

# Connecting Policy And People: A Comparative Evaluation Of Mostadam For Communities Model And Field Survey Results In Saudi Arabia

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**Abstract:** The present paper, in turn, compares the content of the Mostadam for Communities (Design + Construction) sustainability assessment framework in Saudi Arabia with the real needs, preferences, and experience of residents, as evidenced by a comprehensive field-based survey carried out in 2025. The study will be comparative, mixed with the grounded option of qualitative content analysis of the criteria of Mostadam, and quantitative and thematic analysis of the survey with 108 participants located in the various neighborhoods of Saudi Arabia. The results indicate a high degree of compatibility between the concerns of Mostadam and the residents regarding the delivery of fundamental infrastructure (water, electricity, waste management, and sewage), mobility (walking, cycling, public transport, and parking systems), safety and security, and the delivery of public and green spaces. Nevertheless, the analysis also recognizes the gaps at which the current scope and weighting of Mostadam does not perfectly encompass the user experience or newer ideas of the urban necessities, especially in the provision of service quality, occupation community interactions in the post construction, thermal comfort and adaptability, discourse on integration of smart infrastructure, and safety in the service area that was gender sensitive.

The findings offer specific improvements to the very framework, such as a slight re-weighting of community participation credits, a Quality-of-Service Index, thermal comfort enhancement via the use of indicators obtained in the field, a special credit associated with smart infrastructure, and a gender-sensitive safety audit. These recommendations preserve the structural integrity of Mostadam to make it more responsive to bottom-up priorities in the community. The study finds that Mostadam is generally aligned with the aspirations of the Saudi residents, yet could use certain selective amelioration to support the cause of ensuring that it falls into place as an effective, user-informed tool enhancing sustainable development of neighborhoods. The implications concerning the design of sustainability rating systems at a global scale are also related, especially to the use cases where the regulatory and grassroots purposes of policies have to be balanced to facilitate the creation of inclusive, livable, and resilient cities.

**Keywords:** Mostadam, sustainability evaluation, Saudi Arabia, urban livability, bottom-top planning, neighborhood design, Vision 2030, user participation, climate proofing, intelligent infrastructure.

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## 1. INTRODUCTION

The Vision 2030 of Saudi Arabia provides a national strategy towards urban sustainability, achieved by enhancing livability, infrastructure, and environmental management [1]. To facilitate this objective, the Ministry of Municipal, Rural Affairs, and Housing has proposed the mostadam as the national rating system of sustainable buildings and communities [2]. Despite establishing a distinct set of environmental, social, and economic standards, the success of Mostadam will be determined by the compatibility of these standards with the expectations and realities of residents [3] [4].

Nevertheless, leading sustainability policies are usually ineffective at reflecting grassroots concerns, which leads to discrepancies between the strategized approaches and experienced realities [5] [6]. On the other hand, bottom-up participation through community input creates a high level of accountability and uncovers actual needs and gaps [7] [8]. This paper will compare the Mostadam for Communities model with the results of a national field survey to evaluate how responsive the model is to the needs of Saudi residents [9] [10]. The survey explores (1) the current state of the city in terms of its services, (2) satisfaction of residents with the facilities, (3) future service preferences in the neighborhood, and (4) demographic factors affecting perception. Three guiding questions are addressed:

1. Does Mostadam for Communities reflect residents' priorities?
2. Which areas are underrepresented within its framework?
3. How can the model's responsiveness be improved?

## 2. METHODOLOGY

The study is a comparative mixed research design involving both a quantitative survey and qualitative mapping of the structure of Mostadam. To the right, **Error! Reference source not found.**

## 2.1 Survey Instrument Development

The survey instrument was developed to tackle the research question by analyzing the data and results obtained from the survey.

