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Developing a contextualised framework for culture-led urban sustainable development through creative hub concept
(a case study of Iranian free zone)

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Table of Contents

1

4

List of Figures

5

List of Tables

7

Acknowledgements

Declaration

I declare that the research in this thesis was undertaken by me in accordance with the University of Salford requirement for the award of a PhD degree by research under the supervision of Prof Hisham Elkadi.

No part (s) of this thesis has previously been submitted to the University of Salford or any other institution for the award of a diploma, degree, or any other qualification.

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List of Abbreviation:

UNESCO: United Nations Educational, Scientific, and cultural Organisation

The ICOMOS: International Council on Monuments and Sites

NGOs: Non- Governmental Organisations

MDG: Millennium Development Goals

UNDRIP: United Nations Declaration on the Rights of Indigenous Peoples

UDHR: The UN Declaration of Human Rights

UNSDGs: The United Nations Sustainable Development Goals

UNGA: General Assembly of the UNITED Nations

US EPA: United states environmental protection agency

GDP: Gross Domestic Product

TQC: Total Quality Control

CEO: Chief Executive Officer

ILO: International Labour Organisation

FDI: Foreign Direct Investment

FTZ: Free Trade Zone

SEZ: Special Economic Zone

OECD: The Organisation for Economic Co-operation and Development

WTO: World Tourism Organisation

OECD: Organisation for Economic Co-operation and Development

DAC: Development Assistance Committee (of the OECD)

UNCED United Nations Conference on Environment and Development (1992)

WSSD: World Summit on Sustainable Development

IDG: International Development Goal

NSSD: National Strategy for Sustainable Development

IPPR: institute of public policy research

 FTZ: Free trade zone

SEZ: Special economic zone

EHSE. Environmental, health and safety, and economic strategy

ISO: international organisation for standardisation

OGP: international association of Oil and Gas producers

IPPR: Institute for Public Policy Research

UNDP: United Nations Development Programme

EC: European Commission

EPZ: Export processing zones

ICCAR: International Coalition of Inclusive and Sustainable Cities

DCAA: Dubai Culture and Arts Authority

UCLG: United cities and local governments

MENA: Middle East and North Africa

Glossary:

Culture, according to the UNESCO Universal Declaration on Cultural Diversity (2001), is "the set of distinctive spiritual, material, intellectual and emotional features of a society or a social group that encompasses art and literature, lifestyles, ways of living together, value systems, traditions and beliefs".

Urban Culture thus covers the notions of culture within an urban setting, from both a functional and anthropological perspective.

Creative Cities are defined as urban complexes where cultural activities are an integral component of the city's economic and social functioning.

Cultural and creative industries are those sectors of activity that have as their main objective the creation, production, distribution and consumption of goods, services and activities that have cultural and artistic content. They are characterized by being at the intersection of economy and culture, having creativity at the core of their activities, artistic and cultural content, and links to innovation.

Content analysis is an objective, systematic, and quantitative description of manifest content. Social scientists use content analysis to examine patterns in communication in a replicable and systematic manner.

Urban Conservation as a dynamic process within urban system aimed at enhancing cultural values and managing change. The conservation of the historic environment is an efficient way to sustain and emphasize city's unique 's identity.

Theoretical Framework consists of concepts, with their definition and reference to relevant scholarly literature, and existing theory that is used for study. The theoretical framework must demonstrate an understanding of theories and concepts that are relevant to the concept of creative hub, and its role in urban development.

Conceptual Framework: is an analytical tool with several variations and contexts.it is used to make the conceptual distinctions and organise ideas. For purpose of making contextualised framework for this research, we need to have conceptual background and evolutionary

adaption. Strong framework captures something real and does this in a way that is easy to remember and apply.

Urban Sociology: is the sociological study of life and human interaction in metropolitan areas. It is a normative discipline of sociology seeking to study the structures, processes, changes and problems of an urban area and by doing so provide inputs for planning and policy making.

Urban landscape is an urban area understood as the result of a historic layering of cultural and natural values and attributes. This is extending beyond the notion of "historic centre" or "ensemble" to include the broader urban context and its geographical setting. It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity.

 Urban heritage represents a social, cultural, and economic asset and resource reflecting the dynamic historical layering of values. They have been developed, interpreted, and transmitted by successive generations and an accumulation of traditions and experiences recognized as such in their diversity.

Empirical analysis is a way of gaining knowledge by means of direct and indirect observation or experience. Empirical evidence can be analysed qualitatively or quantitatively.

Elite theory is a theory of the state which seeks to describe and explain the power relationships in contemporary society.

Marxist theory is the political and economic theory that is originated by Karl Marx and Friedrich Engels. In this theory, concept of class struggle plays an important role in understanding society's allegedly inevitable development from bourgeois oppression under capitalism to a socialist and ultimately classless society. This theory views social change in terms of economic factors.

Diversity Management is the practice of addressing and supporting different personal characteristics and lifestyles within a defined group.

Florida's viewpoint that is called 'plug-and-play'. The creative class is shaping the world to reflect its expectations, needs, and values, and successfully adjusting to these is the recipe to put the environment on the road of creativity.

Porter's competitive advantage theory, innovation-provoking investments are the most important factors to build best strategy for urban development without attention to culture aspect of production.

Sen's capability theory, the focus on the local community gives a great deal of relevance to human development and shared identity issues, but at the cost of losing the global perspective.

Deflation Economy can be caused by decrease in government, personal or investment spending. Deflation has the risk of increased unemployment because there is a lower level of demand in economy, which can lead to economic depression.

Value-free Economy: In this economy, the socio-cultural factors do not support properly, which can lead to antigrowth community**.**

Vibrant economy is a key to sustainability. Sustainability is the sweet spot in the centre of three equally important pillars: the environment, society, and the economy. A sustainable economic strategy is vital to address the environmental and social challenges while creating new opportunities for local businesses and creating the economic conditions to attract new and emerging clean industries.

Bubble economy is an economic cycle characterized by the rapid escalation of asset prices followed by a contraction. It is created by a surge in asset prices unwarranted by the fundamentals of the asset and driven by exuberant market behaviour. When no more investors are willing to buy at the elevated price, a massive sell-off occurs, causing the bubble to deflate.

 Boom and Bust Cycle: The boom-and-bust cycle is a process of economic expansion and contraction that occurs repeatedly. The boom and bust cycle is a key characteristic of capitalist economies and is sometimes synonymous with the business cycle. During the boom, the economy grows, jobs are plentiful, and the market brings high returns to investors. In the subsequent bust the economy shrinks, people lose their jobs and investors lose money. Boom-bust cycles last for varying lengths of time; they also vary in severity.

Traditional economic growth model: This economy relies on tradition and culture to choose what goods and services will be produced, how those goods and services will be produced, and how those goods and services will be distributed throughout the populace.

sustainable economic growth means a rate of growth that can be maintained without creating other significant economic problems, especially for future regeneration.

Master Plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. Master planning is about making the connection between buildings, social settings, and their surrounding environments. A master plan includes analysis, recommendations, and proposal for a site's population, economy, housing, transportation, community facilities, and land use. It is based on public input, surveys, planning initiatives, existing development, physical characteristics, and social and economic conditions.

Benchmarking is a process of measuring the performance of a company's products, services, or processes against those of another business considered to be the best in the industry, aka "best in class." The point of benchmarking is to identify internal opportunities for improvement.

Primary Product Dependency Occurs when an LDC (a country less developed economically than most other countries) is dependent on producing and exporting primary commodities. The LDC suffers from fluctuating prices and supply side shocks because of natural disasters and extreme weather conditions (hurricanes, tornadoes, droughts and tsunamis).

Value added services is a popular telecommunications industry term for non-core services, or, in short, all services beyond standard voice calls and fax transmissions. However, it can be used in any service industry, for services available at little or no cost, to promote their primary business.

Economic Stability refers to an absence of excessive fluctuations in the macroeconomy. An economy with constant output growth and low and stable inflation would be considered economically stable.

NIMBY is an **acronym** that stands for not in my backyard. It is used when citizens oppose a public works project or private development primarily because it will be built near where they live. These citizens often see the need for the project or development but oppose it because of the negative impact on them.

Gross domestic products (GDP) is a monetary measure of the market value of all the final goods and services produced in a specific time period, often annually. GDP (nominal) per capita does not, however, reflect differences in the cost of living and the inflation rates of the

15

countries; therefore using a basis of GDP per capita at purchasing power parity (PPP) is arguably more useful when comparing living standards between nations, while Nominal GDP is more useful comparing national economies on the international market.

Total Quality Control (TQC) Applying quality principles of management to each area of a business from design to delivery instead of using then just for production.

Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The 17 Goals are all interconnected, and in order to leave no one behind, it is important to achieve them all by 2030.

Foreign Direct Investment (FDI) is an investment made by a firm or individual in one country into business interests located in another country. Generally, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets in a foreign company. However, FDIs are distinguished from portfolio investments in which an investor merely purchases equities of foreign-based companies.

Compound annual growth rate (CAGR) is the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.

Conceptual Framework: represents the researcher's synthesis of literature on how to explain a phenomenon. It maps out the actions required during the study given his previous knowledge of other researchers' point of view and his observations about research.

The **Post-2015 Development Agenda:** was a process from 2012 to 2015 led by the United Nations to define the future global development framework that would succeed the Millennium Development Goals. The new framework, starting from 2016 is called Sustainable Development Goals.

Cultural pluralism is a term used when smaller groups within a larger society maintain their unique cultural identities, and their values and practices are accepted by the wider dominant culture provided they are consistent with the laws and values of the wider society.

Biodiversity comes from two words Bio meaning life and diversity meaning variability. Biodiversity is the variety of all living things; the different plants, animals and microorganisms, the genetic information they contain and the ecosystems they form.

OECD: The Organisation for Economic Co-operation and Development is an international organisation that works to build better policies for better lives. Its goal is to shape policies that foster prosperity, equality, opportunity, and well-being for all.

FINE was created in 1998 and is an informal association of the four mains fair trade networks:

- F : Fairtrade Labelling Organizations International (FLO)
- I: International Fair-Trade Association, now the World Fair Trade Organisation (WFTO)
- N: Network of European World shops (NEWS!) and
- E: European Fair-Trade Association (EFTA)

The aim of FINE is to enable these networks and their members to cooperate on:

- The development of harmonized core standards and guidelines for fair trade,
- Harmonization, and increase in the quality and efficiency of fair-trade monitoring systems,
- Advocacy and campaigning work, harmonization of their information and communication systems.

IBF: is a Brussels' based consulting company operating since 1977 on technical assistance projects worldwide in both developing and transitional economies

Craft production: is the manufacturing process of making products, one by one, with or without the aid of tools, usually in a job shop manufacturing setting. Craft production was the most common method of manufacturing pre-industrialization, such as when making pottery by hand.

Thematic analysis is one of the most common forms of analysis within qualitative research. It emphasizes identifying, analysing, and interpreting patterns of meaning (or "themes") within qualitative data.

Community Development Exchange (CDX) was a not for profit, UK-wide membership organisation for community development. This organisation work to ensure that community

development is recognised and supported as a powerful way of tackling inequality and achieving social justice.

Interwar period: was the period between the end of the First World War (1918) and the beginning of the Second World War (1939) .

Abstract:

Regenerating cities and adapting them to contemporary life circumstances is essential for improving cities' economic, social, and cultural situations. In order to regenerate cities, we, therefore, need to pay more attention to the cultural aspects of how they were developed and maintained .

The research aims to examine the possible use of the creative hubs, based on their cultural context, to regenerate cities and regions based on social, economic, environmental, and cultural innovations .

The creative hub concept aims to build strategies for achieving a new sustainable development model that is consistent with the spirit of the time in response to the following question: How can cities achieve sustainable development through the concept of a creative hub? Moreover, how can we use the interaction between Art & Culture, Knowledge-based organizations, and Community projects in our path to regenerate the economy of our cities？

With the increasing share of cultural products, services, and intellectual property in global exchange and the challenges to cultural diversity and cultures raised by contemporary globalisation, the field of culture has gained importance in global development in cities. Furthermore, there is an increasing awareness that cultural understanding and cultural diversity must be preserved and promoted to protect fundamental human rights, democratic freedoms, and genetic and biological diversity. This standpoint is based on the fact that sustainable development can only be accomplished if cultural diversity and social justice, environmental accountability, and economic viability are all in harmony. This study examines culture as the fourth pillar of urban sustainability and its social, economic, and environmental aspects.

 The thesis examines both the culture of sustainable development in terms of its evolution as a global agenda and how sustainable development can facilitate the cultural arena. This way, the thesis creates a contextualised framework for sustainable urban development through the creative hub concept, allowing developing countries like Iran more policy space and choice. Because of the importance and opportunities that Kish places on the concept of culture in its sustainable growth, this thesis uses Kish (one of Iran's Free Trade Zones) as a case study.

This research builds on the relevant literature to demonstrate the importance of the links between local culture and its expectations and the urban sustainable development process. Meanwhile, this thesis looks at a global report to examine the contribution of culture to urban sustainability. Furthermore, Kish Island has been chosen as a case study in this thesis because the emergence of special economic zones (SEZs) and Free Trade Zones (FTZs) has become a significant focus of many developing countries such as Iran for culture-based strategies for achieving sustainable urban development. In this thesis, information is gathered using mixed methods to collect and analyse data in order to develop a contextualised framework for culture-led sustainable urban development in Kish.

Culture-led sustainable urban development encompasses multiple steps that may include complementary quantitative and qualitative criteria and multiple decision-makers. Therefore, in this research, a hybrid Fuzzy Multi-Criteria Decision Making (MCDM) approach is used for identifying and choosing alternatives based on the values and preferences of the decision-makers. The MCDM model integrates the fuzzy Delphi method (FDM)", fuzzy Analytical Hierarchy Process (AHP), and fuzzy Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method for identifying the priorities of factors that affecting and challenging sustainable development and meanwhile finding the best strategies to overcome these challenges in Kish Island in Iran as case study.

Following these processes, several key recommendations emerge. These recommendations are based on existing problems and opportunities in Kish. These suggestions demonstrate the importance of strategic planning for long-term development in this Island. They also believe that preserving and fostering culture is a prerequisite for achieving this urban growth.

In addition, this study's results provide concrete guidelines for Iranian governments to integrate culture into urban policies as a unique resource for urban regeneration and innovation and social, economic, and environmental development.

Chapter 1

1.1 introduction

This research explores the concept of a creative hub in both theory and practice to establish a contextualised framework for developing a creative hub as an effective and sustainable tool for urban development.

Culture is defined as a society's or a social group's distinctive spiritual, material, emotional and intellectual features that cover art and literature, lifestyles, ways of living together, value systems, traditions, and beliefs characteristics, including art and literature, lifestyles, forms of living together, value systems, traditions, and beliefs. (UNESCO, 2001) .

Cultural and creative industries are identified by their position at the intersection of economy and culture. Also, they are identified by the role of innovation in their operations. They also have creative and cultural content linked to economic sustainability through creativity. In other words, they can be identified as those sectors of activity whose primary goal is the development, production, distribution, and consumption of cultural and artistic products, services, and activities (Wiktor-Mach, 2018).

Therefore, creative cities can be defined as urban complexes where cultural activities are an integral component of the city's economic and social functioning. The cultural industries and the creative economy play a growing role in cities' development and transformation processes. They contribute to the local economy and employment and need to be considered in this thesis's urban development frameworks.

The creative hub concept refers to mobilising the creativity inherent in art and culture to build new industries and work prospects. Such a strategy is thought to promote the growth of urban renewal. A globally known expert on urban theory, Peter Hall and Charles Landry first called attention to this term in the academy. (Hall, 1998; Landry, 2000). After that, the concept of "creative cities" has gained increased importance among urban planners and policymakers, and academics concerned with urban issues. However, descriptions of what comprises the "creative industries" and who constitutes the "creative class" are still contested .

On the other hand, the number of urban governors focusing on re-inventing their cities as "creative" is increased, such as Yorkshire, London, Tampa Bay, New England, Silicon Valley,

Auckland, Brisbane. Attempts like these have been encouraged by initiatives such as the European Union's European Capital of Culture initiative since 1985 and UNESCO's Global Alliance's Creative Cities Network .'

This focus has included the marketing of cities as creative places, creative industries, and the creative class's encouragement.

It is essential to provide a conceptual background and evolutionary adaptation of relevant established resources to develop a contextualised framework for this thesis. Over the last few decades, new concepts, and professional practices for integrating heritage preservation and management with territorial planning and development strategies and instruments have emerged. Cultural practitioners like Florida, Porter, and Sen are increasingly interested in participatory urban regeneration processes.

Moving complex socio-cultural dynamics toward new territorial thinking for culture-led growth can also cause social and economic restructuring, so it is important to think about some new issues related to this new thinking for urban development, which will be discussed in the following chapters.

1.2 Research background

The persistent growth of cities all over the world and their continued dominance of global and national economies had led to a lengthy discussion on the factors that cause some locations to develop at a faster rate than others. While some people may argue that large cities have numerous advantages over smaller towns, an increasing number of scholars have maintained that the potential merits are attributable to an urban centre's position in global markets, such as management and finance (Kagan, S. & Hahn, J. 2011). Many other schools of thought have proposed various paradigms to explain the growth of cities, including the command and control, global city, and human capital theories. Nevertheless, there has been increasing interest in an emerging framework, which supports the significance of the creative sector in urban development (Sunde &Vischer, 2011). These scholars assert that innovation and cultural productions play a vital role in the generation of competitive advantage (Kagan, S. & Hahn, J. 2011). Indeed, research has found that the density of creative, artistic, and cultural producers determines the rate at which a city's economy grows (Oyekunle, O. 2017). Such locations possess a unique ability to harness the talents of film directors, fashion designers, and musicians, among other stakeholders in the creative industry, to contribute to the local and global marketplace, economy, and culture.

The term hub is widely used in a broad range of industries and disciplines, including practitioners and researchers. Broadly speaking, this word is taken to mean a crowded or densely populated node in a specific network structure. The common feature among the various definitions of the hub is that all hubs refer to meeting points for people, information, and materials (Oyekunle, O. 2017). Depending on the level at which analysis is conducted, a hub could range in size, from a single room to an entire city. Further, a location can be termed as a hub so long as high volumes or quantities of specific elements are flowing through it. For instance, urban centres that play a significant role in the global production network are often known as commercial hubs. Similarly, a creative hub refers to a region with an abundance of imagination among most of the population (Evans, G.009). These centres typically nurture information exchanges and interpersonal connections, thereby promoting economic development.

The concept of creative cities stemmed from the early works of the 1940s, which argues for the importance of cultural production, innovation, ideas, and artistry in the creation of new,

meaningful, and sustainable divisions of labour and economic progress (Ferilli et al. 2012). This line of thought has gained massive support around the world due to the continued growth of global urban areas, which typically have high concentrations of creative people. From both an artistic and cultural point of view, this inventiveness is fundamental to the diversity and vibrancy of city life, as well as its contribution to other economic sectors, such as business and tourism. Currid (2006) posits that over 30 percent of today's workforce is made up of the creative class and typically influence other employees, such as those in research and development, to participate in the innovation process.

Accordingly, creative hubs have become the centre stage for the development of social wealth for communities at the local and global levels. The United Nations Conference on Trade and Development (UNCTAD) asserts that the creative sector not only plays a part in the generation of income and employment opportunities in urban centres but also enhances cultural diversity, social inclusion, and human development (Ferilli et al. 2012). This industry also influences other vital economic aspects, including foreign trade, unemployment, quality of life, and gross domestic product (GDP). Creative hubs provide opportunities for participation, work, and consumption by allowing businesses to cooperate with others in the exploitation of crucial resources and the development of essential projects (Evans, G. 2009). They represent a communal approach to addressing the vague cultural, social, and economic processes and environments of innovation and creativity by bringing together varied disciplines, skills, and talents.

Irrespective of the variations in the definition of creative hubs, most scholars and policymakers agree that these regions serve as centres of innovation as well as nodes in the broader networks of knowledge development and sharing (Da Cunha, I. & Selada, S. 2009). They are primarily understood to be spaces, either virtual or physical, in which creative people and entrepreneurs can sustainably come together, collaborate, and achieve success. Among the most common examples include accelerators, incubators, and artistic residences, among others. Da Cunha and Selada (2009) posit that despite their dynamic nature, creative hubs possess specific common elements that exemplify their impacts on local and global economies. Firstly, people are the primary actors in the information exchange processes and the main resource for innovation. They also act as decision-makers, whose role is to represent specific organizational or industry-wide interests. Secondly, creativity hubs have unique and coherent identities with regard to

24

vision, public image, and a sense of belonging, which are based on the economic performance of past projects (Shao, 2015). Thirdly, these places present opportunities to form social contracts and knowledge relationships that promote innovation, partly due to spatial proximity. The subsequent face-to-face contact between professionals from different industries enables people to gain cost-free or preferential access to vital services or strategic information that promote sector-specific economic development. Finally, these centres support the development of high-quality cities since high concentrations of talented and creative individuals in a specific region allows for the improvement in physical structures, human traits, and aspects of day-to-day activities.

Sustainable urban development denotes a holistic view of economic growth. Similarly, creative hubs have been found to produce multiple benefits to such sustainability by promoting the emergence of start-up ventures, informal education, urban regeneration, resilience, talent growth and retention, network development, new organizational models, as well as research and development (Evans 2009). This finding is in line with the United Nations General Assembly's 2030 Agenda for Sustainable Development. Specifically, the seventeenth item in the sustainable development goals (SDGs) calls required multiple stakeholders from the private and public sectors as well as the civil society to collaborate in the realization of the other sixteen objectives. Therefore, creative hubs are the ideal way of introducing aspects of sustainability due to their holistic perspective towards the role of culture and the arts in economic growth, environmental preservation, and social inclusion (Sacco et al. 2009). They also generate priceless opportunities for cooperation, such as sponsorship, funding, public relations support, financial advice, pro-bono training, and marketing.

According to the UNCTAD, creative hubs and economies enable governments to incorporate a nation into the global economy by increase the competitiveness of goods and services as well as fostering job creation and urban regeneration (Ferilli et al. 2012). Accordingly, mainstream academic and policy views concerning the impact of creative centres on local, regional, and global industries assert that the hubs are particularly important to regions undergoing industrial decline due to their knowledge-intensive nature (Kagan, S. & Hahn, J. 2011). The growth of sectors such as music, film, arts, and tourism have the potential to stimulate urban economies and generate new models of economic development. Moreover, creative hubs have been noted to enhance the satisfaction of citizens regarding the cultural settings in which they work and

live, as well as with the overall image of their cities (Kagan, S. & Hahn, J. 2011). Consequently, various administrations have adopted novel national policies with the view of emphasizing and integrating creative diversity, community empowerment and engagement, and social inclusion.

Numerous scholars such as Shao (2015); Salimi &Al-Ghamdi (2020); Popkova et al (2017) have written extensively on the link between creative hubs, culture, and cities' economic growth. Simultaneously, an even larger number of administrators have embraced this notion to redesign the development strategies of their jurisdictions to strengthen expansion through creative activities, while numerous others are still planning to adopt the culture and creative enterprises to spur regeneration. Moreover, this concept has become particularly important as cities try to achieve the SDGs, which require a careful balance between cultural, social, economic, and environmental issues (Sacco et al. 2009). This trend encapsulates the recognition of the increasing importance of people and their cleverness, motivations, desires, and imagination as resources for development. Indeed, Currid (2006) posits that the creativity of people running and living in particular regions has taken the place of natural resources, location, and access to markets as the most important resource because it determines the success of urban areas. Accordingly, the imagination of residents, the administration, communities, organizations, institutions, and other stakeholders helps cities to focus on achieving the eleventh SDG that requires cities to be safe, inclusive, sustainable, and resilient. This objective envisions urban centres as hubs for culture, ideas, science, commerce, productivity, social development, and other vital elements.

However, the idea of creative hubs is not without significant critiques. The rampant adoption of the concept of creative cities by markets and governments across the world to motivate urban regeneration necessitates an evaluation of the impact, meaning, and nature of this emerging phenomenon. According to Oyekunle (2017), sociological researchers have identified several critiques, such as segregation, gentrification, and exclusion displacement, that can be attributed to the potential for unsustainable practices within the broader model. Therefore, the discovery of the various shortcoming and their causative factors allows policymakers, administrators, and other stakeholders to implement novel approaches to restore and salvage the role of culture and the arts in the sustainability of urban centres.

Da Cunha and Selada (2009) posit that a club effect may arise in the typical process of developing creative hubs, whereby some people may face exclusion from cultural, economic,

26

and social capital if they do not possess the common aspects or desired attributes that characterize individuals from a specific place. This tendency indicates that effects such as symbolic violence and segregation can arise from the enactment of policies that support the development of standardized factions on the basis of spatial relationships. In other words, culture and the arts can facilitate the construction of creative urban settings that promote a city's economic status while simultaneously resulting in gentrification. Over time, such spaces become increasingly similar to other general surroundings as they continue to lose the features that enabled the cultural distinctiveness in the first place (Sacco et al. 2009). This phenomenon can be explained by considering the role of culture in increasing a location's value, both materially and symbolically, through images. The subsequent cultural capital eventually becomes objectified and shifted to other places, which makes it easy to access and consume by anyone who comes within the boundaries of that zone (Da Cunha, I. & Selada, S. 2009). The presence of creative people, such as artists, is turned into a commodity, thereby raising the value of land by using the consequent aesthetic disposition as a tool for gentrification.

The concept of creative hubs implies that cities depend on the arts, culture, and creativity to enhance economic development. This active use of cultural capital generates significant consequences that form part of the quality of a region. Eventually, as policymakers and administrators of such locations continue to attract creative individuals as a strategy for boosting the economy, a struggle for identity and space eventually ensues at both local and global levels (Oyekunle, O. 2017). The repercussion of this trend is usually a rise in disparities in income, wealth, lifestyle, and opportunities as cities that manage to concentrate talent become more successful than others. This process leads to the creation of homogeneous groups as competitiveness increases within and between cities, which fosters the exclusion of factions that are perceived to be different from the dominant ones. The excluded people, in turn, continue to form other harmonized groups, and the process continues infinitely, thereby producing tensions that contradict the concept of creative cities.

The idea of sustainability in the context of creative cities refers to the reconciliation of community welfare, social justice, and ecological integrity to create a just world within the existing environmental capacity without compromising the wellbeing of future generations. Accordingly, culture has the potential to transform people and communities in meaningful and constructive ways in the long term. Indeed, the four-pillar model of sustainability includes one

dimension that supports cultural vitality as a primary aspect of sustainability as a creative and holistic process. Therefore, a culture of sustainability refers to the established values, norms, institutions, and social conventions that control a community's transition to sustainable practices. It also denotes a transformation in paradigmatic bases and worldviews concerning epistemological concerns. Evans (2009) considers culture to be an integral part of human development since it is the fabric with which individual and collective personalities are made. People's participation in local activities, such as music, art, poetry, and theatre, among others, contributes to the improvement of quality of life and community welfare.

Culture also acts a critical resource that can be used to resolve problems and find solutions to challenges that affect the residents of a particular locality, including fostering peace, citizenship, and social cohesion (Rotondo,2020). As such, urban developments that adhere to cultural issues often support participative processes by availing vital information to stakeholders. Moreover, the impact of culture on increasing people's sense of ownership of their localities can help to empower marginalized people and societies to take part in the day-to-day aspects of life, including governance and politics (Ferilli et al. 2012). This position has been endorsed by the United Nations Sustainable Development Solutions Network (UNSDSN), which asserts that valuable participation calls for a holistic learning framework that entails cognitive and social skills, physical welfare, numeracy and literacy, science and technology, critical thinking, and, more importantly, culture and the arts (Kagan, S, & Hahn, J. 2011). This notion underlies cities' use of creativity and cultural resources to catalyse, inspire, and compel economic and social change, develop local potential, and enhance resiliency. In addition, cultural actions can generate reclamation processes to improve environmental health and social connections, as well as build capacity for transformative change in both rural and urban areas.

Artistic practices are particularly vital in the symbolic languages and established codes that make part of culture. The ability for the varying artistic forms of expression to communicate, interact, and create awareness is a considerable consideration in the design and implementation of social intervention strategies because the latter can incorporate existing development policies or programs. Moreover, artistic practices enable individuals to act in both virtual and physical spaces, such as by facilitating the execution of public interventions in urban centres and have a role to play in altering people's beliefs and behaviours (Oyekunle, O. 2017). More importantly, the potential for artistic processes to contribute to sustainable development

can be discerned on a case-by-case basis and presented at events, forums, and publications as the experiences of case studies or good practice. Nevertheless, such projects can only be considered to be successful and satisfactory if form a sizeable proportion of the total number of projects undertaken across the globe. The fact that only a few of them realize any considerable impact and relevance underscores the need for revaluating the existing valuation criteria.

Urban centres have several differences depending on the geographical and demographic size of a location. These variations appear in facets such as the distribution and scale of cultural institutions, the concentration of cultural producers and consumers, the degree of diversity, and market linkages, among others (Currid, E. 2006). In today's rapidly globalizing world, urban centres are increasingly committed to finding unique identities to avert homogenization, a goal that is realized by utilizing culture as a tool for urban regeneration and economic growth through the creation and propagation of new ideas. An ideal example of the relationship between culture, creativity, and sustainable development is the city of Kaunas, Lithuania. The metropolis is the second largest in the country, with a population of 300,000 people (Creative Cities Network 2015). During the interwar period (1920-1939), Kaunas was the temporary capital city of Lithuania. The administrators were intent on transforming the city into a contemporary European destination, whereas architects started building according to the tenets of modernism or Bauhaus. Today, this legacy and the structures remain the primary forces behind the city's creative sector. In an effort to foster creativity and inclusivity, the city provides 60 galleries and museums, as well as cultural fairs and festivals (Creative Cities Network 2015). It also hosts the Architectural and Urbanism Research Centre, an institution whose mandate is to support creative hubs that focus on merging traditional and modern architectural designs. Notably, Kaunas' buildings form the most significant part of its cultural identity and act as a source of collective memory (Creative Cities Network 2015). Other than committing a large section of the town to creative and cultural events, the municipal council has also worked tirelessly to create an environment that can support creativity by developing and funding facilities that support young entrepreneurs. The case of Kaunas proves that culture and creativity can indeed cause sustainable economic growth.

Unlike the conventional modernist ideas of autonomous art and individual creativity, the alternative understanding of creativity adheres to an ecological archetype that is more attuned

to the concept of urban sustainability. Accordingly, sustainable creative cities call for the mutual respect of local neighbourhoods and communities as equal partners in creativity. In contrast, the need for sustainability creates severe limits on artists' self-sufficiency because they cannot be viewed as individualistic and irresponsible agents who can allow their cultural capital to stop the processes of gentrification. Moreover, this situation also requires the recognition of emerging ways of life that are informed by the globalization, but which can be locally sustainable (Oyekunle, O. 2017). Therefore, those tasked with exercising creativity need some degree of freedom and other opportunities to foster creativity among the locals. Notably, creativity does not necessarily arise exclusively in individuals who are solely classified as imaginative due to specific talents, cultural, or human capital. It can also arise in ordinary members of the community under the right circumstances. Creative people should thus be understood as openers, facilitators, or catalysts of the innovative process as opposed to being the exclusive owners, originators, or authors.

The concept of creative hubs has been embraced as an ideal path towards achieving sustainability in urban areas. Numerous cities worldwide acknowledge the impact of promoting creativity and cultural capital to ensure economic development. Indeed, numerous authors have documented extensive accounts of the potential merits of creative hubs, whereas others have chosen to take a more conservative approach by pointing out several criticisms of the concept. However, the success achieved in locations such as Kaunas is evidence of the potential merits of promoting innovativeness and cultural inclusivity. Administrations, however, must avoid adverse effects, such as the club effect, to reap the full benefits of creative hubs.

This research aims to develop a contextualised framework for culture-led urban development in Kish as a free trade zone (FTZ) in Iran through a creative hub concept. As a country, Iran has consistently struggled with economic, social, cultural, and environmental issues. In other words, Several Iran cities have developed in unsuitable ways, leading to different issues like inflation, pollution, and chaos. These issues are particularly challenging on metropolises, that usually focal points of population, trade, economy, culture, and pollution. Therefore, paying attention to sustainable development is essential for the nation's present and future.

Since the late 1980s, Iran has pursued a policy of attracting foreign investment and fostering regional trade by granting favoured status to the so-called Free Trade-Industrial Zones (FTZs) and Special Economic Zones (SEZs). To date, six FTZs and sixteen SEZs have been set up

throughout Iran. Kish is one of the most important zones among the other six FTZs, which this thesis will explain that in detail in chapter 4. The FTZs are strategically positioned for their potential international links and have their eyes on markets beyond Iran and the SEZs for their value in serving main industries and improving their distribution system and supply network.

Despite being one of the most important Islands in the south of Iran, Kish is highly unsustainable due to rapid population growth, high migration rate, and increase in trade and economic activities, leading to different problems that cause unstable development. Even with the appropriate facilities, services are unevenly distributed among different parts of the city. This research examines the contribution of the culture-led regeneration approach by determining policies and strategies to develop a cultural & creative hub in Kish.

For this purpose, through a critical review of academic papers and sustainable development meant in different world cities, this thesis will develop a contextualised framework for culture-led urban development in Kish.

This study also provided useful information on increasing the sustainable development level in Iran and agreed that urban development should be done by sustainable plans and good management and four important objectives should be considered including, social equality, economic development, and environmental protection, and cultural sustainability as a key factor.

1.3 Research aim:

The aim of this research is to develop a contextualised framework for the development of a creative hub as an effective and sustainable tool for urban regeneration in Iran. In order to achieve this goal, the following objectives are sought:

1.4 Research objectives

- Review the different culture approaches to sustainable urban development.
- Examine the creative hub approach as multiphase attempts for sustainable urban development; social inclusion, culture-based production systems, and private and public efforts.
- Define the role of cultural policy in modifying and nurturing creativity for purpose of making creative hub.
- Investigate the various methodologies to devise a culture as a central social infrastructure for urban development.
- Understand the prerequisite conditions and challenges in Iranian Free Zones for purpose of sustainable urban development.
- Define the best strategy for sustainable development in Iranian Free Zones.
- Design a contextualised framework for culture-led urban development utilising the concept of creative hub theory in Iran.

1.5 Research questions

1. What are the important factors that lead to sustainable development in Iranian Free zones?
2. How cultural policy shape creativity for purpose of sustainable social, economic, and environmental development?
3. What are the challenges for economic, environmental, and social sustainable development in new Iranian Free Zones?
4. What are the challenges regarding consideration of culture as a central concept for the development of a creative hub in new Iranian Free Zones?
5. What are best strategies to face these challenges for sustainable development in Iranian context?

Table 1. 1 Research aim, objectives, and research questions interface

Research aim: developing a contextualised framework for culture-led urban development through the concept of creative hub.	
Research Objectives	Research questions
Objective 1: Review the different culture approaches to sustainable urban development.	What are the important factors that lead to sustainable development in Iranian Free zones?
Objective 2: Examine the creative hub approach as multiphase attempts for sustainable urban development; social inclusion, culture-based production systems, and private and public efforts.	How cultural policy shape creativity for purpose of sustainable social, economic, and environmental development?
Objective 3: Define the role of cultural policy in modifying and nurturing creativity for purpose of making creative hub	
Objective 4: Investigate the various methodologies to devise a culture as a central social infrastructure for urban development.	
Objective 5: Understand the prerequisite conditions and challenges in Iranian Free Zones for purpose of sustainable urban development.	What are the challenges for economic, environmental, and social sustainable development in new Iranian Free Zones? What are the challenges regarding consideration of culture as a central concept for the development of creative hub in new Iranian Free Zones?

Objective 6: Define the best strategy for sustainable development in Iranian Free Zones.	What are best strategies to face these challenges for sustainable development in Iranian context?
Objective 7: Design a contextualised framework for culture-led urban development utilising the concept of creative hub theory in Iran.	What are the factors that affecting and challenging sustainable development in Iran? What are best strategies to face these challenges for sustainable development in Iranian context?

1.6 Scope of Research

There are various aspects to investigate the conditions that culture-led development can lead to social, economic, and environmental sustainability regarding sustainable urban development. The aspects include looking at culture and creativity as a global mainstreaming and looking at cultural development to absorb economic value and stimulate urban regeneration through creative and cultural industries, institutions, and events.

This thesis emphasises that culture should be viewed as a key factor with other factors (economic, social, and environmental) for sustainable development. Also, this thesis explains peoples' identities, characteristics of humanity, cultural heritage can shape creativity for sustainable development. Since both, the terms "culture" and "development" are complex concepts in use and understanding, this approach to integrating culture into sustainable development presents conceptual and operational challenges.

In this regard, this thesis lays out a conceptual framework for rethinking the sustainable development agenda that is more consistent with objectives and ideals like social justice, self-reliance, and cultural identity. This thesis will develop the conceptual framework to explain important factors for sustainable development and look at these challenges and strategies to face these challenges in the Iranian context.

1.7. Contribution of research

The study will contribute to the body of knowledge on developing a contextualised framework for culture-led urban development through the creative hub concept.

The thesis devises a roadmap to mobilise the creativity inherent in art and culture that led urban development through creative hubs. (Ferilli et al, 2012; Gharehbaglou et al.,2014; Shao et al. ,2019).

This study discusses the impact of local expectations of urban development in how it can be economically effective and deliver sustainable development in cities (Birch,2016; Hosagrahar et al. ,2016; Srinivas, 2015; Srakar and Vecco,2016).

This study's results also help develop an innovative model for sustainable urban development through the creative hub concept in Kish as free trade and special economic zone in Iran.

1.8 Thesis Structure
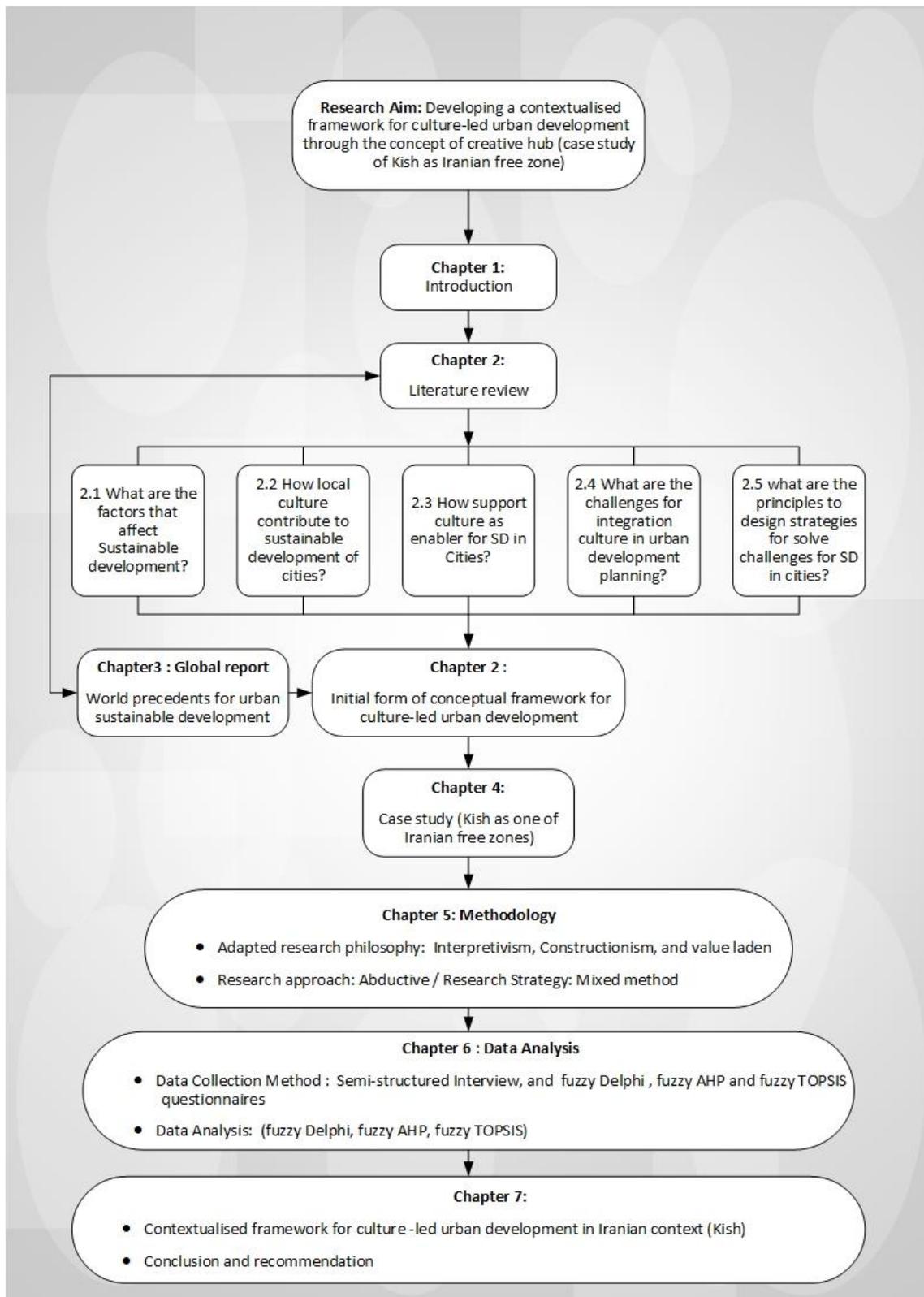
Chapter 2: Literature review

2.1 Introduction

The twenty-first century has presented many opportunities for countries, notwithstanding the numerous uncertainties witnessed in the recent past. The majority of nations worldwide have seized the opportunity to develop urban centres, making the current century an urban one. Nonetheless, urbanisation, coupled with steady population growth, is expected to create significant pressures on cities in the future. Additionally, cities are at the centre of cultural capital production and stimulation since they encourage technological advancement, innovation, creative work, and financial growth, and the provision of sophisticated social, health, and education systems (UNESCO, 2016).

Currently, the percentage of the population living in urban areas is equal to 54% of the total global number of citizens (United Nations, 2014). The current century's story is being written at an unprecedented speed and unimaginable scale compared to the last century. For instance, global shifts have led to new economic, political, and social landscapes characterized by increasingly marked inequalities. Based on the fact mentioned above, global, national, and local authorities are responsible for ensuring inclusive economic growth, respect for human rights, equal treatment, and social justice for their populations. Moreover, the previously proven policies, strategies, assumptions, and tendencies that addressed societal problems in the past have been rendered null and void due owing to their lost validity and reliability. This issue implies a need to develop and implement new strategies that accommodate new realities.

Since culture is intrinsically linked to the individual and collective identity, it is crucial for members' well-being and quality communication and connections within the society. The cultural and creative industries may be applied in industrialized and developing economies to eliminate poverty's global problem. The cultural industries are the most potential emerging opportunities for advancement (Ferilli, Sacco, & Tavano, 2012). From an economic perspective, culture directly contributes to poverty reduction by generating income and creating employment through cultural tourism and creative arts industries (Abbas,2019). Additionally, culture creates conditions that promote social and economic growth and a platform for the marginalised to aid in developing their communities. Moreover, sustainable mapping, organisation, and construction policies assist pro-poor strategies that remarkably improve

urban areas and ensure equitable access to resources to enhance life quality (Almeida et al.,2017). Although a significant number of cities worldwide progressively recognise the cultural assets that exist in their urban areas, these forms of expression remain largely unknown, and their full potential remains untapped.

