Pollution levels, especially air and water quality in metropolitan areas, also affect real estate values. Poor environmental quality dampens appreciation and rental demand, pushing buyers towards cleaner, greener outskirts or hill stations.

Looking at the recent flooding from Himachal Pradesh to Uttarakhand to Kerala, India faces severe risks from flooding, and high impact climate related risks, threatening resilience and economic growth.



To address the growing threats from climate related disasters, India's real estate sector is aligning with national climate frameworks like the National Action Plan on Climate Change, Coastal Regulation Zone laws, and Smart Cities Mission to integrate climate-resilient infrastructure and policies into urban planning and property

valuation. Smart Cities such as Surat, Bhubaneswar, and Pune are investing heavily in climate-adaptive infrastructure to include advanced drainage systems, rainwater harvesting facilities, and urban green spaces to reduce impacts of heat and flooding on residential areas.

Climate Change and Real Estate Valuations in India

Traditional real-estate valuation in India has relied solely on property location, infrastructure, and historic market demand, often neglecting environmental volatility. In recent years, a small fraction of appraisers have started incorporating some climate risk assessments in vulnerable areas, with landslide and flood-prone areas in Himalayan states of J&K, Himachal Pradesh, Mumbai, and Chennai receiving valuations up to 25% lower than climate-safe areas. However, the lack of comprehensive climate risk assessment, disclosure, and regulation leaves investors and developers exposed. There is a recognized lack of evidence and data to accurately assess how future climate hazards will affect real estate asset values and pricing. Investors and regulators are increasingly demanding better risk analysis.

Researchers find that climate risks are under-recognized by both institutional and retail investors in India, with limited integration in valuation, planning, and lending. Climate risk disclosures remain voluntary, fragmented, and poorly understood despite the risk of stranded assets and potential for depreciation of value of real estate assets. Improved climate disclosure, risk-based lending, and incentives for resilient construction are essential to avoid stranded assets and ensure financial system stability.

Climate-adjusted Valuation Methods

Globally, climate-adjusted real estate valuation is becoming the norm. Tools such as the Climate Value at Risk (CVaR) metric are being used to calculate projected financial losses under various warming scenarios. As domestic REITs and international investors begin to price climate risk into asset allocation decisions, real estate markets will be compelled to recalibrate valuation frameworks that account for physical risk exposures.

Climate-adjusted valuation methods in India need to integrate climate risk factors to provide more accurate property valuations reflecting future environmental threats.

Common Climate-Adjusted Valuation Methods

- **Climate Value at Risk (CVaR):**
This method estimates the potential financial loss in property values under various climate change scenarios (such as flooding or extreme heat), quantifying risk-adjusted depreciation. CVaR can reduce valuations by up to 15% in highly vulnerable locations like coastal Mumbai.

- **Discounted Cash Flow (DCF) Adjustments:**

Traditional DCF models are modified to factor in expected climate risks, such as increased maintenance costs, damage, or reduced rental income due to climate threats. Studies show climate risk can cause a 5-10% variation in valuation compared to conventional methods.

- **Capitalization Rate Adjustments:**

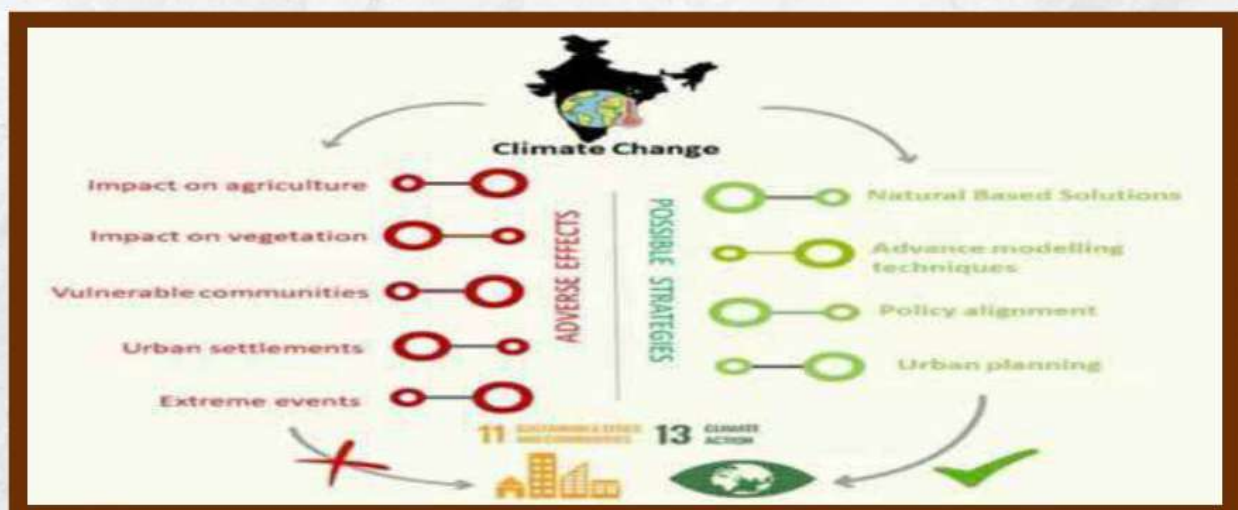
Climate risk leads to higher capitalization rates (risk premiums), pushing down property values. For climate-vulnerable areas, cap rates can rise by 10-30 basis points, impacting investment attractiveness and valuation in India where cap rates are already relatively high.

- **Geospatial and Predictive Risk Assessments:**

Incorporating GIS-based mapping and AI tools to evaluate location-specific vulnerabilities like flood zones, heat islands, or landslide risks, informing more nuanced valuation adjustments.

- **Market and Regulatory Factor Integration:**

Valuations consider not only direct physical risks but also regulatory limits (such as Coastal Regulation Zone rules) and market perceptions, which can depress demand and value in high-risk zones. The Real Estate Regulatory Authority now requires developers to disclose environmental risks and safety measures to potential buyers. This transparency helps buyers make informed decisions while encouraging developers to prioritize climate-resilient construction. Understanding how RERA protects homebuyers is essential for navigating these new disclosure requirements.



Summary

It is evidently clear that climate risk remains insufficiently integrated into the lending frameworks of Indian banks, NBFCs, and housing finance institutions. This gap in systematic climate risk assessment leads to significant mispricing, increases the exposure of vulnerable projects, and perpetuates underappreciated risks in the real estate ecosystem. It is now high-time to effectively bridge these gaps.

Although there is growing recognition and early steps are being taken towards advancing climate-integrated valuation models, accounting for climate risks in real estate valuations is rarely adopted in practice. The increasing volatility of weather events heightens the urgency for a paradigm shift. If left unaddressed, failure to account for climate and environmental risk could ultimately destabilize broader financial and real estate systems. Climate risk must be embedded into routine real estate assessments, particularly in emerging cities and smaller markets where risk is frequently overlooked.

Looking ahead, the Indian Valuers fraternity is uniquely positioned to lead this transition. The adoption of climate-adjusted valuation underpinned by spatial and data-driven climate risk analysis will enable more accurate prediction of future-resilient property values that reflect evolving environmental dynamics. While challenges persist in terms of access to robust data and analytical tools, this shift also opens substantial opportunities for valuers to engage as value-added partners within India's banking and investment sectors.