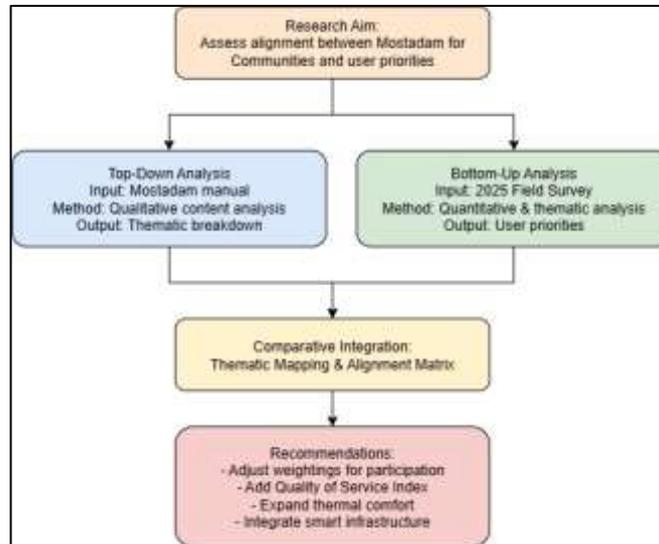


Figure 1. shows the research framework.

Major sustainability models, including LEED-ND, BREEAM-Communities, CASBEE-UD, and Mostadam, were examined to develop a questionnaire that would also be global and also would be contextualized to Saudi Residents, planners, and officials were involved in the selection of topics based on international guidelines and national policy priorities. A pilot test, consisting of 10 participants, was used to refine the question clarifications and order.

## 2.2 Survey Structure

The last tool consisted of 6 items: (1) demographics; (2) service availability; (3) service quality through Likert ratings; (4) mobility and accessibility; (5) sustainability awareness and practices; and (6) living perceptions of safety and public space. Below, Figure 2. shows the survey structure.

## 2.3 Population and sampling

To achieve demographic representativeness, both online distribution and interpersonal interaction were used to attract respondents to various urban neighborhoods in Saudi Arabia.

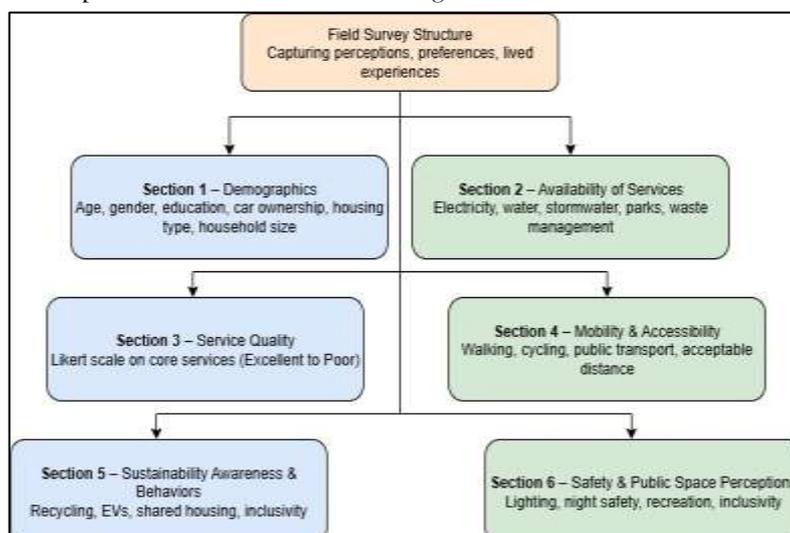


Figure 2. shows the survey structure.

#### **2.4 Data Collection and Analysis**

Python and Excel were used to calculate descriptive statistics, cross-tabulations, and correlations. Composite scores of service availability and quality ratings were created into weighted indices.

#### **2.5 Comparative Framework Analysis**

Mostadam for Communities (Design + Construction) credits were all reviewed and mapped thematically in comparison to survey outcomes. This process identified: (1) Complete congruence of model requirements and resident needs, (2) Partial overlaps restricted to availability, but not seen as quality, and (3) Breaks at which user needs were completely unrepresented.

This two-stream juxtaposition correlates the regulatory intent with the user experience, contributing to evidence-based improvement of the framework by Mostadam.

### **3. Neighborhood and Community Sustainability Assessment Models**

They have been followed by global neighborhood assessment systems, such as SPeAR, issued 2000 in UK, HQE2R issued 2001 in France, ECOCITY issued 2002 in EU, CASBEE-UD issued 2007 in Japan, and LEED-ND and BREEAM-Communities issued in 2009 in USA and in 2011 in UK, respectively, and by regional variants, such as the Qatari model, QSAS in 2007 and Pearl Rating from UAE, in 2010 and finally, Mostadam sponsored by Saudi Arabia Vision 2030 to develop sustainable community planning in Saudi Arabia [7] [4] [3] [6] [2] [1] [11].

