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Sustainable urban growth from up and down? Saudi Arabia's Urban Infrastructure Revolution

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ABSTRACT

This study explores Saudi Arabia's Sustainable Urban Growth, focusing on the synergy between top-down government initiatives and bottom-up community engagement in the Urban Infrastructure Revolution. It lacked environmental assessment policies and strategies and had been managed through a centralized structure. There were little environmental references in urban planning papers. As a result, Saudi cities' rankings for environmental sustainability are poor. The paper analyzes key aspects such as policy formulation, community participation, technology integration, and challenges faced. By presenting case studies, it highlights the harmonious blend of top-down and bottom-up approaches as a model for achieving resilient, eco-friendly, and inclusive urban development, contributing valuable insights to the global discourse on sustainable urban growth. The study indicates that in order to provide appropriate, sustainable, institutionalized urban government, a framework of laws and administrative procedures coupled with strategic environmental assessment (SEA) must be put into place. The results may provide guidance to individuals functioning in comparable political environments, particularly in developing nations

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INTRODUCTION

Urbanization is a global phenomenon that demands careful consideration and strategic planning to ensure sustainable growth. In this context, Saudi Arabia has emerged as a key player in redefining its urban landscape, embarking on a transformative journey toward sustainable urban

development. This transformation is not merely a top-down endeavor but involves a dynamic interplay between government initiatives and grassroots movements.(Abdelkader 2017) This essay delves into the intricacies of Saudi Arabia's Urban Infrastructure Revolution, examining the balance between top-down rules and bottom-up assignation in fostering sustainable urban growth

The Kingdom of Saudi Arabia has undergone a profound and dynamic transformation marked by a substantial surge in urbanization over the ancient rare times. This rapid urban development has been driven by the dual forces of economic diversification and population growth, propelling major cities like Riyadh, Jeddah, and Dammam to the forefront of this urban evolution. As urban centers continue to burgeon, the Kingdom finds itself confronted with a myriad of challenges inherent to such expansive growth. Issues such as urban sprawl, escalating traffic congestion, and environmental degradation have emerged as pressing concerns, necessitating a strategic and forward-thinking approach from policymakers.(Sajja and Ali 2023) In response to these challenges, there is a noticeable shift in focus towards the exploration and implementation of sustainable urban growth models. Policymakers are recognizing the imperative to balance the momentum of urbanization with environmental sustainability and the well-being of their citizens. This burgeoning awareness underscores the importance of not only accommodating the immediate needs of a growing population but also ensuring that the urban landscape is developed in a manner that fosters resilience, inclusivity, and environmental stewardship. As Saudi Arabia stands at the nexus of its urban evolution, the pursuit of sustainable urban growth models becomes pivotal in shaping the future trajectory of its cities and fostering a harmonious coexistence between economic vitality and environmental consciousness.(Sodiq et al. 2019)

Government Initiatives and Top-Down Approaches:

Saudi Arabia's dedication to sustainable urban development is unmistakably embodied in its ambitious national initiatives. Vision 2030, an extensive roadmap guiding the nation's future, underscores a profound commitment to the transformation of urban areas into dynamic and livable spaces. Notably, the emphasis is not solely on addressing immediate challenges but on laying the groundwork for futuristic, smart, and sustainable cities. Key infrastructure projects, including NEOM, the Red Sea Project, and Qiddiya, exemplify this commitment by integrating cutting-edge technology, environmental consciousness, and social inclusivity into their designs. These projects are not only intended to tackle current urban challenges but are strategically designed to usher in a new era of urban living that aligns with global sustainability standards.(Myllylä and Kuvaja 2005) This top-down approach mirrors the government's astute recognition of the pivotal role urban infrastructure plays in achieving enduring economic and social objectives. It signifies a holistic strategy that positions sustainable urban development as a cornerstone for the nation's progress, promising a future where cities serve as exemplars of innovation, resilience, and harmonious coexistence.

