

Chapter

Sustainability and Vernacular Architecture: Rethinking What Identity Is

Maha Salman

Abstract

Sustainability has often been a fundamental part of the composition of both tangible and intangible cultural resources; sustainability and preservation of cultural identity are complementary. Elements of sustainable design are integral to vernacular architecture that have evolved over time using local materials and technology emerging from ambient natural and cultural environment creating optimum relationships between people and their place. This chapter aims to redefine what identity is as a concept and the impact of globalization on contemporary architecture especially on regions with rich heritage and unique culture as the Arab World. To accomplish this, the chapter examines the emergence of “local identity” as a reaction to the globalization of cultural values, uniform architectural styles, and stereotype patterns through discussing sustainability as a motivation for identity in culture and architecture. The research methodology is based on conducting a qualitative analysis of literature review to the main concepts discussed in this chapter such as: identity, culture, vernacular architecture, and sustainability. Through comparative analysis, the chapter investigates sustainability potential of vernacular architecture in the region to derive core concepts as guidelines of reproducing the characteristics of society and reveal identity of contemporary architecture in the Arab World.

Keywords: sustainability, identity, vernacular architecture, culture, heritage, globalization, contemporary architecture, Arab World

1. Introduction

Through history, human civilization has evolved and kept its continuation through integration with the surrounding environment and is dependent on the preservation of nature. Over time and the multifaceted interaction of evolution and human adaptability to the ambient environment, every place and region developed unique characteristics that distinguished it from other places, that is, the core of “identity.”

Preserving the identity and special characteristics of a place requires in-depth understanding of the natural systems in place and immersion into the time-tested cultural responses to that environment’s assets and liabilities, which contain the essence of sustainability.

The Arab World is one of the regions that embraces a diverse and rich architectural heritage; however, since the second half of the twentieth century, the vernacular architecture, in the Arab World, was exposed to extensive deterioration and destruction, due to the rapid modernization and drastic economic, social and cultural changes that took place in the region (**Figure 1**).

This uncontrolled expansion transformed major cities in the region into metropolitan areas and changed the traditional life style into a modern one. All these factors and drastic changes led to mislay the identity of the Arab architecture.

This chapter explores identity as an essence of architecture that goes beyond formal interpretation and visual metaphors through investigating sustainability potential of vernacular architecture in the Arab World.



Figure 1.
Modern high-rise buildings in Arab cities (Source: Salman, Maha).

2. Identity: people, culture, place, and architecture

In recent years, the issue of cultural identity in contemporary architecture has been attached a pivotal role in creating uniqueness and local identity in a competitive environment at a global level.

The term “identity,” as defined in the Oxford English Living Dictionary, is the fact of being who or what a person or thing is; the characteristics determining who or what a person or thing is [1]. In Cambridge Dictionary, identity establishes or indicates who or what (someone or something) is, who a person is, or the qualities of a person or group that make them different from others [2]. In other words, identity means being unique and distinguished from others, and this can be applied to a thing, person, and group of people, society, country, or even nation.

Several natural and human factors contribute in defining “identity” such as place (region, geography, topography, and climate), people (society, community), and culture (traditions, customs, language, religion, and artifacts). It is essential to discuss these factors and how they are related to each other and how this was reflected in architecture.

Culture is one of the major factors that defines identity as it is related to people that created this culture. Vibhavari Jani, in her edited book “Diversity in Design: Perspectives from the Non-Western World,” suggests that culture refers to: “... distinctive way of life that represents values, customs, and norms of a group of people who pass these traditional values from one generation to the next. This learned way of life then reflects upon social, political, educational, and economic institutions; value and belief systems; and languages and artifacts” [3].

Culture, as a human product, is profoundly related to a place or region where natural environment has a great impact on people. Place describes the complex interplay of climatological, biological, geological, and topographical features that create the differences we see around us [4]. Place identity defines who people are and defends people from settings that threaten who they are or want to be [5]. The identity of a place can be seen as part of one’s self-identity derived from everyday experiences of places and the built environment. The sense of place identity is related to the meaning of that place to someone as “...place makes memories cohere in complex ways” [6].

