Cultural identity of places through a sustainable design approach of cultural buildings. The case of Riyadh.

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Abstract. Architecture in Saudi Arabia has undergone significant changes in recent decades due to rapid planning and massive expansion, especially in the major cities of Riyadh, Jeddah and Dammam. In the strategic framework of the Saudi Vision 2030, Saudi Arabia will become one of the major destinations for international visitors, thanks to its cultural heritage. It is, therefore, necessary to ensure a design of contemporary buildings that reinforce the identity of the place by reflecting the local culture through a sustainable approach by responding to the site and the climate, strengthening the quality of the indoor environment for the health and well-being of people. This paper seeks to identify relevant criteria for architectural design in which sustainability and cultural identity are strongly related. These criteria arise from a critical reflection on various factors fundamental in public buildings design, such as the historical knowledge of the place, recognition of significant pre-existing buildings, climatic aspects, and the health and comfort of building occupants. Riyadh, the capital of Saudi Arabia, one of the fastest-growing cities in the Middle East, is selected as a case study. This study takes the project of a cultural centre in Riyadh city as an experimental verification of these theoretical assumptions. The aim is to strengthen the cultural identity of the place through social and cultural spaces that reflect Saudi culture while at the same time preserving the environment and natural resources. A well-managed and actual design of cultural buildings in the selected case study in Riyadh is essential to promote culture and heritage to reinforce the sense of regional and national identity towards a sustainable design approach. In this investigation, the paper attempts to define guidelines through a cultural and sustainable strategy that can be generalized to other Gulf countries.

1. Introduction

This essay identifies relevant criteria for the architectural design of contemporary buildings in which sustainability and the expression of cultural identity are strongly related. The dialectical relationship between the built environment and cultural identity is the essence of sustainability [1]. Architecture is influenced by the economic, technical and political developments of the society and deals with almost all dimensions of sustainable development, including cultural sustainability [2]. Cultural sustainability related to sustainable development maintains cultural beliefs and practices as its entity. Architectural design is an expression of contemporary culture and lifestyle, as culture, as a set of beliefs, morals, methods and a series of human knowledge influences the design of an architectural artefact and the surrounding context. Sustainability is the ability to sustain or continue; therefore, cultural sustainability is a precondition to be met in planning towards sustainable development. Focusing on cultural identity is essential to understand its impact on the cultural sustainability of the built environment [1]. However, the role of culture is poorly implemented in environmental and social policy. Cultural sustainability has always been classified under the social pillar of the three pillars of sustainability, but today it has become
the fourth pillar of sustainable development, along with the economic, environmental and social dimensions [3]. Furthermore, UNESCO (United Nations Educational, Scientific and Cultural Organization) is committed to unleashing the power of culture to achieve the United Nations 2030 Agenda for Sustainable Development by advancing the 17 SDGs across its six cultural conventions driving a sustainable impact. UNESCO has stated that no development can be considered sustainable without including "culture" and the "full integration of culture into sustainable development policies", to expand the meaning of sustainable architecture from the design of buildings that respect the environment to an architecture that integrates the local identity with the design process [4]. Therefore, the design of new buildings, and in this case cultural centres, have to ensure the identity and collective memory of the place by communicating with the surrounding fabric. At the same time, ensure sustainability, creating buildings with innovative and sustainable techniques so that the cultural identity be coined with the need for innovation. It is necessary to adopt a design strategy that brings together physical, social, economic and cultural interventions to bring identity back into the intervention context, an important challenge in responding to the socio-economic transformations taking place.

2. Towards a cultural sustainability in Saudi Arabia

During the 1970s in the Arab region, the expression of cultural identity became an important phenomenon due to the modernization process, as new architectures were built by importing Western models and methods. These new buildings differed totally from the traditional ones of the Arab world. In the mid-1970s this was accelerated and intensified by increases in the price of oil. The Arabian Peninsula has witnessed numerous building activities and urban planning projects. This modernization process, however, went hand in hand with the abandonment of the traditional environment that led to the crisis of Arab cultural identity [5]. Moreover, this modernization process has affected the natural environment with buildings far from the sustainable approach.