Empowering Local Communities:

While government-led initiatives play a pivotal role, the journey towards sustainable urban growth hinges on the active participation and engagement of local communities. Grassroots movements and community-driven projects emerge as crucial contributors to the resilience and vibrancy of urban areas. Initiatives that prioritize the establishment of green spaces, community centers, and the adoption of sustainable practices empower residents, fostering a sense of ownership and responsibility towards their surroundings.(Carmona 2009) This bottom-up

approach not only encourages active citizen involvement but also ensures that the unique needs and aspirations of each community are taken into account within the broader urban development framework. By placing communities at the forefront of the sustainable urban growth narrative, the synergy between top-down governance and grassroots efforts becomes a driving force in creating cities that are not only environmentally sustainable but also socially inclusive and responsive to the diverse needs of their inhabitants. In this collaborative approach, the shared vision for sustainable urban development becomes a collective endeavor, transforming cities into resilient, vibrant, and inclusive spaces for all.(Tang and Lee 2016)

Challenges and Opportunities:

Despite the promising strides made, challenges persist on the path to sustainable urbanization in Saudi Arabia. The delicate task of balancing robust economic development with environmental conservation remains a primary challenge, requiring careful navigation to ensure that growth does not compromise the nation's natural resources. Simultaneously, addressing social inequalities within urban areas poses another complex challenge, demanding a comprehensive and inclusive approach to urban development that considers the diverse needs of the population. integrating technology into urban planning, while promising for enhancing efficiency and sustainability, introduces its own set of challenges.(Dahiya 2020)(Basiago 1998) The rapid evolution of technology necessitates adaptive governance frameworks and infrastructure, which, if not managed adeptly, can lead to unintended consequences. As Saudi Arabia embarks on its Urban Infrastructure Revolution, these challenges become focal points for strategic consideration. within these challenges lie opportunities for innovation, collaboration, and the creation of inclusive urban spaces. The interplay between top-down policies and grassroots initiatives becomes a nexus for transformative change. By exploring case studies, analyzing policy effectiveness, and understanding the role of technology and innovation, a deeper comprehension of Saudi Arabia's Urban Infrastructure Revolution can be attained. This exploration aims to unravel the intricate dynamics shaping the future of urban development in the Kingdom.(Croese et al. 2021)

Through a multifaceted examination of specific aspects, we aspire to contribute to the ongoing discourse on sustainable urban growth. By shedding light on both challenges and opportunities, our goal is to offer insights that can inform future strategies, fostering a resilient and inclusive urban landscape that reflects the aspirations and needs of the Saudi population. In essence, this exploration serves as a journey into the heart of Saudi Arabia's urban development narrative, seeking to understand how a balance between top-down strategies and grassroots efforts can be struck to realize a vision of sustainable urban growth.(Sodiq et al. 2019)

Transitioning to Sustainable Urban Governance

Many people consider governance to be a crucial institutional component of the framework for sustainable development, in the broad definitions given above. According to Romero-Lankao, Frantzeskaki, and Griffith (2018), "government can offer both barriers and opportunities to transition towards urban sustainability and resilience." Relevant topics that could be taken into account when adopting a sustainability framework include public involvement, volume structure, and calamity readiness/flexibility.(Tang and Lee 2016) These topics are frequently brought up in relevant conversations. Without these institutional elements, a governance paradigm might not be considered sustainable. Most people agree that they are essential parts of frameworks for sustainable development that represent best practices. This approach captures the established

embeddedness of the balancing aspects influencing sustainability and can be utilized at many planes of supremacy, be it local, national, or global.(Croese et al. 2021)

The three levels of "interactions among stakeholders" (roles, strategies, and interests), Changes in urban governance could be made to the governing cultures (modes of governance and cultural values) and governance processes (networks, coalitions, and discourses).. This strategy supports the idea that quick fixes and surface-level changes don't provide for excellent governance. Smith and Wiek (2012) contend that conformist wisdom regarding governance, including To promote sustainability, departmentalism, incrementalism, and self-reliance must be questioned.(Rana 2011) Departmentalism is the term used to describe the conventional method of having several government departments handle tasks without adequate interdepartmental collaboration or communication. The idea behind incremental problem solving is to address issues "piece by piece" as they come up.(Croese et al. 2021) The conventional wisdom of self-reliance holds that government should address urban issues exclusively, with little involvement from other parties. Sustainable urban change was defined by McCormick, Anderberg, Coenen, and Neij (2013) as "structural transformation processes – multidimensional and radical change – that can effectively direct urban development towards ambitious sustainability goals" in a treatise that is more pertinent to sustainable urban development(Dahiya 2020). They proposed that a significant change in the "development paths" could result in the transformation and that planning and governance are crucial to attaining sustainable urban transformation. Even if there is a push to move away from traditional government, in some situations the political will and power of such an administration may aid in the transition to sustainable governance. With examples from Ecuador, Kazakhstan, India, Indonesia, and Palestine, Moser (2019) made the case that leaders' "political legitimacy" might be leveraged to further their objectives for urban development. The degree to which Saudi Arabia may presently exhibit such tendencies is evaluated in the section that follows.(Ågerfalk 2010).