Whereas the striking expansion of urban areas significantly impacts the environment, the magnitude of climate changes caused by other factors poses a challenge to the hybrid city environments (Aquino et al.,2012). Urban areas continually grapple with the challenge of guaranteeing that the ecology can withstand climate change vagaries and worsening resource shortages. It is estimated that currently, urban centres consume a considerable part of global energy while leaving equally massive ecological footprints worsening pollution. Consequently, water scarcity will become a vital issue for several cities in certain regions in the future (Aquino et al.,2012). Nonetheless, various cities leverage innovation and technology to formulate environmentally friendly strategies to enhance resource management and better cope with climate changes. Nevertheless, there is a need to pinpoint more ingenious remedies and implement them to mitigate the adverse effects of environmental pollution caused by cities. Tapping into traditional community-level knowledge systems can provide insights into addressing environmental change and influencing disaster preparedness and resilience. Natural disasters such as flooding, hurricanes, and earthquakes have highlighted the vulnerability of densely populated urban areas to natural calamities (Blanden et al.,2004). The degree to which a city is susceptible to environmental perils is influenced by its locality and the standard of its buildings, economy, population, and governance structures.

The resilience of cities has been enhanced by a range of culture-based strategies, including strengthening their buildings to safeguard against weather patterns' adverse effects. Moreover, the regeneration of green areas within and around cities also provides a buffer zone of resilience. Urban garden squares benefit residents in various ways, including a place for unwinding, recreation, and also as a source of a healthy diet. Additionally, sustainable transportation initiatives that are eco-friendly help to lower the cities' carbon footprints (Almeida et al.,2017) .

Historically, culture has been a driving force for urban development. A remarkable amount of data explores the role of culture in urban expansion; nevertheless, the task of defining the conceptual cornerstones that fully legitimise the idea that "culture matters" regarding

39

development and growth is somewhat challenging. Although culture and development have an enduring mutual and interconnected association, that nexus has only received impetus globally over the last three decades (Caiado et al.,2017).

The United Nations (UN) has also overseen greater recognition and cooperation regarding culture and development from international organisations, non-governmental organisations, public and private entities, academia, and professionals from development-related fields. Nevertheless, culture is rarely addressed comprehensively, neglecting its definition as a means of sustainable urban-development strategies to improve people's identification, involvement, and wellbeing .

However, since 2010, the UN General Assembly has recognised the importance of culture for sustainable progress for the second time, which can be witnessed in several official documents and milestone reports related to the Post-2015 Development Agenda (UNESCO, 2016). The UN spearheaded this agenda's creation between 2012 and 2015, which ultimately defined a global development framework to supersede the Millennium Development Goals (MDGs) (see appendix A5 for more details). The new framework, which implementation started in 2016, focuses on 17 Sustainable Development Goals (SDGs) adopted in 2015 by all UN member states as part of the 2030 Agenda for Sustainable Development (UNESCO, 2016) .

The Open Working Group Proposal for SDGs includes a target dedicated to culture (UNESCO, 2016). As part of the SDGs concerning "sustainable cities," the international community now firmly recognises culture as a critical form of innovation to regenerate cities and a critical component of strategic urban planning (see appendix A 2 for more information on Goal 11 the SDGs).

This thesis examines the concept of creative hubs as a new sustainable urban development model, reflecting the widely accepted perception of culture and creativity as part of global mainstreaming momentum for policymaking (UN Conference on Trade and Development [UNCTAD], 2008). Creativity enhances sustainable human development, social cohesion, technological advancements, and revolutionary innovations exhibited in daily lives and sophisticated industrial enterprises. Numerous arguments have been advanced since there lacks a universal definition of creativity. However, the commonly used definition is creating a new process, commodity, or service that contains some intrinsic value .

Emerging global challenges such as extremism, climate change, and the need to embrace and incorporate creative and innovative national development strategies have elevated the importance of culture in the modern world to unprecedented levels. This realisation necessitated more research to examine the various ways creativity can be leveraged for sustainable development in the past ten years.

Additionally, researchers have developed various methods and techniques to test their findings' validity and reliability on creativity. Although the existing literature plays a critical role in exploring and developing creativity, the lack of universal methods and approaches leaves the findings fragmented and isolated. Therefore, the creative hub concept is an idea that requires extensive critical attention.

Charles Landry developed the creative hub idea that historical perspective will always carry creativity and live streamed to cities (Landry, 2008). Moreover, since the cultural arena is the most crucial challenge for future life, success, or defeat in this field determines the city's future (Hall, 1999). According to Landry (2008), creative communities are incredibly active and benefit from human places that nurture personal growth, given that cultural and technological developments lead to job and wealth creation while accommodating diverse lifestyles and cultures.

It is perhaps unsurprising that the conceptual grounds for culture-triggered development and the creative hub are still somewhat shaky. Scholars in the political economy field have paid remarkably little attention to the local cultures' complexities in urban sociology. Therefore, the urban political economy should adopt a more detailed approach to local culture to understand the dynamics of growth in certain areas, particularly in places where urban expansion is affected by local identity and culturally compatible development concerns. Moreover, it is crucial to investigate engagement with the relative strategic application of creativity in urban development. Subsequently, the range of actions implemented by city governments and other institutions should be acknowledged since the measures combine to form appropriate directions for policy, investment, and interventions that explicitly or implicitly apply ideas of development and creativity to the local urban architecture. Strategic focus incorporates a competitive understanding of the economic growth and development issues, which can connect with understandings of urban economies, based on the need for the advantage relative to other states, cities, and countries (UNESCO,2016).

41

The following sections examine the intersections of culture, globalisation, and sustainable development in global and historical contexts. Theories that help demonstrate links between local culture and the urban-development process will also be discussed.

2.2 The Intersection of Culture and Globalisation

Although globalisation is not a contemporary occurrence, it has developed into a disruptive element that influences the way people live, communicate, associate, and socialise with segments of the population. Globalisation is commonly regarded as a double-edged sword since it is mutually beneficial at its best but exploitative at its worst. Transnational mobilisation, aided by large-scale information channels, has facilitated new systems and platforms trading cultural beliefs, commerce, education, and information (UNESCO, 2016). These networks have presented cultural opportunities for maintaining mobility allowing the enhancement of life quality. Additionally, the contemporary world is increasingly interconnected, with innovation being key to ensuring economies remain competitive. Therefore, digital technologies have enlarged the range of creative expression and expanded the cultural elements sharing beyond local and national boundaries (UNESCO, 2016). Cultural products have increasingly become an object for international interest stimulating the exchange initiatives via the media and the Internet worldwide. This exchange has generated new possibilities for cities regarding disaster prevention preparedness, conservation, heritage mapping, and archiving (UNESCO, 2016). The advent of the digital age has also opened up the public space, which has enabled the sharing of goods, services, and infrastructure within urban areas (UNESCO, 2016).

Consequently, the digital age has obscured the otherwise clear demarcation between the economy's formal and informal sectors. Moreover, public information platforms' availability has led to improved governance in addressing specific issues within the cities, enhanced citizens' participation in the decision-making process, and more significant public officials' accountability. Furthermore, innovation, social media, modern transportation networks, and new technologies bring people together in previously unimaginable ways and speed (UNESCO, 2016). However, the increasingly interconnected world and technological advancements that have created a "global village" have raised concerns about the sincerity of the relationships developed through such interactions within cities. Although urban centres are home to increasing populations, it is paramount to ensure that humanisation based on mutual respect is maintained. Such an approach is effectively harnessing dialogue tools to bring peace and

harmony, instead of worsening isolation, rejection, separation, and disparity within the said populations (UNESCO, 2016). Moreover, the varying economic, political, and social classes within cities influence the citizens' ability to access, apply, and finance technological innovations. Therefore, most developing countries are unable to derive maximum benefits from technological advancements due to accessibility issues.

There are concerns about the impact of globalisation on local cultures, particularly regarding the risk of homogenisation and commodification (UNESCO, 2016). Although an increasing number of new actors such as multinational business enterprises question local identities, cultural products manufactured in other countries as part of the global production chain can potentially impoverish the already developing countries at the bottom of the chain who receive the least number of financial benefits (UNESCO, 2016). Nonetheless, the results of globalisation, such as higher levels of competition and human mobility contribute to gaining competitive advantage caused by globalisation have also enabled the city and regional authorities to create a competitive advantage due to the application of local materials and opportunities for construction and branding (UNESCO, 2016). Additionally, the attempts are made by the residents of cities to protect their heritage and use it to boost the economic growth of the region. One of the approaches to the realisation of this strategy is applying tourism-related policies supporting the exploration of the cities' cultural assets in terms of their potential to bring profit. The estimations demonstrate that cultural tourism based on spiritual and physical cultural assets sharing accounts for about 40% of global tourism revenues (UNESCO, 2016). Nevertheless, increased tourist numbers in a particular city led to a high influx of people who potentially undermine its authentic values. Local authorities typically overlook the erosion of the city's authentic values favouring commercialisation.

Similarly, development in urban areas can endanger collaborative and farming practices. Urban development can lead to the standardisation of cultural practices and landscaping, which puts cities at the risk of losing their distinct features (Caiado et al.,2017). Moreover, socially insensitive urban-heritage policies also have negative impacts on culture. For instance, the value of land and housing may rise, which drives low-income populations away from the city and limits marginalized populations' ability within the local communities to access cultural heritage. This phenomenon is detrimental to cultural conservation efforts since local populations do not benefit from the accrued financial resources.

43

Furthermore, gentrification, where market processes that focus on housing and urban renovation, pose a threat to vibrant neighbourhoods' unity, causing even higher displacement rates of low-income urban residents (UNESCO, 2016). Consequently, this aspect increases the social expenses of the specific urban area. This context requires a delicate balancing act to ensure inclusive economic development that benefits both individuals and communities in addition to safeguarding cultural heritage and diversity. Such an approach ultimately eliminates the threat of watering down the sense of place (genius loci), the urban built heritage's soundness, and the societies' identities. Therefore, there is a need to develop robust policies that emphasise adequate local-level resources and accountability among various stakeholders (Duxbury and Jeannotte,2012).

2.3 Sustainable Development in Global and Historical Contexts

In the early 1970s, sustainable development was introduced into the development debate. In 1972, The UN Stockholm Conference on Human Environment was the first international conference about the concept of sustainability (United Nations, 2020). However, scholars believe the 1987 World Commission on Environment and Growth (WCED) was crucial in establishing a normative-conceptual connection between environmental issues and development outcomes (Langhelle, 1999). Sustainable development was further legitimised after the 1992 UN Conference on Environment and Development held in Rio de Janeiro, Brazil (also known as the Earth Summit); the 1993 UN Conference on Sustainable Development; and the 2002 World Summit for Sustainable Development held in Johannesburg, South Africa (United Nations, 2020). These conferences helped define the international concept of sustainable growth by formulating action plans and recommendations such as the Brundtland Report and Agenda 21pment.

Nevertheless, different definitions characterise sustainable development arising from the conferences mentioned above. The Brundtland Report presented the most widely used term, which states that "sustainable development is a development that meets current needs without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. n). Another often-quoted definition of sustainable development was provided by the Caring for the Earth conference, which notes that sustainable development is concerned with "improving the quality of human life while living within the carrying capacity of supporting ecosystems" (cited in Munro, 1995, p. 29).

Traditionally, sustainable development efforts have centred around an environmentalism concept that prioritises mitigating the impacts of ecological degradation. Therefore, one can conclude that environmental protection is an integral part of sustainable development efforts. Until recently, sustainable growth has been analysed from an environmentalist perspective, but as the concept matured, increasing emphasis has been placed on the interrelated dimensions of environmental, social, and economic development (Kadekodi, 1992). Current theories define sustainable development as a tri-dimensional concept of the environment, economy, and social stability (Bell, 2003; The Organisation for Economic Cooperation and Development [OECD], 2001).

Munro (1995) argued that sustainable development's economic component represents the need to balance the costs and advantages of economic production within the limits of the environment's carrying capacity. Intergenerational equity should not be compromised to achieve economic growth. Therefore, resources should only be utilised with caution to ensure that they are not depleted .

The preservation of the community and political ethics constitutes social sustainability. The intangible social principles and guidelines refer to norms, traditions, value systems, ethics, language, work attitudes, education, and societal relations. Social sustainability determines whether basic human needs, such as food, clothing, and shelter, are being satisfied within a society. Consequently, the sustainability of social needs and values can be used as indicators of the quality of the progress occurring in a given economy since the equitable allocation of wealth is fundamental to social sustainability. According to the Brundtland Report, "economic and social development should be mutually reinforcing" (WCED, 1987, p. 54) .

Advocates and theorists of sustainable development critic are based on the conclusion that development's economic conceptions have dominant character and are challenging to address (Gottlieb, 1996). For example, Gottlieb (1996) outlines several core problems as follows:

"The failure of positivist economics to ensure that the spread of benefits reaches those who most need them; the failure to account for ecological costs such as the costs of depleting stock resources in social debts; the view that social welfare embodies products rather than rights; and the inability of conventional economics to assess endogenous capacity for cultural, institutional, political, and ecological recovery "(p. 27).

45

Therefore, sustainability represents a paradigm shift from the limited view proposed by economists and contemporary theories highlighting economic growth at the expense of social justice and intergenerational equity (Langhelle, 1999).

2.4 A New territorial-thinking approach in sustainable development

Globalisation and unprecedented urban growth over recent decades have created new challenges for cities, whose purpose is to ensure equitable access to resources and essential services such as housing, sanitation, and transportation, as well as to foster social inclusion and tackle inequalities (United Nations, 2016). The urban-planning models adopted in recent years were limited since they contributed to the urban spread. These unsustainable schemes reinforced cities' vulnerability and environmental footprint and contributed to dehumanising urban environments regarding magnitude and familiarity .

The current study builds on the relevant existing literature to demonstrate the importance of links between local and sustainable urban development processes. Cultural professionals, such as Florida, Porter, and Sen, played increasingly important roles in this process. Three typical fallacies characterise mono-causal, culture-led development schemes related to them: instrumentalism or Florida's creative class theory, over-engineering or Porter's competitive advantage parochialism, or Sen's capability theory. These theories are mono-casual and linear thinking products concerning building a culture-led development. These schemes are based on a single factor or set of factors. When all these factors are present, the surrounding context becomes backstage. The following sections explain these theoretical theories and their critical discussion:

- ➢ From Florida's viewpoint, which is termed "plug-and-play," the creative class shapes the world by reflecting its expectations, needs, and values since successful adjustments to these elements combine to steer the environment towards creativity.
- ➢ According to Porter's competitive advantage theory, innovation-provoking investments are the most crucial element of building the best strategy for urban development without incorporating the cultural aspects of production.
- ➢ The Sen-inspired capability-building perspective also focused on the local community, particularly relevant to human growth and shared identity issues. However, this approach is implemented at the cost of losing the other approaches' global perspective,

which is reasonably necessary for cultural development. Indeed, losing the global perspective reflects opposing views of contemporary creative processes' geographical nature, which should not be included in practical approaches in culture-led development.

On the contrary, global, and local levels of contemporary creative processes are embedded in tangled, non-linear hierarchies that can be unravelled using careful analysis of the three-dimensional aspects of culture-led development fallacies (Bore'n & Young, 2012). Based on this fact and the above critical discussions, this thesis emphasises the importance of a new territorial thinking approach. In this new approach, the non-linear, multi-causal scheme should be used as the framework to design credible culture-led development strategies (Sacco, Ferilli, & Blessi, 2014).

The new territorial thinking is incompatible with traditional forms of cluster thinking such as Porterian or analogous derivation. The new approach will treat social capital and the creative economy as fundamental urban development dimensions. One of the most relevant sources of dynamic complexity is culture. Culture poses challenges to creating this new territorial thinking, to become the new platform for generating social and economic value. As a consequence, developing a more inclusive approach by associating one characteristic macro-factor with each of the three approaches mentioned above is crucial:

➤ In terms of Florida's perspective, the attraction factor can be expanded to include attracting talents, such as entrepreneurs with high human capital levels and other skilled workers and attracting firms and investment (Garcia-Retamero & Galesic,2010).

➤ Based on Porter's perspective, the local competitive potential can be measured by the opportunities and capacities of culture-led local development to foster the citizens' creativity and entrepreneurial talent while reaching the global level (Ferilli et al., 2012). Additionally, it depends on the quality and level of knowledge-intensive specific assets in that local system, including a thriving cultural scene, efficient public administration, and a wealth of high-quality scientific and technological research centres and labs.

➤ Finally, based on Sen's perspective, social cohesion and participation constitute a macro-factor that promotes inclusion within various capability-building and cultural-involvement initiatives for the success of the community's plans (Ferilli et al., 2012). It is

necessary for this capability building to simultaneously translate into new inventive and creative chances for cultural practitioners, which can be organised in social enterprises.

The above explanations outline how these three mono-causal approaches (instrumentalism, over-engineering, and parochialism) can be expanded to accommodate a multi-causal analytical context. These developmental factors interact synergistically and create a conceptual framework for social and economic sustainability that helps urban development thrive. Essentially, culture-led development entails cultivating the social and economic conditions for sustainability using proper strategic coordination (Sacco & Blessi, 2007; Sasaki, 2003).

This thesis uses a multi-causal scheme for the development of the contextualised framework for culture-led sustainable urban development. This framework demonstrates how a more comprehensive approach can overcome the typical fallacies associated with mono-causal schemes. The following sections describe the role of culture in sustainable development and the challenges involved in achieving sustainable development.

2.5 Culture and Sustainable Development

Culture is often narrowly defined to make it irrelevant to the wider development debate. For example, in one of the few publications to link culture and sustainable development, Serageldin & Martin-Brown (1999) address social and economic opportunities to mainstream investment in cultural heritage and living art. Similarly, Hawkes (2006, page1-18) argues that "the tacit acceptance of the arts and heritage version of culture" has "marginalised the concept of culture and denied theorists and practitioners an extremely effective tool." Hawkes was alluding to the fact that there are several interpretations of the word "culture." Indeed, as Williams (1983, page 48-56) asserts in culture, there are at least four contested definitions of Culture:

1. A developed state of mind, as in 'person of culture' or 'a cultured person.'

2. The processes involved in this development, as in 'cultural interests' and 'cultural activities.'

3. The means employed for these processes, as in Culture as 'the arts' and 'humane intellectual works.'

4. Culture as 'a whole way of life' and 'a signifying system' through which social order is communicated, reproduced, experienced, and explored.

Usage of the word "Culture" mostly relates to the third and fourth of these definitions since they symbolise people's way of living, which are often conflated. However, this paper can benefit from all the interpretations of culture meaning listed above. For instance, it is imperative to encompass culture as a way of life in sustainable development debates that go beyond talks aimed at conserving cultural heritage, arts, and crafts. International relations and how people perceive their environment is largely shaped by culture since it influences social values, norms, belief systems, and principles. Based on this perspective, the first and second definitions become useful to the current study.

Within the realms of the fourth definition, the notion of cultural activities like agriculture are linked to sustainable development, given that culturally informed patterns make some agricultural practices to be deemed eco-friendlier than others (Campbell et al.,2015). Additionally, individuals who perceive themselves as being enlightened concerning the subject of sustainable development may consider other people to be less "cultured," a notion that influences how the environmentalist social movement mobilises itself (Campbell et al.,2015). These examples illustrate the pervasiveness of Culture's concept and how it impacts perceptions and practices related to sustainable development.

Moreover, it is important to note that all cultures are not in the same class when it comes to sustainable development. Some cultures are superior to others, depending on their political and historical contexts. Scientific research conducted in the United States and Europe is usually perceived as either the genesis or remedy to different social and economic problems (Campbell et al.,2015). On the contrary, traditional, localised, and particularly that belonging to other nations apart from the United States and Europe, information is either viewed as primitive or revered knowledge that should be valued. Therefore, enhancing cultural personalities, creative enterprises, cultural diversity, and geo-cultures is a key element of sustainable development. The aforementioned illustrates the need to address existing global imbalances in the cultural arena; sustainable development as practised in the developing countries is largely informed by Western ideas and often promotes the agendas of special interest groups based in developed nations. Such an approach is problematic since it creates new dependencies within the developing economies and raises concerns about whose agenda is implemented. For instance, Leach (1998) opined:

49

Global environmentalism and its supportive science come to be at least partly the product of, Western-dominated cultural traditions and relations of power. The imposition of global orthodoxies and analysis over different environmental values and notions of sustainability can infringe not only on local livelihoods but also on cultural freedom in a deeply decivilising process. (p., 103).

This quotation emphasises that the inclusion of Culture into sustainable development should not simply result from an additive framework. Instead, it is the basis for interrogating the meaning and practice of sustainable development at its epistemic core, which prevents culture from simply being palliative. In 1996, the second UN Conference on Human Settlements was held in Istanbul (also known as Habitat II). The conference's City Summit (see appendix) introduced Culture into global debates regarding urbanisation. Policymakers appreciate the role of culture in boosting individuals' wellbeing, community growth, and equality and recognising cultural heritage diversity. The Habitat II Agenda on creating sustainable human settlements was crucial since it made the heads of governments and nations pledge to oversee the development of communities that appreciate the need to logically utilise resources without depleting them. The leaders also pledged to provide equal opportunities for all people, particularly those from vulnerable and disadvantaged groups, to ensure healthy, safe, and productive livelihoods. The aim was to ensure that people lived in harmony with nature, cultural heritage, and spiritual and cultural values while also leading lives that guaranteed economic and social development and environmental protection. The approach would ultimately contribute to achieving national sustainable development (Clammer, 2014; Hooper, 2005) (see appendix A 12 for more details about Habitat conference).

There was a substantial rise in local efforts globally, particularly after 2000. Practitioners, planners, scholars, and policymakers at various government levels were all involved, which led to Culture gradually becoming recognised as a major debate in sustainable urban development (Duxbury, Hosagrahar, & Pascual, 2016). According to Duxbury et al. (2016),

"The Global Taskforce of Local and Regional Governments, which is facilitated by United Cities and Local Governments (UCLG), acknowledges the need to include culture in the model for sustainable cities: Culture will be key to the success of sustainable development policies as a driver and enabler of growth and people-centred societies. A holistic and integrated approach to development needs to consider creativity, heritage, knowledge, and diversity. Poverty is not

50

just a question of material conditions and income but also a lack of capabilities and opportunities, including cultural capital. (p. 7)."

The task force contends that without Culture, there is no future for cities: "cities need vitality, meaning, identity, and innovation, and citizens need to widen their freedoms" (Global Taskforce of Local and Regional Governments, 2014, p. 3).

However, operationalising cultural roles "within the context of sustainable urban-development policy and planning remains challenging because the relationship between Culture and sustainable development is not thoroughly understood, therefore, integrating Culture and urban planning continues to raise both conceptual and operational issues" (Duxbury et al., 2016). Theoretically, Culture's relationship with sustainability can be viewed in multiple ways (see Figure 2.1), and myths continue to circulate, emphasising the difficulty of completely embedding culture into the planning process of urban development. These myths are discussed in more detail later section 2.12.

Table 2. 1 The Culture-Sustainability Relations (Soini & Dessein, 2016, p. 4)

	First: Culture in sustainability	Second: Culture for sustainability	Third: Culture as sustainability
Definition of culture	As the source of funds	As the style of life	As semiosis concept
Culture and development	As a result of progress	As the trigger and basis for the advancement	Progress as a cultural process
Value of culture	Intrinsic	Instrumental and intrinsic	Embedded
Culture and society	Complementing	Affording	Transforming
Culture and nature	A human interpretation of nature as a concept	The link between culture and nature	Nature as a part of the culture
Policy sectors	Cultural rules	All guidelines	New directives
Modes of governance	The first order based on hierarchy	Second-order focused on co-governance	Self- and meta-governance fusion
Research approach	Mostly mono- and multidisciplinary	Mainly multi- and interdisciplinary	Primarily inter-and transdisciplinary
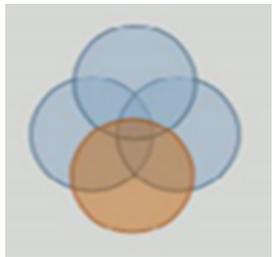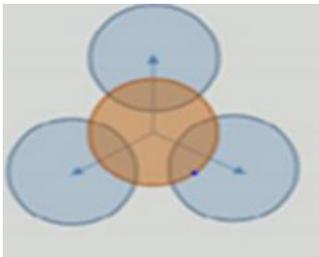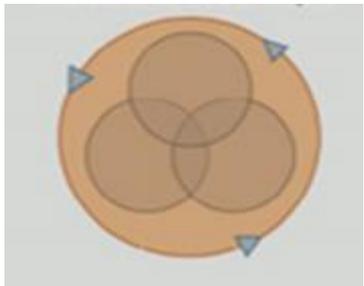
52

According to this table, culture's relationship with sustainability can be defined in three ways as follow:

- Culture can have a supportive and self-promoting role in sustainable development (Culture in sustainable development). This role expands conventional sustainable development discourse by adding culture as a self-standing fourth pillar alongside separate ecological, social, and economic considerations and imperatives.

- A role that offers culture as a more influential force can operate beyond itself (culture for sustainable development). This role moves culture into a framing, contextualising and mediating mode that can balance all three of the existing pillars and guide sustainable development between economic, social, and ecological pressures and needs.

- A more fundamental role sees culture as the necessary overall foundation and structure for achieving sustainable development (culture as sustainable development) (Soini & Dessein, 2016).

2.5.1 Culture as important factor for Sustainable Development

The basic definition of sustainability concerns a balance between environmental, social, and economic factors. In other words, sustainability is the optimal point in the centre of three equally important pillars: the environment, society, and the economy (figure 2.1) (Agyeman & Evans, 2003).

Figure 2. 1:basic definition of sustainability

Regarding sustainable urban development, various aspects must be considered when investigating how culture-led development can lead to social and economic sustainability. These aspects include examining culture and creativity as aspects of global mainstreaming and cultural development as a means of absorbing economic value. Additionally, urban regeneration should be stimulated through creative and cultural industries, institutions, and events. For this purpose, this thesis emphasises that culture should be viewed as fourth and the central pillar of sustainable urban development (Figure 2.2).
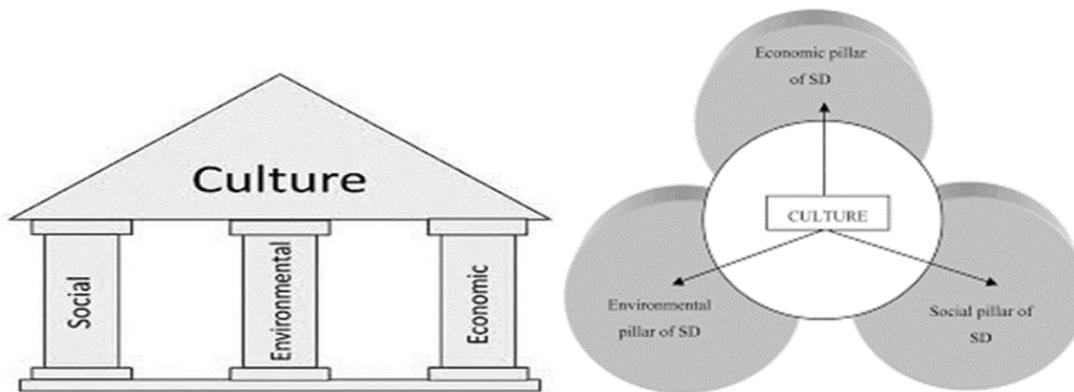
Figure 2. 2: Culture-led sustainability model (Soini & Dessein, 2016)

This thesis outlines a conceptual framework that can potentially reconstruct the sustainable development agenda that significantly coheres with self-reliance, social justice, ecological balance, and cultural identity. Moreover, this thesis opens a dialogue around sustainable development that will increase policy space and choice in developing countries, particularly Iran.

As the concept of sustainable development matured, people seized the chance to debate and opportunities for further reflection. This positive development explains why culture is now regarded as a critical component of long-term development. People's identities and epistemic contexts form their understanding of the world they reside in, so the culture should not simply be regarded as a cornerstone of sustainable development alongside environmental, economic, and social goals. Culture forms people's perceptions of change and influences how they behave.

This perspective of incorporating culture into sustainable development presents a challenge because the words culture and development are complexes in terms of usage and interpretation (William ,1981, 1987). He therefore cautions:

54

"What is often the unexamined idea of development can limit and confuse

virtually any generalising description of the current world economic order,

and it is in the analysis of the real practices subsumed by development that

more specific recognitions are necessary and possible "(Williams, 1976, p. 104).

Williams emphasises that the conceptual framework will determine what we see and how we act in the world. For example, according to Galtung (1996, p. 131):   most people's opinions of development operate on one or both of the following assumptions:

(A) Development = Western development = modernisation.

(B) Development = growth = economic growth = GNP (Gross National Products) growth.

Galtung's logic suggests that despite various abounding theories, development in theory and practice ultimately still concerns the Western European Road to Development (A development) (Addo, 1996). In practice, development establishes a hierarchy of knowledge and a demonstration effect that suggests that "leaders" know what is best for "followers" and that the "followers" must only apply the formula of development faithfully (Aseneiro, 1985).

The question is here is how does this relate to sustainable development? As previously discussed, sustainable development aims to balance competing and conflicting interests, which can be both intra- and intergenerational. In this regard, global inequality and the development discourse are at the forefront of the ecological problem because they generate uneven growth and an emulation effect. Langhelle (1999, p. 137) illustrates the nature of this dilemma:

"If the poor nations were to consume the same amount of fossil fuels as the

rich nations, this would likely result in an ecological disaster. At the same

time, however, the goal of development demands an increase in

energy   consumption in developing countries ['] presumption, which is

also expressed in the UN Framework Convention on Climate Change."

The contemporary development context includes admiration for the economic successes of China, India, South Korea, and Taiwan, which together account for almost half of humanity and

over 70% of the South's manufacturing value-added. However, it is concerning that many developing countries focus their efforts on catching up with these countries, which raises questions concerning whether other developing countries can emulate these countries and whether this is desirable considering the levels of economic despoliation and social debt that have been generated by these trends (Nurse, 2003).

The key here is that sustainable development is intricately linked to development's eco-cultural construct (Wallerstein, 1991). Thus, possibilities for an ecologically sustainable future depend on how "production cultures" and "consumption cultures" are altered and adapt to the changing socio-political, ecological, and technological context. For example, Haque (1999, p. 202) argues that sustainable development is "threatened by the dominant mode of development thinking that emphasises a growth-oriented industrialisation." He also emphasises that "related to this profit-driven production and growth, there is also the diffusion of consumerist values and lifestyles. Furthermore, Banuri (1990, p. 83) outlines the implications of this approach to development:

> "While it provides for a tremendous (perhaps temporary?) increase in the ability
>
> to control nature, it is also the cause of a myriad of problems, including loss of
>
> meaning in peoples' lives, increase in alienation and anxiety, creeping
>
> disenfranchisement, an unprecedented rationalisation of violence,
>
> and destruction of the environment".

Such criticism highlights the need for an alternative sustainable-development framework. Therefore, this research emphasises an alternative sustainable development approach that prioritises the following values: (Friberg & Hettne, 1985):

- **Self-reliance:** Each community is primarily reliant on its own resources and strengths.
- **Social justice:** People who are most in need are prioritised in development initiatives.
- **Ecological balance:** The full capacity of local ecosystems, as well as the global and local limits placed on current and future generations, are recognised when biosphere resources are used.

56

- **Cultural approach to sustainability:** A culturally defined community is the social unit of growth, and the development of that community is embedded in the culture's basic values and institutions (Friberg & Hettne, 1985)

2.6 Pillars of Sustainable Development

As previously discussed, this thesis develops a contextualised framework for culture-led urban development using the concept of a creative hub in the Iranian context. By placing culture at the forefront of the sustainable-development debate, this concept facilitates greater Iran's policy diversity. Consequently, the study suggests an inevitable approach that extends beyond the limits of economic development perspectives and advocates for social inclusion, economic independence, and ecological balance. The following sections outline the ecological, social, economic, and cultural factors involved in sustainable urban development (UCLG,2010; RMIT,2017) (Nurse,2006).

2.6.1 Social Justice

Sustainable development and social justice are both regarded widely as desirable goals from a political perspective. Social justice is concerned with the distribution of benefits and responsibilities. Additionally, various values define social justice, including equal worth of all citizens, equal right to meet their basic needs, equitable distribution of opportunities and wealth to improve the people's lives, and government actions to reduce or eliminate inequalities among their populations (IPPR,1994). The following sections describe the factors that affect social justice.

2.6.1.1 Community Empowerment

The concept of community empowerment draws on decades of theory and practice devoted to developing and understanding community development:

Community development is about building active and sustainable communities based on social justice and mutual respect. It is about changing power structures to remove the barriers that prevent people from participating in the issues that affect their lives. Real community empowerment can result from putting community development values into action. (Community Development Exchange (cdx&changes, 2008).

57

According to the Community Development Exchange [CDX] (2008) and The National Empowerment Network (2008), these are values of community empowerment:

- Learning: the skills, knowledge, and expertise of individuals are not only considered but also serves as the basis for further development.

- Equality: discriminatory and oppressive cases witnessed in any entity and on all levels are eliminated and prevented.

- Participation: the citizens are encouraged to take an active role in decision-making pertaining to the matters having an influence on their lives with the application of their skills, knowledge, and experience.

- Cooperation: the focus is put on the stimulation of networking and cooperation between various entities on all levels to track and resolve the current threats.

- Social justice: each person is provided with an equal chance to safeguard their human rights, satisfy basic requirements, and experience a certain degree of control over decision-making processes in relation to the matters impacting their lives.

Moreover, the values identified above are built on the five dimensions as specified below:

- Confident: to achieve success in improving people's skills, knowledge, and confidence, it is vital to make citizens believe they can make a difference in their countries.

- Inclusive: the basis of an inclusive environment is the recognition of discrimination existence, promotion of equal opportunities, encouragement of positive cooperation between groups, and fight inequality/exclusion.

- Organised: it is vital to unite people in open, democratic, and accountable organisations and groups under the common goal to resolve mutual problems.

- Cooperative: the cooperation necessitates promoting positive relationships across groups, sharing common objectives, setting links to national bodies, and encouraging partnerships.

- Influential: it is equally critical to forming communities that are able to impact decisions, services, and activities (Community Development Exchange [cdx] & changes, 2008).

These dimensions provide a framework to plan work that empowers communities, notwithstanding its identity or work area under consideration. These five dimensions also provide a system of pinpointing benchmarks, and evaluating the job, determining whether the

processes produce the desired community empowerment. Therefore, these aspects provide a wide and extensive description of community empowerment that underpins the development of universally accepted indicators.

2.6.1.2 Social Participation

 Incorporating people in the decision-making process is what is perceived as participation in the realm of social justice. The involvement includes engaging people in decision-making processes concerning public services needed in their areas and ensuring they fully participate in political and cultural life (Jost & Kay, 2010). The twin logic of community participation involves enhancing democracy and achieving social equity. Concerning the latter, the notion of participation is linked to power; therefore, participation is believed to shift existing power relationships and help traditionally weak and marginalised individuals and groups obtain stronger positions than other actors in public and social institutions (Jost & Kay, 2010). Social participation can take different forms, such as the following:

- equipping people with accurate information,
- aiding people and encouraging the affected community to provide feedback,
- engagement of people or working directly with communities,
- cooperating with people through the involvement of affected communities to regulate the decision-making process, including identifying and developing several solutions, and
- empowering people through the promotion of control over the decisions impacting their lives (World Health Organisation (WHO), 2020).

2.6.1.3 Social Mobility

Intergenerational mobility refers to a situation where there are changes in the social and economic status between parents and their offspring (Blanden et al.,2004). This type of mobility may relate to wealth, level of education, employment opportunities, and health status. Similarly, intra-generational mobility is defined as the degree of social and wealth changes that occurs during an individual's lifetime. Absolute or relative terms are used to measure both the inter-and intra-generational social mobility. Absolute social mobility evaluates the extent to which the socioeconomic outcome has improved or worsened. On the contrary, relative social mobility considers a person's social status based on their current and past situation or

59

compared to their parents. Developed countries are known to record low levels of absolute mobility in the components of health and education. Therefore, relative social mobility is the most critical element in the public discourse, especially in the more advanced economies, given that lacking a strategic plan for social mobility can have negative economic, social, and political consequences (OECD, 2018). For instance:

- Low social mobility can lead to slow economic growth in society.
- A person's contentment and self-actualisation are determined by the likelihood of moving up the social ladder.
- Democracy and unity among diverse communities are greatly influenced by the probability of social mobility.

2.6.1.4 Social Cohesion

Social cohesion is a social construct that can potentially influence resilient cities' developments and impact the social systems responsible for forming resilient societies in the future. The concept of social cohesion has been extensively studied, particularly in theoretical, empirical, and experimental studies that use observation to measure it. The open generic framework has recently been used to characterise social cohesion as a complicated and vigorous framework.

This framework comprises multiple smaller levels, all of which combine to quantify social cohesion. This framework analyses levels and aspects of social cohesion that are not always considered, regardless of the study's perspective (theoretical, empirical, or experimental). Figure 2.3 below presents this framework.
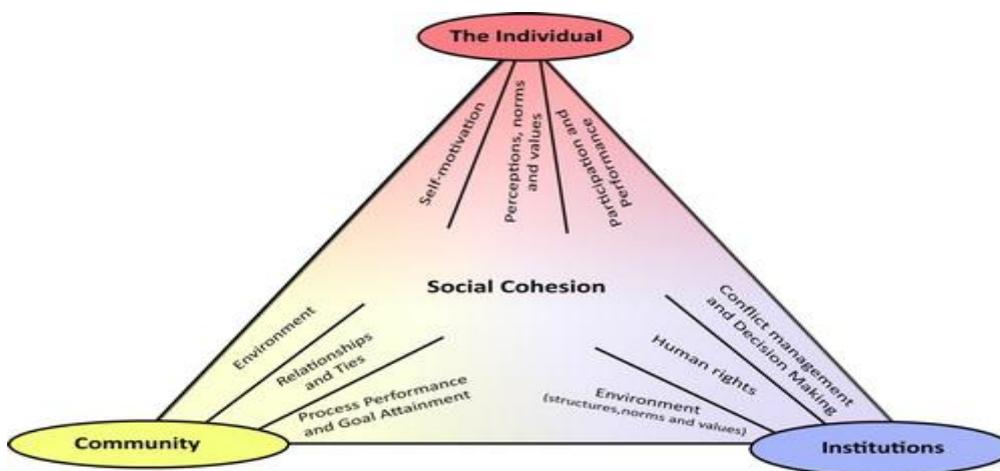
Figure 2. 3: *Framework characterising social cohesion* **(Parsons, 2013).**

60

The above framework demonstrates the links and interdependencies between institutions and communities, given that the relationship is essential for a better understanding of social cohesion. Personal cognitive beliefs (norms and values) motivate individuals to want to belong to a particular group or society, which constitutes the framework for the existence of social cohesion. A person's formal and informal environment largely shapes their perceptions, norms, and values, which is directly linked to the quality of their relationships. An individual's sense of belonging and cohesion is influenced by the community's values and norms, which must be compatible to enable him/her to participate fully in society's activities. Moreover, public laws, rules, regulations, norms, and values also impact a person's willingness to be involved in the group's actions. An individual's desire to be entangled in the daily operations of a given community is highly influenced by their previous experiences such as inequality, discrimination, deep-rooted conflict, or lack of support from members of the group (Clémençon, 2021). Engaging with any of the aforementioned factors will definitely affect an individual's perception of social cohesion. The format of the above framework highlights, such as interdependencies and interrelations. Although each factor belongs to a separate category, all of them represent a crucial aspect of social cohesion.

At the community level, the social-environment factor relates to the social climate of that group, and it can be related to studies conducted within facets such as shared norms and values (Jeannotte, 2003), formal/informal control (Cartwright & Zander, 1953), friendship networks (Granovetter, 1973), pressures to conform and care (Janis, 1972), and civic society (Lockwood, 1999). The factor for relationships and community ties concerns the capital gained by members of a group, which is linked to facets such as social capital and trust (Larsen, 2013), reciprocal loyalties and solidarity (Europe, 2008), moral support (Durkheim, 1897), and the value of rewards within the group (Homans, 1958). The third factor that received its definition from a community perspective is process performance and goal attainment, which relates to the group's achievement and common objectives. This factor is subsequently connected to shared goals and moral behaviours/norms (Parsons, 2013).

The identified elements (self-motivation, perceptions, norms and values, and participation and performance) also connect to previous actions on the individual level (Parsons, 2013). For instance, self-motivation involves the reasons that led the individual to join the group, which relates to existing research examining topics such as intimate face-to-face communication

(Cooley, 1909), the quality of intimate topics that are shared (Stokes, 1983), and recognition and legitimacy (Beauvais & Jenson, 2002). The factor concerning perceptions, norms, and values refers to the individual's views of the group they are in as well as their belief system, which engages with research conducted to explore subjects including the degree of like-dislike and a sense of belonging (Europe, 2008; Lott & Lott, 1966). The last factor on the individual's level is participation and performance, which indicates the person's drive to act and take responsibility within the group. This last factor relates to existing research exploring topics such as initiative (Lockwood, 1999), individual participation (Braaten, 1991), task competence (Festinger, Back, & Schachter, 1950), and individual behaviour (Cartwright & Zander, 1953).

The ultimate level, which is concerned with institutional organisation, describes aspects related to the decision-making process, civil rights, conflict resolution mechanisms, and social values and norms. Conflict management and decision-making are used in combination to manage formal institutions in society, which engages with literature concerning social disorganisation or conflict and reducing inequalities and exclusion (Cooley, 1909; Europe, 2008; Maxwell, 1996). Human rights relate to the individual's agency, access, and freedom within a group/society, engaging with relevant research in fields such as voting (OECD, 2011). Lastly, the factor of the environment (structures, norms, and values) relates to formal institutions and actors that are responsible for the society's upkeep, which regards topics of research such as social stability (Parsons, 2013), suicide rates (OECD, 2011), trust and multiculturalism (Larsen, 2013), and civic society (Lockwood, 1999). The factors that comprise each of the three levels involve measures that can impact cohesion, but they are simultaneously generic enough to extend to other factors not discussed in this thesis.

2.6.2 Self-reliance

Economic sustainability, or self-reliance, is another factor that affects sustainable urban development. Self-reliance is the social and economic ability of an individual, household, or community to meet people's essential needs in a sustainable manner and with dignity. These needs include protection, food, water, shelter, personal safety, health, and education.