Christian Norberg-Schulz, the architect, author, educator, and architectural theorist, relates cultural identity to its place through architecture as the manifestation of people and the ambient environment. In Norberg-Schulz’s writings runs, “...the unquestioned assumption that architecture has an identifiable ‘essence,’ the understanding of which is essential both to the discourse and practice of architecture” [7]. In his book “Genius Loci: Towards a Phenomenology of Architecture,” Norberg-Schulz states that “Human identity presupposes the identity of place.” The “essence” of architecture is defined accordingly: The basic act of architecture is therefore to understand the “vocation” of the place [8].

Architecture, vernacular in particular, is a product of people, place, and culture; it is one facets of identity. Symbolism of architecture can be related to the realization of identity personally and socially. This accretion has reached the level where “architecture as identity” became the equivalent to “architecture as space” and “architecture as a language” ([9], P. 137). Architecture, as the most obvious physical artifacts of any culture, has the most to draw from and respond to the uniqueness of place [4].

3. Vernacular architecture: localism and cross-cultural effects

Vernacular architecture can be defined as unpretentious, simple, indigenous, traditional structures made of local materials and following well-trying forms and types [10].

In his book “Architecture without Architects,” Bernard Rudofsky, the writer, architect, collector, educator, designer, and social historian commented, “There is much to learn from architecture before it became an expert’s art” [11]. To

comprehend people's experience with ambient natural and built environments, we need to recognize the cultural meanings of architecture in the society day-to-day life practices and experiences [12].

For me, vernacular architecture is the built environment (city, architecture, and interior spaces) created based on the society needs. It is built in accordance with the natural environment (geography, topography, site, climate, local building materials, labor experience, and building techniques) fulfilling people's physical, economic, social, and cultural norms. Vernacular architecture is a sign of identity; it is the "mirror" of nations that reflects place, time, and culture. Architecture is built by people to people; it has developed through time and modified itself through trial and error to fulfill society's needs in harmony with the ambient environment.

Due to restrictions in transportation means, vernacular architecture depended on local materials and skills; this led to conserve resources and created uniqueness and identity to each region's architecture [13]. Each material embedded its physical and aesthetical characteristics that dictated the architectural technology that fits to this material.

Every society that created architecture has evolved its own forms that adhered to people as its language, clothing, customs, and traditional stories. Until the collapse of cultural frontiers in the twentieth century, there are distinctive local shapes and details in architecture as a natural product of materials, technology, environment, and people's culture [14].

Brick, for instance, as one of the most ancient and popular materials used in hot arid regions such as the Arab World, required certain technologies based on its shape, size, and durability. Most brick units' dimensions are set to fit human being's hand; this was convenient when building walls and piers while the thickness of these vertical elements varied based on its constructional location, height, and structural loads. To solve the roofing problem, builders had to create new forms in accordance with brick's physical characteristics; arch was the brilliant solution. From arch motion, shapes that are more convenient were created; when arch moves horizontally, the vault is created and when arch rotated around itself, we had the dome. These creative shapes worked very well with the ambient environment and climate esthetically and functionally.

By time, these shapes (arch and dome in particular) gained symbolic meaning beyond functionality and esthetics; they became part of the "cultural memory." As Harry Francis Mallgrave, architect, scholar, and editor declared: "One's memory image of an architectural style is admittedly built on the stylistic images of one's culture and these images gradually obtain a progressive clarity or strengthening, which elicits greater delight as a particular style advances" [15].

Esthetically, brick unique beauty worked well with the long sunny days in hot arid regions. Creative decoration with brick such as ornaments, calligraphy, access and recess, niches, corbels, and muqarnas exposed the effective visual beauty. Sun and clear sky revealed esthetics of brick ornamentation through the contrast of shade and shadow. Even though, some of these forms were created for structural and functional purposes, the aesthetical and creative aspect was not neglected (**Figure 2**).