#### **3.1 LEED-ND**

The LEED-ND (USGBC, 2018) analyzes five categories, including location, design, infrastructure, innovation, and regional priority. Although useful in encouraging walkable, small-scale, and neighborhood-based development, it tends to prioritize environmental indicators at the cost of social equity and affordability [12] [13] [14] [15] [16].

#### **3.2 BREEAM-Communities**

BREEAM-C (2012) evaluates the sustainability of planning at governance, well-being, resources, land use, and transport. It combines the environmental and social dimensions, but is criticized as missing post-construction performance, flexibilities in informal environments, and economic equity [17] [18] [19] [20].

#### **3.3 CASBEE-Urban Development**

The CASBEE-UD (2014) of Japan is based on an index on the built environment and its efficiency, the Built Environment Efficiency (BEE). It is extensive but very technical, less flexible in an international environment, and pays little attention to social cohesion and equity [7] [21] [22].

#### **3.4 Mostadam (Saudi Arabia)**

Mostadam allocates 67 percent of overall weight to environmental indicators - more than LEED, BREEAM, and CASBEE - based on national priorities in energy, water, and climate resilience. Nevertheless, this makes it less comprehensive than global models due to its groups of factors that only cover economic (0%) and social (27%) factors [2] [1].

#### **3.5 Comparative Insights**

Mostadam has strengths over other systems because it focuses on environmental and infrastructure issues that are specific to Saudi Arabia. However, its low focus on economic analysis, social justice, and land-use sustainability limits its globalization. LEED-ND and BREEAM-C are more balanced regarding social and governance, whereas CASBEE-UD is more efficient in structured environmental aspects.

### **4. Findings**

#### **4.1 General Survey Findings**

Overall results of the field survey indicate that in the majority of Saudi neighborhoods, core infrastructure services, including electricity, sewage, street lighting, and waste collection, are abundant, reaching over 90 percent of the residents. Nevertheless, although basic amenities are prevalent, secondary facilities like road systems, drain systems, and green areas are only average, and amenities like bike parks, transport, and cultural amenities are grossly underdeveloped and only benefit less than 20 percent of neighborhoods. The perceptions of quality are significantly lower in comparison with the perceptions of availability: water and waste management services are rated as relatively highly satisfactory, yet street lighting and sewage maintenance are commonly rated as low, and overall stormwater drainage has the lowest ratings in terms of satisfaction. The mobility infrastructure is one of the biggest areas of weakness,

with only approximately 29% areas having sidewalks, there being practically no bike lanes, and no public transportation solutions, forcing residents to use their personal vehicles as the main means of daily transportation. Moreover, green spaces, being present in multiple communities, are inconsistent in quality, maintenance, and safety levels. On the same note, social amenities like cultural facilities, sports, and recreational facilities are also limited, existing in just under 21 percent of neighborhoods, meaning an urgent need to target investment on community-level facilities to help improve the livability and inclusiveness of Saudi residential neighborhoods. Above, **Error! Reference source not found.**

#### 4.2 Resident Preferences and Future Service Demand

The findings of the surveys reveal that, despite general satisfaction with basic amenities like water, electricity, and waste services, people are much less satisfied with mobility and recreational services. Green spaces become one of the most valued attributes of neighborhood livability, but residents are quick to point out that availability is not the only factor that promotes satisfaction; the real issue is the usability, accessibility, and quality. In the future, better urban infrastructure, such as shaded walkways, reliable mass transit, well-maintained parks and playgrounds, and the adoption of digital infrastructure, such as smart metering and online utility control, is in strong demand. The respondents who are younger and more educated, in general, express a strong interest in digital transformation and sustainable living habits, which is a sign that the new generation will shift towards environmentally conscious urban lifestyles. The desire to go green is fairly moderate to high: approximately 70 percent of respondents say they would be willing to recycle provided convenient systems exist, a significant percentage are willing to buy electric cars provided they are affordable and there is the right infrastructure, and a good chunk are willing to have solar panels installed as long as there are financial incentives or subsidies. However, several obstacles impede the implementation of sustainability, such as excessive heat, safety issues, low expectations of service reliability, and low access to community involvement. Comparing the Mostadam framework with the Communities framework, resident priorities demonstrate high levels of compatibility in environmental and infrastructure areas, moderate levels of compatibility in areas relating to continued performance evaluation and customer satisfaction, and lower levels of compatibility in areas of