Self-reliance builds on solid social structures and increasing levels of economic activity and social and economic links with local communities. Social self-reliance refers to a community's ability to function with sufficient levels of cohesion, social accountability, and mutual

dependence, including making decisions, mobilising resources, and building and maximising the interpersonal capacity to address issues and initiatives with mutual benefit. Economic self-reliance is grounded in access to and managing material and monetary assets (Hunter, 2009). The following sections discuss the factors affecting self-reliance for achieving sustainable urban development:

2.6.2.1 Balanced Economic Growth

Balanced economic growth can be defined as sustainable development in the long-term perspective. Its resilience can be observed in reduced inflation levels, care for ecology, and the equilibrium between various economic sectors, for example, exports and retail spending (Garcia-Retamero & Galesic, 2010). The concept of balanced growth contradicts the characteristics of volatile boom-and-bust economic cycles. Balanced economic growth can be characterised by the following aspects:

1) Economic growth should be similar to the long-term trend growth rate, or in other words it should resemble the average sustainable rate of financial progress within a definite time-frame. The trend rate of growth is understood as the speed of fiscal expansion of an entity that can be supported while avoiding inflationary pressures (Gilbert, 2019). The other synonymous term for this concept is the underlying trend rate of growth.

2) Low inflation: Increased levels of inflationary growth leads to instability, vitality and prevents investment due to higher financial risks. Moreover, the rise in inflation can cause a recession as the result of control measures of the official bodies aimed at the stabilisation of the situation. Considering these factors can be concluded that balanced economic growth can be only reached in countries with low inflation rates.

3) The economy equilibrium: The achievement of balanced economic growth requires stability and parity of all sectors of the economy. One of the examples the development of the country should be built on exports and domestic consumption in equal or similar ratios since funding based on exclusively consumer spending and imports may result in a current account deficit and an imbalance (Guntke et al., 2015).

4) Equal share between various country regions: For instance, China's breakneck growth majorly focuses on the southern region while the northern region remains underdeveloped, which leads to the instability of the whole economy (Gusmão Caiado

et al., 2018). Balanced growth should not exclude certain areas as with the United States rust belt.

5) A proper consumption-investment ratio: There should always be a balance between spending and income. A good example of a violation of this principle is the focus of the United Kingdom and the United States on consumer spending as the source of growth, resulting in inadequate savings levels and extensive current-account deficits. Furthermore, lack of investment has long-lasting effects on productive capacity (Gutiérrez, 2002).

6) Attention to the environment preservation: In order to reduce the impact on the ecology, balanced growth presupposes the application of both renewable and non-renewable energy resources for progress (Hackl, 2018). The development based on fossil fuels usage has low sustainability levels in the long-term perspective.

7) Balanced share of load between diverse sectors: This factor relates to all spheres, including manufacturing, the retail sector, and the primary sector, to name a few. The support of the primary sector, like mining or agriculture fields, can lead to the threat of fluctuating prices and solely primary-product output (Hajnal, 2013). Some examples of such economies are Venezuela and Russia facing financial challenges due to high oil prices reliance during the recent global recession. Such a tendency can also prevent manufacturing investment required for the balanced growth of the system. For example, a fast rise in the production of raw materials as gas or oil, known as the Dutch disease, usually deteriorate other sectors' growth. Another problem arising with the excessive reliance on raw materials are depleted the potential economic crises due to extremely low levels of development (Hajnal, 2013).

8) Sustainable debt levels: The country relying on unsustainable debt as the source of financing will inevitably face the high risks of debt-deleveraging when consumers and enterprises pay their liabilities (Hackl, 2018). For instates, between 2002 and 2006, the United States faced a rapid rise in subprime mortgages, which enabled households to purchase houses under low-interest rates. However, with the increase in interest rates, these households defaulted, leading to considerable economic losses for banks and causing a credit crunch.

2.6.2.2 Fair Trade

Fair Trade (FT) is a particular type of relationship through which international trade connects ethical consumers and low-income producers and households (Hiwaki, 2017). Fair Trade plays a vital role in economic self-reliance, which is reinforced by the accepted definition of FT:

> Fair Trade is a trading partnership based on dialogue, transparency, and respect, which seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to and securing the rights of marginalised producers and workers. Fair Trade organisations (backed by consumers) are engaged actively in supporting producers, awareness-raising, and campaigning for changes in the rules and practice of conventional international trade (WFTO, 2009, p. 6).

Fair trade helps advance sustainable development goals (UNESCO's sustainable goals) in 10 ways (see appendix A 1 for a list of 17 goals):

1. The Fairtrade Minimum Price was established to cushion over 1.7 million farmers and employees in 75 nations from unpredictable market prices to ensure that they could meet their production expenses sustainably to accomplish Goal 1: to wipe out poverty everywhere utterly. Coffee farmers benefitted from this initiative during the global price crises witnessed in 2019 (Hawrylyshyn, 2019).

2. The Fairtrade Access Fund was established to meet Goal 2: terminate famine and foster sustainable agriculture to boost food security and enhanced nutrition. The Fund has transferred over US$128 million to 252,000 small-scale farmers in 18 nations to date (Hawrylyshyn, 2019). Moreover, Fairtrade offers technical assistance to agronomists to add value to their produce. One such organisation that has benefited from this initiative is the Zawadi women coffee farmers group.

3. The Fairtrade standards were formulated to meet Goal 5: to achieve gender parity, women empowerment, outlawing sexual intolerance, gender-based violence, and sexual harassment, and enhancing provisions for maternal leave for expectant and breastfeeding females (Kafka et al., 2020). Additionally, Fairtrade also contributes initial capital for women start-ups and oversees gender leadership learning institutions via the Fairtrade Premium.

4. The Fairtrade Hired Labour Standard was designed to meet Goal 8: suitable employment for all and is tasked with ensuring that over 200,000 employees in the flower, tea, textile, and

football industries benefit from improved working conditions (Kafka et al., 2020). Moreover, through this standard, employees in the industries mentioned above can enjoy preferable employment conditions in terms of contracts, working hours, overtime, temporary work, collective bargaining power, and freedom of association (Gusmão Caiado et al., 2018). Furthermore, the standard guards the employees' right to building safety, protective clothing, childcare, safe handling of hazardous materials, and complaint methodologies.

5. The Fairtrade Standards were devised to meet Goal 10: promote equality and ban intolerance by reducing existing inequalities. The standard empowers young people, females, and immigrant employees in rural areas to participate in their respective communities' decision-making process (Ite, 2005). Additionally, the standard guarantees that the aforementioned vulnerable groups are shielded from any form of discrimination in hiring, training, and promotion, gender-based violence, and they receive technical assistance to hone their skills to secure improved employment opportunities. Migrant Haitians working in the Dominican Republic banana plant have so far benefited from this standard.

6. Fairtrade was formulated to achieve Goal 12: sustainable production and usage schemes, making it the only ethical standard that cuts across the global supply chain. The standard assists producing organisation to fulfil Fairtrade environmental and social standards such as GMO, child, and forced labour guidelines. Similarly, wholesalers and retailers are required to observe the Fairtrade Trader Standard, which mandates them to observe transparent contracts, labour, and environmental law, pre-financing for producers, fair pricing, and transparency about market potential and sourcing.

7. Fairtrade was also designed to meet Goal 13: tackle climate change and its adverse effects on farmers and employees. Through its initiatives to safeguard the environment and biodiversity, the Fairtrade standard enhances climate-resilient agriculture (Ives & Kendal, 2013). Through the programme, farmers are empowered to harvest rainwater, adopt biogas and other renewable energy sources, plant trees for shade, invest in improved pest management practices, dynamic agroforestry, and organic fertilisers. Moreover, the Fairtrade Climate Standard was the first initiative to tackle imbalances in the carbon market and guarantee just monetary gains for farmers.

8. Fairtrade was also devised to achieve Goal 16: creating efficacious, responsible, and inclusive organisations with proper functioning internal governance structures. This

initiative is the only worldwide ethical organisation that 50 per cent of its shareholders are farmers and farm employees tasked with making critical decisions (Ives & Kendal, 2013). Additionally, the Fairtrade regulations require Fairtrade cooperatives to be open, democratic, and representative to obtain loan facilities, insurance, and other financial services and negotiate improved contracts with traders. The cooperatives have the mandate to choose between boosting productivity or meeting their respective communities' sustainable development goals when spending the Fairtrade Premium.

9. Fairtrade unites over 1600 producer organisations with 1.7 million farmers and farm workers, consumers, numerous trade unions, and campaigners globally to realise Goal 17: global partnerships for sustainable development. Besides, the Fairtrade principles are promoted by many organisations, including over 2100 towns and cities, institutions of higher learning, secondary schools, and faith-based organisations (Kirshen et al., 2018). Moreover, the Fairtrade framework enables over 4000 enterprises to influence farmers and farm employees positively and collaborates with governments worldwide to enact fair trading practices, which is essential to realise sustainable economic development. For this reason, governments show overwhelming support for Fairtrade's style.

10. The Fairtrade Premium was established to aid rural populations in funding priority areas that would enable them to achieve Global Goals. Over 500 euros of Fairtrade Premium have been advanced to finance healthcare, schools, clean drinking water, among other initiatives since the conception of the SDGs in 2015. This type of Fairtrade is in accordance with Goal 3: good health and wellbeing, Goal 4: quality education, and Goal 6: clean water and sanitation (Hawrylyshyn, 2019).

2.6.2.3 Equity

The central tenets of sustainable development espoused by numerous government policy statements are markedly inconsistent with the means proposed by environmental economists. These economic means derive from a valuation of the environment using different commercial instruments. Sustainable development is grounded on several ethical principles, the most important of which is equality, specifically intergenerational equity. The value of this guiding aspect was supported by the Earth Summit taking place in Rio in 1992 that confirmed the central position of equity in its Agenda 21 and the Rio Declaration (Beder, 2000). Overall, they consider equity akin to fairness, as witnessed in the following definition:

67

Equity derives from a concept of social justice. It represents a belief that there are some things which people should have, that there are basic needs that should be fulfilled, that burdens and rewards should not be spread too divergently across the community, and that policy should be directed with impartiality, fairness, and justice towards these ends. (Falk et al., 1993, p. 2).

Moreover, equity dictates a minimum income and environmental quality that nobody should fall below (Beder, 2000). In other words, any community member has equal rights to access the resources and opportunities within the area. In addition, no individual or groups should be forced by the government to be responsible for environmental problems and their solutions instead of the whole community. This means that equity supports a fair share of benefits and damages and the same rights for acceptable quality and standard of living (Beder, 2000).

There is no doubt that instances of ecological inequities are witnessed in any society. At the same time, countries with lower-income levels are bound to face great losses and challenges as a result of negative environmental changes when compared to developed nations. The least negative impact is faced by affluent people who have enough capital to choose from the variety of areas to reside in, specifically the territories with little or no signs of environmental degradation. In addition, wealthy people are able to deal with environmental threats more effectively due to access to financial resources, better education acquisition and skills development opportunities, and responsible authorities. Workers in life and health-threatening industries, like mineral processing and chemicals production factories, are bound to experience greater ecological threats than the common people due to the nature of their work. The term of equity is presented and defined in international law, and the Universal Declaration of Human Rights (UDHR) states that 'recognition of the inherent dignity and the equal and inalienable rights of all members of the human family is the foundation of freedom, justice, and peace in the world' (Weiss, 1990, p. 9; Beder, 2000).

2.6.3 Environmental Sustainability

Environmental sustainability is a practice that requires the preservation of natural resources, protection of various ecosystems, and eliminating ecological threats, which allows to support natural balance and protect health/wellbeing of people. Since several decisions do not directly impact the environment, environmental sustainability's forward-looking nature is key. Indeed, the US Environmental Protection Agency (US EPA) defines environmental sustainability as

68

"meeting today's needs without compromising the ability of future generations to meet their needs" (US EPA, 2020). Environmental sustainability standards vary greatly, depending on local economic, social, and ecological conditions (Sphere, 2020). The following sections highlight factors that can influence sustainable environmental development.

2.6.3.1 Natural Resource Management

Natural resource management (NRM) stands for the practice of wise natural sources' employment, including the usage of the land, water, air, minerals, forests, wild flora, and fauna (Muralikrishna & Manickam, 2017). Together, these resources create an ecosystem that provides humans with a better quality of life. In other words, natural resources are essential for human existence due to the provision of consumptive and public-good services required for societal development (Muralikrishna & Manickam, 2017). For instance, ecological processes sustain soil productivity, recycle nutrients, cleanse air and water, and maintain climatic cycles.

NRM also relates to various sustainability challenges, including natural resource management, forestry, agriculture, water allocation, tourism, watershed, landscape-scale control approaches, soil and water quality preservation, and biodiversity protection (Lockwood et al., 2010). Communities can utilise two key lessons in their efforts to employ sustainable management of natural resources:

1. The importance of specific incentives introduction done through market share and value-chain development. This refers to the resources and materials that individual households and community, in general, can use to satisfy their needs.
2. The establishment of official institutions and policies regulating the sustainable application of these sources and avoiding their degradation. These actions enhance sustainable rural livelihoods and improve communities' resilience against socioeconomic and environmental challenges (Muralikrishna & Manickam, 2017).

2.6.3.2 Urban Biodiversity

The planet harbours a great variety of living organisms of diverse species, which is explained with the term biodiversity. This comprises plants, animals, fungi, and micro-organisms (Roetman & Daniels, n. d.). Biodiversity also manifests at distinct levels of complexity, including:

- Genetic diversity: stands for the variation *within* a definite species.
- Species diversity: explains the diversity *between* different groups; and

69

- Ecosystem diversity: denotes the variety of species *within* and *between* multiple ecosystems of the global environment. This also includes the habitats characteristics and the relationships between all ecological components (both the biological and physical aspects; Roetman & Daniels, n. d.).

Biodiversity has resulted in the emergence of the so-called ecosystem services that are actively used by humans. These comprise "the moderation of climate, the purification of air and water, the fertility of soils, and the decomposition of wastes" (Roetman & Daniels, n. d.). In addition to this, people satisfy their needs in various spheres using the resources provided by nature, which includes building materials, pharmaceuticals, fuels, and territories with their beneficial microclimates. Moreover, all these benefits provided by the global environment are the building blocks supporting human wellbeing and financial prosperity. That is why any nation should focus its efforts on protecting and preserving the biodiversity for the next generations for them to benefit from its scientific, educational, intrinsic, and aesthetic values (Cork, 2006).

The current research has witnessed the shift of interest to the analysis of ecosystem functioning and the importance of species diversity (Roetman & Daniels, n.d.). The results of the examination demonstrate that coverage of multiple functions and structural roles by a variety of species intensifies the resilience of the system, reducing the danger of potential threats. In other words, nature has created a mechanism of self-protection, ensuring the recovery of the ecology after the crisis like natural disasters (Roetman & Daniels, n. d.). It is vital to introduce such an approach to artificial urban ecosystems, but its implementation requires time, planning, and considerable resources for the implementation.

The advantages of biodiversity for urban development

The potential benefits biodiversity can present for urban development are immense. Moreover, this concept can allow people to reduce expenses, increase value, enhance amenity, and approach natural conservation mechanisms through the efficient use of resources and introduction of protection frameworks as the backup means of supply (Roetman & Daniels, n. d.). These advantages arise as the result of close interaction of the community with the environment and observance of natural processes. That is why urban development should focus on protecting the existing biota and create conditions for the prosperity of biodiversity to gain maximum from these benefits. In general, the pros of biodiversity for urban development

comprise higher land value, marketability, amenity, conservation of nature, and better health outcomes, improved environmental functionality (Roetman & Daniels, n. d.). A balanced environment is a source for "abatement of noise and smell, diffusion of light, protection from wind, stabilisation of soil, sequestration of carbon, and cleansing of pollutants from the air" (Whitford, 2001; Dorney et al., 1984). Biodiversity stimulates the appearance of a sense of place and place's identity through the link with flora and fauna and rare species in a specific area (Van Roon, 2005; Mallawaarachchi, Morrison, & Blamey, 2006). Interaction of the community members with the specific ecosystem can positively affect human health (Kellert, 2004).

2.6.3.3 Urban Carrying Capacity (UCC)

Urban carrying capacity (UCC), as the phenomenon lacks substantial scientific research to prove its relevance and main ideas leading to the debates on the applicability of the concept (Wei et al., 2015). Most of the sources cover the issues of human or ecological carrying capacity only. UCC studies have a different focus as these are characterized by distinct emphasis, meanings, principles, and implications (Wei et al., 2015). One of the examples is the UCC analysis of the urban system from the perspective of natural and human-created objects, like natural resources, economy, culture, and infrastructure.

Major indicators constituting the UCC of an urban area can be grouped into five basic aspects, namely "environmental impacts and natural resources; infrastructure and urban services; public perception; institution setting; and society supporting capacity" (Wei et al., 2015, p. 3249) (See Table 2.1). These elements define the two major UCC sustainability frameworks, including natural and artificial systems. Such a division enables the community to cover the interests and requirements of most stakeholders within a given territory. The work of the system is supported by constant indirect interactions, both negative and positive, between all of the components identified above. For example, it is a common truth that economic development tends to have an adverse influence on the ecology and, at the same time, allows allocation of sources for the preservation of the environment (Wei et al., 2015). Such a dichotomy requires the application of a dialectical approach to the understanding of the links between the UCC elements and systems.

Table 2. 2: *Components of UCC* (Wei et al., 2015)

Components	Meaning and Definition
Environmental impacts and natural resources	It refers to the size of population and human activity of a region, where waste and pollution can be adequately assimilated and sufficient resources can be provided by the environment without scarifying urban residents' living quality and the environment's endurance. This concept consists of two key components, namely, assimilative capacity and resources production capacity of the environment.
Infrastructure and urban services	It refers to the size of human activity that the infrastructure and urban services of a specified area can satisfactorily sustain without incurring living quality degradation. The efficiency and intensity of infrastructure and urban services should be accurately assessed, such as healthcare, housing, amenity, transport, pipeline, *etc*.
Public perception	It refers to the degree of visual or psychological changes that can be perceived by the public with apparent betterments than previously observed.
Institution setting	It refers to the political, regulatory, administrative, and sociological conditions of a city toward achieving its goal of sustainable development. Social equity, governance transparency, and cultural diversity are the primary components of institutional setting.
Society supporting capacity	It refers to the economic, technological, and fiscal capacity of a city to proactively promote carrying capacity. It is the most manageable and proactive parameter for UCC building. The associated indicators can be roughly represented by fiscal income of the local government, GDP, employment rates, portion of investment on environment protection to GDP, *etc*.

2.6.3.4 The Urban Ecosystem

Urban ecosystems view the urban areas through the lens of the ecosystem theory (Ferrini et al., 2014). Urban ecosystems can be compared to natural systems as they are characterized by similar structure, functions, and links between components. At the same time, its primary difference from nature is its hybrid character based on the fusion of natural and artificial aspects, which is impact by both the surrounding environment and the internal phenomena, like culture, politics, societal structure, and economics.

Main Features

Urban areas are like population centres, offering products and services to their residents and people worldwide. Urban ecosystems produce direct and indirect triggers shaping the environment at local and global levels, which means such frameworks cannot be regarded as an independent entity within the specific surrounding. Almost any of the current environmental challenges, including pollutions of all mediums, lack of resources, and global warming, can be attributed to the decisions made in urban areas, where the population size continues to grow, worsening the identified problems. The urban population level is expected to reach 68% of the overall global population in the next 30 years (United Nations, 2018), with most urbanisation in

developing countries. Therefore, urban environmental management is becoming critical. Since cities do not exist in isolation, other ecosystems' inputs and waste assimilation functions are needed. According to the ecological footprint research, many cities need a sea area and productive land many times their size to support their community. Individual and layered systems from three spheres can be seen in the urban ecosystem (Sirnivas, 2015):

(a) the natural environment,

(b) the artificial surrounding, and

(c) the socioeconomic relations

Each of these systems is a living formation undergoing constant changes and deformations required to generate initiatives and policies to promote sustainable development through the allocated sources. This approach is different from the traditional means of separated and static management. Dynamic balancing and integration are needed for each system.

Moreover, the interdependencies and interactions within the listed frameworks and systems require thorough analysis to understand these ecosystems. Unhealthy urban ecosystems may result in local and regional environmental destruction and socioeconomic issues, economic loss, public health issues, and a further disconnect from nature.

Urban ecosystem management is a multidisciplinary approach built on applying various tools, like social, economic, environmental, and decision-making strategies, and flexible organizations to promote the fast adaptation of systems to the changes experienced. Such a complex approach stimulates cities to mimic natural ecosystems to organize the processes more effectively and support more efficient product and resource intake. Such a technique allows for waste reduction, minimizing the input required, and applying by-products as resources (Sirnivas, 2015).

2.6.4 Cultural approach to Sustainability

Culture is a phenomenon comprising beliefs, moral norms, and a mass of human knowledge, each of which is preserved and shared with the next generations. Sustainability is understood as the ability to continue the development on the same level. Culture has an immense impact on the social and political domains, and that is why the concept is now regarded as an integral part of sustainability efforts. The fusion of sustainability and culture resulted in the emergence

of a new aspect of cultural sustainability that presupposed protection of traditions, believes, common practices, components of the heritage, and inquiries about the future of specific cultures. Considering the importance of cultural sustainability, its attainment became the primary precondition for sustainable development attainment. At the same time, the theoretical and conceptual background of the concept is vague and requires further analysis and explanation.

Overall, a lack of understanding of the nature of cultural sustainability leads to violation of its principles in environmental, political, and social policies due to poor implementation or ignorance. The study of the matter can be done through the determination of its value for sustainable development with the help of multidisciplinary techniques. Such an approach allows the introduction of the culture in politics, social policy, and practice domains with the consequent creation of means of monitoring its impact on sustainable development. Cultural sustainability represents one of the pillars of sustainability in the social dimension while achieving value among other sustainable development agendas. Therefore, cultural sustainability is currently regarded as a fourth pillar, equal to social, economic, and environmental systems (Loach, Rowley, & Griffiths, 2017; UNESCO, 2016).

2.6.4.1 Cultural Identities

Cultural identity is a concept explaining the sense of belonging and identifying with a certain type of culture based on one's values, beliefs, or norms. In other words, cultural identity defines the nationality, language, ethnicity, and religion of the person belonging to this cultural paradigm. Besides, the person should be acquainted with the traditions passed within the culture through generations. Cultural identity is a critical aspect for any individual as it enables one to embrace one's heritage and build relationships with others who share a similar belief system. Some of the major criteria characterising one's cultural identity are:

- Nationality. This is defined by the place of origin where the person was born and/or resides. People tend to adopt and practice the cultural norms of the country where they live.
- Ethnicity. This aspect is linked with the physical look of the person and defines one's cultural preferences. The person is usually bound to identify themselves with practices of the social groups they belong to, like communities, tribes, or nations.

74

- Religion. This is a fundamental concept regulating the lives of most people based on the shared number of moral beliefs and principles explaining the world, supporting the existence of God, and setting boundaries of righteous behaviours. It also shapes personal moral features strengthening the cultural identity worldview.

- Education. Educational life and achievement fall under the impact of the cultural identity of the child. For instance, Asian students are extremely disciplined and avoid making direct eye contact with teachers. The behaviour of European learners is different as they are encouraged to engage in active classroom work, discussions, and maintaining eye contact during communication as a sign of respect and focus (Belyh, 2017).

2.6.4.2 Tangible and Intangible Cultural Heritage

Most influential global conferences and their participants demonstrate an immense interest in the concept of sustainable development and its benefits for the world's economies (Nocca, 2017). Nevertheless, despite the importance of cultural heritage in sustainable development, its implementation strategies and their examination are limited to the discussions during these conferences or theoretical studies focused on the approaches to its realization in real-life situations. For example, international organizations like UNESCO or International Council on Monuments and Sites (ICOMOS) recognize the role of cultural heritage in the achievement of sustainable development, but little to no efforts were made to actually realize and confirm it in practice (Nocca, 2017).

Cultural heritage is a binding element bringing together various dimensions of sustainable development because of the interconnected nature of the economic, social, cultural, and environmental systems (Throsby, 2008; Srakar & Vecco, 2017). Tangible cultural heritage consists of physical artefacts that are made preserved and passed within the generations of a certain society. Works of art, various buildings, monuments, or other architectural objects or physical results of human creative efforts comprise tangible heritage if they are characterised by cultural meaning and purpose. Intangible culture, on the contrary, denotes "the practices, representations, expressions, knowledge, skills, as well as the instruments, objects, artefacts, and cultural spaces" that are results of individual or group activity and accepted as part of national cultural heritage (UNESCO, 2003). Some of the intangible cultural elements are "tales, folklore, music, oral tradition, physical techniques" (Museum International, 2004, p.84). Some

of the international regulations stressing out the function of cultural heritage for sustainable development are the 2030 Agenda for Sustainable Development and the New Urban Agenda (appendix A13 for more details about New Urban agenda (NUA):

➢ The 2030 Agenda for Sustainable Development comprises 17 goals and 169 targets for sustainable development, and cultural heritage is one of the requirements listed in the regulations (Nocca, 2017). For example, it is listed in goal 11 in relation to the cities, in particular to the necessity to have cities and human settlements "inclusive, safe, resilient, and sustainable" through "inclusive and sustainable urbanization, planning, and management" (Target 11.3) and more "efforts to protect and safeguard the world's cultural and natural heritage" (Target 11.4; Nocca, 2017) (see appendix A 2 for more details about goal 11).

➢ In addition, the New Urban Agenda (NUA) specify the inherent nature of cultural heritage for the sustainability of urban development (Nocca, 2017). In fact, few parts of the document highlight the value of cultural heritage for sustainable urban advancement, including tangible and intangible functions. For example, NUA has confirmed its role in creating vibrant, sustainable, and inclusive urban economies while supporting their balanced nature and transition towards higher productivity progressively (Nocca, 2017). Culture as the concept is regarded "as a priority component of urban plans and strategies in the adoption of planning instruments including master plans, zoning guidelines, building codes, coastal management policies, and strategic development policies that safeguard a range of tangible and intangible cultural heritage and landscapes"; therefore, it is critical to "protect them from potential disruptive impacts of urban development" (Hosagrahar, 2017; Potts, 2016; UN, 2016).

2.6.4.3 Cultural Diversity

Another component of the culture that can foster sustainable progress of society is cultural diversity. This aspect allows human survival with the help of cultural existence means (Nishiumi, 2013). The emergence of various cultures and their interaction result in higher flexibility and better abilities of humans to adaptations to environmental alterations. In other words, global cultural coexistence promotes the survival of nations in the past and provides higher chances for survival in the future through adaptation to environmental changes. Basically, the existence

76

of one culture, its creativity, and vitality is supported through the clash with other cultures resulting in the emergence of new ideas and concepts (Nishiumi, 2013). Another essential function of the culture is the protection and promotion of human rights for minorities. Most wars, conflicts, and terrorism activities are caused by a lack of understanding, which means that a sustainable, peaceful future requires high levels of tolerance and mutual understanding to reduce the tensions to minimum rates. And culture should be the tool for the attainment of this goal as the acceptance of cultural diversity and the existence of other traditions is the key to the balanced coexistence of various cultures and subsequent growth in all fields of societal life. Therefore, it is a must to form a proper perception of cultural diversity as an asset rather than a burden (Deekor & Maekae, 2015).

2.6.4.4 Cultural Industries

One of the economic sectors becoming integral to a country's development in the modern world is the creative economy. It is a highly transformative and flexible medium characterized by intense growth, high-income levels, extensive job creation capacities, and massive export budgets. Cultural and creative industries are essential developmental triggers resulting in $2,250 billion income globally and the creation of 29.5 million jobs opportunities globally (Sustainable Development Goals Fund, 2018). Another benefit of this sphere is the promotion of "people-centred value, sustainable urban development, development of creativity and culture", leading to the attainment of 2030 Agenda sustainability goals (Sustainable Development Goals Fund, 2018). Undoubtedly, the creative economy is a wonderful source of non-monetary gains that facilitate the creation of a context for social development and the elimination of conflicts through constructive dialogues. Culture is now synonymous with a driver and an enabler of human and sustainable growth because of its force to become responsible for their own development through innovation and creativity, promoting inclusive and sustainable growth (SDGF, 2014).

2.6.4.5 Cultural Geography

Cultural geography is devoted to examining links between culture and place (Castree et al., 2013). This branch of geography is focused on the study of "the cultural values, practices, discursive and material expressions and artefacts of people, the cultural diversity and plurality of society, as well as how cultures are distributed over space, how places and identities are

produced, how people make and build a sense of places, and how people generate and communicate knowledge and meaning" (Castree et al., 2013).

It is worth remembering that despite the long history of cultural geography as a scientific field, its perception, methodology, and empirical research strategies have changed over a long period. From the 1980s, cultural geography started to examine the directions of culture development, sources of its origin, and its impact on human existence (Castree et al., 2013).

More than that, the research within the field shifted towards the analysis of disability, ethnicity, gender, race, and sexuality aspects and the effects of the othering on the community, including colonialism, imperialism, nationalism, and religion (Castree et al., 2013). Moreover, the researchers consider factors of contextuality and locality, informing a sense of belonging and reasons for exclusion. Cultural geography is among the most vibrant grounding fields in sustainable development (Castree et al., 2013).

2.7 Global Initiatives Link culture and sustainable Development

The world has changed dramatically since the previous century due to rapid urbanisation and hyper-globalisation (Koya & Chowdhury, 2019), (, which has introduced several pressures and contradictions into urban areas, including:

- Economic tensions such as the adverse impacts of the world's financial crisis,
- Tensions resulting from inadequate governance mechanisms at local, national, regional, and global levels,
- Social conflicts that are intensified by the progression of global poverty and discrimination problems,
- The pressures of regional and transnational migration,
- Environmental protection difficulties due to the threat of uncontrolled increase of waste creation and energy consumption in the ecosystem, and
- Despite increased efforts to integrate culture in the global development-policy frameworks, cultural tensions are involved in globalization.

Recent contradictions and pressures in urban areas play a critical role in integrating culture into the goals of the Post-2015 Development Agenda. For instance, the #culture2015goal campaign led by regional and international non-governmental organisations (NGOs) published several documents, including the Declaration on the Inclusion of Culture in the SDGs (2014; Culture2030Goal Campaign, 2019). This document addressed official representatives involved

in defining the Post-2015 UN Development Agenda and encouraged them to include culture in the SDGs and assign culture-specific goals, targets, and indicators. The UN's Educational, Scientific, and Cultural Organisation (UNESCO) held an international conference on culture for sustainable cities, which resulted in the publication of Hangzhou Outcomes (December 2015; Culture2030Goal Campaign, 2019). These outcomes highlighted the primary functions of culture and value of cultural heritage for the New Urban Agenda as it allows the creation of safe habitats with high levels of reliance and sustainability. Similarly, the International Council on Monuments and Sites (ICOMOS) Concept Note on Culture and Sustainable Development enumerated inclusion criteria for these concepts in the UN's SDGs, particularly Goal 11 (see appendix) and the New Urban Agenda (Culture2030Goal Campaign, 2019).

The final version of SDGs that was ratified by the UN's General Assembly at the Special Summit on Sustainable Development in New York (2015) includes references to culture in four areas: education, financial advancement, intake and production features, and sustainable cities. Nevertheless, this document does not define culture as an autonomous objective. Natural and cultural heritage are included in the target for Goal 11 (see appendix A 2), also known as the urban goal. When the set objectives were initially announced and listed in the Open Working Group proposal for SDGs (UN, 2014), it was observed by the #culture2015goal campaign. This campaign asserted that the urban goal sets a new instrumental approach to the culture leading to the ineffective application of the concept despite the numerous proofs and debates on the cultural drives of advancements.

This campaign highlighted that policymaker must recall that "national strategies need to be adapted to their cultural context to be effective" and that "a broad understanding of skills and capacities should prevail, including the ability of key stakeholders to be sensitive to cultural aspects, recognise cultural diversity and heritage, and embrace creativity" (Duxbury et al., 2016, p. 9). In this way, the SDGs should be "underpinned by strategies integrating knowledge in a broad sense, beyond a narrow understanding of data and indicators" (#culture2015goalcampaign; Duxbury et al., 2016, p. 9).

The policy approaches within this sector are aimed at the active integration of culture into the policy at different levels. Therefore, sustainable development's critical actions in the coming decades will concern interconnections between local domains and interrelated aims, including heritage, housing, equity, mobility, culture, environment, resilience, and governance (UNESCO,

79

2016). Interrelations between and the integration of these domains will generate positive transformations. These approaches incorporate cultural considerations to ensure the sustainability paradigm is meaningful to residents, comprise past of the area and forms of knowledge that resonate with local identities, and construct goals that extend into local communities.

All in all, culture should not be ignored while implementing integrative methods of sustainability development. In fact, it is critical that officials recognize the value of culture and its forms and benefit from its strengths in everyday practices and through sensitive cultural policies.

2.8 How Cultures Contribute to the Sustainable Development of Cities

Individual and collective identities are formed under the impact of culture, meaning this concept plays a central role in human advancement. The interrelated conclusion is that engagement in culture development activities like visiting theatres or reading/writing poetry is a great stimulus of personal growth through new opportunities leading to the improvement of life quality and health. Local cultures incorporate a region's traditional, long-standing, and evolving cultures and the cultures of new arrivals to the area. Local cultures also play an important role in evolutionary and hybrid transformations originating from various cultural contexts (Duxbury et al., 2016). Local cultures can also become responsible for the resolution of certain problems facing citizens and for the promotion of social integration and peace (Duxbury et al., 2016). From a sustainable development perspective, the central core of local cultures regulations is occupied by community development matters, given that culture is both a core aspect and key tool of the social fabric which promotes cohesion, pleasantness, and citizenship (Duxbury et al., 2016). Cultures provide knowledge about an individual's existence as an inhabitant of a city and as a citizen of the world. Local cultures allow citizens to gain a sense of ownership of the city and provide opportunities for citizens to meet and learn from each other. Therefore, culture stimulates the formation of a sense of belonging among the bearers of the cultural norms. A culturally sensitive and gendered-based method may be used to promote active involvement in cultural and political affairs among the community members or groups. Furthermore, the UN Sustainable Development Solutions Network (UN-SDSN) notes:

"Effective participation in economic and political life requires a broader, more holistic framework of learning … [that] encompasses literacy and numeracy as well as physical well-

being, social and cognitive skills, problem-solving, and learning abilities, culture and the arts, critical thinking, and science and technology" (UN-SDSN, 2014, p. 12).

Cities' functioning is based on the employment of local cultural resources and creativity required to promote high motivation and developmental efforts directed at local resilience and capacity advancement. Culture can also benefit environmental restoration and preservation processes, encourage activities that enhance social connections within a local ecosystem, and improve environmental health. Cultural activities help to transform urban and rural areas, which contributes to the capacities needed to achieve a greater understanding of sustainability practices.

Cultural institutions and resources within a region depend on that urban area's scale. Most of the influential organizations of large scale can be found in big cities, and smaller cultural institutions are generally situated in smaller towns. Cultural industries also tend to be concentrated in cities that host production enterprises and a large consumer base. Cultural services, relative diversity and market relationships differ in large metropolitan centres and small towns. In a globalising world, distinctive urban identity and development are essential means of countering rapid homogenisation. Therefore, culture triggers economic growth and urban renovation. Additionally, culture is widely recognised as a critical aspect of citizens' quality of life and well-being and a source of new ideas.

Rights-based approaches are vital to recognize the cultural diversity and values of various nations. Native forms of knowledge, cultures, and traditional practices contribute significantly to the diversity and profits of civilisations and cultures that represent humankind's mutual heritage. Furthermore, they are recognised by the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) (2007) (see appendix A 3 for more details), which declares that indigenous peoples pose equal rights to decide and focus on certain strategies and goals for development, which should be supported on the governmental level. The rights of women, children, and other marginalised populations are equally vital and cultural regulations should not be regulated by any forms of cultural exclusion or oppression (Hosagrahar, 2012a; UCLG, 2016).

2.8.1 Culture as a Driver for Sustainable Development

The analysis of statistical data and results of the research demonstrate the capacity of the culture to impact the growth rates of any country, with long-term social, economic, and

environmental impacts being particularly visible (UNDAF, 2012). The following section explains how culture can act as a driver of sustainable development:

- ➢ Cultural industries: They include cultural goods, services, and tourism. Culture is a powerful global economic engine that generated income worth US$2,250b and 29.5 million jobs worldwide (CISAC, 2015). Indeed, global cultural industries now account for more than 7% of global GDP (UNESCO, 2010). The annual growth rate for cultural industries in OECD countries (see appendix A 9 about OECD) is commonly several times greater than that of manufacturing and service provision sectors (UNESCO, 2010).

- ➢ Cultural tourism: Cultural tourism generated 40% of global tourism revenue in 2007 (UNESCO, 2010). Heritage sites, especially UNESCO World Heritage locations, produce revenue from visits and selling hand-made products or local services, which allows providing jobs to community members. For example, in France, culture-based tourism allowed to gain US$2.6b in 2013 (CISAC, 2015).

- ➢ Traditional livelihoods: Such initiatives assist in the retainment of knowledge and provision of new employment opportunities stimulating the local financial growth (UNESCO, 2010). The involved forms of work vary from building and agriculture to natural resource management.

- ➢ Micro-enterprises as opportunities for economic growth: Low levels of capital investment because they build on the materials and skills available within a community (UNESCO, 2010). This variable has significantly benefited one group of the population, namely women.

- ➢ Cultural infrastructure and institutions: Various related entities like museums, cultural centres, cinemas, etc., are great sources of income and employment opportunities (UNESCO, 2010). For instance, Tate Modern in London is estimated to generate over £100 million per year (UNESCO, 2010). The next section presents some examples of culture's economic contribution.

These are examples that reinforce the economic benefits of culture:

- • Mali's culture sector represented 5.8% of employment in 2004 and 2.38% of GDP in 2006 (UNESCO, 2010).

- Colombia's craft production has an annual income of US $400 million, $40 million of which is from exports, resulting in considerable yearly salaries of workers ranging from the US $14000 to the US $51000 (UNESCO, 2010).

- In Columbia, 650,000 tourists are equal to US $800 million income (UNESCO, 2010).

- In Morocco, the GDP of the tourism industry is 6.5% (UNESCO, 2010).

- Brazil's creative sector contributed 6.7% of GDP in 1998 (UNESCO, 2010).

- In Guatemala, cultural industries grew at a rate of 7.3% annually between 2001 and 2005, employing 7.14% of the labour force, which was higher in comparison to other spheres (UNESCO, 2010).

- Australia's 15 World Heritage sites produce over AU $12 billion to GDP and more than 40,000 jobs (UNESCO, 2010).

- The United Kingdom's annual GDP owes over £20 billion to heritage tourism and £5 billion to music (UNESCO, 2010).

- The European Union's television, cinema, music, performing arts, and entertainment industries generated €654 billion or 2.6% of GDP in 2003 and employed 5.8 million people in 2004 (UNESCO, 2010; UNESCO,2013a).

2.8.2 Culture Enables Sustainable Development

Culture-sensitive approaches provide the means for the solution to such global challenges as poverty. Both the economic and human rights dimensions of this problem can be addressed simultaneously while resolving other conflicting matters (Naibei, 2014). Culture bears the potential to transform developmental approaches expanding the contemporarily debates on growth directions allowing to satisfy the needs of people. Advancement means that are responsive to the social setting and the particularities of certain communities or areas and support a human-centred approach to advancement are the most advantageous and likely to present maintainable, comprehensive, and impartial results (Naibei, 2014). Also, recognizing and advancing social variety norms as a part of human rights-based methodology can encourage intercultural exchange, forestall clashes, and ensure the privileges of underestimated groups inside and between countries facilitating the attainment of the identified aims (Naibei, 2014). The culture that is caught on in this measurement makes advancement more feasible. Below are some of the culturally sensitive growth elements:

➢ Promoting multidimensional approaches to development: This idea concerns advancing progress that is suitable to individuals, areas, and their norms, which enables them to shape their developmental prospects and recognize the way to achieve their objectives. Improvement means from the outside deny individuals' ability to add to their networks' prosperity.

➢ Focusing on people's needs in development processes and outcomes: The idea of progress as totally direct monetary development contradicts the intricacy of social and political measurements, which, in this manner, harms the establishments of cultural identities and values:

> "Cultural diversity creates a rich and varied world, which increases the range.
>
> of choices and nurtures human capacities and values, and therefore is
>
> a mainspring for sustainable development for communities, peoples,
>
> and nations" (UNESCO Convention on the Protection and Promotion of
>
> the Diversity of Cultural expressions, 2005).

➢ Values and protection of social legacy: Heritage, both spiritual and physical, is an inheritance, storage facility for information, and the identity of an area or individuals. Hence, distinguishing and shielding legacy should take place in combination with monetary advancement since spiritual and physical heritage is delicate and frequently or accidentally obliterated or lost due to fast modernisation.

➢ Searching for the local solutions for worldwide challenges: Cultural approaches aid in making advancement procedures relevant at the local level. Improvements that are receptive to certain areas and cultures enable local communities to face globalization on their terms.

➢ Recognising and advancing social equity and value from global ethics' perspective while improving social rights and identities: Democratization engages communities in defining the growth directions and the subsequent results. Besides, engaging females, indigenous individuals, and marginalised groups will assist them with embracing their legitimate functions in society in the manner empowering them to profit from improvement programs.

84

➢ Nurturing cultural gains to eliminate poverty: Destitution is not only caused by an absence of monetary assets but also is the result of an absence of rights, impact, status, and dignity. By changing the view of insecurity and status while accepting advancement and innovativeness, needy individuals can overcome their poverty (UNESCO, 2010; UNESCO,2012).

2.8.3 Culture's Role in Social Cohesion and Stability

The mutual recognition of different cultures and diversity results in positive and constructive cooperation. Effective communication encourages shared perception, expertise, reconciliation, and composure that are the tenets of social stability. The following sections explain the function of cultural concepts in the cohesion of society and urban stability:

➢ The reconstructive value of customs: Intercultural discourse stimulates peaceful coexistence and creates opportunities for compromise in a contention. Following a disaster, all forms of culture assist social networks in the stabilization of disturbed lives and reestablishment of mental prosperity.

➢ The symbolic force of social legacy: Culture is a generator of expectation of gaining the identifying opportunities.

➢ Societal unity through cultural tourism: Cultural inheritance is the source of profit and community cohesion through sharing mutual care and management approaches. Furthermore, cultural festivals provide optimal conditions for cooperation.

➢ Extended possibilities for females: Intercultural dialogue, which focuses on respecting variety rather than celebrating standardisation, leads to females' roles recognition and empowerment as both "value carriers" and "value creators." Women in local cultures are responsible for interpreting cultural forms and practices and transmitting their meanings to new generations. Women are provided with the same opportunities by acknowledging difference and reinforcing their identities. As the UNESCO Constitution (1945) states, "since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed."

➢ Safeguarding distinctive cultural forms and their production processes strengthens a community's social capital and promote a sense of leadership and reliance on public institutions.

85

> Creating conditions that stimulate faster and sufficient attainment of MDGs while preventing conflict, protecting women's rights and marginalised groups, building peace, and encouraging intercultural dialogue (UNESCO Constitution, 1945).