Today Saudi Arabia continues its efforts towards the realization of Sustainable Development Goals and the Saudi Vision 2030 through a series of initiatives to help strengthen cultural identity and contribute to the sustainable development of the region by improving the quality of life of its citizens [6]. The Saudi Vision 2030 as a whole is consistent with the objectives of achieving environmental sustainability “…At the heart of our vision is a society in which all enjoy a good quality of life, a healthy lifestyle and an attractive living environment” (Saudi Vision 2030 p.22) and promotion of national identity “A Vibrant Society…with Strong Roots”: “We will endeavor to strengthen, preserve and highlight our national identity so that it can guide the lives of future generations. We will do so by keeping true to our national values and principles, as well as by encouraging social development and upholding the Arabic language. We will continue to work on the restoration of national, Arab, Islamic and ancient cultural sites and strive to have them registered internationally to make them accessible to everyone and, in the process, create cultural events and build world-class museums which will attract visitors from near and far. This will create a living witness to our ancient heritage, showcasing our prominent place in history and on the map of civilizations” (Saudi Vision 2030 p.16).

Thanks to its cultural heritage, Saudi Arabia will become one of the major destinations for international visitors, therefore it is necessary to strengthen the cultural identity in the design of new buildings that at the same time respond to the site and the climate, strengthening their indoor environmental quality for health and the well-being of people through the use of local resources: a combination of cultural continuity and technological progress towards a sustainable culture.

In particular, the paper examines the city of Riyadh as an experimental verification of these theoretical assumptions, through the design of social and cultural spaces that reflect Saudi culture while preserving the environment and natural resources.

3. Methodology: dialogue between cultural identity and sustainable design criteria

To address the design process of new buildings towards cultural sustainability, the research was based on design characteristics, that is, those criteria that express identity and response to the environment. These criteria arise from a critical reflection on several factors considered fundamental in the design of public spaces, such as the analysis of the grid system and the historical knowledge of the place, recognition of significant pre-existing urban fabric, climatic aspects, and the health and comfort of
building occupants. These premises have led to reconsider the design of contemporary buildings through a methodological approach divided into three steps that starts from the analysis and awareness of the context. The steps of this work could be summarized in the following points:

- The first step of the research deals with building up a relational identity of the architectural project. Building relations is not only the founding element of the project but allows for the definition of architectural identity. Therefore, the first step starts to analyse the grid system and the process of construction of the place as the result of the stratification of road layouts and grids that have shaped the place. This analysis and reflection on the surrounding context of the project area become an important element as it indicates the main reasons from which the architectural form arises.

- The second step identifies the most significant historical pre-existing buildings located in the area surrounding the project site to identify those characteristics that distinguish them, creating a relationship with the new project. The existence of recognizable identities expresses a rootedness of pre-existence. The goal is to ensure continuity between the past, a stratification of signs, and a more sustainable future, interpreting those recognizable characteristics of the past in a contemporary key.

- The third step deals with the project with specific attention to the sustainability of the building and its relationship with the existing city. Sustainability, as a strategy that characterizes the project, should be connected with the characteristics of the urban space (interaction with the climate and with the territory, orientation and distribution solutions) and architecture (knowledge of architectural composition, environmental technological design, physics of the building). In particular, it is necessary to consider the morphological aspects of architecture, such as the settlement system, the relationship between volumes and open spaces, the distribution solutions and the relationship between technologies, building typology and architectural language, designing the public space as a constitutive element of an integrated sustainable approach. The project should be integrated with environmentally friendly technologies, such as screens, insulation systems and natural ventilation.

These three criteria (Figure 1), coordinated together, lead to obtaining guidelines in which the historical-cultural, architectural and environmental aspects are combined, interacting with the main parameters characterizing the project area.

![Figure 1. Criteria for achieving cultural sustainability (Credit: Author).](image)

4. Case study: Salam Park in Riyadh

The research focuses on the urban centre of the city of Riyadh, and in particular in an area adjacent to Salam Park. With the Saudi Vision 2030 Riyadh aims to become one of the most important cities in the world in terms of quality of life, tourism and services. With the increase in population, green spaces and recreational areas will be implemented. Various projects are planned, even inside the urban fabric of the city. Riyadh will become an attraction for international visitors thanks to its cultural heritage. It is, therefore, necessary to ensure a design of contemporary buildings that reinforce the identity of the place.
by reflecting the local culture through a sustainable approach. This research focuses on the analysis of Salam Park and the surrounding areas to design a cultural centre that reinforces the identity of the place through social and cultural spaces that reflect Saudi culture and preserve the environment and natural resources for the health and well-being of people.