Regionalism in architecture reflects local features related to place, culture, climate, and technology in a certain era; the result a timeless architecture [16]. If imported materials and high technology are not used smartly, then architecture, as a place definer, will lose relation to its region and ambient environment [4].

Kavous Ardalan in viewing the relation between globalization and culture states: "... analysis of globalization and culture necessarily requires a fundamental understanding of the worldviews underlying the views expressed with respect to the nature and role of globalization and culture" [17].



Figure 2.
Aesthetical effect of shade and shadow in vernacular architecture (Source: Salman, Maha).

Arab countries have started to reexamine their own traditions in search of their “own” unique values and principles. This process had an impact on the production of contemporary architecture and eventually triggered an intense discussion about how “localism” should be created other than copying fragments from the past.

Most of modern cities lack identity due to imported global styles and techniques that do not cope with ambient environment and do not reflect the uniqueness of each city/country and its people and society. Jason McLennan notes “A simple look at most of our communities being built today shows that we have indeed lost our respect for place” [4].

Since the mid-twentieth century, architecture in the Arab World that can reflect local identity by reviewing the potential of the region has started; it became a new approach for regionalism in architecture. This was one trend to regain identity in architecture as many buildings have been achieved; however, most of these buildings did not capture the essence and dynamic context of local identity. Generally, regionalism in architecture was summarized with certain forms and architectural features or materials with a nostalgic view to heritage without deep exploration to the core of vernacular architecture and local identity.

4. Sustainability, vernacular architecture, and identity

In the past three decades, the world witnessed great awareness toward environmental dilemmas such as global warming, resources depletion, energy, air and water pollution, waste, population growth, and globalization. These issues come within the responsibility of arguments on sustainability indicating the necessity for sustainability integration in the ways we live, act, use of resources, and build. In meeting the human needs, sustainable architecture represents the interrelationship between natural, cultural, social, and economic resources to create optimum relationships between people and their environments [18].

The word “sustain” means “to hold up” or “to support from below,” a society needs to be supported by its populations in the present and future. Most traditional societies took care of their community through the amalgamation of natural and physical environment with cultural, social, and mystical values. These are the societies where sustainability is evident and livable as daily practices.

When discussing sustainability, we need to go beyond definitions, looking for the essence of the meaning. Sustainability is not merely the integration of environmental, social, and economic issues and improving quality of life [19]. The idea of sustainability is to make sure that our decisions and actions today do not compromise the future generations to meet their own needs. Re-evaluating and analyzing vernacular architecture support the interrelation between policy makers and the society [20]. We have to make sure that our actions go along with our environmental systems not in opposition to them. Sustainable design implies responsibility and it implies a far-reaching respect for natural systems and resources, respect for people and cycle of life [4].

Sustainability is by nature “architecture.” If we are to achieve it, we must concretely engage the design issues associated with ambient environment resources. We must address, more fully, the underlying influence(s) of political, economic, and social issues comprising the cultural and spiritual background in which the desire to achieve sustainability in itself reflects such a significant value shift [21]. Sustainable design is a philosophical approach to design that seeks to maximize the quality of the built environment [4].

Vernacular architecture is the result of constraints on resource availability. Historically and without modern means, extraordinary enterprise produced architecture often of the most distinctive character and identity with only limited means available [22]. Vernacular architecture was built on inherently sustainable principles such as resource limitations imposed by economic or natural factors, yet succeeded in offering rational solutions to harsh climates and human need [23]. Elements of sustainable design are integral to every established form of vernacular architecture that are tried and proven solutions and have evolved over long periods of trial and error using local materials and technology emerging from ambient natural and cultural environment.