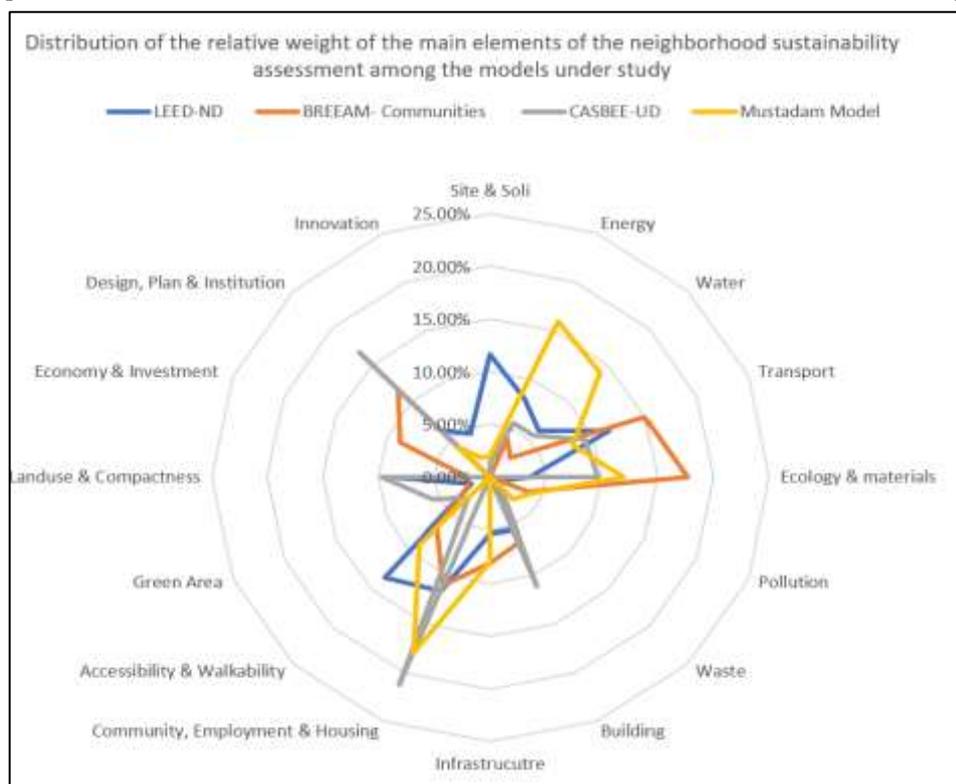


Figure 3. shows the distribution of the relative weight of the main elements of the neighborhood sustainability assessment among the models under study. digitalization and socio-cultural responsiveness, which means that Mostadam can focus more on user-

driven needs and expectations. Below, Figure 4 shows the availability percentage of the primary services in the Saudi Needihoods as per the study survey.

#### 4.3 Correlation and Relationship Analysis

The relationship analysis is designed to investigate the effect of demographic variables, such as age, gender, education level, car ownership, and type of housing, on the attitudes of the residents towards the availability, quality, and desirability of neighborhood services. The results suggest that **age** is an influential factor: younger residents are less likely to be concerned about mobility and digital services, whereas middle-aged citizens are more likely to consider a balanced system of utilities and community services, and older residents are more preoccupied with healthcare and safety features. Sustainability adoption is highly associated with **education** level; better-educated respondents are more aware and eager to adopt environmentally related behavior like recycling, energy saving, use of electric vehicles, and involvement in urban planning processes. **Car ownership** also conditions user attitudes, with individuals lacking their own vehicles indicating that they would like increased public transit and walking-friendly streets, and car owners showing a mobility lock-in, insisting on improved parking services and a well-maintained road system. Regarding **gender**, women ultimately have lower perceptions of safety regardless of comparable physical infrastructural conditions, a fact that highlights the need to incorporate gender-sensitive safety audits into the mostadam framework. Finally, the research outlines a pattern of inconsistencies between **service accessibility** and **quality**, with utilities like street lighting and sewage systems being highly accessible but commonly in disrepair. Consequently, more performance-specific monitoring is required in the sustainability assessment of Saudi neighborhoods. Below, Figure 5. shows the users' evaluation of the public services as per the study's survey.