The 253,000 sqm Salam Park is considered a recreational landmark in the heart of Riyadh city, a natural area adjacent to the southern side of the Qasr Al-Hukm district, this place witnessed the birth of the modern Saudi state. This area also includes the Imam Turki Bin Abdullah Mosque, the Qasr Al-Hukm Palace and the Al-Masmak Fortress [7]. The park is surrounded by residential buildings, mosques, significant presences such as the Riyadh Criminal Court, the Riyadh General Court and commercial spaces, and especially in the north there are numerous souqs and markets (Thumairi Souq, Al Zel Souq, Falcon Market, etc.) which act as a filter between the Qasr Al-Hukm district and the park (Figure 2).

Originally the park was a working farm, Salam Farm, known for its quality palm trees. The farm was a private property equipped with some services and a mosque, it was subsequently expropriated to make the area a public park at the service of citizens by preserving and implementing the existing palm trees to reduce road pollution and maintaining some services such as significant pre-existing buildings within the park.

![Figure 2. Salam Park. Analysis of the place with significant pre-existing buildings (Credit: Author).](image)

The Royal Commission for Riyadh City has promoted a new expansion of the 43,000 sqm park involving the adjacent areas with the design of collective spaces for the inhabitants, such as multifunctional spaces such as educational and cultural buildings. Therefore, this research focused on an area of 10,000 sqm south of Salam Park, in a strategic point on the corner of King Fahad Road and Al Asha Street for the design of a multifunctional cultural centre serving the community. The goal of this research is the building design as an integral part of the existing context to be a landmark that becomes part of a cultural and tourist itinerary within the city by communicating with existing buildings.
5. Result: achieving cultural sustainability
The first approach to the project area was to analyse the context taking into consideration the urban grid of the city of Riyadh and considering the significant historical pre-existing around the project area (Figure 3). Starting from the study of the grid systems that dominate the formal language of the project, the urban grid of the city of Riyadh was extended in the project area and was superimposed on a second grid directed towards the historic city. The two overlapping geometries create the grid on which the project is set (Figure 4). This reading of the city that combines identity and memory interacts with the construction of the architectural space. The stratification of urban structures and the plurality of historical phenomena in the city constitute an important aspect of the transformations [8]. “On the other hand, when it is ascertained that not only the monuments are able to establish reciprocal relationships but also the open free space, the connective space with the mobility infrastructures, the historical dimension of the city changes with the settlement of productive structures in the urban context. This condition, within the constructive development of the city, evolves through a process of transformation determined by the succession of additions, differentiations, oppositions, polarities and architectural integrations” (Chizzoniti D 2021 p.16).

![Figure 3. Montage of the main considered elements (Credit: Author).](image)

![Figure 4. Overlap of the grid systems (Credit: Author).](image)

The second phase of the project took into account the historical persistence considered significant and which have been integrated into the project, both from a typological and figurative point of view. The typology of the Arab Souq was fundamental in developing the layout of the project, the main path flanked by volumes that crosses the entire area, from which the secondary paths branch off perpendicularly (Figure 5).

The strategy of connecting the paths with the volumes of the buildings allows the inhabitants to experience the spaces of the project by recognizing them as their own, close to their culture, rather than creating an architectural typology that is extraneous to the local cultural context. The project aims to become a significant landmark in the city. The main path represents a strong mark in the context, an axis directed towards the historical city, specifically towards the Al-Masmak Fortress, a significant historical
persistence considered the most prominent national monument still standing to this day [9]. A tower appears on the southern front of the project, to hand down the memory of the military bastions of the Al-Masmak Fortress, interpreting a fragment of historicity in a contemporary key.

Figure 5. Connection between volumes and paths (Credit: R. Alluhaidan with Author's elaboration).

