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# Editorial: New approaches for sustainable and resilient processes and products of social housing development in the Arabian Gulf Countries

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## Editorial on the Research Topic

**New approaches for sustainable and resilient processes and products of social housing development in the Arabian Gulf Countries**

In recent decades, the Arabian Gulf Countries have witnessed profound transformations of their social housing paradigms from the conventional approaches of generous built-up areas and urban sprawl designs to more environmentally, socially, and economically sustainable and resilient social housing. These transformations have been mainly initiated by the adopted local sustainable development and housing agendas in each country. With its 12 diverse articles, this Research Topic sheds light on these recent transformations from different perspectives with the aim of better understanding and documenting these new social housing approaches.

First, the lessons learned from indigenous housing and early social housing practices are discussed in two articles. In their study of the architectural typology of indigenous houses in Iran, [Ghanbari et al.](#) present valuable lessons extracted from the resilience of the indigenous homes by analyzing the adaptation they have undergone over time as a result of internal needs and exogenous changes. The study revealed the preserved architectural styles and design elements, especially house orientation, open plan, and natural ventilation. Regarding the early social housing experience, [Assi's](#) study discusses the degree of resilience of the pioneering social housing projects (*Shabiyat*) in the United Arab Emirates (UAE) and examined the notion of home mobility and how it is related to resilience through physical and non-physical spatial transformation and everyday practice. The study avails more understanding of the resilience of the *Shabiyat* and examines how they addressed the needs of Emirati society. This study offers some practical guidance for developing sustainable policies for future social housing projects.

Second, the assessment of social and cultural aspects of the current practices of social housing in the Arabian Gulf Countries are discussed in four articles, culminating in some valuable proposed solutions for the social housing process and product. [Mohamed et al.](#) offered an alternative approach for the design and delivery of national housing practices in the UAE to overcome the problems facing the current social housing practices regarding

their appropriateness for family needs and socioeconomic challenges. The proposed approach relies on design flexibility and customization, a computational design strategy for facade optimization, and a prefabricated building method combining precast concrete systems with three-dimensional printing technology. In another study, [Al-Ansari and AlKhaled](#) conducted a critical analysis of the current social housing practices in Kuwaiti social housing neighborhoods in Jaber Al-Ahmed City. They examined the status of recent social housing projects in the city through evidence-based analysis of the decision-making processes and urban-architectural products. The study revealed the important sustainability aspects that remain in question in Kuwait.

In the third study, [Lafi et al.](#) analyzed the widespread modifications made by residents in social housing in Bahrain to identify the issues leading to such modifications. These include residents' need to modify their houses according to their lifestyles, which appeared in the guest room, the courtyard, and the interior divisions of the extended bedroom. Considering the revealed preferences of residents while designing future social housing projects in Bahrain helps create flexible units that satisfy the needs of the majority of residents while allowing for modifications at any time. Another innovative social housing typology is cohousing, as suggested by [Yahia et al.](#) They claim that the variety of societies in the Emirates with their various habits, experiences, and traditions endorse such a new housing typology. They discussed the socially and culturally challenging considerations of cohousing. The study concludes with some design guidelines for future cohousing in the UAE, considering the pillars of the local Estidama (sustainability) program, in addition to the role of architecture design. The study showed that future cohousing in the UAE is expected to enhance social interaction and contribute to sustainability in the long-term perspective.

Third, the environmental aspects of social housing design in the region and suggested innovative assessment tools and relevant enhancement recommendations are addressed in four articles. The issue of rising average temperatures in the UAE and the massive heat island agglomeration is addressed by [Alkaabi et al.](#), who explored the feasibility of using drone-captured three-dimensional thermal imaging to carry out thermal photogrammetric mapping of buildings and pedestrian spaces to monitor and classify heat rates based on building components. Furthermore, [Salameh et al.](#) examined the thermal effect of the variations in the height of housing buildings on the urban layout and canyons in the hot arid climate of the UAE. The study defined the best-performing configurations of housing urban forms with unified and diverse heights.

Another innovative study about thermal comfort in the housing built environment in the harsh weather context of the UAE, and the whole region, was undertaken by [Alkaabi and Raza](#), who investigated the dynamics of the car cabin environment and driver comfort. The importance of the study is asserted by the fact that most residents in the UAE still heavily rely on private cars for commuting. Summer heat in the UAE was found to have a significant effect on drivers' perceptions of body fatigue, body heat, and eye fatigue. The research findings have implications for car cabin ergonomics and future thermal comfort research.

Fourth, in an interesting study about mitigating the impact of sandstorms through the urban landscape, [El Amrousi et al.](#) had an

interesting look at the current labor housing projects in the UAE, which are usually characterized by grid-based compositions, simple facades, and block buildings positioned on the outskirts of cities. They found that Interventions from the community via the introduction of small garden stock have not only increased the sense of belonging and improved the urban fabric, but also reduced sand movement in the area. This is important in the Arabian Gulf region's desert environment, which gives rise to sandstorms. The study evaluated the amount and distribution of sand around a selected group of buildings in the Mussafah area of the city of Abu Dhabi, UAE, and put forward some enhancement recommendations.

Fifth, accessibility to neighborhood parks of social housing in the UAE is discussed in an interesting study undertaken by [Alkhaja et al.](#), who examine the impact of neighborhood parks as a key asset in mitigating the negative implications of extended lockdowns due to the spread of COVID-19. They focused on the provision of access to community parks via efficient routes through enhanced network connectivity. The study revealed that the current design and planning guidelines, implemented by the Department of Transport and Municipalities in the UAE, are overly descriptive with regard to how neighborhood parks are accessed; therefore, the study suggests a possible more evidence-based approach to policy development.

Finally, [Hasanain and Nawari](#) discussed the urgent need to accelerate the slow transformation of current housing designs into more sustainable forms in Saudi Arabia. They call for uniformity across jurisdictions to make sound and well-informed decisions about adopting and "enforcing" sustainability measures in social housing projects. To do so, they utilized the advanced capability of Building Information Modeling (BIM) and developed a BIM-based model to help facilitate green building certification in Saudi Arabia, which supports the country's sustainable vision of 2030.

## Author contributions

KG: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing—original draft, Writing—review and editing.

## Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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