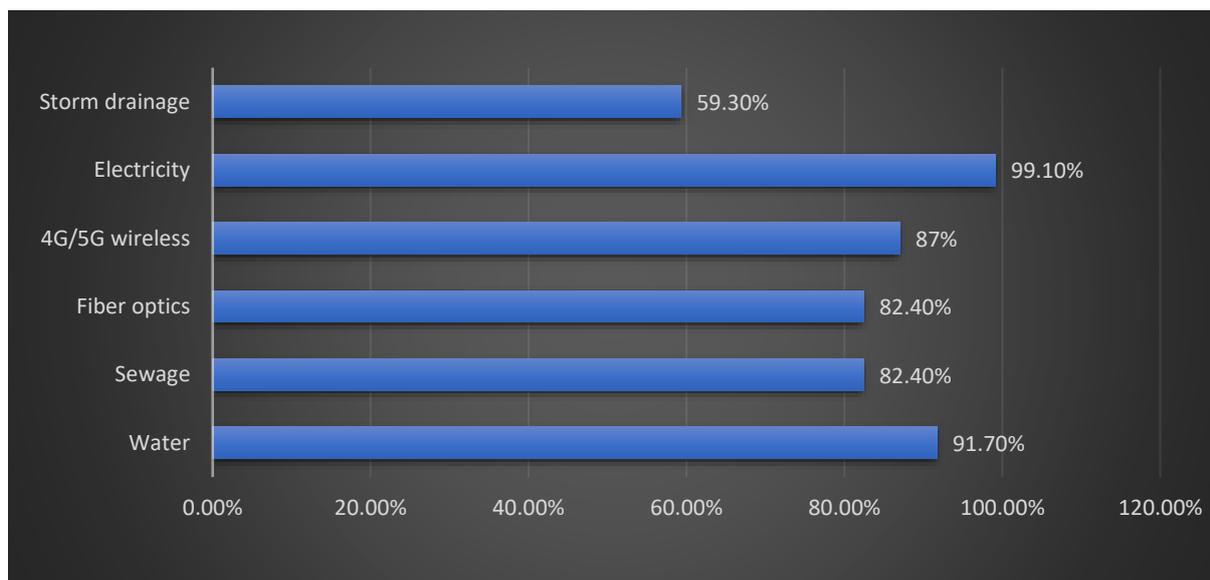


Figure 4. shows the availability percentage of the primary services in the Saudi Needihoods as per the study survey.

#### 4.4 Comparative Analysis of Mostadam and Field Survey Results.

The comparative benchmarking of the Mostadam for Communities (design + construction) framework against the outcomes of the 2025 field survey was designed to measure how the system is adequately aligned to the actual world priorities and experiences of residents. The results show that the two are strongly aligned in several areas. The infrastructure, particularly the provision of dependable utilities like water, electricity, sewage, and waste management, can be seen as an indicator of the assessment priorities of Mostadam and the basic needs of the residents. Likewise, the mobility-related standards of walking, cycling, and parking included in the framework align with the expectations of users, though residents stress the necessity of further integration of the public transportation mechanisms. A common issue also arises about safety, especially with proper street lighting and the security of women in parks. Another

aspect of principle compatibility is green spaces, but dwellers request more variety, color, and better maintenance of these spaces.