2.8.4 Culture's Role in Environmental Sustainability

Cultural aspects define the nature of relationships set between people and their natural habitat, including how they regard and influence the environment. Cultural values, community expertise, and typical environmental-management practices are all valuable resources that can help achieve ecological sustainability.

> Cultural and natural diversification: The variety of biological and cultural objects are linked to interdependent and mutually reinforcing interactions between humans and nature.

> Traditional frameworks of ecological control: The accumulation of traditional practices and community environmental-management means is required for the support of human existence and sustainability of the region. Growth approaches and projects regularly fail to accept that certain "underdeveloped" societies have managed to maintain sustainable systems for several generations.

> Cities and cultural landscapes: During the area of urbanization, the interrelationships between environmental and man-made heritage must be embraced. This link can be achieved through the implementation of conservative strategies on the local levels.

> Ecological challenges: The denial of ecology value and neglect of the environmental changes resulted in the appearance of a wide range of ecological difficulties, for example, draining water sources, reducing woodland covers, and vanishing species. Nonetheless, such issues might be attended to through means practised in local societies maintaining harmony between human intrusion levels and surroundings stability (UNESCO, 2010).

2.8.5 Role of Culture in Resilient Communities

> Innovation and creativity: Stability is achieved by improving people's ability to innovate and create, especially when faced with adversity such as disasters and conflict.

> Local building resources and technologies: Education institutions, healthcare organisations, and houses that utilise area-specific materials, traditions, and innovations

86

are environmental-friendly, cost-efficient, and local workers. In addition, they promote internal leadership and acceptance contrary to the acceptance of outside aid.

➢ Culture and globalisation: The societies grounder on self-identity tendencies and reliance on locally presented advantages and common value have a higher chance to engage with globalization forces which must adhere to the local community's terms to benefit from the initiative.

➢ Agents of progress: Higher awareness levels in relation to norms and assets enables people to gain better control of their individual growth.

2.8.6 Culture and Development's History

The following table summarises vital historical elements of cultural development from 1980 to date (UNESCO,2016):

• **1980 and early 1990:** People are put in the centre of growth processes and the value of culture is professed by international modernisation and development initiatives.

• **1982:** The World Conference on Cultural Policies that held in Mexico that resulted in the acceptance of the inseparability of culture and development.

• **1988–1998:** To promote the importance of culture in national and international development policies, UNESCO developed the World Decade on Culture and Development initiative, which resulted in globally accepted standard-setting instruments and demonstration tools, such as cultural statistics, inventories, and mapping cultural resources. The world's attention has turned to cultural industries due to this achievement.

• **1990:** Human Development Report presented the concept of development as the enlargement of alternatives. This report is published by UNDP.

• **1992–1996**: The United Nations World Commission on Culture and Development published a study advocating for a broader understanding of cultural diversity that acknowledges all types of differences that keep people out of development processes and outcomes.

• **1998**: The Intergovernmental Conference on Cultural Policies for development accepted the critical role of cultural diversity for development and emphasised the value of cultural pluralism and creative diversity. This conference was held in Stockholm.

- **1999:** In Florence, the UNESCO–World Bank Intergovernmental Conference "Culture Counts: Funding Resources and the Economics of Culture in Sustainable Development" was held. According to the conference, cultural capital is essential for advancing sustainable development and economic growth.

- **2001:** Culture and cultural diversity are recognised as ethical imperatives and essential tools for economic and social progress in UNESCO's Universal Declaration on Cultural Diversity.

- **2005:** Culture's contribution to sustainable development was recognised in UNESCO's Convention on the Protection and Promotion of the Diversity of Cultural Expressions, which merged culture and development at its heart.

- **Since 2010:** The United Nations General Assembly reconfirmed culture's position in long-term growth and proposed a new global development framework to replace the MDGS. (See appendix A 5 for list of MDGS)

2.9 Supporting Culture as an Enabler of Sustainable Development

Local governments are strategically positioned between global developments, governments with geographically broader scopes, and citizen-driven movements, innovations, and energies (Duxbury et al., 2016). They are responsible for setting connections between ordinary people and communities and national and international bodies. The functions of local government roles about culture comprise:

"Creating and activating spaces for dialogue and action; setting priorities and planning, designing, implementing, and monitoring policies and programmes; developing infrastructure; and enabling environments and structures relating to a variety of transformative functions within the territory" (Duxbury et al., 2016, p. 17).

In urban areas, cultures are dynamic, naturally assorted, and diverse in terms of expression (Duxbury et al., 2016). The shared values are embedded in culturally valuable locations or objects, both natural and artificial, various activities and characteristics adding to certain lifestyles. The variety of societies, legacies, and types of knowledge are the centres of urban development, which explains their importance for cities and their identities (Duxbury et al., 2016). Culture equips societies with the components required to overcome poverty (High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, 2013). The context of people-

centred sustainable development and growing inequalities have attracted attention to forming collective citizen capacities. New approaches to policy and program formulation and application appear in many spheres to address specific local issues' complexities. These new policies often involve non-traditional partnerships and knowledge and resources distribution. The subsequence sections are devoted to the analysis of various policies and practices those regional authorities can employ to promote culture-led sustainable development in cities:

2.9.1 Culture for Peace and Unity as a Grounding Principle for Sustainable Development

The culture encourages residents' participation, local area strengthening, and social unity since it advances grassroots cycles that form acknowledgement and associations inside social networks (Koya & Chowdhury, 2019). Social projects can speed up rootedness achievement for new citizens, including migrants. Local social initiatives and types of expression serve as the source of information, awareness, and measures that link residents to the past, present, and future of the city. Regional cultures and cultural theories can generate better approaches to handle complex social issues, address neighbourhood challenges, and advance mutual understanding among various groups (Koya & Chowdhury, 2019). Furthermore, social strategies can encourage intercultural exchange and compromise in conflicts that seldom emerges from false impressions and the absence of a clear perception of people's and networks' unique situations. Memorialisation measures, which protect the individual or societal memories, frequently include cultural actors and are fundamental in peace promotion (Koya & Chowdhury, 2019).

2.9.2 Culture and Economic Development

Culture can benefit the economy in various means; for example, local culture enables the residents to organise cultural and creative industries as well as social, cultural, and economic crosscutting activities. Furthermore, the manufacturing sector and service delivery are also grounded in cultural means (Kurowska & Javornik, 2019). For instance, traditional craft products (from cars to clothing) are highly valued in international markets, although they are increasingly becoming mass-consumption products that include artistic designs. Since consumer items' value is defined by their design and symbolic meaning and value, companies search for cultural expressions and processes that can help them create new artefacts, promote communication, and define new directions for innovative development. Local communities develop

89

cinematography, computer games, and other online products with the help of digital technologies (Kurowska & Javornik, 2019). Such innovations generate new forms of socio-economical exchange and benefits creative economies.

All in all, any processes within a certain area, if used properly, can facilitate inclusive growth of the territory. Any heritage cites, culturally valuable objects or buildings, various crafts, and tourism are the source for revenue and employment, meaning that cultural diversity is the trigger for the progress within any territory through the creation of a favourable economic climate and skill development (Lixinski, 2019). The concept discussed above comprises elements of human development, with culture being among the fastest-expanding sectors and has generated income, employment, and new businesses. However, the role of culture in economic development is a new subject. Therefore, there is a need to develop policies and programs to realize significant changes in culture-led development (Lixinski, 2019).

2.9.3 Culture in Local Policymaking

Policy makers must prioritize citizens' interests and needs instead of addressing the requirements of the elite. Policies based on such an approach have higher chances for sustainable development achievement (Wiktor-Mach, 2018). In addition to encouraging greater participation in cultural events on offer, this approach also diversifies available cultural offerings and opportunities and integrates direct citizen participation into the urban-policy development (Hajnal, 2013). The traditional approach to responsibility division among the involved stakeholders is facing transformations to recognize the existence of distinct and shared interests and attain effective management. Collaborative governance approaches represent a growing trend for local governments because they build intersectoral bridges (Wu, 2021). Cultural perspective in official guidelines and assessments enables the officials to engage cultural dimensions in local planning and development actions with the aim of reducing adverse impacts or mistakes (UNESCO, 2013). Various official directives stimulating and controlling heritage supervision and local growth are also useful. Local governments that can efficiently respond to their populations' needs can adapt their policies and actions to incorporate sustainable-development pathways (UNESCO, 2013).

2.9.4 Citizenship, Participation, and Democracy

There has been increased attention in promoting cultural diversity and traditional activities. At the same time, citizenship at the local level is defined per residency feature and not the national standards, which is particularly beneficial for marginalised groups and migrants (Taylor, 1998). Cultural diversity is both the trigger and the means of sustainable growth and the source of new ideas. Moreover, culture is capable of promoting peace within the conflicting environment through the encouragement of participation in the decision-making of marginalised and impoverished people to eliminate exclusion (Taylor, 1998). In order to achieve cultural diversity, the community should employ multicultural and intercultural strategies allowing equal recognition of people from diverse backgrounds and stimulation of their cooperation (Wiktor-Mach, 20180. It is also necessary to recognize the gender aspect in cultural policy as the means of inclusion promotion.

2.9.5 Cultural Heritage

Cultural heritage can be found in various forms serving as the means for constructing people's and communities' identities. The meanings and practices concerning intangible heritage and built heritage are vibrant and under contact development. People-centred stories can be applied to build a sense of belonging. Such a process is possible due to the capacity of the culture to generate certain identity among people by linking their selves to various places or objects situation within the ecosystem (Missimer et al., 2017b). Current literature exploring landscapes recognises that all territories (even those that have been degraded) possess specific ecological, cultural, and other values, each of which has the right for protection and preservation. Therefore, policies and plans aimed at urban development should be included in the heritage conservation framework and creative practices to avoid any adverse influences of urban planning on the preservation of heritage. Additionally, this impedes exercises focusing on memory, creativity, and coexistence while also promoting homogenisation and limiting chances for participation in cultural activities.

2.9.6 Territorial Planning, Cultural Infrastructure, and Public Space

Social interactions are taking place within the public space that is a component of the landscape required for identity formation. Public space can be used by any member of the community and has a connection to the educational and cultural sphere (Madanipour, 2019). That is why urban

design and infrastructure should consider the needs of residents and bear cultural value to encourage the active involvement of people in cultural initiatives and various forms of self-expression (Sunde & Vischer, 2011). Particular attention should be drawn to the protection and preservation of objects or spaces with local historical significance irrespective of their architectural forms. Therefore, culture and cultural heritage must be integrated into the city and regional development plans, policies, and building and zonal regulations (Malmaeus & Alfredsson, 2017).

Furthermore, this should be more than an exercise in futility; instead, cultural actors should be involved in all planning stages. Their involvement would facilitate the identification of several actions that have exact cultural content. Similarly, heritage and cultural impact evaluation should take place in the initial stages before starting any developmental activities or implementing initiatives. Infrastructure should comprise places devoted to the organization of public debates, iterative steering, and local management (Malmaeus & Alfredsson, 2017). Such participatory, active means can be organised at any level in terms of cultural infrastructure that serves a neighbourhood or community and prestigious national facilities. Although historic urban spaces play an essential role in conserving the city's memory and identity, there is an emerging global tendency for the redistribution of cultural services.

This redistribution is compounded by the increasingly popular inclination to recognise the organic character of cultural processes, which involves a person only supporting cultural initiatives that occur where they were born, be it a local neighbourhood, suburban edge zone, or rural area (Sunde & Vischer, 2011). A city's natural heritage sites such as hills, water objects, and reserves are of great value and importance (Missimer et al., 2010). Therefore, these elements need to be carefully conserved, managed, and integrated into the city's development plans.

2.9.7 Culture and Local Communities

Active involvement of younger generations in the community's cultural initiatives allows society to form creative and skillful personalities. This is the result of knowledge acquisition, expansion of personal boundaries, acquaintance with different cultural tools, and practice of production of something new (Missimer et al., 2010). New experience of cultural phenomena serves as a ground for the formation of new capacities, expansion of self-knowledge, discovery of other

92

means for self-expression and self-determination, which can raise life satisfaction levels and improve well-being. Arts should also become an integral part of education with their eventual transition to the sphere of life-long learning (Salimi & Al-Ghamdi, 2020). Subsequently, several aspects should be integrated into all levels of the educational system, including the development of skills to support intercultural dialogue and the use of digital tools with the help of gained knowledge, respect for diversity and creativity, which are all aimed at the cultural transmission and cooperation between different nations (Shao, 2015).

Furthermore, local media should be encouraged to employ new technologies that promote local cultures in the city's public sphere, which can help to reach the maximum number of common people (Missimer et al., 2017a). A cultural dimension should also be explicitly included in strategies focused on the recovery of the territory through the fusion of public cultural services and new infrastructure. The contemporary urbanisation process is not possible without cultural initiatives, the primary objective of which is sustainability promotion (Shih-Tse Wang & Chen, 2019).

2.9.8 Resilience and Climate Change

Traditional local information and new advancements are frequently most appropriate for natural neighbourhood conditions. Moreover, culture is the source of local knowledge with contextualized flexibility by stressing territory and historical continuities, which is an imperative instrument in battling environmental change and natural threats, like floods. Culture highlights the consequences arising from the problem of human footprints, which require changes in the production and consumption modes. There is a need to recognize the collective responsibility of humans in environmental sustainability, requiring an exchange of our values to create a more balanced ecosystem.   Creative activities are one of the means of attainment of such objectives through open dialogue, connection building, and collective efforts (UNESCO, 2016; Verdini, 2016). Since this thesis examines the creative hub concept as a new model of culture-led sustainable development, it is essential to acknowledge how culture shapes creativity as outlined in the following section:

2.10 How Culture Shapes Creativity

This research develops a contextualised framework for culture-led urban development through the concept of the creative hub. There is a close and elaborate connection between creativity

and culture, given that creativity results from human culture and acts as an instrument of enhancing culture. It can be assumed that creativity is ingrained in the culture. According to Shao et al. (2019), "simply speaking, if culture is the 'background,' then creativity is the 'object' that is likely to become a new 'background' for emerging and forthcoming 'creativity' (objects)" (p. 2).

The theory of the creative hub aims to develop strategies that achieve sustainable development by successfully creating a new model that integrates culture and the economy, environment, and society. Subsequently, it is important to understand how culture shapes creativity in cities.

The influence of culture on creativity is demonstrated in three facets. First, individuals with divergent cultural beliefs and from various geographical regions have a tacit and/or clear understanding of creativity. Second, people from unrelated cultures, especially from singular and communist cultures, favour distinct creative procedures and methods. For instance, in the East, functionality is preferred to innovativeness, whereas in the West, originality is held at higher standards than practicality, especially in the creative arts. Finally, since creativity is evaluated using various systems that rely on culture-based items or substance, the accuracy of the outcomes is only guaranteed when culturally valid and reliable techniques have been used.

To appreciate the connection between culture and creativity, especially the function of culture in altering and fostering creativity, it is essential to establish the capability of culture to conceptualise, distort, and quantify creativity. The sections below elucidate the three modes in which culture moulds creativity:

1. The explanation of creativity from a cultural perspective is that it illustrates the culture's role in conceptualising or defining creativity.
2. Culture underwrites creative processes that present recent findings concerning culture's influence on the creative process.
3. Culture underwrites the assessment of creativity that presents the culture's effect on assessing creativity and creating unique metrics (Shao et al., 2019).

2.10.1 Culture Underwrites the Definitions of Creativity

Concept definition is critical in the process of examining a new idea methodically or scientifically; developing a universal definition of creativity is quite complex. According to Shao

et al. (2019), "without exception, a key to scientifically demystifying the construct of creativity is to conceptualize or define creativity" (p.2). Scholars have, in the past, attempted to advance a generally accepted definition of creativity, which has led to a compilation of a book that contains creativity conceptions (Shao et al., 2019). For instance, Glăveanu (2010) used the relational approach to argue that creativity is a complicated sensation that causes "the generation of new and valuable artefacts by working with 'culturally impregnated' materials within an intersubjective space" (p. 157). Nonetheless, the widely accepted definition of creativity by scholars "proposes that a creative product is (a) novel and (b) of value" (Weisberg, 2015, p. 111). Runco and Jaeger (2012) claimed, "the standard definition of creativity argues that creativity requires both originality (also called novelty, newness, or uniqueness) and effectiveness (also called utility, usefulness, appropriateness, value, or meaningfulness)" (as cited in Shao et al., 2019, p.3). Moreover, "creativity can be termed as a complicated, "multivariate construct or phenomenon that refers to the interplay between ability and process by which an individual or group produces a perceptible outcome or product that is both novel and useful as defined within some social context" (Shao et al., 2019, p.3). The availability of varying definitions of creativity and the absence of consensus concerning such definitions, "individuals across cultures conceptualize creativity differently and sometimes use context or culture-specific theories of creativity as general theories or definitions" (Shao et al., 2019, p.3).

Some previous researchers examining the definition of creativity relied on "the nature of dynamic thought processes and the intellectual capability used to produce insights or creative solutions to problems" (Shao et al., 2019, p.3). On the contrary, the fundamental focus of others centred on personal character traits and cognitive competencies. Additionally, another school of thought focused on the results or effects of creative efforts (Shao et al., 2019). Significantly, discrepancies exist in the clear abstracts of creativity across cultures and nations. According to Shao et al. (2019),

Typically, these suggest that Western cultures attach more importance to process- and product-based creativity and highlight the pragmatic, problem-solving outcome of creativity and that Eastern cultures have great interest in creative spirits and person-based creativity, treating creativity as a form of revelation or rediscovery (Westwood and Low, 2003) and emphasizing the role of creativity in facilitating personal fulfilment and enlightenment or the self-expression of an inner essence or ultimate reality (p. 3).

95

Creativity as a psychological conceptual construct can be evaluated and portrayed as either explicit or implicit, depending on the inclination of the theorist. The human mind is the predominant domain of implicit theory, which can be detected easily, as opposed to the explicit theories of creativity that depend on statistical inferences advanced by scholars. According to Shao et al. (2019), "implicit theories are regarded as having great practical and theoretical importance for formulating common cultural views on creativity and understanding how individuals perceive their own beliefs regarding creativity" (p. 3). Implicit abstracts of creativity exhibit a degree of variance across cultures, which is in agreement with existing literature about explicit notions of creativity. Previous research has shown that the existing articles on implicit theories of creativity are centred around the character traits that define a creative person or the perceptions of ordinary individuals concerning creativity (Shao et al., 2019).

Certain personality traits, such as intelligence, curiosity, independence, imagination, invention, self-confidence, originality, and capabilities, are characteristics that implicitly define a creative person according to Western studies (Shao et al., 2019). Similarly, a study conducted in East Asia established those specific personality traits such as innovation, originality, flexibility, self-confidence, imagination, and ability to think formed the most significant traits of a creative individual (Shao et al., 2019). According to Shao et al. (2019),

Overall, to Westerners, creativity implies a break from tradition and a move beyond what exists, whereas to Easterners, creativity suggests the reinterpretation or rediscovery of tradition. Relatedly, in the West, creativity is valued primarily for solving particular problems through insight or achieving personal success, whereas, in the East, the value of creativity primarily lies in the social and moral contributions an individual can make to society. (p. 3).

The majority of existing scholarly articles relied on psychologists' quantitative analysis and ordinary people insights into creativity to establish the explicit and implicit abstracts of creativity, although some researchers examined the possible impacts of culture on creativity (Shao et al., 2019). Shao et al. (2019) argued that:

Western notions of creativity primarily focus on creative processes and products at the explicit level and on achieving personal success and solving difficult problems at the implicit level, whereas the Eastern world strongly emphasizes the spirit of creativity and personal

96

characteristics, either traits or abilities, at the explicit level and individuals' moral and social contributions to society at the implicit level (p. 3).

2.10.2 Culture Underwrites Creative Processes

Owing to the complexities and multiple stages involved in creativity, the process is not necessarily complete since it might entail various sub constituents. According to Shao et al. (2019), "creativity is a consequence of human thought that involves a variety of creative processes and operates on a set of existing representations, concepts, objects, symbols, rules, or notions" (p. 4). Creativity cannot be separated from certain materials since it does not occur in an empty space. The substances required during creativity include symbols, ideas, regulations, abstracts, objects, and depictions, which originate from either individual or group-related cultures and cultural encounters. According to Shao et al. (2019), "researchers from different cultures are inclined to study different creative processes or processing modes and assign different degrees of importance to the same aspect of the creative process" (p. 4). Therefore, this shows the influence of culture on the creative processes across different cultures and settings.

2.10.3 Culture Underwrites the Assessment of Creativity

There are different ways to measure and test creativity. The four Ps (person, process, product, and press) of creativity are the most useful ways of measuring creativity (figure 2.4). Creativity frameworks have embraced diverse factors, including the so-called 4Ps (Person, Process, Product, and Press), promoting the usage of skills, surroundings, creative abilities, and motivation for the production process (Xie & Paik, 2019).
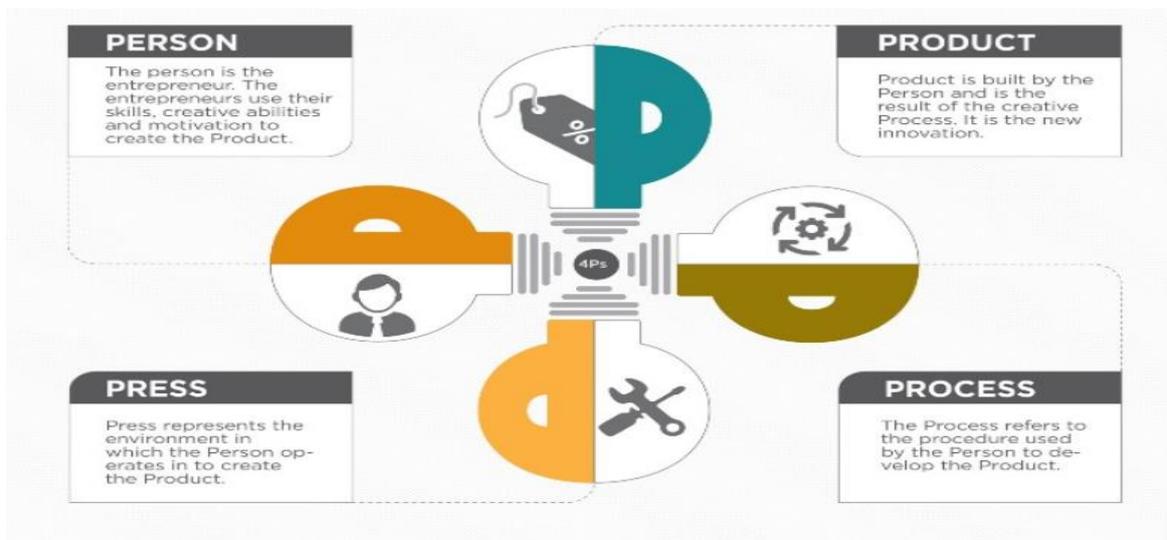
Figure 2. 4: *4PS of Creativity* **(Xie and Paik,2019).**

Various assessment tools and creative measures have made it possible for creativity to be examined either quantitatively or qualitatively. A high number of existing literatures shows that Westerners performed better in various creativity constructs compared to Eastern counterparts (Shao et al., 2019). These findings have elicited mixed reactions and fierce arguments over whether Asian people do not have creativity or simply possess lesser creative ideas. Shao et al. (2019) argued that "findings of this type suggest that culturally appropriate measures are important for accurately assessing creativity and that culture may influence the precise assessment of creativity" (p. 6). Similar aspect is present in the Torrance Tests of Creative Thinking (TTCT) (Shao et al., 2019). Scholars have argued that "the images and objects that are used to construct test questions or brief paper-and-pencil creativity tasks such as those on the TTCT may be culturally bound" (Shao et al., 2019, p. 6). Additionally, previous studies indicate that language learning can affect the creativity levels of a person and that language may affect inter-generational creativity that is verbally transmitted (Shao et al., 2019). Moreover, the variance between the performance in creativity between Westerners and Easterners can be explained by the fact that the majority of creativity measures are created in the United States. According to Shao et al. (2019), familiarity with the substances relied upon to develop questionnaires, particularly symbols or verbal utterances, "and culture-related misinterpretations of the task (which result from the existence of different norms or conventions) will both influence the accuracy of creativity assessments" (p. 6). According to Shao et al. (2019), generally, culture impacts the assessment of creativity in two ways:

"On the one hand, culture exerts great impacts on the construction of creativity measurement instruments due to the cultural characteristics of the materials constructed as test questions or items. On the other hand, culture influences the expression or output of individuals' creative ideas due to cultural familiarity or performance bias resulting from the application of culturally inappropriate creativity measures. Additionally, culture plays important roles in the subjective or relative ratings of subjective creativity and in some dimensions of creativity tests, especially population- or sample-based originality ratings". (p. 6).

Therefore, culture should be employed with other measurements techniques to evaluate creativity in various communities.

2.11 Concept of the Creative Hub and Sustainable Development

This research develops a contextualised via the creative hub model, a platform for culture-led urban growth. The creative hub theory aims to develop strategies that achieve sustainable development by successfully creating a new model that integrates culture and the economy, environment, and society.

Some urban-development strategies can achieve different visions of culture-leading urban development using the creative hub concept (Markusen & Schrock, 2006a, b). For this purpose, initially, the metropolitan city should launch a detailed study of the city's embedded culture. Second, it should raise awareness about how to blend traditional and modern arts. Given that in a knowledge-and-information society, art and culture are recognised as central social infrastructures. Third, the urban city should clarify the need to become a creative hub. Finally, it should elaborate a concept of the creative hub for the future that acknowledges the city's historical context.

In addition to these three steps, a cultural policy should engage with other urban cities' policies because artistic- and cultural-creativity factors impact multiple areas such as industry, business, social welfare, schooling, medical care, as well as environment. Besides, it is important that this creative policy is not limited to the city's government and should obtain cooperation from a diverse group of individuals, including corporate executives and NPO's (Non-Profit-Organisations). Additionally, a systematic plan should be employed that encourages people's creativity in the city. This plan should include knowledge about the conditions required to

create a creative hub and how this can help create policies in the city succeed. Some necessary conditions in the creative city are outlined in the following sections:

A creative city has an urban economic structure that allows artists and scientists to freely express themselves. Workers and craftspeople may engage in innovative, flexible production in this type of city. Universities and academic institutions that promote scientific and artistic creativity, as well as cultural facilities such as theatres and libraries, are all part of a creative city. It also has a flourishing non-profit sector of cooperative organisations that protect the rights of crafts people's small and medium-sized businesses. New businesses can easily be established in such a city, and creative work is well supported. A creative city also has the requisite social infrastructure to sustain creative activities and individuals.

Industrial development increases citizens' quality of life and offers considerable social services in an innovative community. As a result, the city encourages the growth of new industries in the fields of the environment, welfare, health care, and art. Subsequently, this is a city that balances development in terms of cultural life and industrial dynamism and in which production and consumption are harmonious.

A creative city has the power to identify the areas where production and consumption take place, as well as the areas where the urban environment is maintained. Beautiful urban spaces abound in this city, fostering citizens' imagination and sensitivity. The creative city has mechanisms to encourage citizen participation in administrative processes, guaranteeing citizens' versatility and creativity. Therefore, this city employs a small-area autonomy system supported by large-area administration, with the latter taking charge of wide-ranging aspects of the region's environmental management. A creative city possesses a financial administration that supports creativity, as well as an independent administration and policy-making staff.

2.12 Current Issues concerning integrating culture into sustainable urban development.

Incorporating culture in sustainable-development matters on the local level adds to the dynamics of place and socio-cultural resonance, influencing the planning and policy frameworks required to construct culturally responsive urban-development models (Duxbury et al., 2016, p. 11). Therefore, specific challenges should be explicitly addressed to introduce culture into sustainability debates. For instance, prevailing myths should be countered that continue to infiltrate policy debates and stifle cultural change more systematic and comprehensive

100

integration into urban development. The following sections explain the main misconceptions around culture and the underlying assumptions about culture's place in cities' sustainable development. Moreover, the following sections outline the operational challenges that result from both underlying conceptual uncertainties and resistance to implementing local cultural policies and plans (Meyer-Bisch, 2013).

2.12.1 Conceptual Challenges

This section identifies the main misconceptions around culture. Myths are explained and subsequently countered, negated, and constructive and positive counter-narratives presented. This section also includes narratives of historically marginalised people, given that scholars in different social sciences rely on counter-narratives to support their findings.

2.12.1.1 Misconception 1

A place's culture is immutable and timeless, and culture does not belong to humans. As a result, the essential characteristics of a city's identity and local people's behaviour are unquestionable. Additionally, local identities are inherited and changeless; it is possible to transmit local identity to future generations. However, local cultures cannot be modified (Duxbury et al., 2016).

Counter-narrative: Local neighbourhood identities shift over time, as history demonstrates. Human rights-based cultural policies provide an opportunity to simultaneously analyse the past, consider all of the factors that have influenced it, and encourage all people who live in a position to co-create new meanings. Culture, in essence, belongs to everyone who lives in a given place. Identities are constantly being created. Consequently, identity is a bargaining destination rather than a starting point. Since identity is a defining factor in a group, this process should be inclusive and democratic. On the other hand, its building has become a critical component in community projects (Duxbury et al., 2016).

2.12.1.2 Misconception 2

Cultural values must be respected, and no element of cultural practices or customs should be changed according to local and national sustainable growth (Duxbury et al., 2016). Such a statement suggests that all cultural values and practices are beneficial and preserved. This approach legitimises the use of culture to justify anti-human-rights behaviours and practices. Local traditions must, in essence, take precedence over human rights because the traditions and circumstances of a community are more important than the individual.

101

> **Counter-narrative:** The UN Declaration of Human Rights (UDHR) is universal, and culture is an integral aspect of human rights (Article 27 is included in the appendix; Duxbury et al., 2016). Additionally, culture must not be invoked to infringe on an individual's human rights or limit these rights' scope, which should be guaranteed by international law. Alternative ideas will arise and thrive within the human rights framework, and the right to engage in cultural life has three vital and interconnected dimensions: creativity, access to cultural heritage, and diversity (Duxbury et al., 2016). In essence, all human rights are intertwined, and their dignity must be upheld. Cultural practices that infringe on an individual's human rights must be amended to conform to the UDHR (Duxbury et al., 2016). Furthermore, cultural relativism in terms of human rights is unacceptable (Shaheed,2015).

2.12.1.3, Misconception 3

Economic development is the most crucial priority in sustainable development, which means it should be given priority in all systems, assets, and efforts. Subsequently, culture is secondary and a hindrance to real development. Therefore, emphasising historical heritage or traditions or including disadvantaged people impedes economic development speed.

Counter-narrative: Culture can either obstruct or facilitate development agendas. Therefore, culture plays a crucial role in sustainable development since it guarantees cultural rights and access for all, ensuring that every woman, man, and child has equal access to cultural life and can engage in it and contribute to it. Furthermore, solely economic growth is neither productive nor sustainable. For instance, fast growth without redistribution, excluding people, and not pluralism. Given that it is the domain in which culture exists, it is an essential growth component (Duxbury et al., 2016). A diverse and democratic society can discuss ideas, behaviours, and practices. The pillars for the humane, equitable, holistic, and long-term cities' growth are creativity, cultural heritage, and diversity.

2.12.1.4 Misconception 4

Culture is a luxury that some societies cannot afford because they have other local-level priorities, including providing citizens with clean water, good employment, affordable housing, and education, which are all necessities (Duxbury et al., 2016). After other more pressing social needs have been met, cultural issues may be addressed.

> **Counter-narrative:** Culture is stated explicitly as a key enabler of sustainable development. Depending on how well development interventions mesh with local culture, they can succeed or fail (Hosagrahar, 2012b). Humans live in groups and share knowledge to enhance their lives. As Meyer-Bisch asserts, "culture is the right to experience knowledge, beauty, and reciprocity, which cannot be regarded as something additional once every individual's fundamental needs have been fulfilled" (Duxbury et al., 2016, p. 13). Culture facilitates the circulation of knowledge, which subsequently creates meaning and provides a foundation for ecology (environmental science), economics, politics, and society's fabric.

2.12.1.5 Misconception 5

Since cultural products and services are merely commodities that are inevitably included in the economy, they should be left to the market individuals and households' expenditure according to their taste (Duxbury et al., 2016). Therefore, cities should focus their investments primarily on cultural infrastructure and events, such as tourism or city branding, when this will yield an economic return.

> **Counter-narrative:** Culture should be perceived as a central component of local metropolitan management approaches. Urban communities that exclusively regard culture as an asset that can attract funding and improve branding recognize a limited number of cultural indications and forms (Duxbury et al., 2016). What any city needs in their everyday routine is cultural vitality capable of bounding various sectors, encouraging expression of freedom and exchange of opinions, and promoting the prosperity of society. These measurements add significantly to the territory's sustainable development, which requires neighbourhood spaces for public discussions and resolutions. Consequently, local governments' responsibility is to provide conditions that would effectively encourage public vote-based discussions and decision-making (Duxbury et al., 2016). Governments should prepare spaces where residents can practice their privileges, acquire new abilities, and make sustainable choices about the future.

2.12.2 The challenges involved in operationalising culture for local development.

Operational difficulties can emerge as the consequence of conceptual vulnerabilities and general refusal to carry out local social strategies and plans (Duxbury et al., 2016). From one point of view, the significance of working incongruity with neighbourhood culture and requirements is generally recognized, which prompts various efforts to coordinate culture into arranging strategies that target social inclusion or financial development . A broad scope of approaches relies on cultural heritage and other social resources and assets in guiding the planned actions. Therefore, culture should be seen as a distinct domain due to its unique features and importance, which necessitates the analysis of the concept by an expert (Duxbury et al., 2016). Securing social tangible and intangible legacy, developing creativity, and recognizing cultural diversity all necessitates applying appropriate approaches dependent on expertise, both regarding content and method (Duxbury et al., 2016). Mainstreaming society implies that culture is an integral component of all initiatives planned .

Operational difficulties can be regarded as the component of strategies aimed at professional practices and organisational cultures, bureaucratic processes, and historical norms management (Duxbury et al., 2016). Additionally, to the discussed above, conceptual difficulties and myths that are always taken into consideration by experts while formulating hierarchical strategies, operationalisation issues can be grouped into four general categories:

"(1) limitations due to target policies, bureaucratic silos, legislative frameworks and administrative reluctance.

(2) the cultural sector's complexity and the cultural features of the community.

 (3) inadequate indicators, measurements and evaluation of progress and impact; and

 (4) underlying issues of citizen participation, attention to gender and ways to overcome segmentation" (Duxbury et al., 2016, p. 14).

Within each of these fields, specialists solve interlaced issues and worries that encourage professional practices, generate more viable instruments and methods, and enhance the presentation and results of urban arranging and improvement (Duxbury et al., 2016). The first and fourth classes cover integrated planning, cross-sectoral guidance and planning approaches, and inclusive residents' engagement (Duxbury et al., 2016). The second and third classes are

responsible for problems of comprehension and sustaining the complex elements of cultural practices and articulations and the means of their impact on cultural development.

2.12.2.1 Limitations due to Target Policies, Bureaucratic Silos, Legislative Frameworks, and Administrative Reluctance

- ➢ Question 1: It is commonly accepted that legislative systems, cultural guidelines, and support programmes are designed to satisfy specific sectors' requirements. This issue raises how sector-specific methods reconcile with expanded intersectoral residents-centred policies.
- ➢ Question 2: Urban sustainability initiatives aim at resolving environmental challenges and formation of a "greener" neighbourhood, which prompts questions about how heritage and culture can be incorporated into urbanisation and planning and how these aspects can be integrated into urban-sustainability policy frameworks and programmes.
- ➢ Issue 1: Implementing a cross-sector approach involves numerous difficulties, especially integrating culture into urban planning and economic policies.

2.12.2.2 The Cultural Sector's Complexity and the Cultural Features of the Community

- ➢ Issue 1: The word culture has different meanings, often ambiguous or misunderstood. For instance, culture can be seen as a way of life or art.
- ➢ Issue 2: The complexity of the artistic world, which includes significant variations of means and practices both individual and collective, may result in the emergence of a silo effect with the hostility towards residents-centred cultural policies.

- ➢ Issue 3: Cultural diversity may be turned into the cause of social conflicts by actors who violate the principles of inclusive democracy.
- ➢ Issue 4: Local media are responsible for information dissemination of information to the city residents in different ways, which often exacerbates issues regarding the invisibility of local diversity. This issue relates to worries about the availability of media access and the possibility of producing new media outlets.

2.12.2.3 Inadequate Indicators, Measurements and Evaluation of Progress and Impact

- ➢ Question: Culture cannot be defined with similar means or managed in the same way as other sustainability areas since it has crucial invisible and non-quantifiable dimensions. This matter raises how culture contributes to strengthening and enriching local sustainability, resilience, and holistic development (UNESCO, 2014).

- ➢ Issue: A measurement or assessment criterion is essential given that cultural policies, similar to other community initiatives, should follow democratic imperatives for transparency and efficiency. Therefore, cultural policies' worth cannot be solely determined subjectively. However, the priority can be given to the improvement phase (qualitative criteria) instead of focus on quantitative measures.

2.12.2.4 Leading Matters of Citizen Participation, Focus on Gender, and Ways to Overcome Segmentation

- ➢ Question 1: What stimulus can be used to encourage citizens' active participation in the creation, employment, and assessment of public cultural policies?

- ➢ Question 2: How can a balance between citizens' active participation in governance and expert opinions in the assessment of proposals be achieved?

- ➢ Question 3: Are cultural initiatives recognizing and taking into account gender equality? What approaches can be used to place gender at the core of cultural principles? Furthermore, how can these regulations be employed to encourage females' empowerment? (Duxbury, 2016).

2.13 Strategies for Sustainable Development

To overcome the conceptual and operational challenges explained in previous sections, sustainable development planners require strategic planning practices that are more efficient, effective, credible, and enduring. The strategic planners for sustainable development should avoid a standardised approach given that this is irrelevant, at its best, and counter-productive, at its worst. Instead, they should organize the reconstructions of system components as per the specific needs of countries, their objectives, and available resources. Sustainable development should be based on systemic methods (demonstrated in Figure 2.5) and iterative learning-by-doing procedures .

106

New sustainable development strategies can be achieved through different entrenched and deliberate processes. Such approaches are required to follow fundamental strategic-planning ideals and entail systematic techniques and procedures to expedite their execution. The main goal of such an approach is to increase similarities between overall strategies, eliminate uncertainty and duplication, and relieve the pain of scarce resources and capacity experienced in the developing economies. Countries should be encouraged to hold public participation and dialogue forums to draw up a plan of ideas and lessons that would improve the existing strategic-planning approaches instead of initiating a new one. That approach is crucial to pinpoint various precise measures, structures, and procedures to enhance the effectiveness of the specific nation's development strategies (OECD (Organisation for Economic Co-operation and Development), 2001) (see appendix A9 and A 10 for more details about OECD).
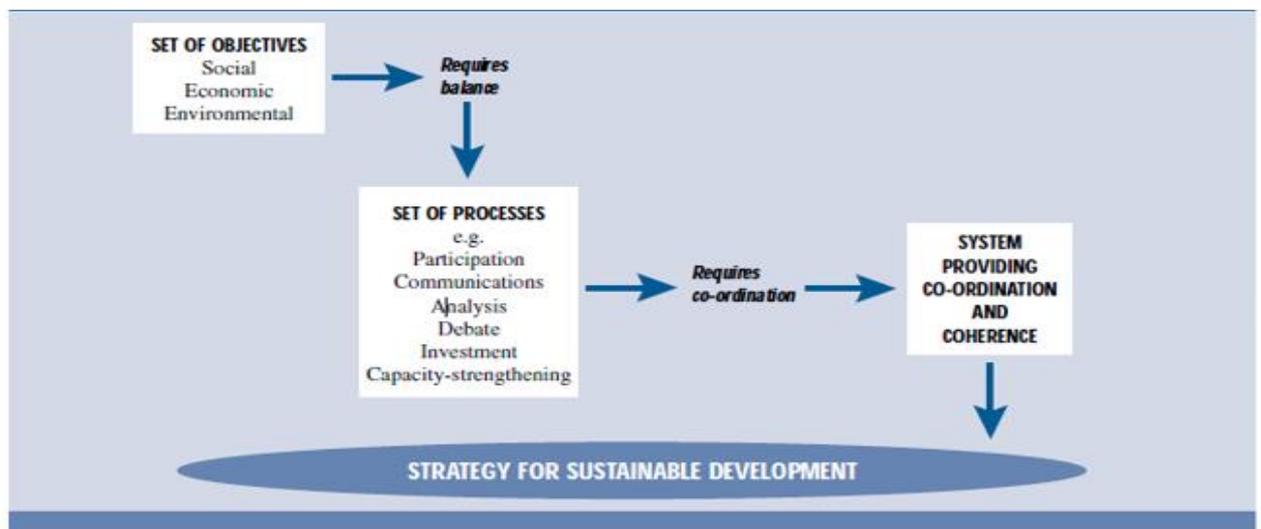
Figure 2. 5: The rationale for an efficient approach to strategies for sustainable growth (OECD,2001).

2.13.1 Strategic Approach as an Essential for Sustainable Development

The following sections explain why having strategies is essential for the purpose of sustainable development in cities:

2.13.1.1 The Need for Structural Changes:

Sustainability requires considerable structural modifications in economic, social, and political domains (Olatunji et al., 2016). Some of these include pro-poor economic growth and removal of fiscal policies damaging the ecology to attain stable or increasing net wealth (Mollett &

107

Cameron, 2016). The price, in this case, should correspond to the total costs of production and intake, including the ecology damages; this process also requires the adjustments of policies, safety systems, or capital. In terms of the requirements for sustainable development on various levels, it can be concluded that cross-sectoral and multi-institutional cooperation is needed to make various sectors embrace shared visions, plans, and decisions (Monaheng, 2016). Various agencies will also need to become more open and flexible in innovation and funding ecology protection measures. In general, economic planning and policymaking should become more transparent and long-term-oriented.

2.13.1.2. The Difficulties Involved in Introducing Changes

Many technical and political difficulties hamper the integration of social, economic, and environmental objectives, which means that sustainable development's intergenerational dimensions are inadequately addressed. In general, documented evidence is scarce regarding countries' experiences developing such mechanisms since methodologies have not been rigorously tested. As recently specified, there are various obstacles to sustainability attainment. These difficulties comprise phenomena on both global and local levels, whereas the solution to some problems can only be provided on the local level.

Nevertheless, both scales' decision-making is to be cohesive and integrative to consider its consequences for different sectors and groups. It is also vital to consider the possibility of conflicts between priorities on different levels within the short-term programs and generate prevention mechanisms. One more problem is related to creating the system with the necessary components needed to advance sustainable development, which is explained by the need for considerable amounts of time, efforts, and materials to establish and support such a framework. Simultaneously, the losses from the failure to preserve the environment would be even more significant. It is vital to implement a strategic approach to planning and implementation to resolve the discussed challenges to reduce their impact.

