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# Natural Disasters

*Resilience and Value*

# The impact of natural disasters

Recent adverse weather conditions in the UAE have focused attention on the impact of natural disasters on real estate. This includes impacts associated with climate change, such as flooding caused by changes in precipitation patterns and also the potential impact of rising sea levels, increasing heatwaves and regional droughts.

However, the events in the UAE should be placed in a global context. In Pakistan in 2022, for example, 33 million people were affected by flooding which submerged a third of the country and caused \$40 billion of damage.<sup>1</sup> Scientists warn there is probably more to come. The solution, everyone agrees, is resilient real estate. But what does that actually entail? And what are the implications for the value of real estate?

## Defining and measuring resilience

Resilience – whether in organisations, systems or people – is a familiar idea, but it is also well known to be difficult to define. How does it differ from simply effective risk management? At the city level, one leading measure is Arup's City Resilience Index (CRI), which is both comprehensive and globally applicable. It aims to measure 'the capacity of a city (individuals, communities, institutions, businesses and systems) to survive, adapt and thrive no matter what kinds of chronic stresses or acute shocks they experience'.<sup>2</sup> Arup's definition and initiative is only one among others. The UN refers to resilience as 'the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to, and recover from, the effects of a hazard in a timely manner, including through the preservation and restoration of its essential basic structures and functions'.<sup>3</sup> Definitions are similar, but it is evident that nuances remain, with implications for rankings and policy priorities.

Measurement, however, is more fruitful terrain. In view of the rising importance of climate risks, it is scarcely surprising that jurisdictions everywhere are moving towards mandatory reporting on how they might affect the profitability of real estate investments today and over time.<sup>4</sup> Leading ESG real estate standards such as GRESB already issue measurement guidelines, which include organisational procedures for tracking physical risks as well as more forward-looking protocols.<sup>5</sup>

In future, the International Sustainability Standards Board may join the fray, with significant implications for institutions reporting according to IFRS rules. However, all these guidelines are multi-dimensional; comparison between sectors or between countries remains elusive.

In practice, however, there is a more positive story to tell about ensuring the resilience of real estate for investors and occupiers. It involves a series of interlocking practices, including:



Mapping physical risk for current portfolios and as part of due diligence on future



Modifying existing properties and approving climate-adaptive designs



Diversifying portfolios and engaging with stakeholders at a local level, including to gauge and improve the resistance capabilities of individual properties.

Experienced property owners and investors worldwide are continuing to raise their ESG profiles by making their commitment in this space publicly available to their stakeholders.

# How does the Gulf compare?

Assessments of the UAE's climate change resilience have pointed to the successes that the Emirates have achieved across a range of criteria, including the protection of transport.<sup>6</sup> The ND-GAIN Index, another resilience measure, in this case at national level, rated both the UAE and Oman highly.<sup>7</sup> Little surprise, therefore, that the prompt and effective measures taken both by the UAE government in response to the flooding, including immediate expenditure of AED2 billion (\$545 million), closure of schools, the announcement of work-from-home as a temporary rule, and mandatory insurance payouts, have been widely acknowledged. Likewise, Emaar's announcement that it would pay to repair flood damage, provide alternative accommodation and provide essential services, closely followed by other developers, was especially remarked upon,<sup>8</sup> marking a sharp differentiation from similarly placed companies in other jurisdictions confronted with the same problem.

Over the longer-term, the allocation of AED80 billion (\$22 billion) for sewerage system upgrades is an indication of the comprehensive, integrated and planned approach that has characterised the UAE's approach to physical infrastructure. A further review of infrastructure in the wake of the floods has now been ordered, no doubt including the large drainage system being put in place for Dubai South.<sup>9</sup> Similarly, in Oman, where flooding has become more frequent, posing especial risks for rural transport, dams are now under construction to reduce the impact of future heavy rainfall.<sup>10</sup>

Elsewhere, the megaprojects in Saudi Arabia have the advantage of having been largely designed with advance knowledge of likely climate change in the Kingdom,<sup>11</sup> although these are no doubt also undergoing physical audit checks to ensure they are protected against extreme weather events. It is also likely that insurance will become more widespread in the region, particularly in the UAE.<sup>12</sup> More proactive urban planning and integration of impact-based forecasting into early warning systems will undoubtedly be necessary to reduce still further the impacts associated with similar events in the future.

By comparison, even developed jurisdictions have struggled with the effects of widespread flooding. In the UK, for example, rising numbers of people are being forced to remain in homes they cannot insure, let alone sell, businesses have lost revenue extensively in the autumn and winter seasons, food production has been impacted, transport routes have become unusable at times, and worse.<sup>13</sup> Yet the sheer scale of the problem defies a solution: the UK's National Audit Office has indicated that despite committing £5.2 billion (\$6.5 billion) over the six years to 2027, 40 per cent fewer properties will be protected and 2,000 fewer flood defence projects completed than originally planned.<sup>14</sup> In developing countries the picture is often much bleaker. Pakistan for example secured \$9 billion in donor pledges after the 2022 floods, but even if all that amount were delivered and spent, it would only represent half of the estimated cost of recovery alone.<sup>15</sup>

*In light of global shifts in weather patterns, it is imperative to reassess climate models, evaluate flood plains across the region, and upgrade infrastructure accordingly. Recognising this urgency, the UAE Cabinet took a proactive stance in April 2024 by establishing a committee to inventory flood and rain damage on infrastructure and propose state-level solutions. This initiative will bolster long-term flood risk management and mitigate potential impacts on real estate values due to heavy rains and flooding.*