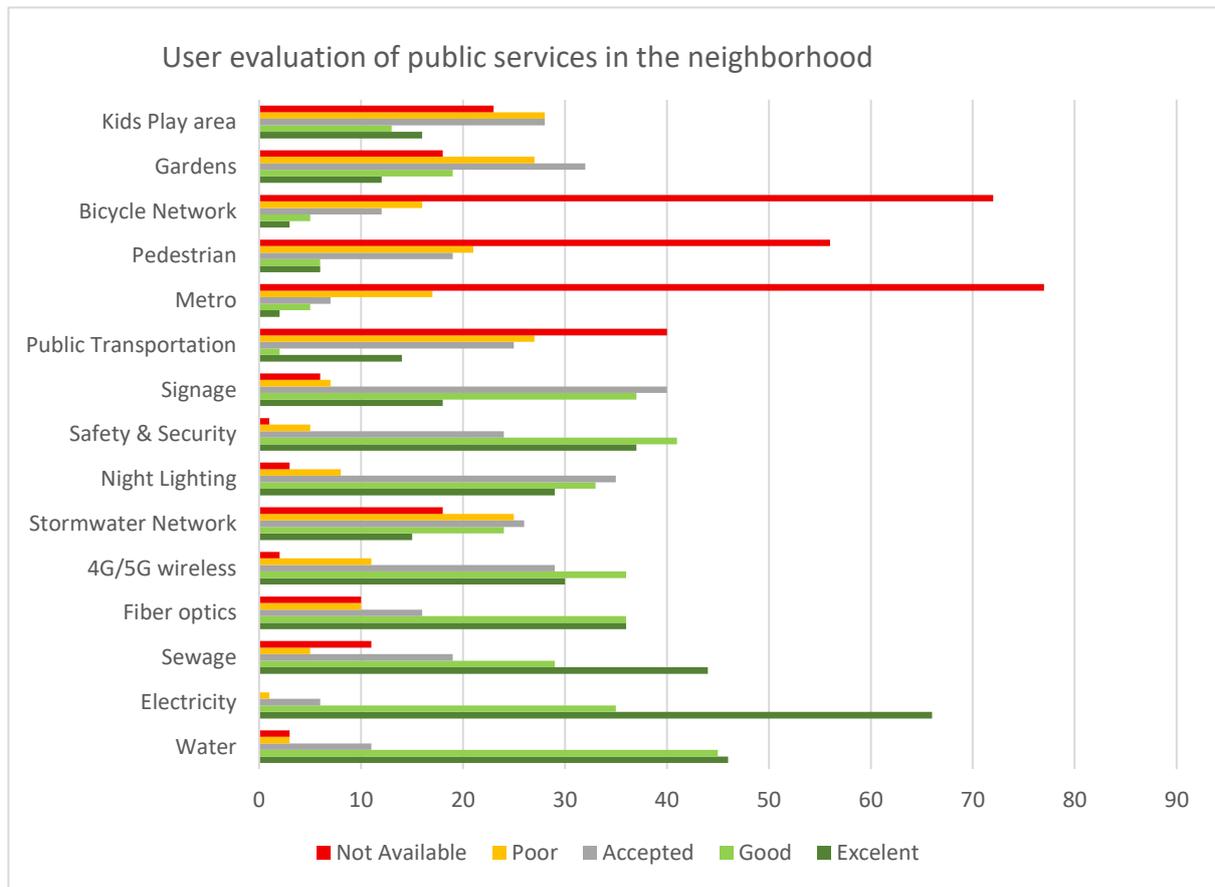


Figure 5. shows the users' evaluation of the public services as per the study's survey.

There are other categories where partial alignment is observed. Currently, community participation is given less importance in Mostadam, as there is a need to increase the weight of credit by about 1 per cent, as well as the post-occupancy feedback systems, to maintain a cycle of improvement. The framework is useful in quantifying the availability of infrastructure, but lacks in assessing quality and performance; therefore, Quality-of-Service (QoS) indicators could be added to increase its practical value. Likewise, field-based indices like UTCI or PET would be more appropriate in measuring thermal comfort because the conditions of the local climate will be effectively captured. Furthermore, there is a strong demand among the residents to be digitized, especially into smart meters, online maintenance software, and other smart services that do not exist in the framework of Mostadam at present.

Despite these points of intersection, various points of divergence are also apparent. Mostadam criteria are not specifically designed with gender-sensitive safety assessment, and there are no formal post-completion feedback procedures. Moreover, though flood resilience is technically in place, its performance monitoring systems are inadequate to evaluate long-term performance. On balance, this analysis indicates that Mostadam suits the basic needs of residents quite well but could use more user-centric, performance-focused, and digitally-enabled functionalities to increase its adaptability and responsiveness to the changing needs of Saudi communities. Below, Table 1 shows the Comparative Alignment Matrix (Mostadam vs. Survey Results).