2.13.1.3 New Ways of Thinking and Working

Strategic can be defined as the quality of being engaged in goal formulation and identifying the means for attaining (Osuntade, 2021). The overall process comprises the application of the vision-based method, determining objectives, priorities, and development line, followed by choice of tactics for the goal realization (Parnell, 2018). A strategic approach to sustainable

growth presupposes innovative decision-making approaches and works about the following aspects:

- Utilizing an adaptive system aims to positively transform governance and responses' coherence attainment rather than facilitating approaches that lack flexibility (Parnell, 2018).

- Employing the view that society as a whole is responsible for development rather than the state alone.

- Sharing results and opportunities and ensuring negotiations are conducted with transparency, cooperation, and concerted action rather than centralised and controlled decision-making (Popkova et al., 2017).

- Focusing on impacts of projects and legal change instead of focusing on outputs such as projects and laws.

- Employing integrated rather than sectoral planning

- Emphasising driven and financed development rather than dependence on external assistance domestically and

- Employing a process that accommodates monitoring, learning, and improvement (Rotondo, 2020).

This kind of approach can help countries participate in international affairs more effectively by analysing the negative social and environmental implications of globalisation and identifying ways to reap benefits from it (Salimi & Al-Ghamdi, 2020). The approach should also improve dialogue between foreign governments, corporations, and NGOs, who should collaboratively negotiate new sustainable development ways.

2.13.2 Principles for Sustainable-Development Strategies

Strategic planning approaches may differ depending on the needs and priorities of countries/communities. However, consulting developing countries during the dialogue process and involving entities with more international experience, such as the UN's regional consultative workshops on sustainable development, have disclosed many acceptable practices. These standard features highlight a combination of principles defining efficient approaches to sustainable development. These rules are universally relevant and applied to both developed and developing countries. Many of these principles are positive growth

practices realized at the project level. Nevertheless, their application for strategic planning and policy regulations still faces considerable difficulties.

The past strategic-planning techniques, such as the National Conservation Strategies (NCS) and National Environmental Action Plans (NEAP), had little effect in enhancing nations' sustainable development efforts since they were not embedded in the country's overall strategic planning process. Nonetheless, global efforts to alleviate poverty and hunger through sustainable growth and development present another chance to harmonize the nation's strategic-planning processes and sustainable development elements.

2.13.2.1. Key Principles for Sustainable-Development Strategies

The sections below demonstrate the ideals that policymakers should incorporate in sustainable development. However, these ideals are not a representation of mandatory criteria that should be adhered to but rather an acceptable process that recognizes differences in local communities (OECD, 2001).

1. The strategies should be people-centred

Any strategy should be tailored to render the basic necessities for the local population and guarantee long-term benefits through affirmative action to help minority and marginalised groups.

2. Should be based on long-term objectives

Strategic-planning initiatives that are based on long term objectives and agreed timelines have high chances of success. Nonetheless, it is imperative for such plans to account for short and medium-term changes and requirements. For instance, all the political parties in power should endeavour to enact long term visions for their countries that are binding to future governments.

3. Strategies should be comprehensive and integrated

Stakeholders should ensure that strategic policies are inclusive and incorporate social, economic, and environmental goals and objectives. Nevertheless, in situations where a complete consensus is impossible, negotiations should factor in the needs of future generations to reach the most suitable compromise.

4. The strategy should have clear budgetary priorities

Incorporating the sustainable development strategy into the current fiscal budgetary allocations is critical to ensure that there are sufficient resources to accomplish the set goals and avoid a situation where plans only exist on paper. Additionally, during the budget-making process, stakeholders should ensure that they identify priority areas since the triple constraint of time, financial resources, and capacity will definitely affect the overall outcomes. Therefore, policymakers should formulate plans that are both challenging but realistic to achieve the set objectives.

5. A strategy should be based on comprehensive and reliable analysis.

A proper situational analysis based on sound research is crucial to identify priority areas considering the prevailing circumstances, future trends and risks, as well as the connection between global, national, and local issues. Moreover, external forces such as climate change and globalisation that impact the national and local environment should be considered carefully during the process. Stakeholders involved in the situational analysis should ensure that they rely on accurate data concerning the dynamic environmental, social, and economic circumstances as well as external influences and reaction to determine the relationship between the strategic objectives and index. Moreover, it is instructive to incorporate divergent views in the process of formulating the strategy and to fully utilize local resources and capacities.

6. A strategy that incorporates monitoring, learning, and continuous improvement

There is a need to develop a monitoring and evaluation criterion that is based on factual information and accurate assessment measurements to guide the entire process, track progress, and inform instances where a change is necessary.

7. Strategy with high-level government commitment and involvement from powerful institutions

To actualize institutional and policy changes, high-ranking government officials and prominent personalities should undertake long term commitment. Moreover, there is a need to have defined roles and mandate for each stakeholder as well as committed financial resources.

8. A strategy should be built based on existing processes and strategies

It is imperative to leverage the existing operational frameworks to formulate a sustainable development strategy and harmonize different planning processes and policies. Additionally, only qualified, and experienced individuals should be appointed to oversee the management and implementation of the sustainable development strategy to ensure synergy of ideas and address potential conflict. To achieve successful conflict resolution, it is essential to involve a neutral arbiter to facilitate talks and negotiations between the warring parties. Moreover, it is important to have clearly defined roles and responsibilities for each participant from the beginning of the strategy process to avoid wrangling and discontent among members.

9. Strategies need complete participation from all stakeholders

Supporting broad-based participation for all stakeholders is essential to pinpoint the issues that need clarification, generate new ideas, verify the authenticity of the information, set priorities, establish the number of resources needed to implement the strategy, and identify areas that need improvement. Additionally, local communities and stakeholders from all the relevant sectors should be involved in the talks spearheaded by the national government, which is tasked with the responsibility of providing financial resources and incentives. Therefore, there is a need to achieve a smooth flow of information, transparency, and accountability between the local communities, private sector organizations, non-profit organizations, lobby and pressure groups, marginalised groups, and the central government.

10. The strategy should link national and local levels while facilitating devolution at all phrases of strategy creation and realisation.

The formulated strategies should ensure synergies and effective collaboration between national and devolved governments. The central government has the mandate of formulating strategic ideals, fiscal and trade policies, legal framework, and foreign relations policy. Nonetheless, the regional governments should be empowered to plan, implement, and monitor the progress of the sustainable development strategy.

11. A strategy that develops and builds on existing capacity.

The initial steps in the strategy formulation process should involve a thorough investigation of the prevailing social, economic, scientific, political, and institutional capabilities of the host

112

nation, stakeholders, and the international market. Therefore, the strategy should be formulated in such a manner that promotes skills acquisition, capacity development, and optimisation of local skills and competencies within and outside the national government (OECD, 2001).

2.13.3 Steps for identification, developing, coordinating, and improving strategy mechanisms

This section examines the main steps that a country can take to improve its strategic planning process and move toward a more sustainable development policy. This involve defining, coordinating, and improving mechanisms for balancing the economic, social, and environmental interests of multiple stakeholders (OECD,2001). The following sections explain these steps in details:

➢ Identification of mechanisms contributing to sustainable development.

This section describes the suggested critical components of a framework for developing and implementing a sustainable development strategy. The framework should promote and facilitate societal consensus on a vision, priorities, and objectives for sustainable development (the centre circle). To provide these, it should include a coordinated set of information and institutional mechanisms (the satellite boxes). Also, it is essential to look at precedents, recent developments, and changes in processes other than marketed and packaging methods, and it should be based on the principles explained in the previous section (2.13.2.1). Figure 2.6 illustrates these mechanisms that contributing to sustainable development (OECD, 2001).

Figure 2. 6: *Mechanisms contributing to sustainable development* **(OECD, 2001)**

> ➢ Steps for developing, co-ordinating, and improving strategy mechanisms.

After identifying the types of mechanisms that are usually needed for sustainable development, the following section illustrates stages for strategic mechanisms development, and their implementation, and continuous improvement (OECD,2001):

1. Make a list of the current strategies and analyse them.:

- Catalogue the range of current strategies.
- Examine the problems addressed and the vision, priorities, obligations, and results to date.

2. Establish a strategy's mandate (handed down or generated). The more this reflects domestic public demand with strong support rather than external demand, the more potent. A mandate from the prime minister or president, for example, is preferable to one from international bodies.

3. Identify and describe the stakeholders in an integrated sustainable development strategy, including their responsibilities, rights, and relations.

4. Create a secretariat with powers and resources appropriate to these stakeholders to coordinate the illustrative steps for designing, coordinating, and improving strategy mechanisms.

5. Establish the *rules* governing the strategy process:

- Negotiate and agree on how all decisions will be taken.
- Coordinate methods for negotiating trade-offs and resolving conflicts.

6. Establish the *mechanisms* to be used in the strategy:

- Identify mechanisms used by existing strategies.
- Review achievements of these mechanisms in terms of synergies, conflicts and gaps, and their outcomes.
- Identify what is required to improve synergies and plug gaps.

7. Establish regular debate and analysis across sectors and between levels:

- Ongoing thematic, global, decentralised, and local stakeholder debates, such as round tables, hearings, and seminars, to achieve and strengthen consensus on essential vision, priorities, values, system elements, pilot activities, objectives, and responsibilities, as well as to assess progress.

- Communication and information systems ensure that information about sustainable development is shared regularly among stakeholders and fora. These systems will require creating essential information items, including environmental and development reports, policy briefs, and news releases.

- Exploring the long-term implications of legislative, legal, structural, and financial improvements.

8. Establish a strategy process implementation schedule that defines the tasks, roles, skills, and resources necessary and timing.

9. Establish frameworks for continuous monitoring and accountability, particularly:

- Developing and revising sustainability metrics and gathering and analysing baseline data on environmental, social, and economic issues.

- Establishment and evaluation of standards/codes of conduct by participants can be used in rules, incentives, and voluntary processes.

- Promoting an action-learning culture by encouraging innovative processes.

- Identifying potential independent monitoring.

10. Prepare a plan budget, secure financial resources, and assign them to agreed-upon uses in a timely and transparent manner.

11. Determine if there are any residual trade-offs at any point in the process and follow the guidelines for negotiating and handling conflict. (OECD, 2001).

Having identified the factors that affect and challenge sustainable development and the essential principles for strategic planning to overcome difficulties in sustainable development, the following sections explain sustainable development's conceptual framework. This

conceptual framework has been constructed by synthesising and reviewing the literature, and it will be contextualised later in this thesis by crucial considerations that have been identified in the Iranian context. The framework outlines elements that need to be systematically organised to support urban development through the creative hub concept. The following sections explain the different dimensions of the initial conceptual framework.

2.14 Conceptual Framework for Sustainable Development

Cities and towns can be viewed as hubs of progress, including economic, social, cultural, and political changes. They can also perform the function of administrative centres. That is why urban advancement and growth are often attributed to income levels, population size, and expansion of the territories. However, a broader perspective should be employed to address urban areas' sustainability, including their economic, social, cultural, and environmental dimensions. This research aims to help the Iranian government decision-makers, particularly regarding promoting sustainable development through the creative hub concept.

This research investigates the creative hub concept from both theoretical and practical perspectives to determine a contextualised framework for this concept that can effectively support urban development. Based on the synthesis of theoretical findings in existing literature, the following section presents a conceptual framework that can help develop a creative hub concept as an effective tool for culture-led urban development. This framework provides a roadmap for exploring this study's research aim and objectives (see Figure 2.7).

2.14.1 Definition of a Conceptual Framework

A conceptual framework is most understood as the network or "plan" comprising a number of connection concepts, the fusion of which supports the comprehensive perception of certain phenomenon or phenomena (George et al., 2011; Jabareen, 2008). According to Miles and Huberman (1994), a conceptual framework presents the analysis of investigation aims in the graphical form or a narration. Other aspects included within the system are major factors, constructs, or variables and the potential relationships between these elements (George et al., 2011). According to Jabareen (2008), a conceptual framework introduces specifications regarding the object/subject of the study and the interpretive method for the comprehension of social reality. The current study develops a conceptual framework for urban development through the concept of the creative hub. The initial conceptual framework is shown and

116

described in Figure 2.8. The following sections outline intersections between the proposed framework's components and the ways in which these components address the research aim and objectives.

2.14.2 Elements of the Conceptual Framework

Development is viewed through the lens of economics, public affairs, culture, and ecological dimension, being the components of a multidisciplinary method applied in per urban sustainability. Cities and towns are the cores of various dimensions of growth. Characterisations of these four dimensions are outlined in the following sections (UNESCO, 2012; UNGA, 2010, 2011).

2.14.2.1 Environmental Dimensions

Environmental sustainability can be defined as a unity of protection and preservation measures implemented to protect biological and ecological systems and processes in the long-term perspective. This process is based on the preservation of biodiversity and ecosystem functioning. Environmental sustainability is also linked with climate-change resistance, adaptation mechanisms, and prevention measures to reduce the influence of ecological alterations. In terms of urban advancement, there is a necessity to promote wise energy consumption, decrease the levels of greenhouse gases emissions, and raise the resilience of the community to the modifications within the ecosystems. Furthermore, society becomes responsible for the protection of such spaces as forests or green areas, which is critically important for cities that are most susceptible to climate changes.

2.14.2.2 Social Dimensions

Social sustainability stands for producing social, commercial, and physical services. It also comprises concepts of equity and inclusiveness within the society where any resident can become a part of the decision-making process, especially margined or vulnerable groups. Sustainability guarantees each individual has equal access to learning, medical, and recreational services. The promotion of social sustainability is made through urban areas with mixed land-use features, cultural diversity, and housing variations and promotion of remedial interventions to eliminate injustice as per UN-Habitat (see appendix A9 for more details about Habitat Conference).

117

2.14.2.3 Economic Dimensions

Economic growth of any country is primarily possible due to urban areas that should preserve the balance between progress speed and resource availability. Economic sustainability can be supported due to funding 'green' industries or the practices that focus on resolving ecological challenges. Another trigger for sustainability is the collaboration of private and public sectors with academia. The city's attempts to introduce sustainable practices improve its image and encourage external financing.

2.14.2.4 Cultural Dimensions

Another integral aspect of sustainable development is culture, as it can stimulate economic progress, community stability, and preservation of habitats. The last aspect is achieved with spiritual and physical heritage, creative industries, and artistic expression modes. Culture also puts restrictions on the lifestyle and interaction approaches among bearers of certain traditions and values. Also, it is crucial to recognise that culture contributes to other dimensions in the conceptual framework. The following sections explain this contribution:

➢ Culture promotes social dimensions

Culture is a combination of values, behaviours, and assumptions that play defining roles in the inclusiveness, openness, and cohesiveness of a community or the degree of its development. Various cultural concepts can assess the changes in the scope of human rights, health status, and quality of life. Culture is the tenet used for self-identification that supports ties with other people promoting cooperation within the society based on mutual trust, solidarity, respect for the law, and democracy. All in all, discussed features stimulate personal and societal development, which means the culture facilitates growth.

➢ Culture promotes sustainable environmental development

In addition, culture shapes human approaches to the environment and natural sources usage to the above-identified matters. In other words, all the aspects of the culture that promote a balanced personality also determine the directions of interactions with the ecosystems. That is why local and indigenous knowledge systems are a great source of information on environmentally friendly initiatives needed to prevent biodiversity loss, soil degradation, and further climate changes.

➢ Culture yields economic benefits

Besides different non-monetarized benefits, culture and the economy are strongly connected through the pillars of sustainable development, role in financial growth, and poverty elimination. Cultural heritage, creative industries, sustainable cultural tourism, and cultural infrastructure are excellent sources of profit and employment opportunities (Cvejic, 2015). The figure below (2.7) illustrates how culture contributes to other dimensions of sustainable development in cities, which inform the conceptual framework for culture-led sustainable development (Cvejic, 2015; UNESCO, 2012).
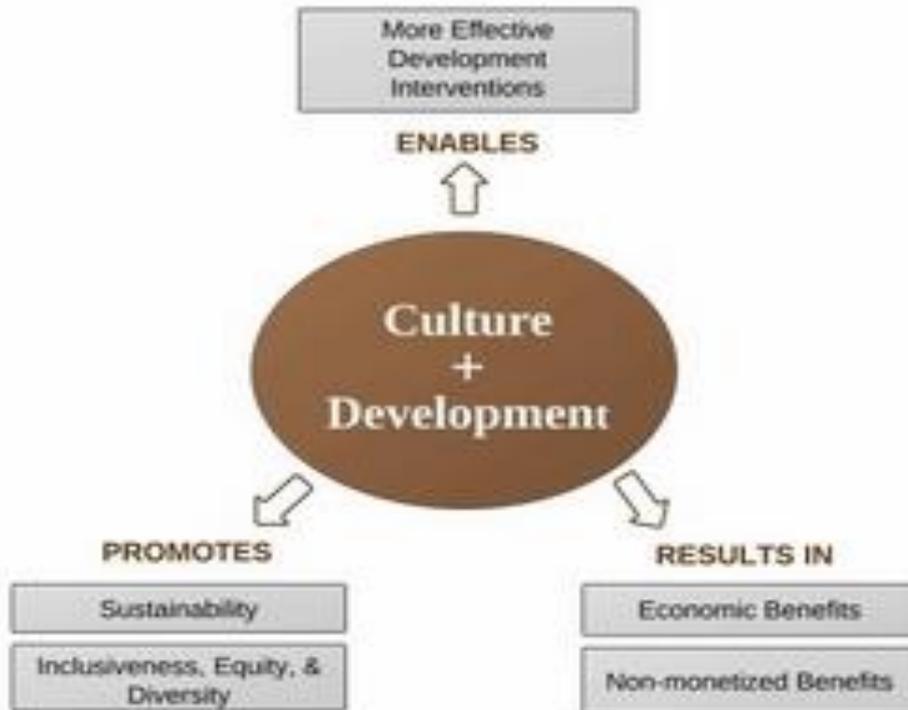
Figure 2. 7: *How culture contributes to sustainable development* **(Cvejic, 2015).**
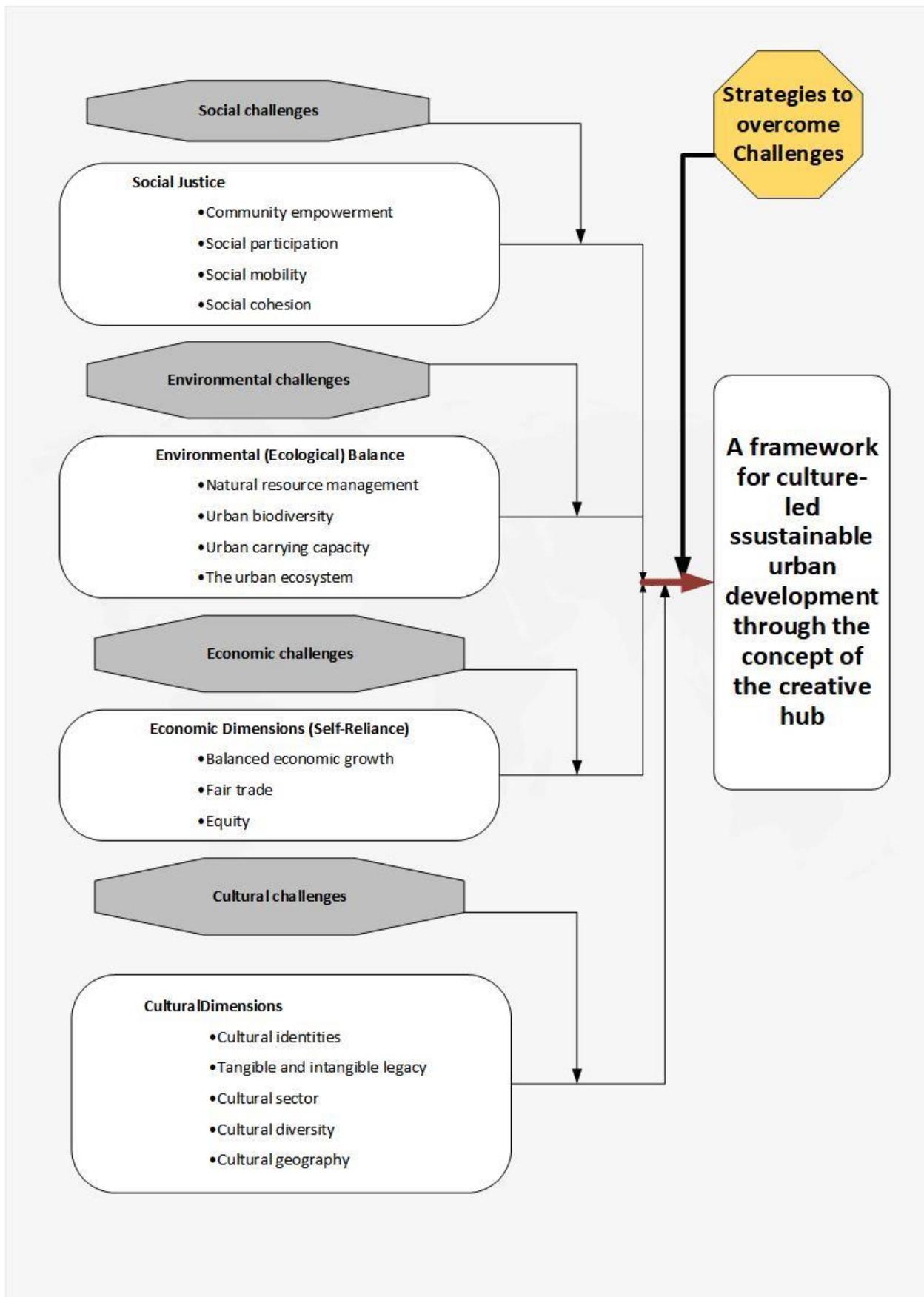
Figure 2. 8: The initial version of the conceptual framework (author's own)

Chapter 3

3.1 Global report about the role of culture in urban development

This research builds on the relevant literature to demonstrate the importance of the connections between local culture and the urban sustainable development process. Additionally, this thesis looks at an international report to investigate how culture contributes to sustainable urban development from two perspectives: different case studies in different parts of the world (global level); and vital thematic insights about the role that culture plays in urban development. The study findings, combined with the discussed case studies, provide concrete guidelines for the Iranian government to embed culture into the strategic urban planning process as a peculiar resource with the potential of transforming cities and leading to environmental, social, and economic development in the country (Abbas, 2019)

Following this process, crucial insights and recommendations have come to light, and they rely on regional and local patterns over some time and premised on a rigorous deliberation about contemporary challenges and opportunities. The recommendations are geared towards tackling broad needs regarding sustainable development findings, recognizing that preserving and promoting culture is a crucial factor for sustainable urban development.

3.2 Policy framework and thematic analysis for culture-led urban development

There are three policy areas for culture-led urban development, and they concern people, the environment, and policymaking. These policy areas are based on Hangzhou Outcomes ratified at the global conference on 'Culture for Sustainable Cities' (Hangzhou, China, December 2015). The sections below explain three outcomes of this conference: 1. Human-centred cities are culture-centred spaces; 2. Culture is critical in attaining an excellent urban environment; and 3. Sustainable cities require comprehensive policymaking that entirely relies on culture (see appendix A 11 for Hangzhou outcomes)   .

The thematic insights are based on culture's role in enhancing a people-driven process to sustainable development to guarantee a humane urban environment for everyone and leveraging on the potential of culture to foster inclusive policymaking. The following sections explain different thematic insights about the role of culture in urban development through various case studies worldwide (UNESCO,2015d; UNESCO,2016).

122

3.2.1 Human-centred cities are culture-centred cities

People-centred cities can affect urban cultural development in different ways, such as boosting the habitability of cities and protecting their individuality, ensuring social involvement in maintenance and management of city property, promoting innovation, and supporting creativity when developing urban spaces, and incorporating culture in peace talks and community dialogue (Almeida et al., 2017). The following sections look at different case studies of people-centred cities in different parts of the world (Yang et al., 2016).

3.2.1.1. Improving the liveability of cities while maintaining their identities:

To boost cities' liveability and safeguard their cultural heritage, it is essential to incorporate people-centred urban renewal initiatives while respecting their identities. The cultural heritage is a social and economic asset and resource, showing society's everchanging values throughout history (Almeida et al., 2017). City renewal plans based on demolishing existing buildings and erecting modern-designed skyscrapers in their place and social transformations and globalization have eroded the once distinct urban centres, cultures and heritage, and unique traits and replaced them with standardized and Westernized cultural practices (Blanden et al., 2004). It is essential to protect each city's cultural heritage and diversity to boost its habitability and guarantee high quality of life and its inhabitants' well-being. The following case studies are a sample of cities that integrate cultural heritage into urban regeneration strategies to enhance their liveability.

Case study 1: Baku, Azerbaijan: Female role in Azeri carpet-making

For thousands of years, the art of Azeri carpet-making in the cities and villages of Azerbaijan has been transferred through multiple generations, verbally and in practice, preserving the geography, history, and lifestyle of its people. Women spearhead the tradition by dying and weaving carpets in the winter, using the colours and motifs as a tool of communication and storytelling. Throughout the history, mothers have been teaching their young daughters the carpet weaving craft.

Azerbaijanis highly regard the art of carpet-weaving since it has an innumerable value to them. In 1967, the government of Azerbaijan recognized the critical role played by the women in the

123

weaving and carpet-making industry by establishing the world's first specialized museum in Baku. From its inception throughout the years, the State Museum of Azerbaijani Carpets and Applied Folk Arts has evolved into an institution of accomplished crafts and education, including the dedicated academic research institution for the conservation, study, and promotion of the weaving craftsmanship. A presidential decree in 2008 set in motion the construction of a new museum with the support of the Heydar Aliyev Foundation and UNESCO, paving the way for the traditional art of Azerbaijani carpet-weaving being added on the Representative List of the Intangible Cultural of heritage in 2010 (Strelka Institute for Media, Architecture and Design, 2016).

Case study 2: Kigali, Rwanda: Reconciliation through culture

The numerous music and art festivals held in Kigali, Rwanda, are a clear indication that the city's diverse population has purposed to create harmony and cohesion through culture. The annual Arts Festivals commemorating the 1994 genocide is a perfect example. It is named "Ubumuntu" (Being Human) and lasts for 100 days. The festival is normally held at the Kigali Genocide Memorial Centre's outdoor amphitheatre, where several internationally acclaimed artists are invited to perform at the event. People who attend the festival have the option of visiting the genocide memorial park, attending panel discussions and workshops, and watching live performances. Moreover, a variety of music genres such as reggae, funk, hip-hop, blues, among others, is performed by the invited stars in the Kigali Up music festival. Furthermore, the festival, which was established in 2009, offers the attendees an opportunity to sample Rwanda's cuisine and traditional crafts.

Similarly, the Kigali Fashion Week showcases Rwanda's fashion, culture, and entrepreneurship. The annual Fashion festival was created to give creative talents an opportunity to interact and engage with global fashion icons to forge solid partnerships. Moreover, the city of Kigali enjoys the annual Rwanda Film Festival that features popular international films for a week, mounted in five to six venues in the city. Since the festival is usually free of charge, those who enjoy quality films gather around the selected areas to have fun and create social bonds. Additionally, the Hillywood Travelling Programme was created to run alongside the music festival. The organizers of the festival mount large screens in various hilly villages which air local films to the communities of the rural areas under the motto of "Cinema to the people". Kigali also hosts the annual cultural event dubbed Hobe Rwanda with the aim of showcasing Rwanda's folk music.

The purpose of the Hobe Rwanda is to unite artists, as well as to educate and encourage the younger generation to acquaint themselves with the music, culture, and traditions of Rwanda (UNESCO, 2011).

Case Study 3: Strasbourg, France: People or vehicles?

Strasbourg city was one of the first cities in France to outlaw privately-owned vehicles across the central business district and reinstate a tramway and ferry for the locals. To achieve this objective, the local authorities reduced the number of parking lots and subsequently increased the fees of the few that remained in the city while offering free parking lots along the tramway's terminus to promote the public transportation system.

Since the inception of the first tramway line over 20 years ago, Strasbourg city has the longest tramway line in France: over 56km of track serviced by 69 stations, which are interconnected with the rapid bus system that sees passengers ferried through 11 interurban and 30 urban lines for over 11 million km annually. Moreover, the city is credited with building the longest lane for cyclists in the last ten years. Furthermore, in an effort to support local farmers and cut off overreliance on long-supply food chain movement, the city's authorities chose one of the open spaces in the city to establish a weekly farmers market and the historical Customs House as the ideal place for local agricultural produce to be exhibited. Similarly, the city undertook regeneration efforts by banning all the pesticides, which led to increased green vegetation cover in the city's landscape design.

Strasbourg adopted an expansion plan towards the Rhine River to the border of Kehl city in Germany, with a third of the ecologically friendly residential housing projects reserved for low-income individuals. The residential projects, which are popularly known as eco-districts, are located along historic waterways and urban natural heritage. An estimated 30% of the municipal's budget is allocated to culture, which is augmented by the several colleges, universities, and cultural activities in the city. Therefore, Strasbourg has premised its growth and development on a people-centred strategy to enhance the city's habitability (Yang et al., 2016).

3.2.1.2 Guarantee social inclusion through culture

Considering cities' evolving identities, governmental bodies and relevant stakeholders should adopt policies promoting and recognizing cultural diversity as a social inclusion asset. With cities

125

becoming the focal points of immigration, cultural diversity is common in most modern urban centres. The influx of global, rural-urban, and regional migration experienced in recent years has significantly affected cities. Conflicts and discriminations that lead to social fragmentation have been experienced depending on the migration scale. Therefore, it is imperative to enhance collaborative partnerships designed to eliminate societal inequalities, improve social cohesion, and preserve the city's cultural heritage and distinct characteristics (Ndoro, 2016). Below are some selected case studies that rely on the collaborative partnership framework:

Case Study 1: Durban, South Africa: Eliminating discrimination and empowering marginalised groups.

The local Municipal Council of Durban, South Africa, is in-charge of the Grants-in-Aid, Non-Racism, and Non-Sexism Committees situated in the city. The mandate of the Grants-in-Aid committee is to supply the local communities with the necessary resources to establish and operate self-help programs as well as support local non-profit organizations financially to meet their operational needs. Only education, economic empowerment, sports, cultural, social welfare, adult basic education, and early childhood development organizations are eligible to access aid from the Grants-in-Aid initiative. The organization mainly targets people living with disabilities, the elderly, children, and the youth. The main objective of the Committee is to help the minority and marginalised groups in the society acquire the much-needed capital and skills to set up projects that will enable them to become self-reliant through community collaboration, engagement, and fostering social ties. The Committee has established initiatives such as capacity-building workshops that aim to alleviate poverty in more than forty wards in the city. Moreover, the Committee organizes social gatherings for the elderly, sets-up early childhood development centres, as well as oversees gender-based violence and youth desk to address gender and youth issues. Furthermore, the Committee is a valuable contributor to the International Coalition of Inclusive and Sustainable Cities (ICCAR), a UNESCO network (UNESCO, 2016).

Case Study 2: Malmo, Sweden: Solutions to promoting tolerance.

To raise awareness and public involvement, the Roma Cultural Centre was established in Malmö, Sweden, in 2009. The main aim of the Centre was to boost awareness and understanding of the Roman culture within the local community to combat bias through tolerance and negotiations.

The Centre includes a Roman museum that showcases the diverse cultural heritage of the Roman community living in Sweden over the last five centuries; a collection of jewellery, artefacts, clothing, and objects that have been donated by individuals and Roman families are housed in the museum. Additionally, Roman music, art, books, films, and cuisine are displayed at the Centre, and art exhibitions, music festivals, and workshops are held annually. The centre is a unique site in Sweden and adds to the overall value of Malmö as a member of the International Coalition of Inclusive and Sustainable Cities (ICCAR) (UNESCO, 2016; Ma, 2016).

Case Study 3: Vancouver, Canada: Cultural diversity in the limelight of a modern city

Vancouver, Canada, is one of the leading global cities in integrated, sustainable environment and contemporary creative planning and design. Vancouver has been able to implement policies that favour the preservation of culture mainly due to its rich cultural heritage and multi-ethnic population. It is important to note that none of the major ethnic groups in the city, including French, Chinese, German, English, Indian, Filipino, Scottish, and Irish make more than 25% of the total population. Consultative meetings in the city are conducted in various languages to meet the needs of its diverse population. The numerous strategies adopted by the city are geared towards addressing the needs of its culturally diverse population. The 'Diverse communities and multiculturalism', a member of the Building Liveable, Sustainable and Inclusive Communities programme supports new immigrants in settling their communities. There are specific programmes that support activities of the lesbian, gay, bisexual, and transgender (LGBTQ) community and are dedicated to ending racism, bullying, and gender inequality. Moreover, the initiative organizes dialogue sessions for the indigenous and immigrant communities to share their experiences and foster social cohesion through shared understanding.

Nonetheless, there are instances where there is a duplication of roles and mandates between the federal and provincial governments, which hinders the local implementation of multicultural efforts and prompts non-profit organizations to spearhead new multi-sectoral initiatives. For instance, the Mole Hill Community Housing Society is a non-profit organization that has embarked on the journey of building low-cost house units in Vancouver. The main aim of the organization is to boost cultural diversity, economic growth, and environmental sustainability through the use of modern environmentally friendly technology to demolish the old buildings and erect new ones for the original owners, other low-income individuals, and

127

senior citizens in the community. However, the city's reputation as an immigrant hub has led to the steep rise in real estate prices and non-availability of cheap houses. Lack of affordable housing and high prices of real estate remains the greatest challenge of Vancouver (UNESCO, 2016).

3.2.1.3 Promote innovation and creativity through culture in development of cities.

To improve community well-being and foster sustainable urban development, it is crucial to harness the full potential of creativity, innovation, and digital technologies (Caiado et al., 2017). Creativity and innovation are generally concentrated in populous urban centres, where people from diverse cultures reside. The role of cities as major players in aiding the cultural and creative industries in most countries cannot be overstated since culture is an enabler of social and economic development. Therefore, it is incumbent upon local governments to harness the full potential of culture to enhance people's quality of life and make the cities more attractive and habitable (Ost, 2016). The following case studies are examples of Creative and innovative cities:

Culture, creativity, and innovation play a dominant role in the urban development of the ever-evolving Dubai, United Arab Emirates, whose multicultural heritage is unparalleled. The government of Dubai, in partnership with the Dubai Culture and Arts Authority, has set up an online initiative dubbed 'Creatopia' that seeks to establish a virtual community platform for all creative entrepreneurs from all parts of the world (Campbell et al., 2015). The initiative is ideal for virtually promoting creative talents and offering them a platform to display their abilities for the whole world to see with the aim of securing partnerships and mentorship opportunities. Members of Creatopia are able to interact with the rest of the group, comment and share the work of other creatives, and apply for deals and partnership opportunities (Campbell et al., 2015). Creatopia is a unique initiative that enables any creative person to join and contribute to the ongoing cultural conversation.

The initiative has attracted more than 1700 individuals who have gone ahead to publish over 1000 projects since its inception in November 2015. Creatopia has established elaborate partnership frameworks with other entities to become one of the most dynamic online creative platforms in the whole of Dubai. The Dubai Culture and Arts Authority recognizes that collaboration is ideal for cementing the arts and creative community and promote the economy (Sindelar, 2016; UNESCO, 2016).

128

Case study 1: Nairobi, Kenya: Granting transportation data availability to the population.

Over the past decade, Kenya has experienced a sharp rise in the number of mobile applications available in the country, a phenomenon that has revolutionized how people consume and react to urban information and services. This surge has presented a new opportunity for individuals to contribute to the flow of traffic in the country's capital, Nairobi, in real time using the available digital transport platforms. The Digital Matatus project that was rolled out by the Kenyan government relies on smartphone technology to increase the informal transport sector's efficiency and enable citizens to better organize their trips and routes within the capital. An estimated 70% of Nairobi's total population relies upon Matatus, privately-owned minivans, for their daily transportation needs. The Digital Matatus initiative was developed through a collaboration of a group of scholars from the University of Nairobi, Massachusetts Institute of Technology (MIT), Columbia University, and Groupshot Design Consultancy to address the challenge of unavailability of data about the over 140 routes plied by the Matatus throughout the capital. The application allows users to capture and share traffic data using their smartphones, which are then converted into physical and digital maps that are stored in Google Maps. When the government introduced affordable and faster cable broadband Internet in 2009, several firms seized the opportunity to mobile rollout applications such as the Digital Matatus initiative. The entrance of cheap Chinese-made smartphones into the country and advancements in the technology services sector has enabled a majority of Kenyans to connect to the Internet using their mobile phones. It is estimated that around 40% of the total population living in Nairobi own and operate a smartphone (UNESCO, 2016).

Case Study 2: Shanghai, China: Investing in creativity to boost urban growth.

Shanghai, China, a metropolis that hosts more than 24 million residents, is a thriving multicultural entrepreneurial city. The city's growth and branding have benefited immensely from its cultural and creative industries. In 2010, Shanghai became the City of Design and joined the UNESCO Creative Cities Network. Multiple design events are held in Shanghai every year due to its position as the leading design city in the world. The local creative industry has employed an estimated 7-8% of the total population, making significant contributions to the city's overall economic growth. The city's regeneration efforts to rehabilitate abandoned factories and warehouses have seen Shanghai become the leading creative urban hub in the world. In 2009, the Chinese central government approved the cultural and creative industries

(CCI) policy paper formulated by Shanghai in 2004. Four years after the adoption of the CCI discourse, more than 4000 design agencies, 239 arts, and cultural community centres, 87 creative clusters, 283 art institutions, 783 archive institutions, 25 libraries, and 100 museums were all established in the city.

The surge in the number of creative clusters was instrumental in boosting Shanghai's image as an international cultural city and the development of new cultural infrastructure that propelled the city's economic growth. Nonetheless, there is a need to maintain a balance between the 'hardware' and 'software' of the cultural and creative industries to allow the full development of creativity and expression (UNESCO, 2016).

Case Study 3: UNESCO, UNITAR

The full extent of the damage caused by natural disasters and terrorist attacks on cultural heritage sites has been accurately assessed using digital imaging tools. The United Nations Institute for Training and Research (UNITAR) UNOSAT programme has developed satellite images that are used by UNESCO, under the UNESCO and UNITAR partnership, to monitor vulnerable cultural heritage sites in Iraq, Yemen, Nepal, and Syria. The obtained satellite pictures are basically the only feasible method of evaluating the harm caused by attacks on remote and inaccessible cultural heritage sites. For instance, experts used satellite images to determine the nature and extent of the destruction on the monuments and temples categorized as World Heritage property in Kathmandu Valley, Nepal, after the devastating earthquake that took place in April 2015. Consequently, the involved stakeholders were able to better plan for recovery initiatives (UNESCO, 2016).

3.2.1.4 Build peace initiatives and dialog based on culture

To achieve lasting peace, enhance social cohesion, foster mutual understanding, and end violent muggings, local authorities should adopt culture as the main element of urban initiatives. Culture has the potential of ending urban brutality. Moreover, culture can serve as the ideal platform to boost social ties, reach a compromise in disputes, and enable diverse cultural interpretations. Furthermore, traditional conflict resolution and management practices that form part of culture's intangible elements should be given prominence and boosted accordingly. Cultural activities, historical monuments, and artistic expressions all play a significant role in restoring normalcy after the crisis has struck cities.

Additionally, cultural heritage sites such as museums can foster social cohesion and mutual understanding through intercultural dialogue and knowledge-sharing. The cultural heritage sites also can align the interests of warring parties to forge a common goal that helps them achieve sustainable peace within the community. The following case studies are samples of peaceful and tolerant societies (Bokova, 2016).

Case Study 1: Baghdad, Iraq: The war fears and instability

Baghdad, Iraq, faces high rates of corruption, poverty, violence, illiteracy, forced migration, and social fragmentation in the current post-conflict period. Since the 1991 ban on trade, the yearly growth rate of the economy has slowed by 25%, and the youth and elite emigration rates have skyrocketed. The migration of Baghdad's working class has led to the neglect and decay of the city's urban fabric and the deterioration of social facilities and services. Due to the speculations and instability in real estate and land sales, as well as weak laws and legislations in the building sector, large-scale constructions were initiated in the city, leading to the steady destruction of its urban scale. The city's diversity, which used to be a source of prosperity and power, has become a source of instability and radicalised conflicts. In 2006, the 'Farah al- Qanoun' operation zoned the Baghdad city into safe and unsafe areas following the armed struggle that was witnessed during that era, making the majority of the city inaccessible to the general public. Today, after more than a decade, Baghdad still contends with one of the worst forms of social fragmentation, physical segregation, and inhumane living conditions in the world. The armed conflict, which has become synonymous with Iraq, has forced civilian populations to flee their homes and camp in and around Baghdad (UNESCO, 2016).

Case Study 2: Cape Town, South Africa: Remembering the past to move into the peaceful future

The District Six Museum in Cape Town, South Africa, was established in 1994 to act as a memorial of the awful events that took place during the apartheid and to preserve the history and culture before the forced displacement of its inhabitants in the 1960s. Handwritten notes by previous occupants of the city and an enlarged street map of District Six have been stored on the museum's ground floor. The cultural heritage in the museum includes old signposts, artistic illustrations of the cultural heritage and history of the people who lived in District Six, and a detailed description of the region's culture and the events that led to its destruction. Moreover, the museum serves as a memorial avenue where former and present inhabitants of

Cape Town meet to share their experiences and common history. Furthermore, the museum symbolizes the victory and resilience of the civil society that resisted the atrocities committed against the Africans living in South Africa and fosters peace and reconciliation. Presently, those who were displaced together with their lineage have established new homes in Cape Town (Ndoro, 2016).

Case Study 3: Mostar, Bosnia, and Herzegovina: Rebuilding Mostar Bridge: A symbol of reunification

The Bosnia and Herzegovina civil war between Catholic Coasts, Orthodox Serbs, and mostly Muslim Bosnians led to the destruction of the famous Stari Most – a bridge in Mostar. It was a historical landmark built in the 16th century that, on November 9, 1993, was hit by a missile launched from the hills near it, destroyed, and buried in the waters of the Neretva River.

Nonetheless, the World Bank, UNESCO, and Mostar City commenced an ambitious programme to rebuild the bridge, mirroring the initial architectural design. The limestone that the bridge was originally made of was recovered from the debris and used in the reconstruction process along with the new materials. The rebuilding process signified the reunification and reconciliation of the culturally divided Bosnia and Herzegovina that has just been through war, which is why, in 2005, it was added to the UNESCO's World Heritage List (Ndoro, 2016).

3.2.2 Culture-led building of quality urban environments

There are different ways that culture shapes quality urban development, such as design and construction of mixed-use cities based on the wisdom gained from town conservation policies, enhances the habitability of the natural and built environment, boosts the aestheticism of open spaces, and advances urban resilience based on cultural initiatives. The following case studies look at the role culture plays in quality urban development in different parts of the world (Bokova, 2016; Duxbury et al., 2016).