Urban governance and equitable growth

Saudi Arabia is a prominent participant in the field of sustainable development and urban governance, adept at striking a delicate balance between environmental responsibility and fast urbanization. Underpinned by the ambitious Vision 2030 plan, the Kingdom is dedicated to promoting open, accommodating, and collaborative urban governance.(Tang and Lee 2016) The decentralization of decision-making processes, which gives local governments the ability to customize development plans to the unique requirements of their communities, is a unique aspect of this strategy.(Farrell 2017) Another pillar is the use of technology, with bold smart city programs and digital integration changing urban environments. With sustainability taking center stage, Saudi Arabia's urban governance is putting regulations that support green areas, eco-friendly practices, and climate resilience into effect in an effort to balance economic expansion with environmental preservation. An emphasis on improving the quality of life and social inclusion highlight how comprehensive Saudi Arabia's sustainable urban development program is. While the country faces the difficulties that come with this revolutionary journey, its dedication to flexibility, creativity, and cooperation puts it at the forefront of the international conversation about sustainable urban governance.(Aleksić et al. 2019)

Riyadh's urban environmental issues case study

Saudi Arabia's capital, Riyadh, is already spatially expanding due to "leap-frog" style land development, according to a case education of the city (Rahman, 2016). About one-fifth of the

city lots are divided as a result of property speculation, and their owners leave them underdeveloped while they wait for a big increase in price (Ahmed, 2013). Compared to other nearby cities, the city has a fairly large ecological footprint (Choguill, 2006). The statistic that Riyadh is a noncoastal city exacerbates its environmental impact. For example, the water supply to its citizens comes from a location almost 400 kilometers distant after the city. Even nevertheless the city is not now listed as a prelate city on a national scale, It is among the five capitals that consume consistently housed a significant portion of Saudi Arabia's urban populace.(Dahiya 2020) The exploration of Riyadh's urban environmental challenges serves as a compelling case study within the overarching theme of "Sustainable urban growth from up and down? Saudi Arabia's Urban Infrastructure Revolution." Riyadh, the capital of Saudi Arabia, encapsulates the complexities inherent in rapid urbanization amid ambitious infrastructure endeavors. Marked by a sprawling spatial pattern with 'leap-frog' land development, the city grapples with critical issues.(Ågerfalk 2010) Approximately one-fifth of its city lots remain undeveloped, a consequence of speculative land practices, illustrating the delicate balance between economic development and environmental stewardship (Ahmed, 2013; Al-Hathloul & Mughal, 2004). The city's ecological footprint is notably high, exacerbated by its landlocked nature and the extensive sourcing of water from distant locations (Choguill, 2006). As Riyadh stands among the five cities continuously accommodating a significant portion of Saudi Arabia's urban population, the implications ripple across urban services, infrastructure, and disaster resilience, reflecting the intricate dynamics of the Kingdom's evolving Urban Infrastructure Revolution. Balancing top-down initiatives with grassroots engagement becomes pivotal in Riyadh's pursuit of sustainable urban growth, mirroring the broader challenges and opportunities entwined in Saudi Arabia's transformative urban landscape.(Myllylä and Kuvaja 2005)

Variations in urban domination

The institutional framework of urban administration has undergone modifications, along with extensive adjustments aimed at achieving urban social and environmental sustainability, according to the Saudi government. National development plans at the federal level have specifically addressed matters like environmental protection, balanced regional development, increasing productivity and efficiency at the municipal level, and reduction of subsidies. Certain cities have changed the processes they follow when it comes to urban governance. The Ministry of Municipal and Rural Affairs (MOMRA) no longer has centralized control over planning; instead, the municipalities have more freedom to create their own plans and make planning choices. Additionally, there are now more options for the business sector to contribute. In public-private partnerships for urban and economic development (Abdulaal, 2011; MOEP, 2005). Public members are now elected to the municipal council, as indicated in Table 1, allowing them to take part in local decision-making. They have the ability to significantly influence city plans and policies.