Vernacular architecture, in the Arab World, is a model for sustainability; it embodies different cultural values, which may be applied in the conceptual design of buildings today. These values are about the way of construction, which is responsive to the climate and suits the style of living, traditions, customs, social values, and culture of people; it is of a great sustainability potential (**Figure 3**).

Sustainability in architecture is an essential part to determine the identity of the architectural regionalism. Hidayatun, Prijotomo, and Rachmawati assert that: “Identity has a permanent nature, permanence is supported by both natural environment and cultural, such as the natural topography, material and cultural includes views and habits. All of this is contained in the sustainable criteria. So the nature of sustainability is an important part in recognizing the identity” [16].

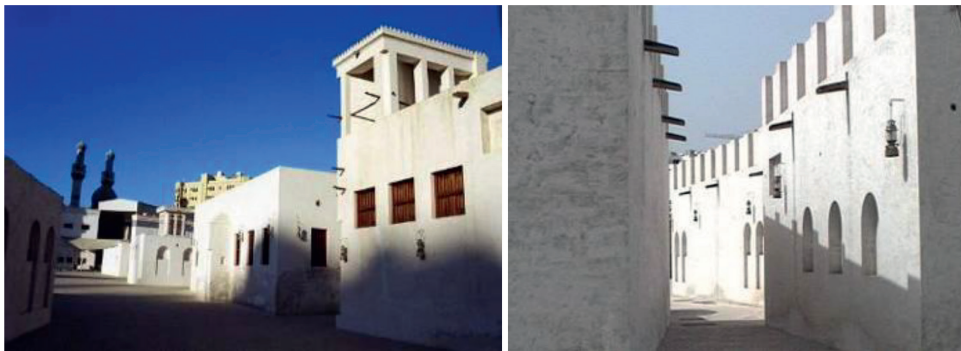


Figure 3. Accommodation to the ambient environment in vernacular architecture in the Arab World: solid walls, small openings, light finishing, courtyards, and wind catchers (Source: Salman, Maha).

Since our predecessors built sustainability, they did not need to enforce methods to reveal their society or place identity. Identity was evident by being adhered to natural and social environment while society evolution through time. They built naturally in accordance with ambient environment and available resources and building materials; architecture embraced identity as it reflected its place, people, and culture.

5. Vernacular architecture revitalization: interpretation of identity

Tradition is portion of a society culture that transferred from one generation to another. Apparently, a society's identity is integrated within its traditional heritage resulting on placing great value on heritage. "Tradition is not necessarily old-fashioned and is not synonymous with stagnation. Modernity does not necessarily mean liveliness, and change is not always for the better. On the other hand, there are situations that call for innovation" [14].

In the Arab World, tradition is not a sole layer of heritage or culture; it is multi-layered complex. Recognizing tradition, as a product of society, requires a creative transformation of its cumulative values to next generations incorporating contemporary values that did not exist before [24].

5.1 Vernacular architecture, people, and society

One of the most fruitful developments in architectural thoughts to emerge in the last three decades is the changed perception of tradition and innovation and the growing realization of their interdependence. Making connections between existing but previously unrelated concepts is now understood to be as much a part of the creative process as having a free and lively imagination. Nothing comes from nothing, it could be said, and tradition is both a potential launch pad for new ideas as well as a potential hindrance. The present task therefore is to better understand the reciprocal relations between the two, the way one complements, feeds into, stimulates, or hinders the other [9].

The cultural and social core of vernacular architecture need to be seen within the perspective of routine practices of people and community to grasp the essence of society's experience with the built and natural environment. Many studies related vernacular architecture to natural and cultural environment of the location and region. Joseph Kennedy defines vernacular architecture: "an architecture style that develops from the particular climate and social conditions of a place" [25].

In his book "Encyclopedia of Vernacular Architecture," Paul Oliver, an architectural historian and writer, accentuated the multidimensional relation between society and vernacular architecture: "It is particular characteristics of vernacular architecture that each tradition is intimately related to social and economic imperatives; it has developed to meet specific needs within each cultural milieu" [26].