3.2.2.1. Fostering human scale and mixed-use cities

Design and construction of mixed-use cities is based on the wisdom gained from town conservation policies that help in change management and improvements of cultural values in the dynamic urban development. The integration of cultural and natural resources can lead to the formulation of a sustainable urban development framework that is inspired by mixed-use

urban ensembles. Therefore, municipal governments should leverage their town's cultural heritage and review their urban development policies (Carroll, 2020).

Resilient and sustainable cities can be built by prioritising human scale and mix-use as well as managing and sprawling of urban centres. The 'place-based' approach is the most popular model that the majority of experts recommend developing local communities, although cultural heritage sites have shown that adapting soft transportation can reduce the total carbon emissions in densely populated areas (Cashdan, 1993). Moreover, these sites provide a model of reusing building materials to construct new structures. Therefore, policymakers should embrace the wisdom gained from historical sites to develop sustainable urban development strategies. The following sections are examples of related case studies:

Case Study 1: Johannesburg, South Africa: Culture and history-centric development of urban spaces

Apartheid urban development practices and socio-economic imbalances that dominated Johannesburg in the past still have deep-rooted impacts on urban land-use policies today in South Africa. However, local authorities in Johannesburg have devised and implemented policies that are aimed at correcting the mistakes made by the colonial government. The aforementioned actions are focused on enhancing access to public spaces and cultural production. There are five areas in Johannesburg, including the Newtown Cultural Precinct, that have been designated as special zones due to their value as cultural heritage sites. Therefore, by establishing areas that are open to the public, the local authorities have recognized the role of culture in preserving historical sites and the creative legacy of its residents. The Newtown Cultural Precinct is a multiple-use area that is made up of galleries, live music venues, restaurants, museums, workshops, dance studios, and theatres. This goes a long way to show how the creation of cultural spaces should not just be based on the physical infrastructure but also take historical experiences and the perception of the current population into account.

Case Study 2: Mumbai, India: Communities driving change

The region of Kala Ghoda in South Mumbai, India, is known as a thriving moon-shaped precinct that hosts several cultural heritage sites such as historic buildings, cafés, restaurants, art galleries, temples, and designer boutiques. The Kala Ghoda Arts Festival, an annual event that

is held every February and runs for nine consecutive days, is estimated to attract thousands of people who are entertained by a wide array of craftspeople, performers, and artists. Nonetheless, 20 years ago, Kala Ghoda did not possess the reputation of a cultural centre as it was largely inhabited by college students who attended the nearby institutions of higher learning and libraries since the majority of the historical buildings were dilapidated.

The situation changed when the Urban Design Research Institute (UDRI) based in Mumbai, in collaboration with other architects, surveyed the area, which unearthed a valuable cultural heritage site full of modern art galleries. The findings of the research enabled the UDRI to formulate a Kala Ghoda Conservation Plan that recommended the region be designed and classified as an arts district. Following their recommendations, in 1998, Kala Ghoda's residents, cultural sites, gallery owners, and artists united and established the Kala Ghoda Association. The next year, the Kala Ghoda Arts Festival was first help in the city, drawing widespread attention. The UDRI embarked on a process of uplifting the region's face by rehabilitating its pedestrian pathways, street furniture, and historic buildings such as the Elephantine College, the David Sassoon Library and gardens, the Horniman Circle garden, the Institute of Science, and the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya. Entrepreneurs keen on taking advantage of the thriving economy established new restaurants, cafes, and shops further cementing the status of Kala Ghoda as a vibrant arts district.

There are crucial insights that can be drawn from the success of Kala Ghoda and implemented in other parts of the world. For instance, community participation is a critical component in the development of any arts and cultural heritage region, just as was the case in Kala Ghoda. Additionally, restoring historical buildings is another important step that assigns a peculiar identity to the place just as Kala Ghoda, an urban centre with over 18 million residents. The pedestrian pathways in Kala Ghoda have highly boosted its image as a cultural tourism destination, which is contrary to the overly congested Mumbai city with few pedestrian walkways and limited public squares. Source: Srishti Institute of Art, Design and Technology (Bokova, 2016).

Case Study 3: Rome, Italy: mixed use cities

In 1980, Rome, the Italian capital, was first accorded the status of a World Heritage property. The Vatican City and Italy both lay claim on San Paolo Fuori le Mura and Rome's historic center,

which are designated as World Heritage properties. Rome's architectural design has undergone changes spanning over 2500 years, which has had a profound influence of its built landscape. Rome serves as an example of how other cities can incorporate their ancient history and cultural heritage to create a unique identity for the city that has touristic value and strengthens the social bonds among its residents.

Urban planners and heritage managers crafted a plan to have Testaccio district in Rome, the ancient riverine port of the city, excavated to build an enclosed market. Since the excavation unearthed archaeological substance at the site, local authorities collaborated with the archaeologists and architects to construct museum in the enclosed market building under the ground. Moreover, the building of the new market served to open up the regionally economically by establishing a mixed-use region with higher learning institutions cropping up in the area.

3.2.2.2. Promote the synergy of natural and human-built environments.

It is imperative for local authorities to formulate policies that are aimed at safeguarding the cultural and natural heritage of their cities to enable communities to link with the urban environment. Additionally, there is a need to protect and preserve valuable urban spaces from the past generations to serve as an example of how contemporary areas can be improved. Upholding the initial urban planning strategies improves the image of the city and cultivates a sense of belonging among its inhabitants. To enhance the habitability of the urban centres, it is essential to consider the natural environmental components that make up the city, such as public squares, gardens, hydrology, and geomorphology. The following sections are examples of related case studies:

Case Study 1: Macao, China: Gentrification at the centre of economic boost and alienation of locals

The Chinese Macao was officially designated as a UNESCO World Heritage property in 2005 due to its historical and cultural heritage that is highly influenced by the West and East (Chen & Wang, 2017). The city is zoned into three distinct areas that include the densely populated multifunctional city, the scarcely populated historical centre, and the mono-functional contemporary gaming, casinos, and shopping centre.

The influx of wealthy investors into Macao's historic centre had displaced local residents who are unable to compete with the rich immigrants when it came to the rising costs of real estate. Local shop owners and vendors have lost their homes, and traditional trade has moved to other parts of the city (Chen & Wang, 2017). The products for sale were then offered to a new type of clients: the multitude of tourists, especially from mainland China, visiting the city every day. Plethora of jewellers, casinos, textile stores, beauty products, and designer clothing shops has flooded the city. The locals avoid the historic centre, which is becoming more and more of a one-day tourist attraction. Such a shift in the economy changed the use of urban spaces and markets and drove the locals away from the historic centre (Coimbra University, 2016).

Case Study 2: Vigan, Philippines: Community engagement in preserving heritage

Vigan, an old Philippian city, is famous for its architecture and planning from the Spanish colonial era and for its integration into the Asian civilization. These distinctive features have paved the way for the city to be included in the 1999 UNESCO World Heritage List.

Over the past years, government in Vigan has become more prone to involving all stakeholders, especially the local ones, in conservation-based policies. Therefore, thousands of homeowners, painters, educational establishments, artisans, and business owners in the local community have become major shareholders of the tangible and intangible cultural assets and are highly encouraged to maintain them. Heritage education is included in the local system of education, and various groups, such as homeowners' organizations, are funded through training programs to reimburse their homes at a lower cost. Similarly, the proceeds from tourism and sales of locally produced goods are used to support the ongoing servicing of buildings of historical value. These strategies have shown that the active involvement of local communities and stakeholders in the protection of heritage is essential to guaranteeing sustainable development of the city (UNESCO, 2016).

Case Study 3: Cuzco, Peru: Preservation of history and culture

Cuzco, a city in Peru, is located in the southern Andes and has numerous sites, which are a part of the cultural heritage of the Viceroyalty period and the Empire of Incas. The unique sites of the city that demonstrate thousands of years of cultural and historical development have helped it to be included in the 1983 World Heritage List. The history of the ancient colony of the Coricancha Inca has now been preserved in the Santo Domingo Convent and the San Blas

neighbourhood, where the Municipal Government and the Peruvian Department of Culture are leading the cultural activities.

The Plaza de Armas is a popular place to celebrate Cuzco festivals, while the San Blas area is known as the centre of colonial art and craft. All of this makes the two sites the centre of all cultural development efforts in the region. For example, the Agency for International Cooperation and Development (AECID) and the city council established the Heritage Project aimed at repairing and preserving the dilapidated monuments. Besides, they also created a school workshop to conserve, restore, and revitalize the cultural heritage in order to facilitate social development with the help of art and craft. Finally, The Earth Project was created to enhance the knowledge of and promote sustainability in city development. It was supported by other urban-led projects to protect the Andean heritage and guarantee the preservation of cultural heritage in Cuzco (Pontifical Catholic University of Chile, Area Study Report 8).

3.2.2.3. Improve the quality of social spaces through culture

The design, planning, and utilization of social spaces should be done based on cultural and artistic values and practices to promote social inclusion. The role of social spaces has been in the focus of the urban agenda with the quality, connectivity, accessibility, and quantity of those spaces in the centre. The protection of cultural and historical practices has a direct effect on the quality of social spaces, as well as their ability bring in revenue while promoting and supporting cultural diversity and creativity. Events celebrating and showcasing culture and arts are powerful tools that can help to reclaim and promote the usage of neglected public spaces as well as strengthen social ties and create inclusive environment free from discrimination (Chowdhury & Koya, 2017). The following sections are examples of related case studies.

Case Study 1: Marrakesh, Morocco: Who is to enjoy the cultural heritage?

Jemaa el-Fna Square is a large plaza at the gateway to Moroccan city of Marrakesh. For many centuries, it has been the centre of performances, such as snake-charming, henna-dyeing, comedy shows, concerts, etc. Merchants sell incense, perfume, oil, and medicinal herbs, juice sellers sell drinks, and restaurants are opened every day, only to be dismantled every night when the business shuts.

The square is listed on both the Representative List of the Intangible Cultural Heritage of Humanity and the UNESCO World Heritage List. For nearly a century, there were various

137

international initiatives to protect tangible and intangible cultural heritage, which sought to protect the plaza. The increasing number of international visitors allowed artists to find new customers and spectators. However, some forms of performance, such as storytelling, depend on the ability of the audience to speak and understand Arabic and Berber dialects spoken by the locals. Having only a few passers-by who would be attracted to join a spectator circle, those artists saw their opportunities reduced, as revenues from international visitors could not cover for the losses from the lacking Moroccan audience.

In 2001, the Proclamation of the 'Cultural space of Jemaa el-Fna Square' as a Masterpiece of the Oral and Intangible Heritage of Humanity had the same ambiguous results as previous attempts to protect the heritage. For example, tooth-pullers were driven out of the square as they failed to meet the standards of international visitors. The events that could appeal to international tourists took place during the day, whereas activities that targeted the local audiences were held in the evening. Nevertheless, the international focus obtained as a result of the Declaration has contributed to the significant enhancement in the social status of the performers in the square, whose activities had previously been frowned upon or looked at as disgraceful (Frank Proschan).

Case Study 2: Paris, France: Riverfront reclamation and investments in public spaces

Seine River has always been a defining element of Paris, the French capital city, throughout its history. The river served as a source of livelihood since the first human settlements were established there and has always been a crucial commercial waterway flowing through Paris to Le Havre where it met the English Channel. The city's history of navigation is linked to the city's motto *fluctuat nec mergitur*, meaning 'tossed but not sunk'. Important monuments and legislative and religious establishments are found along the river. As one of the city's most iconic features, the Paris Banks of the Seine, became a part of the World Heritage List 30 years ago.

Similar to many capitals located alongside rivers, Paris is in the process of freeing its riverfront. The city focuses on increasing the availability of public spaces and transportation, as well as the number of bicycle lanes, and reducing traffic congestion. In 2002, it introduced the 'Paris Plage', an initiative that allows the city to close its riverside motorway yearly during the summer and turn it into a temporary walkway and beach zone. In 2013, the initiative came to life and the riverside became a walkable territory, which included temporary facilities for sports activities

and relaxation. Current Banks of the Seine projects are part of a broader effort to integrate the Seine into city life (UNESCO, 2016).

Case Study 3 : Valparaiso, Chile: Reusing spaces to bolster community's creative potential

The Valparaiso Cultural Park is a remodelled site that has previously been a prison and currently serves as a cultural centre. The Park is considered an art centre with dance, music, theatre, and circus venues, which seek to encourage the dialogue between the community members and popularize local culture with the help of exhibitions and theatre performances. In 2013, an art project 'Of Bridges and Borders' was held in the centre. The project united more than 20 artists from all over the world. One of the art objects, a mural 'To Pablo' by Ai Weiwei, was dedicated to Pablo Neruda, a poet and Nobel Prize laureate. This work became evidence of the power of culture to cut across borders and unite people, irrespective of their ethnicity and background. The art object also highlighted the significance of the park as a cultural centre, which had not received considerable government support, as well as its role in promoting inclusion, connecting cultures, and serving as a source of information (Pontifical Catholic University of Chile, Area Study Report 8).

3.2.2.4 Improve urban resilience through culture-based solutions

It is imperative for local authorities to embed heritage and cultural building practices into urban policies to mitigate environmental issues (Clémençon, 2021). Native heritage, with the famous local materials and building techniques that adapt to the prevailing climate, can foster innovation within current low-power building models (Caiado et al., 2017). Improving resilience in cities, particularly to change of climate and potential disasters, by boosting promoting the use of traditional practices and knowledge and ensuring social and economic diversity, is of paramount importance. Local governments play a major role in successfully integrating disaster and risk-prevention strategies into urban planning and day-to-day operations (Caiado et al., 2017). They are also crucial in ensuring the accessibility of risks-related information and should build on culture and cultural experiences to encourage the involvement of the whole population in the decision-making and city planning. Prominent example of sustainable, resilient, and green cities as provided below. The following sections are examples of related case studies:

Case Study 1: Copenhagen, Denmark: Peddling green growth

Putting environmental status as a top priority, Copenhagen (Denmark) has put green growth and high quality of residents' lives as the most important aspect of city policy, emphasizing its goal of becoming the 'world's first carbon-neutral capital' by the year 2025. State's environmental policy encompasses management of waste, district heating, usage of renewable sources of energy, rehabilitation of the port, and encourages cycling, which became Copenhagen's visible trademark. Promoting a culture of pedestrian and cycling and revitalizing public spaces is part of the green city policy framework. A transportation and land use strategy that began over sixty years ago transformed the city devastated by traffic congestion and pollution and resulted in the construction of walkable urban centres conjoined by railway transport. The 'Finger Plan,' which was proposed in 1947, still has a lot of local and legal support. It has boosted urban growth by the railway line from the centre of the city, while preventing the development of the 'green wedges'. To capitalize on its population density, Copenhagen has focused on the creative use of its public places. The programme is currently undergoing a major overhaul to factor high-density mobility and minimize overreliance on vehicles by increasing the use of 'green' transportation means through new travel developments focusing on cycling, car-sharing, walking, and use of public transport. The main objective of the project was to establish an inclusive public space that comprises the cultural identity if 60 nationalities living in the area. Superkilen community centre is 750 meters long and includes tracks for pedestrians and cyclists traveling in three major areas: sports ground, a green area with a playground, a marketplace, and a picnic zone.

Case Study 2: Samarkand, Uzbekistan: Role of locals in managing and protecting heritage from disastrous events

Samarkand is a city in the north-eastern region of Uzbekistan that was included in the World Heritage List in 2001. It is located on a large oasis in the Zerafshan River valley and is considered to be at the crossroads of multicultural Silk Roads. Samarkand has a history of more than 2.5 thousand years, and today, the majority of the property, except archaeological sites, is part of a historic living city. There is a constant risk that urban growth could affect historic urban areas. However, on the other hand, rural-urban migration offers financial and socio-cultural opportunities that can improve the traditional urban environment and quality of life of locals.

The conservation of the ancient urban form of Timurid city is included in the Management Plan. It does not include interventions such as the expansion of roads and the building within traditional spaces. However, the matter of urban conservation is actually quite important since it helps *the mahallas* community, an element in the Uzbek society, to exist and express themselves through the urban fabric. The *mahallas* (which can be translated as 'local') are small and sovereign social institutions in the neighbour communities. They are often located in open spaces in the urban setting. The representation of this community is considered a vital element in the management of the site. In this regard, Management Plan recognizes that training for disaster preparedness for the local communities should be conducted at the *mahallas* facilities. According to some projects, these territories will be equipped with adequate food and water supplies so that they can serve as safe havens in emergency situations.

The involvement of mahallas is one more vital aspect, which plays a role in the sustainable management and development of their historic city. Daily monitoring of heritage sites and monuments is a task that has to be shared between the city's governing body (Hokimiyat), the monuments' stakeholders, the *mahalla* committees, and the community, along with the Regional Inspection on Monuments. Those closest to the areas and most knowledgeable about them hold the responsibility of monitoring possible disasters and crises. All the parties involved in site management then has to report to the Regional Inspection (UNESCO, 2016*).*

3.2.3 Building of sustainable cities requires integrated culture-based policy creation

There are different ways that culture can integrate into policies. For example, regeneration of cities and their links to rural areas, using culture as a resource for development of inclusive spaces, promoting community participation in decision-making, and creation of sustainable and innovative financial models can be done by putting culture in focus during city planning.

3.2.3.1. Regeneration of cities and their links to rural areas by putting culture at the centre of urban planning:

Protection of cultural heritage and the promotion of innovative practices should be an integral part of urban strategies at every stage of planning and development. The cultural resources within rural areas should be protected to maximize social and economic benefits within a broader context.

Fragmented urban development approaches have proven to be ineffective, especially in terms of promoting a sense of ownership among urban dwellers. More comprehensive approaches are required to deal with major urban challenges based on different perspectives, ranging from infrastructural to urban, social, cultural, and environmental needs. Comprehensive approaches should also strengthen the connections between urban and rural areas and promote respect for the cultural values of various settlements. Smaller urban areas are prone to aging, decline, and relatively higher unemployment rates, which lead to the migration to big cities. The preservation of these habitats can go a long way in ensuring that they remain liveable, the migration rate decreases, and connection between cities and these areas are strengthened. For cities to be sustainable, urban development must be accompanied by policies that support all urban communities to make their cultures sustainable. For cities to be sustainable, urban growth and expansion should go along with all-inclusive policies that cover all the communities and ensure the sustainability of their cultures. Here are the relevant case studies proving this point. The following sections are sample case studies with policies built on culture.

Case Study 1: Russian Federation: Bringing traditional practices back to life

Revival of the manufacturing of *pastila* (a traditional fruit candy, which resembles marmalade) in Kolomna, the Russian Federation, is considered a vital factor in enhancing cultural identity and the local economy. The production of *pastila* remained underdeveloped for more than a century until recent studies showed that confectionary production was a conventional and important part of Kolomna cultural life in the 18th century.

The research attracted the local community's attention. The interested parties put their efforts into revitalizing the traditional *pastila*-making skills by enhancing the competencies of local artisans. The non-profit organization Museum City established a museum and factory where *pastila* is produced in 2009 and 2011, respectively. The emergence of such cultural sites facilitated cultural heritage tourism, enlightening the locals and the nation as a whole about this practice. From 2008 to 2015, the number of tourists has tripled. Moreover, the revival of *pastila*-making has created employment opportunities, which became a huge benefit for the local economy. Finally, this practiced enhanced the sense of national pride and raised public interest in revitalizing other cultural industries to create new opportunities for Kolomna development (Strelka Institute for Media, Architecture, and Design).

142

Case Study 2: Pekalongan, Indonesia: Craft as an honourable occupation

Pekalongan, an Indonesian port city, has always been famous for its *batik*, a detailed and garnished fabric, mostly cotton, produced by the wax-resist dyeing process. This fabric is traditionally hand-made in family-owned workshops and small rural industries. For those who grew up in Pekalongan in the early 21st century, however, studying batik craft was not the most lucrative option since young people wanted to become rich and financially secure, which is why they pursued other careers such as those in computer engineering or pure sciences.

City officials, however, have seen Pekalongan's future performance not in the pursuit of new industries but in the revival of the already famous craft: batik. A historic building was donated and designated as a batik museum. The city's mayor issued a proclamation that required batik to be incorporated into the school syllabus, in line with the current national education framework. Starting with just one school in 2005-2006, it took only 3 years for the programme to reach all 230 educational institutions in the city. Younger generation has gained insights into the skills and knowledge required of this work of art and renewed respect for the local artisans, as well as the growing interest in pursuing a career in batik, which is now regarded as a respectable job. Specialized training is offered in vocational schools, where students can acquire the skills to make batik production their future job. Pekalongan Polytechnic has established a 3-year batik course, thereby churning out highly qualified specialists.

The Long-Term Development Plan 2005-2025 is directed by the vision: 'Pekalongan, city of batik: advanced, independent and prosperous.' The goal is to envision the arts, crafts, culture, and economy of batik as the 'the main locomotive and main driving force turning the wheel of development of Pekalongan City'. Today, young Pekalonganians believe that they can aspire to decent work and revenue without having to move outside the city (Proschan, 2016).

Case Study 3: Saint- Louis, Senegal: Conservation that generates revenue

Saint-Louis Island in Senegal has long played a vital role in the cultural and economic life of West Africa. It has a more than 300-year history and was once the capital of Mauritania. The city's street layout, houses, riverbanks, quays system, and the Faidherbe Bridge add to the city's peculiar identity. Since 2000, Saint-Louis has become a UNESCO World Heritage Site.

The locals have an intricate relationship with the heritage of the city built during the colonial period due to the lack of enduring cultural property in construction materials and its links and

143

memories of the period of slavery. With tourism spiking in St. Louis, the local population has realized the value that cultural heritage has as potential source of revenue. This led to the establishment of an active public policy that focuses on the involvement of locals in heritage maintenance and growth, tourism conservation, and revenue generation. The challenges of conservation and development of St. Louis heritage depend on the overall economic development and proper utilization of resources, as well as the potential to develop heritage sites. Capacity building has become an integral part of the process and is being completed in collaboration with technical and financial partners to create a large group of technicians capable of meeting the city's conservation needs. As part of the revitalization of the regional assembly by the Walloon Region (2002-2008), a 'field school' helped more than 30 workers and technicians gain various skills, such as those in masonry, carpentry, roofing, and others. The second two-year initiative implemented by the Spanish Cooperation provided training on heritage skills to 100 young people, who got a chance to get employed by local companies or create their own businesses.

3.2.3.2 Using culture as resource for inclusive socio-economic development

Decision-makers should promote culture and provide equal benefits to communities and individuals to contribute to local socio-economic development. Authorities on both local and regional levels need to collect and study data on the influence that culture has at the local level to improve the process of designing policies (Gusmão Caiado et al., 2018).

A variety of cultural institutions, a flourishing creative sector, and preserved cultural heritage can attract tourists, skilled workers, and investors, as well as make the city a brand. Innovative methods of urban preservation, such as affordable housing options and economic structures for the development creative and cultural industries, can create employment opportunities, especially for minorities (Gutiérrez, 2002). Cultural tourism serves as a catalyst for revenue generation and enhancement of infrastructure and quality of services within the city. It is imperative that urban communities benefit permanently without compromising the authenticity of urban heritage. The following sections are sample case studies about role of culture for inclusive socio-economic development:

144

Case Study 1: Cotogchoa, Ecuador: Strengthening the local culture and fighting the city pressure

Kotogchova Parish is a mountainous region located 19 km south of Ecuadorian capital, Quito, close to the Pasochoa ecological reserve. It has significant natural resources and, due to high rates of livestock and corn production, it is central to the local economy. The population in the region consists mainly of indigenous peasant families who received the land after the agrarian reforms of the 60s. The great local traditions are displayed during regular Andean festivals and religious ceremonies. Unfortunately, the big-city pressure can pose a threat to endogenous environmental and agricultural resources, which have the potential to be the backbone of local sustainable economic strategy.

Since 2014, the Laboratory of Living Landscape (PUCE) of the Pontifical Catholic University of Ecuador (PUCE) has been working to raise awareness about the threat locally through the organization of courses on strengthening a sense of community culture. Moreover, cultural, and eco-tourism were proposed as potential ways to grow the economy in the region (Verdini, 2016).

Case Study 2: Dili, Timor- Leste: Small urban settlements in the centre of policymaking

Although Dili in Timor-Leste does not currently have specific culture-based strategies for urban regeneration, many laws are likely to be established in the future. Government Resolution 24/2009, which adopted the National Culture Policy, called for the:

> ➢ The development of a digital inventory of archaeology, architecture, anthropology, and ethnographic heritage, as well as other diverse cultural expressions.
> ➢ Construction of the National Library, School of Music, School of Fine Arts and National Museum; Incorporation of culture and the arts into school curricula;
> ➢ Preservation of the history of the city and its architectural heritage;

Similarly, Timor-Leste's current 2011–2030 development plan indicates that Dili should demonstrate cultural diversity to make the city more attractive.

However, the implementation of these policies poses a challenge, especially when it comes to providing basic services and establishing infrastructure for the city population that keeps growing at a fast pace. The influx of more than 7,000 people a year due to internal migration,

with rapid and inadequate construction, increased informal settlements, and limited resources put significant pressure on the small city of Dili to maintain sustainability.

Case Study 3: Rakhi Khas and Rakhi Shahpur, India: Development of rural areas and active community engagement

Rakhi Shahpur and Rakhi Khas are twin villages in 145 km from Delhi. These are the largest and oldest Indus archaeological sites that have historical structures with strong Mughal architectural influence from the 18th and 19th centuries. Due to their closeness to the capital and increased public attention to archaeological sites, Rakhi Shahpur and Rakhi Khas became popular tourist destinations. Due to that, the two villages, in cooperation with the Indian Trust for Rural Heritage and Development have created a development and heritage project.

The project was mainly focused on community engagement. There are many programs included, such as reuse of old buildings for tourists, waste management, creation of potable water facilities and bio-toilets, construction of health centres and organic farming plots, as well as the establishment of various courses. Such a project is a perfect illustration of an innovative and comprehensive model of rural development, which aims to integrate India's rural heritage conservation with economic boost and quality of life enhancement. One more exclusive aspect of this programme is the engagement of talented and creative rural residents and communities.

Case Study 4: Suzhou, China: Using traditional textile activities for economic boost

Being conveniently located on the east bank of Lake Tai, Wujiang county of the Suzhou District in the Chinese Province of Jiangsu is famous for its sericulture, fisheries, and industrial activities. Although the Yangtze River Delta is rapidly becoming urbanized, the region still has a rural vibe with a broad industrial climate.

Various traditional community textile activities are commonplace across Wujiang villages. For instance, in 2014, the city of Suzhou was recognized as one of the UNESCO Creative Cities for its famous silk embroidery. Additionally, the village of Shuang Van Qin has recently revived its ancillary textile production by boosting online sales. This has led to the creation of new employment opportunities in the area and attracted immigrants to it. The Wujiang government is interested in urban development and attraction of tourists to the villages by building more facilities for them near the lake. The policymakers are drafting programs that support rural tourism, help modernize the district, and strengthen the local economy along with its cultural

roots. To achieve the latter, the government has established the Phi Xiaotong Memorial Museum and the Chinese Folk Museum near the village of Kaixiangong in 2010 (Verdini, 2016).

3.2.3.3. Promote community participation in governance through culture

Culture-centric governance of cities refers to collaboration, commitment, integration, and synergy among various stakeholders. Strong cooperation between cities should be encouraged to help them grow and prosper (Hackl, 2018).

Communal management of the urban environment provides opportunities to improve essential functions in the city and access to urban services (Hajnal, 2013). Additionally, it alleviates the process of gentrification. Recognition of the values of cultural practices leads to the integration of social approaches into urban development, which means that people get an opportunity to redesign their environment and contribute to the enhancement of urban services. Inclusive growth and ownership are thus nurtured, along with dialog-based decision-making processes. Both local and national technical, legal, and administrative bodies should adapt to incorporate culture into urban planning tools. The following sections are related case studies:

Case Study 1: Bangkok, Thailand: Common heritage of the diversified community

The community of Pom Mahakan, with less than 300 inhabitants, is situated next to the remnants of the ancient city walls of Bangkok. For Bangkok managers, the community is seen as a dangerous base where inhabitants live in dire conditions, with no land ownership rights. Besides, politicians regard it as a huge hurdle to improving the Ratnakosin City area, which serves as the spiritual, historical, and monumental centre of Bangkok. However, for Pom Mahakan members, it is a strong community of fair and hardworking generations who consider themselves a large family. Therefore, their involvement and unanimity should be used as a resource to boost its stability.

Pom Mahakan is a racially and religiously diversified community. There are Muslim families, Chinese immigrants, and native communities from the North-Eastern part of the country. Having lived with each other for decades, they all share a common identity. Members consider their community as a microcosm of Thailand. They not only embrace cultural diversity, but also live-in harmony and social cohesion. Nevertheless, for managers, the community population is too diversified to be considered a single community. Politicians believe that its members have no common heritage and crafts and exist as a community for too little to consider this land as

147

their own. But Pom Mahakan residents actively demonstrate that they are the rightful owners of the land where they settled. The community's governing authorities are always cognizant of eviction threats. Residents successfully stood against drug abuse, a vice that caused harm to other communities. Besides, their houses and public places are always clean. The vision of community leaders is to safeguard the communal land, while maintaining their own way of life, preserving their history, and engaging both domestic and international visitors (Prochan, 2016).

Case Study 2: Kyoto, Japan: Keeping urban development culture-centric

Kyoto is the Japanese former colonial capital where modernism meets the heritage appreciation. In addition to the urban landscape, it is easy to spot various administrative, vernacular, and religious buildings that were well-preserved due to the heritage and institutional appreciation policies that are in place in the city. Kyoto is famous for its more than 1,000-year festival traditions, such as Gion Matsuri, which is celebrated to this day. Moreover, there are various thriving industries in the area, such as tourism, geisha districts, traditional Japanese handicrafts, and kimono production. A variety of traditional local industries and educational institutions related to Japanese culture enhance the city's reputation as an economic powerhouse.

In 2007, Kyoto had introduced a new city landscape policy. According to it, five area-specific measures have been developed around the concept of a historic urban landscape. These were: (1) maintaining harmony between modern developments and traditions; (2) conforming to the surrounding landscape within the basin; (3) improving livelihood; (4) creating spaces that reflect city's unique characteristics and identity; and (5) encouraging partnership development between government officials, local residents, and organizations. Based on these recommendations, an extensive mapping of Kyoto and its environs was carried out. Taking the landscape policy into account, the current city planning regulations are guided by: (1) historical streetscapes; (2) controlled design of new structures; (3) height limits for buildings; (4) regulations on commercial advertising; and (5) ambient view and vista.

Case Study 3: Riga, Latvia: Improving cultural development and encouraging urban regeneration

To enhance cultural development in Riga, the capital of Latvia, the city's municipality institutions have worked in close collaboration with the state officials. The State Inspection for

Heritage Protection, along with the Riga City Architect's Office, Construction Board, and the City Development Department, was responsible for crafting the long-term development programme for the city. Moreover, in 2003, the Council for Preservation and Development of the Historic Centre of Riga was established to allow stakeholders to participate in the preservation and renewal processes of the old city centre. When it comes to project integration for urban regeneration as well as restoration of barren lands and old buildings for cultural and social use, all the above-mentioned bodies are supported by Riga's Urban Institute and its free Riga network. Cooperation between different sectors, domains, and authorities has contributed to the effective management of cultural and creative activities, which can be seen by various events organized in the city within the last ten years. Moreover, city's development and renewal have been largely boosted after 2014, when Riga was nominated as a European Capital of Culture.

3.2.3.4 Develop innovative and sustainable financial models for culture

Regional authorities should financially support culture for its contribution to socio-economic development and liveability of the city.

Investments in the conservation and promotion of cultural urban heritage and culture and creative industries create work opportunities, generate revenue, and benefit of all urban dwellers. Therefore, there is a need in financial innovations, such as credit and microfinance loans, capable of supporting cultural programs (Hall, 2007). Partnerships between public and private sectors should be promoted to encourage more private investment in initiatives led by the public sector, especially by proposing incentives to mitigate risk through guaranteed minimum returns and benefits at the local and regional levels (Hiwaki, 2017). Innovative methods in heritage preservation and management, such as micro-credit assistance for economic activities and community management of local heritage, have been created and maintained in many historical sites. Below are some of the related case studies (Hall, 2007).

Case Study 1: Jeddah, Saudi Arabia: Revitalization of historic city through collaboration

Being located in between caravan routes and the Red Sea harbour, the city of Jeddah can boast of a unique urban heritage. The town's arrangement and its tower-house design, with the houses being mostly constructed in the 19th century, creates a perfect balance between residential and public areas. Since the 1960s, urbanization and the migration of rural residents

149

to the outlying districts have led to the weakening of Jeddah its socio-economic spheres due to the rapid expansion of another new city. A portion of the urban heritage has been destroyed by increasing land prices. However, in the late 1970s, the mayor of Jeddah sought to cease the destruction of a city and formulated a municipal protection plan. In the 1980s, the authorities in Saudi Arabia surveyed the city, which led to the creation of the first conservation law. 500 homes of special historical value were upgraded or renovated, while public spaces were redeveloped.

Since 2006, the municipality, he private sector, and the Saudi Tourism and Antiquities Commission have been cooperating in order to establish a new plan for the protection of Jeddah through tourism. The programme relies on a legal mechanism that allows the exchange of ownership rights in the old city for control rights in the new city. Such a move helps to cope with speculative pressures. As a result of these efforts to reflect a new strategy in favour of the state's urban heritage, the city was added to the World Heritage List in 2014. According to the program, the role of the ancient city in the area is enhanced, which in turn increases the value of urban heritage. Nonetheless, the framework has promoted a process of gentrification, which caused a forced removal of the low-income foreigners who previously resided in the historic houses(UNESCO,2016).

Case Study 2: Quito, Ecuador: Financial needs of restoration and preservation projects

Quito, the capital of Ecuador with a population of 2.2 million, is regarded as one of the oldest and most protected South American cities. It was founded in the 16th century by the Spanish settlers and is located on the ruins of settlement of Incas, which, in the past, was the Kingdom of Quito. The city combines the preserved religious architecture with influences from various countries such as Italy and Spain, as well as cultures such as Moorish, Flemish, and indigenous ones. Since 1978, Quito is one of two cities on the UNESCO World Heritage Sites list (including Krakow, Poland).

After the 1987 earthquake, the Rescue of the Cultural Heritage Fund (FONSAL), which worked in the period of 1987 to 2010, also put its efforts into preserving the city's heritage. The organization is primarily funded by taxes and loans from the Inter-American Development Bank. In the mid-1990s, the City Council of Quito formulated a major plan to preserve the historic centre, with the main objectives being the construction of a trolleybus to alleviate traffic

troubles and air pollution, repair of sewer lines, as well as the restoration of historic buildings and churches. Moreover, the Quito's Historical Centre Rehabilitation Project was launched to facilitating tourist travel by preserving the historic feature of the city, restoring traditional commerce, and enabling access to services. The Ministry of finance has allocated US$10.33 million to two projects, while the Inter-American Development Bank has loaned US$41 million for them (UNESCO,2016).

3.3 Outcomes from case studies

1. Cities centred on people and culture. Humanising urban areas through culture to upgrade their liveability and enable individuals to interface with their networks and shape their metropolitan surroundings. This humanisation can occur in various ways:

- Enhancing the habitability of urban communities and saving their identity. Preserving and securing cultural legacy ought to be coordinated into people-centred urban development strategies to show respect for their culture (Hiwaki, 2017).
- Encouraging innovativeness and advancement in urban development through culture for sustainable development of cities and improvement of livelihoods of locals.
- Building a culture for dialogue and peace-building programs. Culture is an important aspect of urban programs, which seeks to facilitate social connections, stand against urban violence, and promote peace and collaboration among people (Kafka et al., 2020).

2. Culture is at the centre of shaping quality urban spaces. There are different ways that culture can integrate into policies:

- Fostering mixed-use and human-scale cities based on lessons learned. Urban heritage gives an illustration of a human-scale and mixed-use urban ensemble integrating cultural and natural resources. Local policymakers can raise awareness of historical cultural assets by considering their development strategies.
- Promoting a built and natural environment. Both natural and cultural heritage must be preserved so that communities can thrive.
- Improving the quality of public spaces by focusing on culture. The planning and utilization of public spaces should be based on heritage conservation as well as cultural and creative activities promoting social inclusion.

- Enhancing urban resilience by offering culture-centric solutions. Policymakers have to combine heritage and traditional knowledge with strategies to solve urban issues.

3. Sustainable cities require a policy-making approach that is based on culture. There are different ways that culture can integrate into policies, such as:

- Renovating cities and their links to rural areas by putting culture at the focus of urban planning. Preservation of cultural heritage and the promotion of creativity should play the biggest role in planning urban spaces. The cultural resources of small habitats should be preserved to boost economic and social benefits of the whole regions.

- Creating sustainable economic models. Authorities in the areas should make sure that appropriate financial support is allocated for culture. In the long run, it will contribute to socio-economic development and liveability in the cities (the table below is the summary of the outcomes from case studies).

- Using culture as a resource of sustainability for holistic socio-economic development. Decision-makers must focus on the culture aspect to contribute to comprehensive development of cities and benefit the local communities. National and regional authorities have to continue developing indicators and collect data on the impact of culture at all levels to improve policies.

- Encouraging participatory cultural processes and increasing the role of communities in decision-making and governance. Culture-based and people-centric urban governance presupposes close collaboration between all stakeholders. Promotion of robust regional partnership between cities will help all of them to flourish. The summary of these outcomes are showed in the table (3.1) below:

Table 3. 1: Outcomes from case studies

Policy area	Role	Outcomes
People	Realizing the power of culture in facilitating the development of inclusive cities	• Human-centred and inclusive cities • Peaceful and tolerant communities • Cultural and contemporary cities
Environment	Enhancing the quality of the environment with the help of culture	• Green and compact cities • Sustainable practices • Safeguarded urban identities. • Inclusive public spaces
Policies	Incorporating culture in policies to facilitate sustainability in the development of urban areas.	• Well-financed and sustainable urban development • Improved links between rural and urban areas • Upgraded urban administration

Table 3.1 Ref: extracted from Hangzhou Outcomes, 2015 (author's own)

3.3.1 Conclusion remarks

Apart from the study results mentioned in the previous paragraph, this report's analysis affirms that a balanced approach to urban development is vital to ensure its sustainability. Policies that ignored past culture have been limited and showed no success. This idea was underpinned by the international community that adopted the 2030 Agenda for Sustainable Development.

A review of these case studies demonstrates that culture and the creative industry play a considerable role in sustainable development. Many governments and regional authorities have capitalized on culture's power to promote sustainable urban development, as shown in the various case studies reviewed in the paper.

In practice, some examples suggest a significant development in relation to culture-led sustainability, such as the concept of heritage, along with the approach put forward by the 2011 Recommendation on the Historic Urban Landscape. According to it, cultural heritage is no longer considered in the framework of historical areas and old cities. Therefore, heritage and preservation ceased to be an object of concern or interest only for experts in the sphere or small groups interested in it. Nowadays, it belongs to the communities, citizens, and policymakers who show great engagement in its protection and safeguarding (UNESCO, 2011).

The recent debates on adopting the 2030 Agenda for Sustainable development have confirmed that the role of culture in cities' sustainable development is vital, ranging from enhancing cities' liveability and encouraging inclusivity to foster quality and culture-based building practices.

The New Urban Agenda issued at Habitat III is based on the culture's power and significant role in the city development with heritage conservation, creativity, and cultural diversity in the centre (Habitat III, 2016). The following chapter explains the Free Trade and Special Economic Zone development in Iran and kish as a free trade zone.

Chapter 4: Kish as Free Trade zone in Iran

4.1 The rise of Free Zones

Over the past few decades, the emergence of special economic zones (SEZs) and Free Trade Zones (FTZs) has become a major focus of outward-based strategies in many developing countries. Several factors have been used to justify this trend. First, host countries are seen as great attractions for Foreign Direct Investment (FDI), and an important component of the policy to encourage manufacturing of export good and achieving lasting economic growth and diversification. Second, free zones are spearheads for work growth in countries with high unemployment, reducing its rate both regionally and nationally. Third, the zones have an overt attraction in that their establishment represents partial reform and a more desirable alternative to full liberalisation (Miyagiwa, 1993; Madani, 1999).

4.2 Development of Free Trade Zones in Iran

Interest in the establishment and operation of SEZs in Iran has begun in the 1970s, with the discovery of the potential that Kish Island in the Persian Gulf has as a top commercial area in the South. However, uncertainties in the 1980s, after the revolution and the war in Iraq, caused two-decade delays until interest in this subject was revitalised. The First Five-Year Development Plan (master plan) (1989-93) became the basis of the first FTZs, with a reconstruction effort being made upon the war end. The three areas designated to become FTZs in southern shores of the country were the two islands in the Persian Gulf, Qeshm and Kish, and Chahbahar located at the far south-eastern part of Iran near Oman Sea.

The momentum gathered pace, and some more significant steps were taken. In 1992, a High Council was established with legislative, operational, and managerial responsibilities for these and future regions. The development and ratification of laws and regulations governing the functioning of free zones were one of the Council's top objectives. By 1993/94, this mission was accomplished. Therefore, all three zones had been formed by the end of the projected Plan period, marking 1993 as a turning point in Iran's search for FTZs. Another three FTZs were developed 15 years later. Aras and Anzali, two of the newly formed regions, are situated in the northern part close to Armenia and Azerbaijan, on the Caspian Sea's shores with good links to CIS states. Arvand, the third, is located in Khuzestan's south-western province and shares international borders with Kuwait and Iraq (see table 4.4).

155

Table 4. 1: Free trade zones (FTZ) in Iran

	Established	Area	Location	Nearby Countries	International Borders
1.Kish	1989	91 sq. Km	Persian Gulf	GCC states	Gulf waterways
2.Qeshm	1990	480 sq.km	Strait of Hormuz	GCC states	Gulf waterways
3.Chahbahar	1991	140 ha	Southeast	Pakistan, Oman, GCC	Oman Sea waterways
4.Aras	2003	97 sq.km	Northwest	Azerbaijan, Armenia	Nakhchivan
5.Arvand	2004	173 sq.km	Southwest	GCC states	Iran and Kuwait
6.Anzali	2003	3200 ha	North (Caspian Sea)	CIS, Caucasus	-
7.Maku	2010	500000	Northwest	Azerbaijan, Nakhchivan	Azerbaijan, Nakhjavan, Turkey

Source: Iran's Free Trade-Industrial Secretariat website, http://www.freezones.ir/

Iran's experience with FTZs has attracted some economic attention. Due to the isolationism prevalent in the period after the revolution as well as the post-war destructions of the 80's, these zones were perceived as potential boosters to the country's economy, while the position of Iran in the international economy was questionable. The war time were especially harsh for denying the economy imported goods, raw materials, and industrial inputs. The benefits of the FTZ are formally expressed when referring to their potential to solve Iran's economic problems such as lack of management skills and public resources, capital shortages, low non-oil exports and technological levels, etc., as well as to alleviate Iran's desire to engage in import. The reason behind the selection of the abovementioned zones lied in their location – close to international waters where they could serve as gateways and gain international attraction.