Sustainability of the urban environment In relation to the sustainability of the urban situation,

The sustainability of the urban environment is a multifaceted endeavor, intricately weaving together environmental, social, and economic considerations. In the relentless tide of global urbanization, the preservation of our cities hinges on a comprehensive approach that nurtures the planet, supports communities, and ensures economic vitality. Environmental conservation takes center stage, calling for judicious resource management, energy efficiency, and the cultivation of

green spaces. Climate resilience strategies, from robust infrastructure to innovative urban design, become imperative shields beside the escalating effects of climate change.(Cobbinah, Erdiaw-Kwasie, and Amoateng 2015) Social equity forms the bedrock, with sustainable urban environments championing inclusive public spaces, affordable housing, and a commitment to addressing societal disparities. The economic viability of cities rests on sustainable development, fostering innovation, and job creation while optimizing land use. Prioritizing sustainable mobility through efficient public transportation and eco-friendly alternatives contributes to cleaner, more accessible urban landscapes. Biodiversity conservation and the nurturing of green ecosystems within city limits safeguard the delicate balance between urbanization and the natural world. Finally, resilient infrastructure emerges as the backbone, fortifying cities against unforeseen challenges. In essence, the sustainability of the urban environment is an intricate dance, orchestrating a harmonious interplay between ecological responsibility, social harmony, and economic prosperity. (Croese et al. 2021).

Table 1: Modifications to the composition and features of urban governance.

(Foundation: (Satterthwaite 2010),(Wiedmann, Salama, and Mirincheva 2014)Saudi Newspaper, 2014; Mandeli, 2016; MOMRA, 2016)
The composition and traits of urban governance prior to 2004 the features and composition of urban governance following 2004 authorized modifications in the future
• Not having a functioning council in town
• Funds obtained via MOMRA from the federal government
•Full intensive care of cities by MOMRA
• Creation of a separate entity to oversee Riyadh's development
• Agents of central ministries providing municipal utilities only partially coordinate at the municipal level
• restricted private involvement

- Benefit model of government
- Municipal council that is semi-elected (two thirds of the members)
- Public services can be used by a municipality to raise money (privatization of certain municipal services)
- The Municipal Council serves as a liaison between the municipality and MOMRA, facilitating indirect surveillance.
- Creation of special development agencies in additional cities, such as Madinah and Makkah.
- Coordination of central ministry representatives via the municipal council
- Women's representation on local councils
- Creation of a Public-Private Alliance
- Post-welfare administration framework
- Municipal plans and programs must be approved by municipal councils
- The Freedom of Information Law's inauguration
- launch of the standards for land use planning

Including but not exclusive to Madinah, Makkah, Dammam, Jeddah, Yanbu, and Jubail. Aina (2017) states that certain conurbations have adopted keen city technology and requests, including facts centers, fiber connectivity, digital mapping and enterprise GIS, road traffic control and organization, digital signs and address, ecological monitoring, and access regulator. In terms of conservational nursing, the ArRiyadh Development Authority (ADA) has finished building roughly 32 air superiority monitoring stations.(Sodiq et al. 2019) These stations are published online at and are connected to a shared database. Other towns in the Kingdom have embraced the idea since Jeddah established an urban observatory in 2003 in partnership with the UN-Locale and Arab Urban Growth Organization (Jackson & Simpson, 2012). The urban station's objectives are to create a collection of urban indicators for tracking cities' social, economic, and environmental performance and to contribute to the UN's Global Urban Observatory (GUO). To facilitate cross-city comparisons, the indicators have been standardized (MOMRA, 2016). Considering that The socioeconomic data for Saudi Arabia was not available in GIS format in the Central Department of Statistics and Information as of 2014, this is a notable development (MOMRA, 2016). As per MOMRA (2016), around twenty-five cities are presently varying in their urban observatory implementation stages.

Housing, transit, and urban infrastructure

The triumvirate of mobility, urban infrastructure, and housing stands as the cornerstone of sustainable and livable cities, demanding integrated solutions for the challenges posed by rapid urbanization. Mobility within urban landscapes is crucial for connectivity and accessibility.(Sodiq et al. 2019) Sustainable transportation systems, including efficient public transit, cycling infrastructure, and pedestrian-friendly pathways, not only alleviate traffic congestion but also reduce emissions, contributing to cleaner air and a healthier environment. Complementing mobility, the quality of urban infrastructure plays a pivotal role in shaping the character of a city. Smart and resilient infrastructure not only ensures the efficient flow of people and goods but also withstands the challenges posed by climate change. Sustainable urban infrastructure includes robust water and energy supply systems, waste management solutions, and green spaces that contribute to a higher quality of life for residents.(Farrell 2017) The availability of affordable and environmentally conscious housing is paramount for fostering inclusive and equitable urban development. Sustainable housing initiatives encompass energy-