Predicatively, vernacular architecture offers the greatest potential for the development of a viable contemporary regionalism of consistent of high quality, capable of providing for many building types, both old and new. The potential diverse from the sheer richness of the heritage diversified over centuries of continuous development [9]. Modern life styles and advanced technology necessitate innovation; however, innovation and creativity must be deeply thought-out response to the change in circumstances and not just indulged to its own sake [14].

5.2 Vernacular architecture: search for identity

During architectural modernization in the Arab World starting 1950s, many traditional buildings and heritage symbols were demolished for they were symbols of retardation and poverty. In paving the path for modernization in Arab cities, architectural heritage was abandoned and expertise of its construction lost. Many historic buildings suffered degradation and decay due to neglect and misuse by informal development and occupation by less fortunate people.

In spite of the several demands by professionals, public, and suggested policies in 1970s and 1980s on the conservation of the traditional urban fabric of the Arab city, the traditional fabric was demolished, partially or completely in favor of Western building style as a trend to modernity. This was one of the actions leading to loss of modern architecture identity in the Arab World. The new urban planning strategies were set to accommodate the modern life vibrant style where grid-iron planning, big streets, cookie-cutter plots, new construction materials, and high-rise buildings replaced traditional fabric neglecting cities' architectural heritage and society's cultural values.



Figure 4. *Modern buildings using traditional forms and architectural features (Source: Salman, Maha).*

It is a fact that when traditional city core demolished drastically, this affects people's social behavior and may affect their feeling toward their city and life style [27]. Rapid culture change enables one to identify core versus peripheral elements, those elements changing rapidly versus those remaining relatively constant.

In an attempt to reveal identity in modern architecture in the Arab World, some architects, local and international, began to use elements, forms, and motives in particular, from vernacular architecture in the design of new buildings as a resemblance of the (glory) of the past. Some modern architectural trends in the Arab World, in efforts to "reveal" identity, have defined the local architectural identity by demonstrating distinctive characteristics of vernacular building elements to be symbols of local identity [28] without deep analysis of the real essence of how these elements originated and by what means they reflected people, place, and environment.

This approach became a (facial) mask; it was mainly evident on facades, openings, and architectural features such as arches, ornaments, and domes rather than the design concept or interior spaces (**Figure 4**). New construction materials and technology such as concrete, steel, big glass opening, and air-conditioning became essential in most new buildings with total abandonment to local materials and ambient environment.

There were a few attempts to be inspired by the core design elements of vernacular architecture such as environmental solutions. However, there were several examples for regional architecture, designed by western and Arab architects trying to create an alternative to the prevailing international models [24] such as the work of Mohammed Makkiya, Hassan Fathy, Rasem Badran, Jafar Tukan, Rifat Chadirji, and Elie Azagury. This awareness of the importance of vernacular architecture and tradition to enhance the built environment was not merely a nostalgic approach to the past; it was about endurance of local identity.

5.3 Vernacular architecture: sustainability and identity

Vernacular architecture is of great potentiality to modern "...as the late twentieth-century people, though, limitations of traditional cultures in helping us to know what to do are evident" [29]. Nevertheless, vernacular architecture features offer dramatic metaphors for regional forms of shelter, as well as rational responses to the harsh climate giving modernism a subtle but telling shove in direction of regionalism [9].

The multiplicity of sustainability trends has a great impact on the architectural identity and image of the Arab city. Abdul Salam and Rihan defined three trends: the modern technology, the neotraditional, and the contemporary interpretation trend investigating reasons of their emergence, main features, and impacts on the architectural identity in Arab World [30].

Revitalization of architectural heritage and conservation cultural values in an environmentally sensitive manner requires detailed planning. It needs knowledge of materials and their interactions; knowledge of construction, craft techniques, skilled technicians, and available resources; and an ongoing commitment to the region identity through a sustainable approach. Heritage revitalization within sustainable approach needs an in-depth interpretation of core values of this heritage that goes beyond the typical "imitation" and visual metaphors of traditional forms and architectural features and ornamentations.