The customs regulations enacted for the regions also increased the tendency to develop as import conduits for Iran. These laws allowed domestic travellers to return imported goods in accordance with Iran's general customs and excise regulations. This practice inadvertently promoted their development as major domestic tourist destinations. This practice helped in two ways. Firstly, it became a major source of revenue, as the zonal authorities limited the

revenues they could levy on land and customs revenues and goods. Secondly, county's isolationism, and thus, limited international tourism, led to the increase in the number of domestic travellers. Therefore, in the early years, FTZs became major consumer goods import channel which emerged against the backdrop of growing domestic tourism that was very notable during the initial stages of growth of Kish. However, this practice contradicted the initial idea of making FTZs platforms for export and, thus, in 2003, it was abandoned with the emergence of three new areas mentioned above (Zakarai, 2006, p. 3-4).

First Five-Year Development Plan highlighted the need for 'protected customs areas', introduced regulations ensuring that areas managed by Customs in Iran and those on the shore were overseen by the Ports and Shipping Organisation (Javadi, 2017, p. 33). Under the Act, the first SEZ was established in 1992 in Sirajan under the name 'Protected Customs Territory'. Sirjan has, however, become SEZ later on. A second zone then followed. Sarakhs located on the old silk route that connected Iran's north-eastern province to the states in Central Asia through a new railway line (Mashad-Sarakhs-Tajan). The Iran has then seen a rapid increase in the number of SEZs. A third one was established in Anzali port to transform into an FTZ later, while the fourth one was created in Qeshm and covered the non-FTZ spaces within the island. In 1997, more SEZs were established such as electronics zone in Yazd and petrochemicals-free zone in Bandar Imam. These were followed by an oil and gas SEZ in Pars and a mining zone in Lorestan created in 1998 and 1999 respectively. Additionally, there was a shipping zone created in Bushehr. Currently, there are 15 SEZs in Iran (Table 4.5).

One more crucial provision under the first plan was the creation of SEZs all over Iran. However, while accessibility of imported goods is not of the utmost significance for establishing Iran's FTZ, this is a more apparent reason for creation of the SEZ. Prior to the revolution and the 1970's oil-boom, there were delays in various industrial units when it came to sourcing their produce from abroad. To address the issue and help import and store these goods, Tehran's Customs Office has set up facilities designated for these activities. The need for these has also increased significantly when the war begun.

Table 4. 2: Iran's Special Economic Zones

SEZ	Established	Area	Location in Iran	International Links	Special Theme
1.Sirjan	1991	1380 ha	North of city of Sirjan	300 km North of Bandar Abbas	Multi-purpose
2.Salafchegan	1997	2000 Acres	Near Qom (185 km from Tehran)	No direct link	Multi-purpose
3.Sarakhs	1996	5200 ha	Northeast (165 km from Mashad)	Turkmenistan	Multi-purpose
4.Petrochemical Special Economic zone		2000 ha	Southwest, (Mahshar a district of Bandar Khomeini)	Persian Gulf shore	Petrochemical
5.Bandar Bushehr		9700 ha	Southwest (Bushehr port	Persian Gulf shores	Shipping and Port facilities
6.Arg-e - Jadid	1997	1100 ha	10 km from Bam	No direct link	Multi-purpose
7.Iran Shipbuilding & Offshore Industries Complex CO	1999	2000 ha	South (near Bandar Abbas)	Persian Gulf shores	Energy intensive mining industries
8.Shaheed Rajaee Port	1999	20 sq. km	South	Persian Gulf shores	Shipping
9.Bushehr	1998	10,000 ha	South	Persian Gulf shores	Energy (gas, oil, and petrochemical)
10Shiraz	2000	300 ha	Central (near Shiraz)	-	Electrical and electronic
11.Amir Abad Port	1997	60 ha	North (Mazandaran)	North-South (Sari-Bandar Abbas	Port and shipping services

158

12.Payam	1992	3600 ha	50 km west of Tehran	-	Air cargo, postal transportation, storage and time sensitive goods
13.Yazd Textile SEZ	2000	570 ha	Central Iran	-	Textile
14.Keshti Sazi Khaleej Fars	2000	--	Hormozgan	-	Shipbuilding
15.Lorestan	1999	71	Western Iran	-	Stones and quarry

Source: Iran's Free Trade-Industrial Secretariat website, http://www.freezones.ir

This research aims to develop a contextualised framework for culture-led urban development in Kish as one of Iran's free trade zones. Based on the literature review, to develop the best strategies for culture-led urban development. Identifying the mechanism contributing to sustainable development and the stages for mechanism development and their implementation and improvement is crucial.

For this purpose, the following sections explain the main objectives of Free trade zone that help to identification of mechanisms for sustainable development, and also identification of existing governance, legal framework, and current strategies for urban development help to develop, implement, and improvement of these mechanisms:

4.2.1 Objectives

The Objectives of Free Trade (Kish one of these zones) and Special Economic Zones are generally divided into stated and unstated objectives. The stated objectives are:

- Attracting foreign direct investment.
- Contributing to employment creation.
- Promoting and expanding exports.
- Upgrading domestic technology capacity, management skills, and knowledge.
- Restoring dilapidated and stressed areas and regions.

The implicit or unstated objectives are:

- Reducing anti-export bias while maintaining economic barriers.

159

- Acting as experimental areas to test new approaches and policies. For example, economic, legal, and employment policies can be put to test in these areas before being considered elsewhere in the country (FIAS, 2006; Madani, 1999).

Free zones in Iran are a combination of policy and infrastructure justification. The establishment of the FTZ (Free Trade Zone) and SEZ (Exclusive Economic Zone) includes regulated customs and administrative controls, packaging import and export tariff exemptions and policies, and a more liberal foreign exchange policy to increase and decrease competitiveness and to reduce entry costs as well as operational expenses for investing companies.

For free trade and industrial areas, the main goal was to make Iran less isolated in the global economy by encouraging investment from various local and international sources to increase productive exports. As they are in areas with major waterways and main regional markets, it can help the country develop its non-oil exports thus diversifying its economy.

SEZs are expected to expand across the country and play a proactive role in revitalizing designated areas as well as improving supply network and distribution system in Iran. Given the country's size and known issues with the supply, management, and distribution of imports, it is shocking that SEZs have the potential to generate income and revenue at the same time, as well

as guarantee proper transportation of goods and creation of jobs for the local communities.

4.2.2 Main Benefits and Attractions

Iran has a major geo-political and economic importance in the Middle East and attracts a lot of interest globally. However, it is often perceived as a risky investment choice.

Iran has a large population of approximately 70 million, a large territory (three times larger than Spain) and is among the world's largest oil producers being fourth globally and 2nd within OPEC. The gas reserves in the country are 15% of the world's total reserves and are second only to Russian Federation (Shih-Tse Wang & Chen, 2019). It has a good healthcare and education system, with an abundance of educated and well-qualified staff. In addition, its long history and vibrant culture provide unique tourist attractions and enhance its potential as a crucial gateway between the Eastern and Western worlds (Kafka et al., 2020).

Within this context, SEZs in Iran offer a wide variety of attractions to pull Foreign Direct Investment (FDI) into the designated areas along with new businesses. The three sets of benefits include:

- Special legal framework in the zones and streamlined business practices
- Financial motivation and physical attraction to draw investment.
- Geographical advantages due to the choice of the channel's investment location.

The main legal advantages in the zones are related to business-friendly and streamlined bureaucracy rules and regulations put in place, such as investment protection, work laws, and regulations pertaining to banking and foreign exchange.

Examples of these rules in Iran's FTZs are:

- Joint venture with unlimited investment and share.
- Provision of guarantees and complete security of foreign investment.
- No restrictions on currencies.
- Full repatriation of benefits and capital to other free zones and countries.
- Selling/leasing land to Iranians and leasing land to non-Iranians.
- Systematic bureaucracy, including company registration and business formation.
- No entry visa conditions for foreign nationals.
- Simple labor rules and employment in this area.

Major policy incentives on offer in this area include:

- Tax holiday of 15 years for companies in the FTZ
- Duty exemption for machinery and raw materials brought in for manufacturing and production of good within the zone territory
- Goods re-exported and exported from the Zone to Iran are tax free
- Well-mapped infrastructure and competitive support services.

With heightening competition in the global markets and the creation of FTZs all over the world, these kinds of special regulations and incentives weaken the competition. As similar offers become more widely available and due to the competitiveness of investments in general, geographic features became critical to the ultimate success of FTZs (Ite, 2005).

As earlier mentioned, Iran's FTZs are largely selected for their strategic locations in the country, in addition to their ties with neighbouring countries. This is particularly the case of FTZs based on their expected role in promoting exports (Ives & Kendal, 2013).

As it has been elucidated, all the 6 FTZs can access to the international waterways of Iran or have common international borders. For instance, the islands of Kish and Qeshm have strategic locations in the Persian Gulf. Anjali is located in the Caspian Sea and Chabahar is a direct gateway to the Sea of Oman. Similarly, the Aras FTZ is located on the border of the Caucasus region, while Arvand zone is near Kuwait and Iraq. In addition to their location, all FTZs have good access to major transport networks locally, regionally, and internationally (Kirshen et al., 2018). This ensures their closeness to regional markets, facilitates the import of manufactured goods and raw materials, and eases access to various markets - mainly those of Central Asia and the CIS in the North as well as the GCC states and the Persian Gulf in the South (the so-called North South route). Even from the East-West perspective, Iran's location on the old Silk Road, and the presence of various free zones within it, add to the FTZs role on these markets.

The SEZs are also interspersed throughout Iran and are linked to important centres of economic activity within the country and with its neighbours. For example, Salafchegan, Payam, Yazd, Shiraz, Arg-e Jadid, and a few others are located at or near ports of Petrochemical SEZ, Keshti Sazi Khaleej, Bandar Rajaee, and Bushehr (Kirshen et al., 2018).

All of these sectors provide government investment in infrastructure along with utilities and services. They possess sufficient skilled and semi- skilled human resources and are rich in natural resources such as crude oil and gas (Koya & Chowdhury, 2019). These zones also have excellent climatic conditions that are ideal throughout the better part of the year, and together with Iran's spectacular historical heritage, have the capability to serve as a major tourist attraction. Despite these advantages, attracting FDI to these areas has been quite challenging since the introduction of free zones in the first decade (see Appendix A 16 for comparison of rules and regulations in FTZS and SEZ).

4.2.3 Governance and the legal framework in FTZs

The following sections explain the governance structure and the legal framework in Free Trade zones. Identification of these rules help decision makers in kish to make strategic planning for development based on these existing rules.

162

4.2.3.1 Governance

The governance structures of Iranian FTZs and SEZs differ significantly. Regulations within the FTZs are defined by the 1999 "*Law on the Administration of Free Trade-Industrial Zones*" that was first passed in 1993 as a part of the First Five Year Development Plan and altered later. It includes 28 Articles and 8 Notes, covering all aspects of the operation, management, and governance in the zones (see appendix A 17).

Based on this law, all plans for the creation of new territories and establishment of their borders are subject to government proposal and must be approved by the Islamic Consultative Assembly. Furthermore, under the powers delegated by the Council of Ministers, each region is governed in the form of a company, which has an autonomous legal status, with its capital being vested in the government.

"The Authority and its affiliates and subsidiaries shall be exempt from the laws and regulations governing state-owned companies and from other general regulations decreed by the government… these companies shall be subject to the Commercial Code" (Collection of Laws and Regulations Related to Free Trade, Industrial, and Special Economic Zones, 2016, article 5).

The zones are managed by a board of directors comprising 3-5 people appointed by the board of ministers. The President appoints the Managing Director, making a choice among the board members. A Director has the Supreme Executive Authority on Economic Affairs and Infrastructure in the Zone.

In addition, High Council was created to oversee the activities within the zone. The members of the Council are various ministers responsible for commerce; finance, economic, social, and labour affairs; roads and transportation; energy and petroleum; urban development; planning, management, and organization; environment protection, banking industry, and others. The President is the leading figure in the Council who appoints a Secretary to the Council Secretariat.

Under Article 138 of the Constitution, FTZ management is a responsibility of the Secretariat. There are clear guidelines and governing bodies dictating the maintenance and operations within FTZs. To prevent conflicts and inconsistencies among various departments working within zones, the heads of such departments are appointed based on recommendations that are made jointly by Director of the FTZ, the Chairperson, and the highest-ranking representative

163

of the relevant executive department. Article 27 of the Constitution then clearly defines the executive powers of the relevant departments, which helps to keep any inconsistencies and confusion of the responsibilities to a minimum.

The operation of special economic zones is maintained under different conditions. As of 2005, these areas are governed by Article 25 of the Second Five Year Development Plan (1994-99). In 2005, The Expediency Council intermediated between the Majlis and the Guardian Council to establish the set of regulations commonly known as "The Law on the Establishment and Administration of Special Economic Zones in the Islamic Republic of Iran". This law includes 25 Articles and 12 Notes and covers everything related to management and operations within such territories.

As will be seen later, there are many similarities between these regulations and those governing the FTZ. However, whereas in FTZs High Council is responsible for managing zones, the SEZs do not have such a clear allocation of executive powers (Osuntade, 2021). According to Article 3, SEZs can be managed by entities within and outside the state, as long as they are approved by the Board of Ministers. FTZs, however, are specifically state-managed. Additionally, the administration of such zones is decentralized (except in certain cases), with each territory being subject to the rules of the constitutional (public or non-public) body that oversees the territory (Parnell, 2018). Practically, this implies that the governing authority has all the executive powers (for instance, the National Petrochemicals Company, which is the parent company, oversees the operations of the Petrochemical SEZ). Moreover, this points to the multiplicity of decision-making processes of those in charge and one of the benefits of such decentralisation is that the budget for every zone is determined by the parent organisation serving as a local governor (Hakimian, 2009).

4.2.3.2 The Legal Framework

The "Law on the Administration of Free Trade-Industrial Zones" discussed earlier provides a set of various regulations and rules that are business friendly and targeted at companies operating within the zones (Osuntade, 2021). These include guaranteeing complete protection to foreign investment. For example, there is no limit to investments by joint ventures in zones. Therefore, it is possible to establish wholly owned foreign firms in the zones, despite the 49% limit on foreign ownership in the SEZs. Additionally, in FTZs:

164

- Visas for foreigners are given at the entry points.

- Specific labour and employment regulations are put in place.

- Currency restrictions are non-existent.

- Those from Iran can buy, sell, and lease land, while non-Iranians can only lease it

- Full profit and capital repatriation are available to other free zones in Iran and other countries.

- Bureaucratic processes for setting up and registering companies are simplified and sped up.

The similarities between regulations for the FTZs and special zones:

- Freedom of entry and exit for all types of capital.
- Land lease availability for foreigners.
- Availability of the foreign employment (with a 10% limit).
- Special employment and labour regulations.
- Custom duties are not imposed on goods made in both zones upon their export to the mainland and during transit.
- Still, there are certain differences between the zones:
- Unlike in FTZs, the requirements for visa entry of Iran and SEZs are the same for foreigners.
- FTZs provide tax exemptions for companies for 15 years. On the contrary, general tax regulations of Iran apply to firms in SEZs.
- Retail transactions are available to everyone in FTZs, while in SEZs, foreigners are the only ones who can make them.
- Foreign ownership is unlimited in FTZs and is limited to 49% for joint ventures within SEZs.
- Retail sales are prohibited in SEZs and new FTZs, such as Anzali, Aras, and Arvand, but allowed in Qeshm, Chahbahar, and Kish.
- FTZs enjoy the availability of offshore banks with free exchange rates. In SEZs, there are exchange regulations and only local bank services.

165

In general, FTZs have a long history, have clear administration and governance structures and regulations, and get plenty of financial benefits from business-friendly economic and legal environment (Olatunji et al., 2016). The favourable employment and labour laws applicable in the FTZ are a case in point. The so-called "Regulations of Employment of Human Resources, Insurance and Social Security in the Free Trade – Industrial Zone" are far more lenient and less detailed than Labour Code which of Iran that is known for being prescriptive, specifically when it comes to salaries; work contract termination or suspension; or employment conditions for vulnerable groups, such as youth and females. (see appendix A 15 for detailed comparison of the FTZ Labour Regulations in Iran).(See appendix A 17 for Collection of laws and regulation related to Free Trade, Industrial and Special Economic Zones that are compiled by department of compiling, expurgating, and publishing law and regulations) (Javadi,2017; Hakimian, 2009).

4.2.5 Challenges for Free Trade Zones

Iran's Free Trade Zones have sought to serve as a separate haven to attract capital investment and accelerate Iran's goal for diversification of the economy. The provision of financial incentives and facilities has attracted investors, both foreign, and domestic, and prompted the increase of Iran's non-oil exports (Olatunji et al., 2016). This is a huge contrast in comparison to the major territorial policy that the economy is currently pursuing.

However, the experience of various free trade zones globally suggests that success is characterized by their ability to use geographical and local interests, along with a business-friendly environment to attract more and promote current internal investment (Olatunji et al., 2016). This requires further economic stimulus, a clearly outlined legal framework, a well-organized bureaucracy, and the necessary infrastructure.

The challenges facing Iran's free zones are largely due to two types of factors: those that arise from the operation of the zones and their design, and those related to the broader macro, such as economic policies, the main general occupational environment, and regional competitive land (Monaheng, 2016). Among the micro-level challenges related to the zone are not paying enough attention to goals, objective clarity, governance issues, and other outsourcing issues.

Kish Island, perhaps the most successful and prosperous of Iran's FTZs, has deviated from its initial goals of export incentives and job rate increases as it has emerged as hub for tourism and domestic export rather than foreign export (Mollett & Cameron, 2016). One of the causes is the

166

early customs regulations (attracting domestic visitors and increasing the zone's appeal to trade and commerce) as domestic travellers return to the zone with Iran's common customs and imports from abroad (Monaheng, 2016). The island has promoted tourism and trade on a large scale and has been developed as a major route for import of consumer goods.

For example, from a budget perspective, there are also resource implications in the form of micro-level challenges, such as those with SEZs that rely on budget decisions made by the authorities and companies responsible for them (Missimer et al., 2017). They have a limited ability to generate revenue as it is based on the sale of land and the company-allocated budgets. While developing and expanding infrastructure can be a limiting factor in the early development stages, their development requires a more strategic approach and a tougher timeline than is possible in a wider organization if they become part of it (Missimer et al., 2017).

It would be a mistake to include all the challenges facing the zone in their design and operation matters. There are some broad macro contexts in which they exist, which impact their ability to attract investments and, ultimately, their success (Missimer et al., 2017). Therefore, it is crucial to examine their relationship with the mainland and review how the trade environment within the region is seen in the large-scale international trade.

It is widely believed that most of the successful areas will benefit from their relationship with the mainland (Madani, 1999). Free zone and mainland policies in Iran are mainly dissociating and pulling in different directions. Despite best efforts in the zones, their ability to attract investment has been limited by Iran's unfavourable external perception of the investment destination and the internal urgency of expanding such investment.

The economic climate has been less business-friendly for a long time since 1979. In addition, Iran put itself on a separatist course in the global economic zone, which has proved unfit for foreign private investments (Missimer et al., 2017). This led to the creation of a weak investment climate where both foreign and local investors were careful to engage in long-term productive investments.

International relations of Iran have exacerbated negative domestic economic policies and the business climate, making inflows of foreign direct investment (FDI) into Iran even more difficult during this period. Even prior to the recent nuclear stalemate with the West, leading to

167

sanctions aimed against country's international interests, U.S. arbitrary sanctions have kept foreign investors away from Iran for more than a decade since 1996 (Missimer et al., 2010).

The work of areas of interest to foreign investors has also been challenging from the outset, reflecting Iran's general difficulties with FDI (Malmaeus & Alfredsson, 2017). For example, there is no zone risk for pro-business policies in government zones, and there are major territorial policies, as well as many contradictions surrounding institutional ambiguities and foreign interests (Missimer et al., 2010). The possibility of provoking political and military conflict can adversely affect the investment risk profile and prevent the influx of the costs inherent in such investment decisions.

This can be easily seen upon the review of Iran's place in world business rankings, which are not quite impressive. Table 4.9 shows the results of the abovementioned rankings based on 11 business-related categories. From the table, Iran ranks 137 among 183 countries, which is closer to West Bank and Gaza (139) rather than its peers in the region. To compare, Saudi Arabia and Bahrain are in top 20, Qatar and UAE rate under 40, while Oman and Turkey have respective rates of 65 and 73. Moreover, Iran in 7 of the 11 categories (Business closure, Cross-border trading, ease of doing business, Employment, Investment protection, Licensing, and Property registration), Iran is at the bottom 50:

Table 4.3 : Iran's International business rankings, 2010 (Doing Business, Iran (2010))

Rank	Doing Business June 2008–May 2009
Ease of Doing Business	137
Starting a Business	48
Dealing with Licences	141
Employing Workers	137
Registering Property	153
Getting Credit	113
Protecting Investors	165
Paying Taxes	117
Trading Across Borders	134
Enforcing Contracts	53
Closing a Business	109

Iran only makes it in the top half of the list when it comes to contract enforcement and starting a business. This point shows Iran's growing competitiveness in global trading and, especially, specifically in the regions which Iran must grapple with. The successful examples of Dubai and other smaller, Gulf states that are rich in resources raises the bar for Iran and its experiment with the Kish Island. Overall, economic powerhouses in the Gulf region, with their undying determination to develop sustainable economy-rich cities, in addition to countries such as Turkey with connections to Europe, pose stiff competition for Iran (Malmaeus & Alfredsson, 2017).

Iran needs to reform its mainland policies on FDI and the general economy. Without this reform future success in Iran's free zone will be hindered. Iran's mainland policy reform, both the general economic one and FDI-related, can be upgraded and aligned with those it aims to imitate (Hamada, 1974). Identification of these challenges help decision makers in FTZ to make the best strategy to cope with these challenges. The following sections provide more explanations on Kish and its current development as case study for this thesis.

4.3 Kish as Special free trade zone

After identifying the objectives of free zones in Iran and their legal and governance system, this section is overview about Kish and current strategies and management system. Upon the Revolution Council's legal resolution in 1979, Kish became a free port and its activities were monitored in accordance with law on free zone management (explained in section 4.2.3) . The Kish Free Zone mission is holding advanced industries and IT, providing cultural-welfare services, establishing petroleum trading products and services stock exchange market, and creating a hub for local and international conferences and expositions to boost regional tourism (Madanipour, 2019). The following parts explain some of the kish's characteristics:

4.3.1 Geography and Population

Kish Free Zone is situated in the northern coast of the Persian Gulf, 18 kilometres off Iranian southern coast. The island is an oval- shaped, 92-km^2 area, 15 km in the big and 8 km in the small diameter respectively. With a population of about 26,000 residents, and a million people visiting Kish each year, it is the fourth most visited holiday spot in Southwest Asia .

With regard to the political and executive departments of the state, the Kish Free Zone falls within the province of Harmozgan and the city of Bandar Lengeh. The geographical features of Kish Island, specifically its location in the Persian Gulf, create major opportunities for tourism and trade. Visitors can enjoy favourable weather during the 8 months of the year and flourishing coral beaches. Keeping in line with international standards with its stylish shopping centres, hotel apartments, hotels, and various entertainment and sports facilities, the Kish Free Zone becomes a tourist destination for about two million people each year.

4.3.2 Topography of Kish Island

Kish Island is flat, has a partial height of 32 meters above sea level, and does not have mountains or high hills. The highest point of 45 meters is in the eastern region of the island, with a slope leading to the sea. The maximum width measured between the Customs Port-Lighthouse is 7.5 km. Kish International Airport is built in the middle of the island, where the land height is around 35-40 meters. The steep parts of Kish are the slopes going from the north of the airport down to the beach near the Shayan Hotel.

4.3.3 Tourism

Many tourists visiting Kish Island are unaware of its position as the prosperous trade pillar connecting Europe, China, and North Africa. While there have been no extensive archaeological excavations, each site in the area has ancestral remains and monuments reminiscent of the island's glorious past (Lixinski, 2019).

During development projects and some limited archaeological excavations, a few valuables have been unearthed on the island. Currently, they are a part of a beautiful collection accessible to the public in the Arts Centre Building (Kurowska & Javornik, 2019). The collection includes local and foreign coins, a gun carriage, copper and ormolu vessels and pots associated with various historical periods, tombstones, and stone inscriptions of the early Islamic era written in Koofi alphabet.

4.3.4 Investment Incentives

1. Visa-free entrance
2. Easy capital transfer
3. Tax exemptions for economic activities for 15 years after the operation date

170

4. Capital transfer freedom

5. Flexibility for banking operations

6. Fast administrative activities

7. Legal rights guarantee for foreign investors

8. No limitation for foreign cooperation or investment

9. No limits on buying, selling, and exchanging currency

10. Chance to get foreign investment without cooperation with Iran

11. Possibility to buy and sell land, rent it out for domestic investors, and lease it to investors

12. Processing of currency transfers and transactions within the area through real and legal persons

13. Contract-based rules for relations between employer and employees.

14. No limitation on commodity entrance except for the those inconsistent with the Islam or free zones regulations.

15. Industrial and intellectual ownership as well as company registration through Free Zone Organization

16. Transit and re-export of import with minimal formalities

17. The mainland exporting of goods produced with consideration of their value-added index.

18. Minimization of formalities for exporting of the Zone-produced goods abroad or to other free zones.

19. Exemption from commercial interests and customs tax for the industrial manufacturing machinery imports of Kish industries and raw materials (www.freezones.ir).

4.3.5 Education

Public education is of enormous significance for the sustainable development of the territory. One of the leading educational institutions on the island, Kish University, was founded in 1996 and currently has 360 students. Activities in support of educational development include the provision of educational opportunities for all social classes, expansion of existing educational centres and building of new ones, development of applied sciences, use of technology across the institutions, and the encouragement to receive university education by launching courses in collaboration with creditable establishments, both local and those abroad (Kurowska & Javornik, 2019). Many of these are attributed to the KFZO (Kish Free Zone Organisation) that

171

has undertaken initiatives such as the construction of new schools and the creation of educational spaces where professional and technical courses are given priority. Because of such changes, more students are flooding educational establishments each year.

Since 2001 and till 2005, the number of educational spaces on the island has increased by 40% and currently spans over 4658 m2. Moreover, KFZO has set up various institutions that are actively used by locals, such as Kish Institute of Science and Technology, Kish Institute of Arts and Sciences, Sadaf Cultural Centre, Kish Institute of Graph-Rayaneh, Mir Mohana Cultural Centre, Parto Institute, and Sana'ei Cultural Centre (Hakimian,2009).

4.3.6 Cultural Characteristics of Kish Island in Iran

Kish Island in Iran is attractive, which is called bears Pearl in the Persian Gulf region. Therefore, as a free trade zone in Iran, Kish serves as a tourist attraction and has a visa policy separate from that of the Iran mainland. Kish Island has numerous attraction sites and activities, for instance, biking, Marjan Beach, Greek Ship, Kariz Underground City, Harireh Ancient City, Kish Dolphin Park, Green Tree Complex, Kish Sea Turtles, The Twin Water Reservoir, and Ocean Water Park. Being a free trade zone, it is cheaper when doing shopping and its environment is very clean. Kish Island was made a free trade zone to enable Iran to meet its economic goals. Foreign investment through tourism is the most significant economic contributor to Kish. Iran is one of the countries known to maintain its rich heritage and culture over the years, and this serves as one of the biggest attractions of domestic and foreign tourists.

Kish Island is a free trade zone, has made changes, for instance, on the visa requirements that were different from the mainland. The free trade zone has acted as a tremendous tourist attraction because of its historic sites, shopping of merchandise cheaper than Dubai, and the symbolic cultural attractions that show the ancient technology adopted and trade that carried place in Iran in ancient times. Kish was reputed for the existence of quality pearls. Kish Island has changed its focus to trade and domestic tourism, but it has attracted foreign trade and the island after being a free trade zone. Kish Island is only a tiny island with a free trade zone status; it can transform its cultural heritage into trade and change its and the country's economic status.

Cultural characteristics are known to be the things that symbolize the culture of a particular community or population. They can be rites of initiation, traditions, history, shared principles,

172

values, shared sense and purpose of the mission, everyday language, rituals, symbols, boundaries, & status. These are the characteristics that are mostly considered standard for all the cultures and bring out the understanding of the cultural practices inherited by most cultures from different societies and parts of the world. Kish Island is mainly characterized by its symbolic cultural characteristics, which attract tourists and bring foreign exchange. Kish's cultural characteristics are symbolized by ancient historical sites such as Kariz, an underground town, Harireh, an ancient city, and the Greek Ship.

One main cultural characteristic of Kish Island is the symbolic Kariz underground city which is an ancient structure. Kariz has existed for more than two thousand five hundred years, and in the Kish low depth, it is eight meters high and is twelve meters deep below the ground. It is an exciting symbol of attraction in Kish Island because it preserves the history and culture of Iran since it has been there for a long time and is a mysterious city. There are attraction sites such as art galleries, restaurants, conference centres, and traditional teahouses, which have been placed over the years after some modifications. It was an aqueduct of the island as it provided clean water for drinking in the ancient days. It contains two hundred and seventy-four wells and three aqueducts that serve as an attraction when visiting the ancient aqueduct island.

Kariz underground city placed in the list of ancient monuments is most important because of the cool air under the roof, new water channels, a ceiling full of shells & fossils, and coral islands. The aqueduct was also a region for merchandise since the ships pursuing would sell clothing and spices to the people on the island and buy the water. It is a beautiful underground city that covers an area of ten thousand square meters in recent times. The aqueduct symbolizes the ancient technology adopted by the people who lived there before the Roman aqueduct, a hydraulic system known as a qanat. Kariz underground city is a cultural and heritage symbol that Kish Island has sustained as a free trade zone for a tourist attraction to help reach the country's economic goal.

Harireh, an ancient city, is one of the symbols that have preserved the history and culture of Iran in Kish Island. Harireh, the ancient town, has its ruins located at the centre of the island and is eight hundred years old and covers three square kilometres. The ruins include a public bath, industrial workshops, and a mansion with Ilkahnid period tiles, around the extant monuments that are qanats and wells which provided water for drinking for the people in the city. Harireh's ancient town served as one of the centres that traded pearls in Iran. The tourists

173

can visit the ruins that have the mosque, bathhouse, workshops, and palatial house that have preserved the cultural heritage of Iran and handcrafts. Harireh ancient town is a symbol of the preserved culture of Kish Island that helps bring the Island foreign exchange, which serves to increase and sustain the economy of the island and the country of Iran as a whole. Since it has been a free trade zone, Kish Island has opened up its cultural symbols to the world and the domestic population to view its beauty and wonders. The ancient town of Harireh is one of the oldest towns with artefacts and heritage of culture of the ancient Iranian population and showed the historic technology adopted in making the places containing drinking water since the island has an arid climate.

The Kish Island cultural characteristic that is notable as a symbol of the preserved culture of the Iranian population is the Khoula F, or the Greek Ship was a steamship cargo that has been on the beach of Kish Island for over fifty years. The Greek Ship was initially from Britain, but because the last owner was Greek, thus the Greek Ship. The Ship could not be successfully refloated; therefore, it began to break and rust. The Greek Ship acts as an attraction on the island for both domestic and foreign tourists. It could be said to be an ancient cultural artefact of Kish Island that has been preserved since 1966 until date, and being that Kish is a free trade zone, it serves as a way of income and attraction to all.

Kish Island culture is characterized by symbolic characteristics of culture that bring foreign exchange by attracting foreign and domestic tourists. Kish's cultural characteristics are symbolic; they are the ancient historic sites: Kariz, an underground city, Harireh, an ancient town, and the Greek Ship. These cultural symbols of Kish culture have enabled the island to invest in tourism trade after being declared a free trade zone. Cultural characteristics can be of any form, but Kish Island has maintained the symbolic form that ensures its cultural heritage is preserved and shared domestically and internationally. Kariz underground city is an ancient city that mysteriously got more profound on the island maintains the cultures of Kish by showing the ancient technology used in making the wells and the qanats that preserved and supplied water to the population.

 Harireh, the ancient town, also shows the artefacts and trading areas used during the ancient days in the island and the wonders explaining the existence of the quality pearls because of the shell ceilings that are still maintained. The Greek Ship shows the means of transport and how ships did not have one owner all their lifetime since the Iranians had owned the particular Ship

174

at one point. Being a free trade zone, Kish Island ensures that the island is clean and cheap to attract foreign trade through its diverse cultural heritage and preservation. Therefore, Kish Island could be one of the many small Islands in Iran looking to invest and sustain tourism.

4.3.7 Sustainable urban development strategy In Kish

The sustainable development of Kish Island is based on the strategy called the Environmental, Health and Safety, and energy (economic) Strategy (EHSE). This strategy tends to create job opportunities, improve the living standards of its people, improve social interactions, curb poverty, and protect the city's ecosystems.

The supreme council of free trade and special economic zones in Iran needs to follow the EHSE management system (EHSE MS) to implement this strategy. This strategy is based on ISO 14001, OHSAS 18001, and ISO 50001 Standards (see appendix A18, A19, A20 for more details about these strategies). These models are international, but the main goal is to match the energy management requirement in Health, Safety and Environmental Management. Identifying occupational health and safety hazards, the environmental impacts, and the procedure of using the energy and the energy efficiency of Kish as a free zone are crucial for sustainable urban development in Kish.

Possibility, planning, and implementation of any project or plan in Kish that includes even technical or economic advantage, if there were any disadvantages or if the principles of health, safety, and environmental rules were in danger, it is not recommended. The sustainable development field in Kish is still broken into three constituent parts: environmental sustainability, economic sustainability, and sociopolitical sustainability. Requirements for health and safety and of environmental topics in the world are proof for anyone. In addition, energy has been playing an essential role in economic development all over the world.

A majority of the Sustainable Development Goals (SDGs) recognise the importance of culture, including those focusing on sustainable cities, quality education, the environment, economic growth, sustainable consumption and production patterns, stable and inclusive communities, gender equality, and food security. Culture is both a driver and an enabler of sustainable development's economic, social, and environmental dimensions, from cultural heritage to cultural and creative industries (UNESCO,2015; Padas et al., 2011). Based on this approach, a clean environment with safe and healthy quality and optimum energy is not sustainable

development (based on EHSE strategy). Therefore, the Iranian government should update its management system and integrate culture into social, economic, and environmental development activities. This thesis aims to develop a contextualised framework for the supreme council of Free Trade and Special Economic Zones in Iran to integrate and make culture-led sustainable development.

The following chapters of this thesis present a research methodology used to achieve the study's objectives and analyse data collected from expert panels in Kish using different data collection methods. These results are used to develop a contextualised framework for culture-led urban development and update the current management system in Kish.

Chapter 5: Research Methodology

5.1. Introduction

In this chapter, a hybrid Fuzzy MCDM model, integrating the fuzzy Delphi method (FDM), fuzzy Analytical Hierarch Process (AHP) and fuzzy Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method is proposed for the selection problem in this research study. The aforementioned methods include synthesis of uncertainty into group decision making by applying the fuzzy set theory concept. That is, this study discusses identification of critical factors as well as challenges towards culture led urban sustainable development through the lens of creative hub concept. The employment of FDM furnishes an index of fundamental factors and significant challenges by synthesizing the results of literature review and the preliminary semi-structured interview with members of expert panel. The utilization of fuzzy AHP enables decision makers to realize the priority of the chosen factors along with the challenges, through an elementary approach. The application of fuzzy AHP facilitates the quantification of qualitative judgement, to furnish definite comparisons and to curtail or disqualify any imprecision, irregular system of judgement, and ambiguity among pair-wise comparisons (Borade et al, 2013). Ultimately, fuzzy TOPSIS is used to prioritize the best possible strategies to benefit from factors while coping with challenges towards culture led urban sustainable development.

However, prior to the discussion of the planned hybrid fuzzy MCDM, the nature of research in terms of research methodology, philosophy and approach are provided. This chapter will offer insights into the mechanisms employed for the collection of data, and the process through which data has been analyzed and interpreted. The concept of a creative hub is specifically used to establish the study conceptual framework.   Accordingly, this chapter is divided into 16 main sections as follows:

5.1. Introduction

5.2. Study framework

5.3. Methodology

5.4. The Nature of the Research Problem

5.5. Research philosophy

5.6. Research Paradigm

5.2. Study framework

The formulation of research problems, data collection methods and analysis, and the elucidation of collected data can be determined by a strong conceptual or theoretical framework. Framework can be defined as a structure that enables researchers to design research questions, research methods and methods of analysis (Edwards and Akroyd, 1999).

This would also facilitate the validation of steps being taken throughout the data collection and analysis. In particular, a proper review of the literature would foster the creation of theoretical framework corresponding to the phenomenon of interest. Therefore, extant debates on culture-led sustainable urban development as well as the creative hub concept are considered as the main theoretical frameworks of the current thesis.

According to Imenda (2014), a conceptual framework is the ultimate result of several related concepts that help to explain a phenomenon of interest while providing an inclusive understanding of the phenomenon. While the theoretical framework is primarily developed from concepts, a conceptual framework is based on theory (Imenda, 2014).

Therefore, a conceptual framework can organize and signify the scope of the study and determine the investigation process in terms of research questions and research philosophy. Edwards and Akroyd (1999) argue that the plausible solution for the research question can be offered once the conceptual framework is set and the methodological solutions are identified. In developing the contextualized framework for culture-led sustainable urban development, a careful review of literature is necessary to develop the primary conceptual framework to map the creation/identification of the factors that are considered to be significant for sustainable

178

development. In addition, this would help to unify all existing approaches and strategies in past eras.

Against this backdrop, relative literature has been synthesized with the relative theoretical frameworks to initially summarize the existing research via identification of main factors to promote, as well as the challenges associated with culture-led sustainable urban development. The nature of culture-led sustainable urban development while incorporating creative hub concept is a complex multi-criteria decision making (MCDM) problem under conditions of uncertainty and includes quantitative and qualitative criteria. Accordingly, the current study aims to explore the relative literature on sustainable development and creative hub concept to the goal of this thesis, and to develop a contextualized framework of culture-led sustainable urban development for Iranian context.

It has been argued that the process discussed above would help to establish the ideas to formulate the conceptual framework (Seuring and Muller, 2008).

5.3. Methodology

A methodical approach to research is compulsory for a researcher, regardless of purpose and mode of the investigation (Fellows and Liu, 2003). This presents a comprehensive orientation of the research along with the means of formulating the research (Remenyi, Williams, Money, and Swartz, 2005). Key procedures underlying research might take either a *Qualitative* and/or *Quantitative* approach in analyzing and recognizing a solution.

Qualitative research, according to Schwandt (2007), has a complicated definition because it aims to understand the meaning of human action. As a result, it is dependent on the researcher's philosophical beliefs to comprehend it. The adjective 'qualitative' is open to various interpretations, so its use is frequently ambiguous; it does not precisely describe a specific connotation or denote a set of characteristics. According to Schwandt (2007), qualitative methods are a broad term that covers a variety of approaches aimed at interpreting, illustrating, and establishing the meaning of phenomena in the social world, rather than the size or prevalence of those phenomena. As a result, qualitative research is associated with text rather than numbers; Unstructured questionnaires, open-ended interviews, and participant observation, for example, can all be used to generate qualitative data.

Quantitative research methods use several techniques to develop numerical data, calculated using psychometric means, structured questionnaires, case study research, interview, narrative

179

inquiry, observation, discourse analysis and tests (Ritchie et al, 2013). As a dilemma exists in characterizing human logic, qualitative data can be developed by utilizing an open-ended interview and then reconstructing it into numerical values and then analysing it by employing various statistical tools.

A mixed technique refers to the use of both qualitative and quantitative methods at the same time. It will be used in this research because it is unique and often associated with the epistemological perspective, and it allows for the formulation of a clear understanding of different viewpoints through the use of numerical scales and statistical analysis (Ritchie et al, 2013).

5.4. The Nature of the Research Problem

According to Rowlands (2005), the nature of the research problem is identified via two main factors. These two factors may be disparate however, they are interlaced: initially, by recognizing the research problem through an extensive literature review. In the current study, the literature review coupled with the theoretical framework demonstrates what factors would act as strong criteria for cultural led sustainable urban development, and in light of creative hub concept what factors might challenge such development.

While there is a growing push to become more sustainable, cities in addition require a model that can help analyze the leading configurational composition of factors that promote cultural-led sustainable urban development and identify its associative challenges. In light of creative hub concept, therefore, the research problem is to construct a contextualized framework capable of determining and ranking the most applicable configurational components of cultural led sustainable urban development as well as identifying and ranking its possible challenges. Particularly, to address sustainability concerns, the contextualized framework will have a complimentary *decision tree* that will aid policymakers to formulate the most applicable strategy for sustainable urban development.

In developing the contextualized framework, this study requires experts' notions, obtained via interview and fuzzy Delphi questionnaires. The Delphi study appears to be a realistic approach to target an agreed number of experts in the designated field, as this study involves a variety of first-hand opinions. Because experts' ideas will be clarified, a numerical scale will be added to the questionnaire to allow experts to express their opinions in a manner that can be evaluated and interpreted in numbers. Furthermore, the current study aims to rank the importance of

each identified factor in the promotion of culturally led sustainable urban development, as well as to comprehend the most important challenge that comes with it (i.e. rank the most salient challenge). Prioritization methods appear to be the most effective method for doing so, including an Analytical Hierarchy Process (AHP) by which experts' opinion will be gauged using a series of pairwise comparisons. The research question justifies the use of mixed methods to maximize the benefits of the experts' notions.

5.5. Research philosophy

The term research philosophy refers to the evolution as well as the nature of knowledge (Blaikie, 2010). Research philosophy, according to Guba and Lincoln (1994), investigates and analyses the fundamental way we view the world, including how we perceive things or what we can perceive.

Furthermore, the link between knowledge and the system through which knowledge is developed is known to have an impact on philosophy. The relevant literature echoed the importance of philosophy and demonstrated that philosophy is a practice that is an everyday activity that is undertaken "overtly" or "covertly" both in academia and in practice to investigate beliefs and knowledge. A failure to ponder using research philosophical concerns might affect the quality of the research design (Easterby-Smith et al, 2012). That is, proper understanding of research philosophy constitutional elements would aid in aligning the research method and the scope of study to attain the research aim and objectives.

"Philosophical ideals influence the practice of research and need to be identified. I suggest

individuals preparing a research proposal or plan, make the larger philosophical ideals they

espouse explicitly…. This information will help explain why they chose

qualitative, quantitative, or mixed methods" (Creswell,2014, P. 40).

There are three main preseasons to explore philosophy in designing the research methodology (Easterby-Smith et al, 2012, pp. 17-18):

> ➢ "Firstly, research philosophy helps the researcher to refine and specify the research methodology as well as to clarify the overall research strategy to be used in the study. This would include the type of evidence gathered and its origin, how such evidence is

181

interpreted, and how it helps to answer the research questions posed. In other words, research philosophy helps to clarify the research design.