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## The impact on valuations

The Royal Institution of Chartered Surveyors (RICS) makes it clear that valuers should 'explicitly consider and reflect upon how physical characteristics of the property and physical risks related to the locality impact resilience, including making themselves familiar with statute and other regulations that could impact value'.<sup>16</sup>

For example, while the insurance industry still reprices annually, no longer does it avoid long-term climate models. The industry now knows the importance of these models in terms of assessing the risks to their portfolio and for pricing new business. In 2017, climate disasters caused \$300 billion of storm damage in the US alone, most of it to real estate.<sup>17</sup> Investors and insurance companies alike have remained nervous ever since. Some countries such as the Bahamas and parts of some US states have become virtually uninsurable.<sup>18</sup> Second, the responsibility and costs borne by cities is now unmistakable. From new storm drains to higher seawalls, and from additional staffing to IT requirements, there are clear implications for service charges.

In theory, mitigation should be expected to have reciprocal benefits by stemming any reduction in valuations. Where there is transparency, this may well be so. However, it has been claimed that in the US there is still unpriced risk, potentially overvaluing residential properties in the '1-in-100 years' flood zone by an average of 8.5% of their current value. This overvaluing may be even more if increasing potential damage from climate change were also included.<sup>19</sup> This unpriced flood risk could perpetuate incentives for continued development in floodplains and underinvestment in hazard mitigation.<sup>20</sup>

Commercial property is equally affected by extreme weather events. Often neglected in their aftermath are the costs of business disruptions for tenants as well as the often significantly higher operating and capital costs associated with increased physical depreciation affecting structural elements (e.g., roofs, windows, gutters and exterior finishing), management and planning practices (e.g., risk evaluation, emergency management planning, business continuity) and physical building features (e.g., water sensors, storm shutters, flood protection).

All of these are cashflow valuation impacts, although there may also be an effect on capitalisation rates if investors have not already factored in extreme weather events.<sup>21</sup> In jurisdictions where the evidence exists, however, it suggests that proactive public investment and strong governance serve as risk mitigating factors contributing to the modest and short-term nature of pricing reductions following natural disasters.<sup>22</sup>

Although these observations apply at the level of a jurisdiction such as Dubai or Oman, there are wide disparities in valuation implications at a more granular level between developments and even between different buildings in the same development, depending on their local topography.

*We always recommend clients undertake thorough and comprehensive due diligence at regular intervals to identify, minimise and mitigate the risk of damage to their assets. Ideally, this should be done before, during and after construction, and requires early specialist involvement as well as a collaborative approach. This may increase initial costs, but the longer-term financial benefit is quantifiable and can be significant.*

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This kind of disparity is recognised, even if evidence outside proprietary databases such as Property Monitor is understandably limited. For example, one Australian study used publicly available sea rise data to demonstrate valuation differences.<sup>23</sup>

Therefore, rising awareness of the risks posed by weather events generally results in increased demand from investors, banks, insurers and owners alike for a range of different assessments and surveys to existing property, whether it is their physical condition, the cost of climate mitigation measures, evidence of building resilience to present to potential

funders or investors, or for estimates of required reserves. Development is likewise affected, with the introduction of physical climate assessments when evaluating site selection, and standard resilience measures to include in the design process.<sup>24</sup> In both cases, the importance of adherence to internationally accepted valuation practices and access to extensive relevant data is paramount.



## Conclusions

Recent floods around the world and their consequences have spectacularly illustrated the vulnerability of existing structures and communities to extreme weather conditions. This is often exacerbated by issues such as design, materials, workmanship, lack of contingency planning, inadequate snagging and many others. Clearly, the UAE and Gulf countries performed well when faced by their recent climate emergency, but there is no room for complacency, especially as each climate emergency may take a very different form from the last. The initiatives that have recently been taken by the UAE are not only very welcome but can serve as a useful benchmark to evaluate comparable measures taken elsewhere in the Gulf.

A single definition of resilience – or a universal model from which known building parameters can produce an internationally accepted result – is far from the current reality. Interest in measurement of climate-related risks and their valuation impact, however, is becoming of much greater interest to real estate stakeholders. So far as real estate is concerned, there are implications across several dimensions, which RICS valuers are already incorporating into their reports. In our strategic master planning advisory studies, we meticulously evaluate the costs associated with wadis and stormwater drainage systems to ensure that our projects remain resilient against local and regional climate variations.

In hot and arid countries, the impact of rainfall is often underestimated leading to substantial capital expenditures for both cities and developers if infrastructure upgrades are not done.

For instance, during a recent engagement in Oman, we conducted a comprehensive assessment of the potential real estate value that could be unlocked by implementing advanced stormwater drainage systems, water channels, and wadis. In regions like Oman, effective stormwater management is not just a necessity but a transformative asset. Although the initial capital investment for such infrastructure can be considerable, these systems can unlock significant economic potential by mitigating flood risks and enhancing land usability, thereby enabling the development of otherwise uninhabitable areas. This strategic approach not only ensures sustainability but also fosters urban growth and resilience against climate change, benefiting the city and developers alike.

The foresight to integrate comprehensive stormwater and drainage solutions into urban planning is essential. It helps in creating sustainable, liveable cities that are well-prepared for the challenges posed by climate change, ultimately leading to long-term economic and environmental benefits.

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