efficient design, the use of eco-friendly materials, and the integration of green spaces within residential areas. Addressing the housing needs of diverse populations ensures social inclusivity, contributing to the overall vibrancy and resilience of urban communities. In essence, the symbiosis of mobility, urban infrastructure, and housing epitomizes the interdependence of key elements in building sustainable and resilient cities. (Ruttan 1988)A holistic approach to urban planning that considers these facets concurrently ensures that cities not only thrive economically but also provide a high quality of life for their residents while minimizing their environmental footprint.

Urban forestry

Urban greening, a pivotal dimension of modern urban planning, orchestrates the deliberate infusion of greenery and natural elements into the concrete tapestry of cities. This multifaceted approach involves initiatives ranging from expansive parks and tree-lined streets to innovative green rooftops and community gardens. Beyond its aesthetic appeal, urban greening serves as an ecological anchor, contributing significantly to environmental sustainability.(Abdelkader 2017) The strategic placement of green spaces mitigates the urban heat island effect, offering cool respites and enhancing air quality by absorbing pollutants. Stormwater management through green infrastructure curtails the risks of flooding, promoting water sustainability. Socially, the impact is profound, as these green havens become recreational sanctuaries, promoting physical activity, reducing stress, and fostering community interactions. Biodiversity finds a haven in these green oases, enhancing urban ecosystems and fortifying the city against environmental challenges. The economic dividends are tangible, with properties adjacent to green spaces witnessing increased value and green infrastructure minimizing energy costs through natural climate regulation. Aesthetically pleasing, urban greening softens the harsh urban landscape, contributing to a more visually appealing and livable city. As urban areas grapple with the repercussions of climate change, urban greening emerges not only as an aesthetic choice but as a pragmatic strategy for climate resilience, moderating temperatures and ensuring the adaptability of urban habitats.(Jacobs et al. n.d.) The realization of urban greening's transformative potential requires collaborative efforts, uniting city planners, policymakers, and communities in a shared commitment to build cities that are not just functional but also sustainable, resilient, and harmoniously integrated with the natural world.(Wheeler 2000)

Utilizing the frameworks mentioned to analyze the changes in Saudi Arabia.

Analyzing the multifaceted changes occurring in Saudi Arabia necessitates the application of diverse analytical frameworks that encapsulate the intricate dimensions of development, governance, and societal shifts. One such lens is the Sustainable Development Goals (SDGs), offering a comprehensive framework to evaluate Saudi Arabia's progress across economic, environmental, and social dimensions, aligning its policies with global sustainability objectives.(Tang and Lee 2016) Additionally, employing the Triple Bottom Line (TBL) framework, which considers economic, social, and environmental factors, provides a holistic approach, enabling an assessment of the country's development trajectory by balancing economic growth, social equity, and environmental conservation. Urbanization and infrastructure development frameworks become pivotal in assessing the impact of initiatives like Vision 2030 on Saudi Arabia's urban landscape, infrastructure projects, and their implications for sustainable growth, livability, and environmental impact.

A governance and institutional framework, using indicators like those from the Worldwide Governance Indicators, allows for the evaluation of the effectiveness of governance structures, shedding light on the rule of law, government effectiveness, and control of corruption. (Abdelkader 2017)Furthermore, a political economy framework unravels the interplay between political and economic factors driving change, offering insights into the forces shaping Saudi Arabia's transformation. Innovation and technology adoption frameworks, such as the Technological Innovation Systems approach, help assess how the country is embracing technological advancements, fostering innovation, and building a knowledge-based economy. Additionally, cultural and societal transformation is integral, and the Cultural Dimensions

framework allows for an examination of shifts in values, norms, and cultural practices, providing insights into the evolving social fabric of Saudi Arabia. By employing these analytical frameworks, a nuanced and comprehensive understanding of the dynamic changes in Saudi Arabia emerges, encompassing economic development, governance structures, societal shifts, technological advancements, and cultural transformations. Each framework contributes a unique perspective, collectively building a holistic analysis of the Kingdom's complex and multifaceted evolution.(Aboukorin and Al-shihri 2015)