Vernacular architecture has the essence of sustainability to be the link to more environment-respected buildings. To ensure society continual survival, we need to adapt sustainable solutions for growth through respecting the environmental balance of nature. The reevaluation of vernacular architecture can offer an indefinite source to develop worthwhile ecological solutions for the built environment responding to society needs [31].

It is not just nostalgia that draws people to vernacular architecture. Much of what is valued in this architecture is its sustainability and response to the climate, natural setting, and locally available building materials. Their usefulness as model for new buildings only adds to their value.

6. Sustainability and vernacular architecture: redefining identity

In traditional societies and for centuries, people have lived in harmony with nature; they grew their food from surrounding region and developed their lifestyle in accordance with the available resources. They have construct buildings using the local building materials available in the surrounding environment using their hands and developing building techniques affiliated with the physical characteristics of these materials. Traditional societies realized that their survival required them to sustain balance with lifecycle around them. In other words, traditional societies were the real pioneers of sustainable development over time in the perspective of natural and built environment.

When defining architecture and the built environment, we have to think beyond places shaped by products and buildings; we need to consider how people modify the environment to accommodate to their needs, life, customs, and culture. McClure and Bartuska noted that “The Built Environment is everything humanly made, arranged or maintained to fulfill human purposes, needs, wants and values to mediate the overall environment with results that affects the environmental context” [32]. This can be related to how sustainability is integrated with architecture.

The architectural style, design, and construction materials of new buildings should reflect the cultural heritage of the locality or region and they should be environmentally and culturally sensitive and sustainable over the long term (**Figure 5**).

The architecture of the region, created at specific geographic locations at certain points in time by different individuals, reflects spirit of identity. There is an interactive relation between sustainability and identity. Sustainability, in its comprehensive essence, has integrated within physical and incorporeal heritage of any society. Social and environmental sustainability has incorporated with local identity where people formed physical production (buildings, artifacts, furniture...) and cultural values (identity, traditions, social values...) in response to the ambient environment. Architectural identity, and its interrelation with the context such as location, climate, environment, local material, encloses the meaning of sustainability: “... sustainability is important part of the identity in architecture; identity is the main core in the dimension of regionalism architecture” [16].



Figure 5.
Inspiration from vernacular architecture within urban context (Source: Salman, Maha).