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Comparative Alignment Matrix (Mostadam vs. Survey Results)			
Domain	Mostadam Emphasis	Survey Findings	Alignment / Gap

Infrastructure & Basic Services	Strong coverage of utilities, waste, and lighting	Rated highly available by residents	High alignment
Mobility & Accessibility	Credits for walking, cycling, and parking	Residents show a preference for public transport & walking	Moderate alignment, need better PT integration
Safety & Security	Weighted category on safety audits, risk	High resident demand for lighting, night safety	Strong alignment
Green & Public Spaces	Credits for open space, landscaping	Residents emphasize safe & diverse spaces	Good alignment, with demand for more shaded area
Community Participation	Workshops & engagement credits (low weight)	Residents want a stronger voice in planning	Gap: need higher weighting & follow-up mechanisms
Service Quality	Focus on infrastructure presence.	Residents complain about performance/quality.	Gap: lacks Quality of Service index.
Thermal Comfort & Climate	Design credits for shading, heat reduction	Residents report discomfort outdoors	Partial alignment, need a performance-based comfort metric
Smart & Digital Services	Not fully developed in Mostadam	Some residents are interested in smart utilities	Gap: opportunity for new digital infrastructure credit

## 5. Recommendations

The recommendations made on the basis of the comparative analysis stress the fact that the Mostadam for Communities framework should be improved by adding user-centered and performance-based aspects to it, with a focus on maintaining its existing strengths. First, the participation of the community needs to be reinforced by adding a post-occupancy feedback credit and adding approximately 1% to the credit weighting of community participation. Such a change would increase resident participation, satisfaction, and their feeling of ownership in neighborhoods. Second, the framework must include Quality of Service (QoS) measures that use field-measured indicators like the Universal Thermal Climate Index (UTCI) and the Physiological Equivalent Temperature (PET) so that indicators of sustainability assessments are based on actual levels of comfort and utility, and not on mere availability. Third, further focus should be made on thermal comfort through expanding shading facilities and applying effective heat reduction measures to enhance outdoor living conditions in the hot climatic conditions of Saudi Arabia.

Fourth, integration of smart infrastructure components is highly encouraged by assigning a special one-point credit to innovations, including digital energy meters, mobile-based services tracking, and real-time performance monitoring systems. This improvement would help address the national digitalization objectives of Saudi Vision 2030 and would make the operation more efficient. Fifth, gender-sensitive safety requirements have to be implemented, emphasizing that the lighting must be sufficient, visible, and conduct social safety audits, which will prioritize the security needs of women in open areas. Lastly, although these refinements are expected to help make Mostadam more receptive and user-friendly, it is important to keep its key strengths, especially its strong focus on reliable utilities, mobility systems, green spaces, and safety standards, so that it can also stay close to the international best practices and goals of sustainable urban development.

## 6. CONCLUSION

In this paper, a comparative analysis of the Mostadam for Communities (Design + Construction) sustainability system and the lives, priorities, and hopes of Saudi residents was carried out through the lens of a comprehensive field survey carried out in 2025. The study revealed that there are both similarities and differences between policy intent and practice by comparing the regulatory, top-down framework to the bottom-up community insights.

The results indicate that Mostadam successfully responds to user priorities in factors like provision of infrastructure, mobility, green space, and safety - factors that were ranked most critical by the respondents of the survey. Such findings affirm that the framework is compatible with the objectives of Saudi Vision 2030, especially its incorporation of environmental, social, and economic aspects of sustainability.

Nonetheless, service quality assessment, post-occupancy performance, thermal comfort, climate resilience, and gender sensitive safety design were identified as areas of significant deficiency. By filling these gaps with user-informed feedback loops and adaptive assessment criteria, we would increase the relevance of Mostadam in the long term and its responsiveness to the community.

The paper concludes that Mostadam is a strong and coherent system, yet strategic improvements, especially surrounding the correlation of regulatory credit weights with priorities that the community identifies, would lift it out of a compliance-based model and turn it into a dynamic, user-oriented sustainability tool. There are also wider implications of these insights to the new systems of urban sustainability in even larger urban areas across the world, particularly those focused on rapid growth, looking to balance policy frameworks with the experience of the people living there.