Evaluating Saudi Arabia's urban governance reforms

Evaluating Saudi Arabia's urban governance reforms is a nuanced process that involves a comprehensive analysis of the nation's efforts to reshape the management and development of its urban areas. Central to this evaluation is the examination of the reforms' alignment with the overarching goals set out in Vision 2030 and the National Transformation Program. These guiding frameworks prioritize economic diversification, enhanced quality of life, and sustainable urban development(Basiago 1998). An essential aspect of this assessment is the degree of decentralization and local empowerment within the governance structure, measuring the extent to which municipal authorities have been granted autonomy to address community-specific needs. Moreover, the integration of smart city initiatives, focusing on digital infrastructure, data-driven decision-making, and e-governance, becomes a crucial indicator of Saudi Arabia's commitment to technological advancements in urban governance. Sustainable urban development practices, including environmentally conscious policies, green spaces, and climate resilience measures, play a pivotal role in evaluating the reforms' impact on long-term environmental sustainability.Public participation and transparency mechanisms are key components, as they indicate the inclusivity and accountability embedded in the governance reforms. The tangible outcomes of infrastructure investments, improved service delivery, and responsiveness to urban challenges provide insights into the practical implications of these governance changes on the daily lives of urban residents. The assessment extends to the reforms' resilience to urban challenges, including disaster preparedness and response mechanisms. (Aleksić et al. 2019)The success of Saudi Arabia's urban governance reforms can be measured by their adaptability to address unique challenges such as rapid population growth and environmental pressures. Finally, the evaluation encompasses social and economic inclusivity, examining initiatives promoting affordable housing, job creation, and social services to ensure that the reforms contribute to a more equitable and inclusive urban development. the evaluation of Saudi Arabia's urban governance reforms requires a holistic approach, considering their alignment with national strategies, decentralization efforts, technological integration, sustainability practices, public engagement, infrastructure improvements, resilience to challenges, and contributions to social and economic inclusivity. This multifaceted analysis is essential for understanding the impact and effectiveness of the ongoing urban governance transformations in Saudi Arabia.(Malekpour, Brown, and de Haan 2015)

Table 2

The salient features of sustainable urban government and the latest modifications	
Apparatuses of defensible urban authority	Recent deviations in urban authority
Disputes to be addressed	
Municipal contribution	• Public sessions that vitrine imminent policies
• yet to have a formalized public	

• Disputes on mutual media about upcoming plan contribution method • Determination of public board associates Distributed result creation • the subsidiarity is yet to stay still made centrally later record decisions are Completed	• Cities have superior self-rule
•Cities still be contagent on the crucial administration For reserves	
Active, adaptive and concerted • Essential for an official governance) Framework to support public- Private partnership	• Public-private partnership strategies (multilevel
• Institution of the state board on GIS altitudinal data structure • Corporation with UN-Locale on the Coming Saudi Cities driver • Large cities such as Makkah, Riyadh Madinah have distinct expansion establishments	
Sustainability-based standards for Preparation Responsibility and limpidity • Institution of a body for assessing and monitoring the presentation direction Activities	• Use of sustainability criteria in Saudi Dream 2030 manuscript • Creation of the domestic anti-venality body (The State Anti-Dishonesty Commission) to sponsor communal power
Judicial agenda • Updating the legislative framework • The equal o -	• yet to be changed green sentience •
Collective reporting of the press • Green involvement (the case of specialist's contribution of Non who are demonstration for the assertion of administrative	Public environmental issues by frame is static low.

	Tartu Bay as a upkeep area) • Formation of the Non-governmental recyclable body (Saudi Green Society).
Skill and morality to • Need to develop local talents	• Use of renewable energy
Originality and invention	• Smart city schemes
methods and the formation of urban	• Acceptance of progressive geospatial Stations by cities

demands that the SEA be applied when creating plans and policies (Atkinson & Klausen, 2011). According to Atkinson and Klausen (2011), the preparation process be able to be characterized as sectoral, technocratic, hierarchical, and low community consciousness. In Sweden, local governments handle most aspects of spatial planning; there is no central authority over this process (Persson, 2013). As per Persson's (2013) research, the planners include sustainable development ideas into their plans and make them sustainable "by default." This comparison suggests that there are differences in how sustainability is implemented in planning, even within the same nation. Nonetheless, a few characteristics run across all of the cases that have been analyzed. Themes that recur in sustainable planning standards, public participation, and the autonomy of local planning bodies (decentralization).(Sodiq et al. 2019)