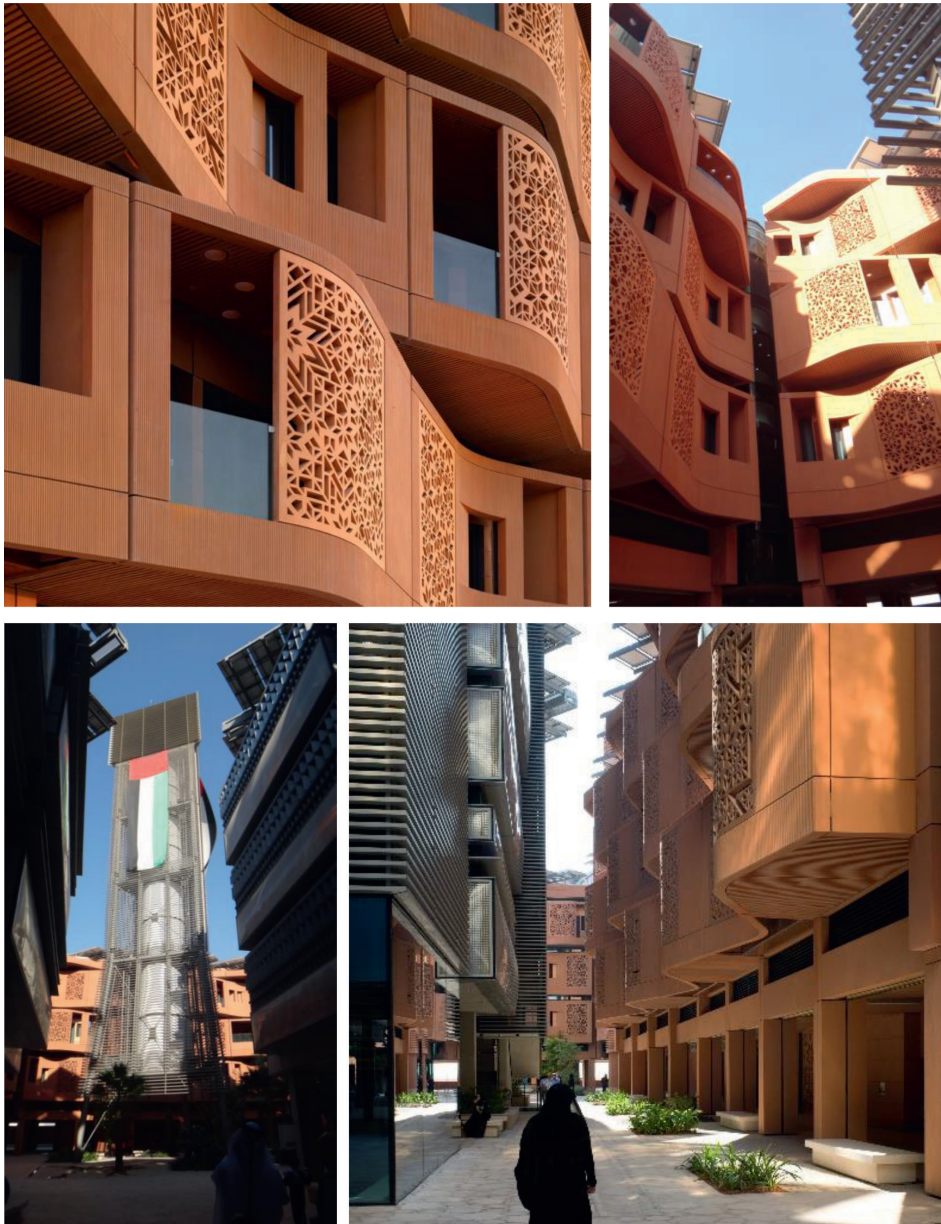


Figure 6.
Inspiration from environmental solutions in vernacular architecture within modern urban context-Masdar City-Abu Dhabi-UAE (Source: Salman, Maha).

Sustainable architectural is built on the idea of regionalism; however, it does not ask us to return to the old ways of living as pure nostalgia; it inspires us for the responsible, long-term use of technology and design [4]. Interpretation of architectural styles through features such as: design concept, inward looking plan, thick brick or stone walls, small well-designed windows, door transom, high ceilings, and elevation treatments can provide valuable lessons in sustainability. How these low-tech features functioned during times when energy consumption was limited provides examples of principles applicable to today's efforts to conserve local identity as a response to environmental issues. The traditional response to climate, setting, and materials provides opportunities for presenting positive lessons in environmentally sound design.

Preserving the identity in the Arab World architecture necessitates a deep understanding of the local natural systems and thorough perception of cultural values of the society that have developed and proven their validity over time. Architecture needs to be erected to meet the desires and needs of its people; the built environment is shaped with unblemished consciousness of the multilayered relations between nature, culture, social values, economy, and available resources of the region and its distinctiveness.

Sustainable design philosophy honors the differences between places; it rejects the concept that buildings should look and being built the same in any region. The making of cultural identity in contemporary architecture reveals the mechanisms of constructing the “regionalism” and the “identity” through architecture in an international, global context. Architecture should respond to place in fundamental ways [4].