The third fundamental point of the project concerned attention to the environment and sustainable aspects both at the scale of the building and the settlement. This step is not to be considered the last step of the project but goes hand in hand with the two previous phases. From the beginning, climatic aspects and solar radiation were taken into account for the arrangement of the volumes and paths on the grid. The design logic aimed at minimizing energy consumption by making the most of the orientations, the solar contributions, natural ventilation and shading. Riyadh, located in the Najd region, is occupied by a hot and dry climate with extremely high temperatures during the summer months. Traditional devices were used for the project, as identity and climatic aspects influence each other, creating a harmonious duality. The project is the result of an architecture that is an expression of culture and lifestyles and of an architecture that relates to the desert climate. The response of the project to the climate is a key factor in reflecting the identity of the place. Therefore, passive cooling devices were used to have the sensation of thermal comfort, with colours and materials that give a magnificent character to the place, reinforcing its identity.

For the sustainable aspects, the project took into consideration the Najd architecture, visible in the historical buildings of Riyadh. The project took up the idea of narrow streets to avoid direct sunlight and create shaded areas, inserting narrow distribution paths between the volumes. Furthermore, the main construction material of traditional buildings was sun-dried mud bricks and mud, with very thick external walls to effectively isolate high temperatures and create a level of comfort for users. For this reason, the project was based on the constructions of rammed earth walls, simple to construct and thermally massive. Using local materials requires less energy for transport and at the same time shows continuity with the city and traditional Najd architecture.

Several design details were taken into account that influenced the thermal performance of the project, such as the typological layout of the building, the orientation and distance between the volumes to create shaded passages, the size and position of the openings on the facades, the shading devices along the paths that evoke the roofs of the Souq in a contemporary key (Figure 6), the construction of earth walls to respect the site, the natural environment and the climate, and finally the implementation of greenery.
around the project and in particular of date palms to give continuity with the park and create a protection zone towards King Fahad Road to reduce road pollution (Figure 7). The project is the result of the union between traditional techniques and contemporary needs (Figure 8, Figure 9) [10].

In this way the value of the project is linked to the recognition of the deepest sense of the place, of the context, of the city, through the authentic enhancement of all the components of the architectural space, giving concrete meaning to the figuration and environmental aspects. The basic idea behind this research is to design in a contemporary and sustainable key without forgetting the cultural identity of the place.

Figure 6. Shading devices (Credit: R. Alluhaidan).

Figure 7. Shaded open spaces (Credit: R. Alluhaidan).
Figure 8. Different size and position of the openings on the facades according to the building orientation (Credit: R. Alluhaidan).

Figure 9. Project result: Continuity, Interpretation, Innovation (credit: R. Alluhaidan)
6. Conclusion
This study, considering the Salam Park in Riyadh as an experimental verification of these theoretical assumptions, aims to strengthen the cultural identity of the place through collective spaces that reflect Saudi culture, paying particular attention to the environment and local natural resources. It is necessary to think of the city and its collective buildings, both to the shape of the historic city and the peripheral expansions and about the new cultural flows originating from the large and complex contemporary geopolitical framework. This means rethinking the role of the collective building project not only as a final object but as a representation of meanings capable of regenerating the role of urban phenomena. Awareness of culture, history and the environment were crucial in achieving the final result of the project. A key factor was to transfer cultural and sustainable characteristics into the design process. Continuity, Interpretation, Innovation are the keywords that should always be present in contemporary buildings, including the built environment necessary for its sustainability.

In the future, it would be interesting if this methodology is applied in different areas of the city or different countries of Saudi Arabia by comparing the results obtained. The case of Riyadh was relevant in identifying guidelines that can be generalized to other Gulf countries, capable of suggesting a possible way of sustainable design without forgetting the cultural identity of the place. The research is useful for professionals and critics who aim to strengthen cultural identity in contemporary architecture and evaluate its impact on the cultural sustainability of the built environment in Saudi Arabia and other Gulf countries.

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Acknowledgments
This work was supported by the Sustainable Research Lab (SA Lab), Prince Sultan University, Saudi Arabia. The Author would like to thank Prince Sultan University for the financial support and assistance to attend the ICSDI 2022 conference. Special thanks to the student Roba Alluhaidan for her distinguished work developed in the Architecture Design Studio II (AY 2020-2021) under the supervision of Dr Monica Moscatelli.