## 7. REFERENCES

- [1] Vision\_2030, "Vision 2030," 2018. [Online]. Available: <https://www.vision2030.gov.sa/ar/v2030/a-sustainable-saudi-> [Accessed 2 9 2022].
- [2] Mostadam, "Mostadam Rating System\_ Communities D+C," Housing Program, 2024.
- [3] M. Al-Alwani, "Towards Sustainable Middle Eastern Cities: A Local Sustainability Assessment Framework," 2014.
- [4] R. M. A. S. Al Murshedi, "Evaluation of residential neighborhood planning models using a comparative analytical measurement tool," *Journal of Urban Research*, Vol. 26, Oct 2017, 2017.
- [5] S. Al Khateeb, K. Fatani and M. Mohamed, "Sustainable Socio-cultural Guildlines for Nei Design in Jeddah," *Procedia Environmental Sciences*, p. 37 ( 2017 ) 584 - 593, 2017.
- [6] K. Al Amri, M. Al Subh, A. Kherisat and H. Al Shubaki, "Mechanism for evaluating residential neighborhoods during the design phase," *Derasat / Humanities and Social Sciences*, pp. Volume 34, Appendix 6, 2016.
- [7] A. Sharifi, "Sustainability at the Neighborhood Level: Assessment Tools and the Pursuit of Sustainability," Department of Environmental Engineering and Architecture Graduate School of Environmental Studies Nagoya University, 2013.
- [8] A. T. M. Alabsi and A. A. Majrashi, "A comparative study between neighborhood planning and the reality of its implementation Rabwah Neighborhood as a Case Study - Makkah Al-Mukarramah," *Umm Al-Qura University \_ Architecture & Engineering*, pp. Folder 11 - Number 2 : 48 - 56, 2020.
- [9] R. F. M. Ameen, H. Li and M. Mourshed, "Sustainability assessment methods of urban design: A review," *Engineering School, Cardiff University, UK*, 2014.
- [10] A. O. Dawodu , "The Development of an Integrated Participatory Framework for the Early Selection of Sustainability Indicators for Neighborhood Sustainability Assessment Tools: An African Perspective," *Department of Architecture and Built Environment \_ University of Nottingham* , 2019.
- [11] S. M. Elkhateeb, "Sustainable Neighborhoods in Arab world; a Path Towards Sustainability - The Case of the Sustainable City in Dubai," *The Academic Research Community Publication*, pp. 2537-0154, online: 2537-0162, 2019.
- [12] LEED-ND, USGBC, "Reference Guide for LEED Neighborhood Development V4," 2018.
- [13] E. Talen, E. Allen, A. Bosse, J. Ahmann, J. Koschinsky, E. Wentz and L. Anselin, "LEED-ND as an urban metric," *Landscape and Urban Planning*, vol. 119, p. 20- 34, 2013.
- [14] U. Berardi, *Assessing and Measuring Environmental Impact and Sustainability / Ch-15: Sustainability assessments of buildings, communities, and cities*, Elsevier Inc, 2015.
- [15] M. B. Gonzalo, M. D. Bovea and M. J. Ruá, "Sustainability on the urban scale: Proposal of a structure of indicators for the Spanish context," *Environmental Impact Assessment Review*, pp. 53 / 16-30, 2015.
- [16] A. Komeily and R. Srinivasan, "A need for balanced approach to neighborhood sustainability assessments: A critical review and analysis," *Sustainable Cities and Society* , p. 18 (2015) 32-43, 2015.
- [17] BREEAM\_C, BREEAM Communities technical manual, 2012.
- [18] S. Yildiz, M. Yilmaz, S. Kivrak and A. B. Gültekin, "Neighborhood Sustainability Assessment Tools," *Planlama* , p. 26(2):93-100, 2016.
- [19] C. Gargiulo, A. Sforza , C. Sterle and F. Zucaro , "An Optimization Model Fitting the Neighborhood Sustainability Assessment Tools," 2018.
- [20] S. Diaz and J. J. Espino, "Do Sustainable Community Rating Systems address resilience ?," *Cities*, vol. 93, pp. 62-71, 2019.

- [21] CASBEE-UD, CASBEE for Urban Development: Co, JSBC: Japan Sustainable Building Consortium ed., IBEC: Institute for Building Environment and Energy Conservation, 2014.
- [22] E. Karol and J. Brunner, "Tools for Measuring Progress towards Sustainable Neighborhood Environments," *Sustainability*, vol. 1, pp. 612-627, 2009.
- [23] BREEAM\_C, "BREEAM Communities Technical Manual," 2012.
- [24] A. Sharifi and A. Murayama, "Neighborhood sustainability assessment in action: Cross-evaluation of three assessment systems and their cases from the US, the UK, and Japan," *Building and Environment*, vol. 72, pp. 243 - 258, 2014.