Advocates of sustainability acknowledge that traditional cultures and ideologies embody ideas and principles on which sustainable living should be based [33]. The goal of sustainable building design is to create optimum relationships between people and their environments. Planners, architects, designers, developers, and operators have an opportunity and a responsibility to protect the identity of a place, its people, and its spirit (**Figure 6**).

It is not just the use of appropriate materials or local building techniques, or the reevaluation of traditional features need to be preserved; it is the identity of people has to be sustained in order to overcome the exploitation and the cultural neocolonialism which plays such a great role in contemporary Arab World architecture.

7. Conclusions

This chapter intended to discuss identity in architecture through investigating several concepts such as culture, vernacular architecture, and sustainability as different facets of identity. Several definitions have been discussed for the major concepts of this chapter.

Table 1 illustrates a comparison between some definitions as well as highlighted author’s interpretation.

Through discussion and analysis, the chapter tried to find analogies between identity, as an indicator of a certain society, and sustainability, as a lifestyle developed by people in that society to live in harmony with the surrounding nature and available resources sustaining balance with lifecycle around them. Architecture, vernacular in particular, as a product of people is a vibrant manifestation of how identity and sustainability are related spontaneously in accordance with nature and culture.

Vernacular architecture is a demonstration of identity and sustainability; it is the “mirror” of nations that reflects place, time, and culture. Architecture that was built by people to people; it has developed sustainably through time and modified itself through trial and error to fulfill society’s needs in harmony with the ambient environment.

The search for establishing a new regional identity means being independence from the imported values and ideologies without losing cultural interrelation that serve the human civilization. Regaining an Arab identity is fundamental to the formation of a new Arab culture, not only in the field of architecture but throughout all aspects to feature a trace in the drastic changeable world.

Identity
Identity is the fact of being who or what a person or thing is; the characteristics determining who or what a person or thing is [1].
Identity establishes or indicates who or what (someone or something) is, who a person is, or the qualities of a person or group that make them different from others [2].
Human identity presupposes the identity of place. The “essence” of architecture is defined accordingly: The basic act of architecture is therefore to understand the “vocation” of the place [8].
Place identity defines who people are and defends people from settings that threaten who they are or want to be [5].
The identity of a place is part of a one’s self-identity derived from everyday experiences of places and the built environment [6].
Identity means being unique and distinguished from others, this can be applied to a thing, person, and group of people, society, country, or even nation.
Vernacular architecture
Vernacular architecture is unpretentious, simple, indigenous, traditional structures made of local materials, and following well-tried forms and types [10].
Vernacular architecture is an architecture style that develops from the particular climate and social conditions of a place [25].
In vernacular architecture, each tradition is intimately related to social and economic imperatives; it has developed to meet specific needs within each cultural milieu [26].
Vernacular architecture features offer dramatic metaphors for regional forms of shelter, as well as rational responses to the harsh climate [9].
Vernacular architecture is the built environment (city, architecture, and interior spaces) created based on the society needs. It is built in accordance with the natural environment (geography, topography, site, climate, local building materials, labor experience, and building techniques) fulfilling people’s physical, economic, social, and cultural norms.

Table 1.
Summary of identity and vernacular architecture definitions.

Conceptually, sustainability is not all about energy conservation, renewable resources, or building materials. Sustainability is a life style, a way of living, and society cultural identity. Human being everyday activities are the essence of sustainability, the way they live, act, work, produce, plant, and build. Sustainability is not a term to be understood; it is a life to be practiced.

Regaining identity requires deep investigation of vernacular architecture to contrive potential of sustainability in hardpan. Sustainability, as a style of living, is one of the routes in our search for identity in this global context, which is indeed a search for survival, not only for the Arab World but also for the entire world.

Conflict of interest

The author declares no conflict of interest.

Declaration

All photos were taken by Dr. Maha Salman.

Author details

Maha Salman

Theory and Sustainable Architecture, Yorkville University, Toronto, Canada

*Address all correspondence to: mahazubaidi@yahoo.com

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