Saudi Arabia's transition to a sustainable urban development framework based on SEA

Saudi Arabia's transition to a sustainable urban development framework, guided by Strategic Environmental Assessment (SEA), marks a significant shift towards an ecologically responsible and socially inclusive urban landscape. The application of SEA in the development and decision-creation processes underscores the nation's commitment to balancing economic growth with environmental conservation and community well-being.(Garba 2004) The SEA framework facilitates a systematic and integrated approach to urban development, ensuring that environmental considerations are embedded in policies, plans, and programs from the outset. This proactive stance aligns with global sustainability goals and positions Saudi Arabia to address the challenges of rapid urbanization while safeguarding its natural resources and ecosystems. In this transition, SEA becomes a cornerstone in fostering sustainability across various facets of urban development. Economic diversification efforts, as outlined in Vision 2030, are strategically harmonized with environmental preservation through SEA, ensuring that urban growth does not come at the expense of the environment. The assessment process facilitates the identification of potential environmental impacts and promotes the integration of mitigation measures into urban plans. SEA plays a pivotal role in enhancing social inclusivity.(Jepson 2004) By systematically evaluating the potential social implications of urban projects, the framework ensures that communities are actively engaged in the decision-making process. This participatory approach fosters a sense of ownership and contributes to the creation of livable and socially cohesive urban spaces. The use of SEA also addresses the pressing issue of climate resilience. (Tang and Lee 2016)As Saudi Arabia faces environmental challenges, including water scarcity and rising temperatures, the SEA framework aids in identifying adaptive strategies within urban planning. Incorporating green infrastructure, sustainable water management, and climate-responsive design becomes integral to the nation's urban development

narrative. The transition to a sustainable urban development framework based on SEA reflects Saudi Arabia's commitment to achieving a harmonious balance between economic prosperity, environmental stewardship, and societal well-being.(Wheeler 2000) By incorporating SEA into the fabric of urban governance, the nation paves the way for resilient, sustainable, and inclusive cities that align with global aspirations for a greener and more equitable future. This transition not only positions Saudi Arabia as a leader in sustainable urban development within the region but also sets a transformative example for other nations grappling with similar challenges.(Wiedmann, Salama, and Mirincheva 2014).

CONCLUSION

This paper has examined the controversy surrounding sustainable city development and inner-city governance, arguing that a top-down method to governance could have a confident impact on urban sustainability through the use of the framework of sustainable urban governance. There have been significant improvements in Saudi Arabia's city ascendency and maintainable growth governance.Saudi Arabia's transition to a sustainable urban development framework, guided by Strategic Environmental Assessment (SEA), represents a visionary approach to addressing the complexities of rapid urbanization. The integration of SEA into urban planning and decision-making processes showcases the nation's commitment to achieving a delicate equilibrium between economic growth, environmental conservation, and social inclusivity. Through this framework, Saudi Arabia is not merely envisioning sustainable urban development but actively implementing measures to mitigate environmental impacts, engage communities, and enhance climate resilience.

The utilization of SEA aligns seamlessly with the goals outlined in Vision 2030, offering a systematic and integrated strategy for balancing economic diversification with environmental preservation. This proactive stance positions Saudi Arabia at the forefront of sustainable urban development, setting a transformative example for other nations facing similar challenges. SEA

facilitates a participatory approach to decision-making, ensuring that the voices of communities are heard and incorporated into urban plans. This inclusive process fosters a sense of ownership and contributes to the creation of vibrant, socially cohesive urban spaces that prioritize the well-being of residents. As Saudi Arabia grapples with environmental challenges, including water scarcity and climate change, the SEA framework becomes instrumental in identifying and implementing adaptive strategies. By incorporating green infrastructure, sustainable water management, and climate-responsive design, the nation is not only building resilient cities but also future-proofing its urban landscapes against the uncertainties of a changing climate. In essence, Saudi Arabia's embrace of SEA in the realm of urban governance marks a significant milestone in its journey toward sustainability. It reflects a forward-thinking approach that not only addresses immediate environmental concerns but also lays the foundation for a holistic and enduring model of urban development. This transition underscores Saudi Arabia's commitment to shaping cities that are not only economically vibrant but also environmentally sustainable and socially inclusive, contributing to a global paradigm shift towards greener and more resilient urban futures.

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