- ➤ Secondly, knowledge of the research philosophy will enable and assist the researcher evaluate different methodologies and methods and avoid inappropriate use as well as unnecessary work by identifying the limitations of approaches at the early stage of the work. Research philosophy helps to identify and create designs which are outside the researcher's experience.

- ➤ Thirdly, research philosophy helps the researcher identify an even creative design in either the selection or adaptation of methods that were previously outside the researcher experience."

Blaikie (2010) argues that philosophies are characterized by three main classifications in terms of ontological approach, epistemological undertaking, axiological purpose as well as the adopted methodology. While *Ontology* deals with the consciousness of reality; *Epistemology* elucidates how one can gain knowledge of reality – that is, what can be known. On the other hand, *Axiological* approach raises the prejudice one might bring to his/her awareness of the structure of reality, noting the fact that the reality can be either value-driven (value-laden) or value-free (Sarantakos, 2013; Saunders et al, 2012; Easterby-Smith et al, 2012). The theoretical foundation of social research is provided in table 5-1.

Methodology holds a pivotal position in all research processes (Sarantakos, 2013). The procedure, action plan, mechanism or design would underline the selection and application of specific methods and/or techniques used to recognize the reality. In fact, methodology is a means to transform aforementioned approaches (i.e., ontological, epistemological and axiological principles) to rules that determine how research should be carried out (Sarantakos, 2013; Easterby-Smith et al, 2012; Creswell, 2009).

Table 5. 1: Social research theoretical foundation (Sarantakos, 2013; Easterby-Smith 2012)

Ontology	Ontology deals with the nature of **reality**. Philosophical assumption about the nature of reality Asks: what is the nature of reality? Is it objective (out there), constructed or subjective? OR BETTER: What does research focus on?
Epistemology	Epistemology deals with the nature of **Knowledge** Asks: How do we know what we know? What is the way in which reality is known to us? OR BETTER: What kind of knowledge is research looking for?
Methodology	Methodology deals with the nature of research **design and methods**. A combination of techniques used to inquire into specific situation Asks: How do we gain knowledge about the world? OR BETTER: How is research constructed and conducted?
Research design	Research design is the execution of research as constructed and guided by ontological, epistemological and methodological perspective
Axiology	Assumptions about the nature of values and the foundation of value judgement

In the following sections, the research philosophical perspectives developed in this study are further examined. The analysis begins with assumptions in epistemology, ontology, and axiology. An amalgamation of these research philosophies is also conferred in order to determine their significance on the entire research process.

5.5.1. Ontology

Ontology is a philosophy approach concerned with the nature of reality; it is recognised as the starting point for the majority of philosophical debates (Blaikie, 2010). Ontological perception is concerned with the nature of reality in terms of how things are and how they function (Blaikie, 2010). Drawing on the ontological perspective on research, the researcher first constructs the perspective from which the reality of the phenomenon is being examined by asserting whether the researcher's reality is impartial and independent or is based on a social construct that can only be understood through investigations of human actors' opinions (Walter, 2013; Crossan, 2003). Ontology explores claims and assumptions made about the components of reality, about what exists, what it takes place as, what components are made up of, and how the components interact (Sarantakos, 2013; Blaikie,2010; Bryman,2012).

5.5.2. Axiology

The science of value is referred to as axiology. It is a branch of philosophy concerned with the study of value judgments and aims to provide a theoretical storyline of the nature of values, roughly comparable morality, prudence, or aesthetics (Saunders et al, 2012). It is a philosophical position focused on the researcher's value attached to knowledge regarding social inquiries in the consideration of whether the reality in the studies is value-free or value-driven (Saunders et al, 2012). In value-free studies, objective standards determine what and how to study, whereas in value-laden research, human opinions determine what and how to study, while in value-laden research, human beliefs and experience govern the choice (Easterby-Smith et al, 2012).

5.5.3. Epistemology

Epistemology is a path to knowledge that delves into what is established as acceptable knowledge in the area of study. The alternative ways of acquiring and communicating the knowledge, its method and validation are concerned with a theory of knowledge, which makes up its composition (Easterby-Smith et al, 2012; Guba and Lincoln, 1994). According to Guba and Lincoln (1994), epistemology questions the essence of the relationship between the "would-be" (knower) and what could be known. Scotland (2012) asserts that ontological and epistemological assumptions are conjectural, which is the foundation of all philosophy. Correspondingly, as each philosophy inherently contains differing ontological and epistemological beliefs, the philosophical notions supporting each philosophy can neither be empirically disproven nor proven. The author goes on to further assert that varying assumptions concerned with the reality and knowledge that support a specific research approach are adhered to by each philosophy and is often mirrored in the adopted research methodology. Saunders et al (2012) reiterate Scotland's assertion by affirming that "each philosophy is suited to achieving different research objectives relative to the research questions, which could rarely be answered within one philosophical domain." This signals that no single research philosophy is superior to the other. Comparatively, the research question and nature of the research inquiry are determinants.

"Epistemology is connected with how we know things, and

what we can regard as acceptable knowledge in a

discipline" (Walliman, 2006, p.37)

Epistemology within social research examines how 'facts' and 'values' are connected and interacted. In addition, it is concerned with what it means to welcome particular assertions as accurate or 'true' (Hacking, 2002). Underlined by epistemology, a researcher would consider the data necessary to acquire more knowledge of the collected data to analyze facts, by representing them as models or crisp numbers. It is assumed that epistemology would reduce the possibility of research bias and enhances the objectivity of the study (Saunders et al, 2012).

Accordingly, an *epistemological* approach is used for the current thesis to create the Fuzzy Delphi questionnaires, as well as Fuzzy AHP questionnaires by collecting the experts' opinions 'values' and interpreting them into 'facts', then allocating them into a contextualized framework using mathematical and statistical analysis to understand the fuzzy area of the experts' opinions. To effectively understand the data, the previously mentioned epistemological approach employs both qualitative and quantitative research methods.

As a result, the epistemological research philosophy is better suited to this study; however, a research paradigm that is compatible with the epistemological philosophy must also be chosen. Positivism, Interpretivism, Realism, and Pragmatism are the four paradigms.

5.6. Research Paradigm

Sarantakos (2013) provides a philosophical perspective that informs the methodology, regulates the research process, and provides a setting in which the reasoning and focus of the study are instilled.

Guba and Lincoln (1994, p.105) define a paradigm as a principal set of beliefs. Sanders, Lewis, and Thornhill (2012) define a paradigm as a way of finding social phenomena by which a specific understanding into a phenomenon can be attained and reasoning tried (or theory). According to another viewpoint, a paradigm is based on a structured conceptual framework within which the research is approached – a theoretical framework that incorporates a system that allows people to view events (Remenyi et al, 2005; Fellows and Liu, 2003).

Putting the aforesaid viewpoints into framework, it is possible to conclude that research paradigms and research philosophy are critical to the methodological process, assisting scientists in achieving its goals and objectives through a systematic approach (Saunders et al, 2012; Remenyi et al, 2005). They advise the researcher about how to create informed choices and achieve the research objectives.

The methodological method suggested by Kagioglou et al. (2000), commonly known as the "nested approach," is distinguished by the paradigm of research philosophy, approaches, and processes based on the actor research philosophy of pre-understanding – understanding hermeneutic learning spiral (Figure 5.1). Provided the above context, the research philosophy embodied in the model's outermost ring energizes and consolidates the research strategy with the research methods embodied in the model's center and internal rings. Consequently, the research involves an influential theory generation and testing method, while research methods include tools for data collection (Kagioglou et al, 2000).
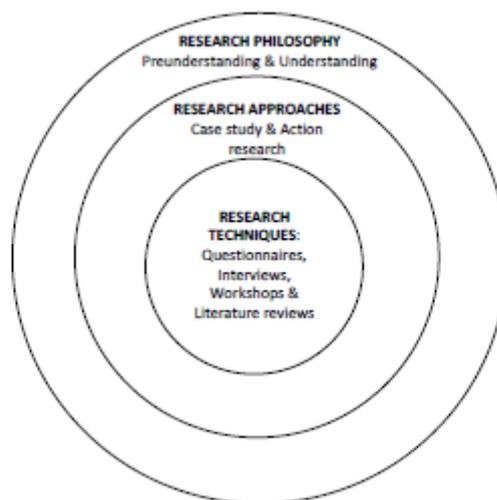
Figure 5. 1: The nested research process (Kagioglou et al., 2000)

Crotty (2003) suggested detailed epistemology as a research paradigm for understanding and analyzing how and what we know. Besides that, this directs the theoretical frameworks that provide the framework for the adopted methodology based on a choice of methodological procedures and systems used to reach a study objective. According to Crotty's account, a research paradigm is not regarded as exceptional in the structure of the research paradigm, with an ontological perspective about the presumption of the nature of reality. According to

Crotty, the epistemological paradigm completely encompasses the relationship between epistemology and ontology.
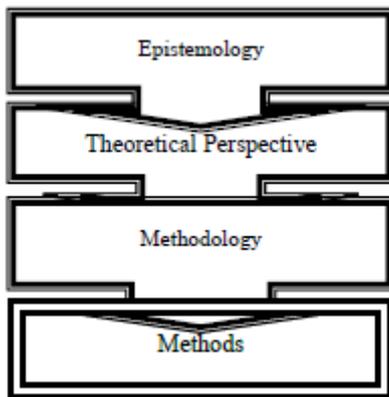
 Figure 5. 2: Research Paradigm (Crotty,2003)

According to Crotty, a methodology is the strategy, plan of action, and design basis for the choice and the use of a specific method, as well as the connection of those methods to achieve the desired outcomes (Crotty, 2003). Continuing, Crotty defines research methods as the methods or methods used to gather and analyse data related to the study or hypothesis in order to achieve the research end result. According to Saunders et al. (2012), four different classifications of research philosophy exist in the "research onion" research framework, namely positivism, interpretivism, realism, and pragmatism.

5.6.1. Positivism and Interpretivism

Epistemology is composed of two elementary but polar components, which several authors have used different terms to illustrate. Easterby-Smith et al. (2012) describe the polar components as positivism and social constructionism or phenomenology, whereas Crotty (2003) adopts objectivism and constructionism. Interpretivism and positivism are terms employed by Saunders et al. (2012) and Walliman (2006), whereas Proctor (1998) uses positivism and post-positivism to illustrate the polarity of the components. It is noteworthy that these terms are often recognized as antagonistic and polarising views and are usually employed in synchronicity to represent the same thing (Crotty, 2003; Wainwright, 1997).

In the context of this research, the concepts positivism and interpretivism will be used to refer to the two extreme presumptions, which are based on the epistemological assumptions of Saunders et al. (2012).'s research process (figure5.3). This ensures that the terms used in this study are consistent and avoids any uncertainties identified from the literature (Saunders et al., 2012; Easterby-Smith et al., 2012; Creswell, 2009; Remenyi et al., 2005; Guba and Lincoln, 1994).

Figure 5. 3: The research terms adopted based on the epistemological assumption (Saunders et al, 2012)

Positivist assumptions affirm that the world's existence is external, and the methods employed in measuring its properties should be objective (Easterby-Smith et al., 2012). The underlying acumen backing positivism believes that an existence prevails in a reality that is objective and not dependent on human behaviour, and therefore not a product of human minds (Crossan, 2002). The positivist creed poses the researcher as a neutral observer, and the reality is not arbitrated by the researcher's senses, on the premise that the examined objects prevail independently of the knower (Saunders et al., 2012; Crotty, 2003). Thus, the path of the positivist is based on the ontological assumption that the things we experience are things that are in existence. In and of itself, epistemology calls for an experience to be verified via the *deductive methodological* acumen of scientific methods (Wainwright, 1997).

"Positivism is the application of natural sciences to the study of social reality…An objective approach that can test theories and establish scientific laws…It aims to establish causes and effects" (Walliman, 2006).

Even though positivism asserts that reality is fixed, measurable, and observable, a new philosophical assertion has been established that contends fact would be neither objective nor external, but rather a social construct with an interpretation and explanation taken by individuals (Easterby-Smith et al., 2012; Creswell, 2009; Guba and Lincoln, 1994). On the other

188

hand, interpretivism holds that reality is a result of the involved parties, as the viewers of reality are in synchronization with their real-world surroundings. It asserts that the essence of knowledge is constructed in different ways for different individuals. As a result, social actors construct absolute facts and definitions (Saunders et al., 2012; Crotty, 2003). This viewpoint acknowledges the convoluted link between individual behaviour, external structures, attitudes, and socio-cultural influencing concerns.

Interpretivism asserts that reality does not occur in isolation but is dependent on various prominent factors such as gender, culture, and the belief from which it is created (Weber, 2004). Accordingly, the objective reality proposed by the positivist creed is viewed as a one-dimensional facet of reality.

In contrast to the interpretivism approach, which takes a qualitative approach in evaluating and distinguishing in-depth phenomenon, and often a combination of both quantitative and qualitative approaches, the positivist study paradigm enforces a separate quantitative approach to the evaluation of concepts (Saunders et al., 2012; Easterby-Smith et al., 2012; Creswell, 2009; Crotty, 2003). These research methods are often employed interchangeably and are often viewed as contrasting and polarized stances (Descombe, 2010; Creswell, 2009). It has been recognized that the discrepancy between these philosophical beliefs has been magnified by some authors (Weber, 2004). A brief explanation of possible differences is displayed in table 5-2.

Table 5. 2: Differences between positivism and Interpretivism (source: Weber, 2004

Metatheoretical Assumptions About	Positivism	Interpretivism
Ontology	Person (researcher) and reality are separate	Person (researcher) and reality are inseparable (life-world)
Epistemology	Objective reality exist beyond the human mind	Knowledge of the world is intentionally constituted through a person's live experience.
Research Object	Research object has inherent qualities that exist independently of the researcher	Research object is interpreted in light of meaning structure of person's (researcher's) live experience
Method	Statistics, content analysis	Hermeneutics, phenomenology, etc.
Theory Truth	Correspondence theory of truth: one-to-one mapping between research statements and reality	Truth as intentional fulfilment: interpretation of research object matches live experience of object.
Validity	Certainty: data truly measures reality	Defensible knowledge claims
Reliability	Replicability: research results can be reproduced	Interpretive awareness: researcher recognise and address implications of their subjectivity

189

Positivists often believe that reality is factual, observable, and measurable and that there is only one reality and one external reality. On the other hand, interpretivism believes that reality is constantly changing, and that reality could be experienced indirectly via the actors' interpretations (people). As a result, interpretivism believes that culture, knowledge, opinions, and other factors affect understanding the reality we strive to construct and comprehend. As a result, the reality is complex. The epistemological, philosophical assumptions used in this study come under the umbrella of interpretivism, as evidenced by the range of definitions used by writers in the previous debate. Interpretivism asserts that reality is not a singular phenomenon but is caused by a range of influential variables such as cultural beliefs, gender, and experience (Weber, 2004; Guba and Lincoln, 1994).

Evidenced by the aforementioned discussion regarding the distinct characteristics of interpretivism, it seems plausible to adopt this paradigm for the current study. Such a research paradigm enables the existing understanding of the fact that culture-led urban sustainable development is surrounded by the number of facts that need to be better understood and well incorporated into the framework.

5.6.2. Realism

Realism is a philosophy that interprets reality through scientific investigation, assuming that objects exist independently of the human mind. It is an epistemological branch similar to positivism. There are two types of realism: "Direct" and "Critical. The former argues that what a person perceives via their sensibilities is a straightforward description of reality, whereas the latter asserts that what a person perceives via their sensibilities are impressions of events in reality, not the objects themselves. Critical realism perceives delusions as a result of insufficient data, which could be resolved by observing the world from all sides and perspectives, according to direct realism (Saunders et al., 2012).

This research is concerned with factors that affect and challenge sustainable development through a creative hub concept. The social world can constantly change with many variables, affecting sustainable development. Therefore, this paradigm does not apply to this research because, for this study's scope, the variables must be assumed constant with the environment surrounding them.

5.6.3. Pragmatism

As a research methodology, pragmatism avoids debating contentious metaphysical concepts like truth and reality. Instead, it acknowledges that there could be a single or several realities that can be investigated empirically (Creswell and Clark 2011). Scholars who are pragmatists believe that objective reality is separate from human experience. On the other hand, this reality is rooted in the world and can only be discovered through human experience (Goles and Hirschheim 2000; Morgan 2014a; Tashakkori and Teddlie 2008). According to pragmatist philosophy, information and reality are dependent on assumptions and socially formed patterns (Yefimov, 2004). According to pragmatists, all awareness in this world is socially constructed, but some versions of those social constructions better match individual experiences than others (Morgan 2014a).

This research aims to help urban planners determine the best configurational components of culture-led, long-term urban growth. As a result, it cannot be founded on socially formed habits or beliefs.

Table 5. 3: distinctions among research philosophies, and paradigms. The section in color is the Adopted research philosophy for this thesis.

	Pragmatism	Positivism	Realism	Interpretivism
Ontology The nature of reality	External view, chosen to best answer the research question	Objective view, independent of social actors	Exists independently of human thought and belief or knowledge of their existence (realist), but interpreted through social conditioning (critical realist)	Social constructed, subjective view and may change. Also known as Subjectivism or constructionism
Epistemology The researcher's view regarding what constitutes acceptable knowledge	Either or both observable phenomena and subjective meaning can provide acceptable	Only observable phenomena can provide credible data. Focuses on law-like generalisation, reducing	Observable phenomena provide creditable data. Insufficient data means inaccuracies. Alternatively, phenomena create	Subjective meanings and social phenomena. Focus upon the details of a situation, a reality behind these details, subjective

191

	knowledge dependent upon the research question.	phenomena to simple elements.	sensations which are open to misinterpretations (critical realism). Focuses on explaining issues within a context	meanings, and motivating actions.
Axiology The view on the role of value in research	Views play a large role in interpreting results; the researcher adopts both objective and subjective points of view	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance.	Research is value-laden; the researcher is biased by word views, cultural experience, and upbringing. These will impact the research	Research is value bound, and the researcher is part of what is being researched, cannot be separated, and so will be subjective

Reference: Blaikie,2010; Bryman, 2012; Saunders et al., 2012

The creation of the contextualized framework using rigorous research design and research philosophy enables urban policymakers to diagnose significant composition and ranking of key factors affecting the culture-led urban sustainable development and key challenges associated with the aforementioned development to appropriately tailor an urban sustainable development plan according to their requirements.

5.7. Research approaches: Inductive, Deductive and Abductive

According to Trauth (2005), ambiguity in research can be managed by appropriate analysis of the data. Accordingly, the concept of a creative hub has been used in this thesis to investigate what factors might act as the strategic tool for culture-led sustainable urban development and what challenges might tackle such development. Different tools used for the methodology purposes would enable the researcher to design data collection process and to further develop reliable guidance to translate the results of the analysis. It appears that finding the right answer for the data collection process and the ways how the data will be analyzed are among solutions to reduce the uncertainty imposed by research questions.

The suitable research approach is deemed necessary to improve a defined contextualised framework in order to adequately convert the analysis into an appropriate model of recommendations. The research approaches "Deductive," "Inductive," and "Abductive" are the three main research methods.

Reasoning is the process of drawing presumptions, predictions, or developing explanations based on readily available information (Blaikie, 2010). Reasoning is present in the selection of a study design and is known as a tool that helps scientists make better decisions about research design (Sarantakos, 2013; Saunders et al, 2012). According to Blaikie (2010), there are seven kinds of research reasoning methods. Just three of the seven methods (deduction, induction, and abduction) are commonly discussed in social science research, according to Saunders et al. (2012) and Blaikie (2010). Each of these study reasoning methods has philosophical and theoretical foundations (Blaikie, 2010; Guba and Lincoln, 1994). This has to do with ontological judgments of reality's nature and epistemological understanding of how reality can be recognised.

As logic is used to construct assumptions from a series of claims, deductive reasoning occurs, with the assumption being correct only if all arguments are correct (Saunders et al, 2012). It begins with an initial presumption or set of assumptions, which is then used to form a hypothesis that could provide a plausible answer for a specific problem, and then uses exams to rigorously test the assumption (Blaikie, 2010).

Conversely, *inductive reasoning* begins with considerations that are unique and finite in purview, before advancing to a more generalised inference (Saunders et al, 2012; Blaikie, 2010). The collection of information, observation of patterns and formulation of theorems to delineate results are what initiate this process. In contrast to deductive reasoning, *"inductive reasoning asserts that reality determines the senses"* (Blaikie, 2010). This viewpoint proposes that all scientific inquiry begins with an observation that serves as a solid foundation upon which knowledge can be gained (Blaikie, 2010; Sarantakos, 2013). The assumptions of an inductive argument produce statements that go beyond the hypothesis, with the expected result aimed toward extending the knowledge and understanding beyond a specific phenomenon that appears to support the explanatory hypothesis.

193

The aforementioned doctrine further asserts that a continuous increase in the way an observation displays the connection between phenomena results in increased integrity of the outcome. This encompasses the notion that the authentication of acquired generalisations is drawn from observations of a certain phenomenon that appears to back it.

Abduction (abductive reasoning) is recognised as a third method of reasoning, to be discussed. The consolidation of deductive and inductive reasoning results in abductive reasoning. It is not rigid but adaptable, as an observer can easily switch from theory to data (deductive reasoning) or data to theory (inductive reasoning) (Saunders et al, 2012). The utilization of this process enables social scientific accounts to be created by social actors (Blaikie, 2010). The initiation of this process is lead with the observation of an 'outstanding fact', and then a conceivable hypothesis is formulated to elucidate how it ensued (Saunders et al, 2012). The outstanding fact is then accepted as the outcome, rather than the hypotheses. Founded on the outcome, a set of attainable hypotheses which are considered satisfactory or nearly satisfactory are ascertained in order to define the outcome (Saunders et al, 2012; Blaikie, 2010).

Deductive reasoning, as opposed to more thorough inductive research, can be done more quickly, according to Saunders et al (2012). It's referred to as a "snapshot" research technique. Moreover, it acknowledges that when there is an enormous amount of information on a subject, researchers are more likely to use deductive reasoning, suggesting a design framework to assess the theory or create a theoretical framework.

On the contrary, the *abductive* reasoning approach in comparison to the two aforementioned approaches to reasoning is best fitted for a topic which encompasses an abundance of information in one context of the research scope but considerably less in other contexts and the result of the research is anticipated to facilitate the alteration of extant theories (Saunders et al, 2012; Blaikie, 2010). Table 5-4 summarizes the aforementioned research approaches.

194

Table 5. 4: Summary of research approaches (Saunders et al, 2012; Blaikie, 2010). The section in color is the Adopted research approach for this thesis)

Application	Deduction	Induction	Abduction
Logic	When the premises are true, the conclusion must also be true. "'top-down' process"	Known premises are used to generate untested conclusions. "'bottom-up' process"	Known premises are used to create testable conclusions. "a hybrid of Deduction and Induction"
Generalizability	Generalizing from the general to the specific	Generalizing from the specific to the general	Generalizing from the interactions between the specific and the general
Use of data	Data collection is used to evaluate propositions or hypotheses related to an existing theory	Data collection is used to explore a phenomenon, identifying themes and patterns by creating a conceptual framework	Data collection is used to explore a phenomenon, identify themes and patterns, locate these in a conceptual framework and test this through data collection
Theory	Theory falsification or verifications	Theory generation and building	Theory generalisation or modification, incorporating existing theory where appropriate, to build a new theory or modify the existing theory.

The endeavours of this research involve the employment of the *abductive* research reasoning approach. In other words, the two combined research approaches (inductive and deductive) will be employed in the attainment of the objectives of the study. The factors determining how a cultural approach can lead urban development through the creative hub and how it can be sustainable are first derived from the existing literature about this concept in urban development (the deductive approach). Subsequently, they are incorporated in the findings from the survey into existing theory inductive approach).

195

5.8 Research strategies

Research strategies (Blaikie, 2010), research approaches (Creswell, 2009; Remenyi et al., 2005) or research style (Fellows & Liu, 2003) use tools such as surveys, case studies, experiments, ethnographic investigations, action research, grounded theory, as well as mixed methods as a basis for research design (Denscombe, 2010; Creswell, 2009; Fellows & Liu, 2003). It is acknowledged that the range of strategies available to modern-day researchers has increased over the years. This is predominantly influenced by advances in computer technology which has led to faster and alternative options for analysing complex data, as well as innovations in the procedures for conducting social research. Some of the considerations in deciding on the research strategy to be adopted, as suggested by Yin (2009), include:

➢ The type of research question posed.

➢ The extent of control an investigator has over actual behavioural events.

➢ The degree of focus on contemporary as opposed to historical events.

Yin (2014) argues that the appropriateness of a particular research strategy interfaced with the available research methods to achieve the research aim is guided by the research questions. Thus, there is no single research strategy or method that can be recommended as the best in all circumstances (Denscombe, 2010; Yin, 2014). Research strategies for social science researchers include:

➢ Surveys.

➢ Case studies.

➢ Experiments.

➢ Ethnography.

➢ Action research.

➢ Grounded theory.

➢ Mixed methods.

The appropriateness of research strategy is dependent on its suitability and feasibility, and on ethical considerations, which are informed by:

➢ The extent of the researcher's control over the actual behavioural events,

➢ The degree of focus on contemporary events,

➢ The nature of the enquiry and the question being posed,

➢ The researcher's personal experience and knowledge,

➢ The aim of finding answers to 'who?' an 'what?' questions,

196

> ➤ The need to gather detailed data from across key stakeholders to allow for an in-depth understanding of the phenomenon under investigation relative to the sensitivity of the nature of the industry within which the research is to be conducted.

Taking such influencing factors into consideration within the context of the phenomenon under investigation has informed the selection of both quantitative and qualitative method (mixed method) as research strategy. The essential reason for this strategy is that such coordination allows more complete and synergistic usage of information than doing isolate quantitative and subjective information assortment and examination.

5.8.1 The Mixed methods research strategy:

The literature has acknowledged the ambiguity of the different terms used by different writers for research paradigms as the background to the choice of the umbrella term "mixed methods" (Creswell, 2014; Crotty, 2003; Wainwright, 1997). Writers variously refer to the mixed methods strategy as 'mixed methodology', 'multi-strategy research', 'integrated methods', 'hybrid method', 'multi-methods research', 'quantitative and qualitative methods' and 'combined research methods' (Denscombe, 2010; Creswell, 2009). One characteristic of these terms is the consistent implication that a mixed methods strategy involves a combination of "quantitative and qualitative methods". There is thus a consensus that a mixed methods research strategy is a blend of qualitative and quantitative research methods used to solicit information and generate data in order to achieve the research aim and objectives. This is based on the belief that the interface of the two approaches provides a better understanding of the research problems than either approach used by itself (Creswell, 2009; Clark, 2005; Johnson & Onwuegbuzie, 2004).

"…Mixed methods research is a systematic approach to addressing research questions that involve collecting, analysing and synthesising both quantitative and qualitative data in a single research project "(Andrew & Halcomb, 2009,p.153)

From a broader perspective, Denscombe (2010) notes that the mixed methods approach is fundamentally a research strategy that combines different research traditions with various underlying assumptions within a single research project. At the same time, Creswell (2014) describes mixed methods as a research strategy which has both philosophical assumptions as well as a method. He further claims that, in terms of philosophical assumptions, it provides direction for the collection and analysis of data in the research process, while from a methodological perspective it focuses on collecting, analysing, and mixing both quantitative and

197

qualitative data in a single study or series of studies. The mixed method approach is thus a research strategy that involves a set of underlying philosophical assumptions through the combination of both qualitative and quantitative forms of research.

In quantitative form of research, researchers decide, ask exact, restricted questions, collect participants' measurable data, evaluate those figures using statistical information, and conduct research in an unbiased and objective manner (Tashakkori & Creswell, 2007). In general, it entails gathering numerical data that may be statistically analyzed. Performance tests and personality tests are two examples of data gathering methods.

In contrast to quantitative research, the qualitative method focuses on the in-depth understanding of specific individuals or groups rather than studying the general characteristics of a large population across specific variables to generate numerical data that support or refute clear-cut hypotheses (Polgar & Thomas, 1995).

The qualitative paradigm is also acknowledged to be based on the rationale that human behaviour can only be understood by getting to know the perspective and interpretation of the person or people being studied. It enables the researcher to see things through the eyes of the person or people being studied rather than by reliance on the measurement of concrete facts. It can be concluded that mixed method research is the interface of the quantitative and qualitative research paradigms within a single research project.

Creswell & Plano Clark (2008) suggest the classification of mixed method research design from six perspectives, which include sequential explanatory, sequential exploratory, sequential transformative, concurrent triangulation, concurrent nested and concurrent transformative. However, Creswell (2014) criticises this broad classification of mixed method design which is based on a review of nursing, public health, education policy and social and behavioural research as characterised by overlapping terms. These authors argue that other mixed method research designs such as embedded mixed methods, transformative mixed methods and multiple mixed methods all incorporate sequential explanatory, sequential exploratory and convergent mixed method research designs. They therefore use. Thus, the author identified and classified mixed method research design into three categories namely:

- Convergent Parallel mixed methods,
- Sequential Explanatory Mixed methods and,
- Sequential Exploratory mixed methods.

Both authors acknowledged that the adaptation of any of these designs is dependent on priorities, on the way the design is implemented and integrated, as well as on the theoretical perspective that underpins the researcher's stance (Creswell, 2014; Creswell & Plano Clark, 2008). The authors also state that the analysis and merging of collated quantitative and qualitative data using any of the above methods could be carried out using "side-by-side comparison," "data transformation," or "a joint display of data". The following sections explains major mixed method research strategy designs and adopted research design in this thesis :

5.8.1.1 Convergent Parallel mixed methods

The first approach is convergent design. The researcher uses this study technique to gather both quantitative and qualitative data at the same time. The two databases are combined by combining the findings during interpretation (Rodrigues et al., 2017). One of the goals of this approach is to get a more comprehensive picture from two databases. It also collaborates on findings from various techniques. When it is necessary to gather both kinds of data in a single visit to the field, this technique should be utilized.

5.8.1.2 Exploratory mixed method strategy

Sequential exploratory mixed method is a technique to combine the gathering and analysis of qualitative and quantitative data in a series of stages. Researchers gather qualitative data in the first stage and then evaluate the data, which results lead to the next quantitative step, which may be a survey or another type of quantitative data collection (Rodrigues et al., 2017). This sets forth an essential foundation for particular quantitative-phase research questions, including a questionnaire, a survey, or any other kind of gathering of quantitative data.

This method is because we first explore a subject before, we decide what variables to assess. An exploratory sequential conception may be considered a template for a particular study scenario, although every context might utilize this concept differently. The first thing to ask, given the current literature, is what we already know. In other words, for scientists adopting this approach, the starting point may differ (Rodrigues et al., 2017). If there are few results from a literature study to assist us, the quality phase may reward us for discerning a new dependent variable. That is, the demographic data and pre-existing measurements for the independent variables may already have been required, but the dependent variable may not exist. Generally speaking, qualitative analysis will assist us in discovering a broader spectrum of issues and how people perceive a particular event or occurrence. The qualitative phase is

199

characterized as "explorative" because the data are based on a conceptual framework rather than facts. But it doesn't imply that we can't utilize literature review information merely to make greater sense of the issue of study by utilizing qualitative data. The reason why quantitative data gathering is postponed is that before conducting a survey or questionnaire, we need more conceptual leverage (Taheri et al., 2018). The qualitative analysis includes determining, coding, and potentially creating significant citations with the necessary subjects. A quote may be a sentence, a sentence, or a paragraph. A code is a literary subject or is inductively formed by a careful study of facts.

In the transition from qualitative analysis to questionnaire development, the codes become variables, themes become scales, and quotes became survey questions. The gathering of quantitative data may include both open responses and scale questions. The link between the quality and quantitative components is referred to as the "interface point" in mixed methods research. This occurs between qualitative and quantitative stages in exploratory sequential mixed techniques. But we must also remember that either the qualitative or the quantitative component may be given priority in the research (Taheri et al., 2018). For example, we might use many resources to gather qualitative data and undertake theory research based on an ambitious qualitative tradition aiming to create topics and create a theory. A survey might then be conducted to evaluate the hypothesis further, although the study's focus could be seen as qualitative.

5.8.1.3 Explanatory-sequential approach

This is a sequential technique used when the researcher wants to supplement quantitative results with qualitative data. As a result, the qualitative data is used in the subsequent interpretation and explanation of the quantitative data analysis results. In many cases, since the QUAN design is the focus, a generic qual design is utilized in explanatory methods (Rodrigues et al., 2017). According to Plano Clark (2011), an explanatory sequential design entails first collecting quantitative data and then gathering qualitative data in order to assist explain or expand on the quantitative findings. Using this method is justified by the fact that quantitative data and findings offer a broad picture of the study issue; more analysis, particularly via qualitative data gathering, is required to improve, expand, or explain the overall image. Specifically, exploratory sequential design, as explained by Creswell and Plano Clark (2011), is a method in which the researcher gathers qualitative information first and

subsequently quantitative information (Rodrigues et al., 2017). An exploratory sequential mixed methods approach is used to investigate a phenomenon using qualitative data. The procedure begins with gathering qualitative data, followed by gathering quantitative data to explain the relationships found in the qualitative data gathered in the first stage.

In conclusion, the mixed-methods sequential explanatory design is divided into two phases: quantitative and qualitative. A researcher collects and analyses quantitative data initially in this method. This approach is justified since quantitative data and subsequent analysis offer an overview of the study topic. The qualitative data and their analysis assist to clarify and explain the statistical findings more completely by delving deeper into the participants' perspectives.

In this thesis, the exploratory mixed method is used as research strategy. This research design is characterised by the exploration and analysis of qualitative data in the first phase, followed by the second phase which comprises the collection and analysis of quantitative data (Creswell, 2014; Creswell & Plano Clark, 2008). The purpose of this design is 'to develop better measurements with specific samples of populations and to see if data from a few individuals (in qualitative phase) can be generalised to a large sample of a population (in quantitative phase)' of the research protocol (Creswell, 2014).

It is anticipated that the adopted research strategy will assist supreme council of free trade and special economic zones in Iran in identifying factors that affecting and challenging sustainable urban development and meanwhile finding the best strategies to overcome these challenges in Kish Island in Iran as case study.

Figure 5. 4: Graphical illustration of methodology stages (Author's own)
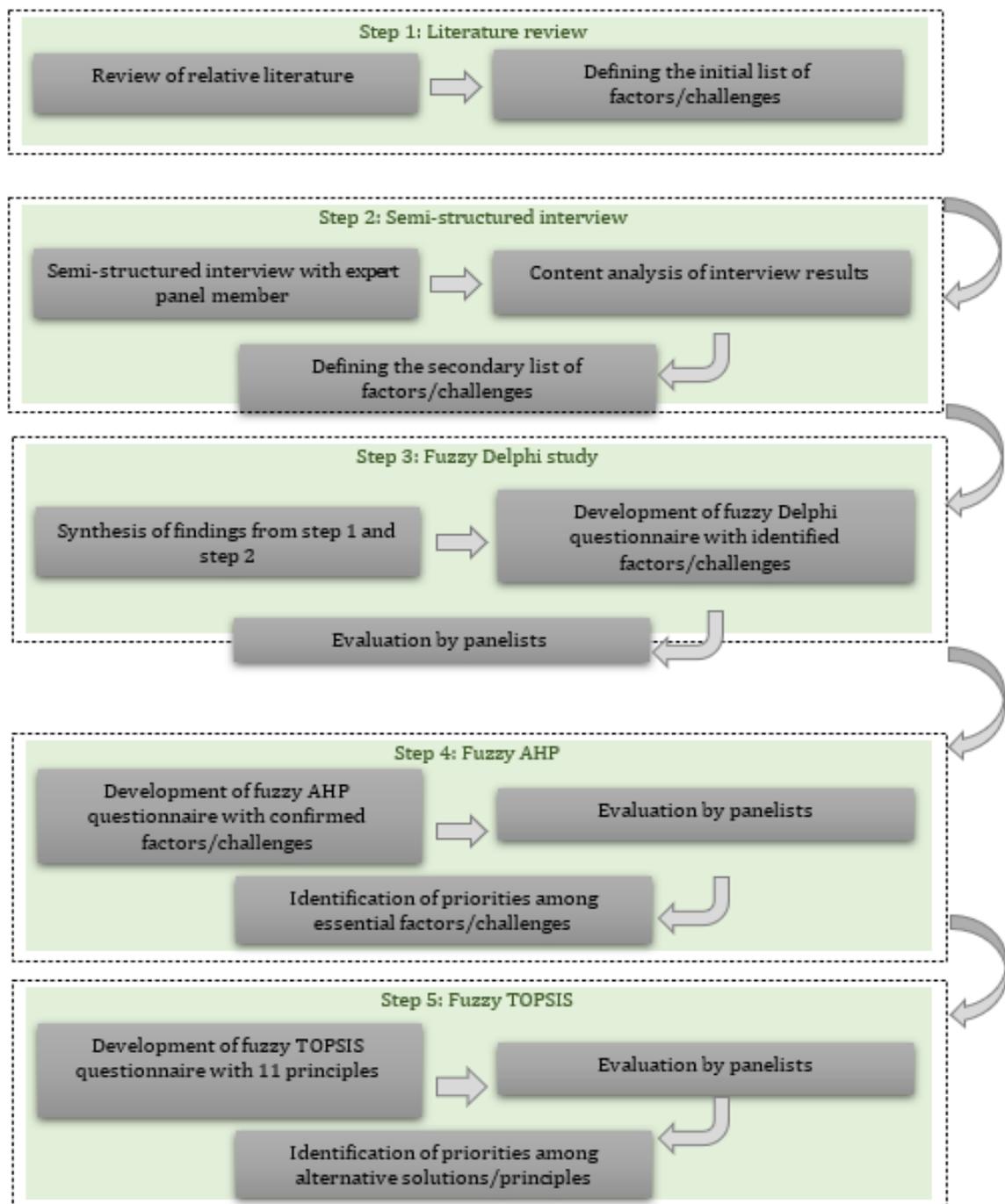
Figure 5-4: Graphical illustration of methodology stages

As shown in figure 5-4, the methodological stages applied in the study starts with a qualitative method in terms of an extensive review of relative literature applicable to the topic of interest. This would result in gap identification and designing the research problem. In addition, the results of the literature review are being synthesized with the results of a semi-structured interview with the members of an expert panel. This would result in the development of fuzzy Delphi questionnaires with all factors and challenges as well as their definitions. This questionnaire is designed to assess the suitability of identified factors and challenges toward culture-led sustainable urban development framework.

Part two follows a quantitative method that involves the application of fuzzy AHP as well as fuzzy TOPSIS techniques. That is, a questionnaire consisting of a series of pairwise comparisons among identified factors, and challenges are represented to the respondents to gauge their opinion regarding the importance of each factor over the other. While fuzzy AHP helps to understand the inherent priorities among development factors and challenges, fuzzy TOPSIS would help to understand the priority among alternative solutions to benefit from factors and cope with challenges. All techniques discussed above are adopted due to their significance to the study and distinctive attributes to help accomplish the aim and objective of this study.

The Fuzzy Delphi approach will be expanded on in the following sections to generate the designated contextualised framework, which will then be evaluated using the fuzzy AHP technique to determine the priorities. In addition, the required explanation for the panel of experts' selection will be provided, and methods for reducing non-response in data collection will be reviewed. Ultimately, ethical implications will be discussed.

5.9. Delphi Study Methodology

The Delphi method is a group communication process that is designed to organize in-depth analyses and debates on a specific problem for goal setting, policy inquiry, or predicting the occurrence of imminent events. Dalkey and Helmer (1962) developed the technique at the Rand Corporation Air Force project, and it is still a widely used and recognised method for obtaining a confluence of views from experts within their field of expertise, relating to real-world problems from various subject areas. Hence, Delphi

technique is a technique of social science research involving the solicitation of various experts to engage in several bouts of non-face-to-face questionnaire-based communication to establish findings, solve problems and predict impending events as a team (Murry and Hammons, 1995).

In other words, the Delphi technique is a structured method or strategy, initially established as a systematic and interactive forecasting technique with reliance on a panel of experts. The experts respond to questionnaires in bouts of two or more.

5.9.1. Delphi Types

The central purpose of applying a Delphi method to decision-making is to provide a structured means of collecting information in situations where obtaining a coherent sample is difficult and time-consuming. The aim of using the Delphi technique is to achieve agreement through a series of iterations. Several types of Delphi which are appropriate for varying studies exist, (Table 5-5). The type of Delphi method used is determined by the study's objectives and research methodology position (Hanafin, 2004). The Delphi method's position is supported by the use of qualitative and quantitative approaches to data collection, as well as statistical measures to determine a "consensus". The participation of various types of 'experts' is based on the reality stance on which 'experts' agree (Munier and Ronde, 2001). All Delphi techniques have the critical benefit of being able to acknowledge and recognise the contributions of all participants in the data collection and research (Hanafin, 2004).

Table 5. 5: Different types of Delphi study

Delphi type	Explanation
Classical (Original) Delphi	Evolved by Dalkey and Helmer (1962)- anonymity - making a decision- consensus
Modified Delphi	For the first round of the revised Delphi, face-to-face interviews or a focus group are used. The number of rounds changes as well, but this version of the Delphi methodology employs a more quantitative approach to analysis. The use of an expert panel and the confidentiality of the panel members are important united factors. The first round included focus groups and group interviews, but the answers after that are confidential (Davidson, 2013).
Policy Delphi	The policy Delphi differs from those other Delphi methods in the composition of both its expert panel and the ultimate objective of the study issues, as the objective is to explain an understanding of various consensus viewpoints rather than to make a decision or reach consensus. It also has a variety of round lengths and maintains confidentiality within the panel. (1979, Rauch)

Decision Delphi	In compared to the policy Delphi, which aims to understand social circumstances, the decision Delphi brings together a committee of decision-makers to undertake decisions for future developments. A policy Delphi, unlike the classical Delphi, deals with theories rather than facts. The decision Delphi is not used to reach a group opinion on a prediction declaration (as is the case with the classic Delphi), but rather to analyse decisions. (1979, Rauch)
Real-time Delphi	The framework of the real-time Delphi differs, and it is often regarded to as a consensus conference. It intended to guarantee expert availability in order to minimise drop-out rates and improve efficiency levels. This is accomplished by providing a link to a welcome page where participants can read about the study and what is needed, as well as access the initial questionnaire. The procedure employs a simplified approach, and the authors disagree on the results. (Gnatzy and colleagues, 2011).
e-Delphi	The e-Delphi, like the real-time Delphi, replicates the classical Delphi process, however the questionnaire, feedback, and expert panel participation are all conducted via email or online surveys. It could be asserted that this method is classified as modified Delphi. (Gnatzy and colleagues, 2011).
Technological Delphi	Although technological Delphi is similar to real-time Delphi, there are some discrepancies. The major difference is that technological Delphi responds to questions immediately using technological tools (Passig, 2004). Voting, for example, can be done in real time, and this method of analysis appears to be even more quantitative because it is more difficult to ask and investigate open-ended questions (Davidson, 2013).
Disaggregate Delphi	Classical Delphi is criticised by disaggregated Delphi. When panelists are invited to calculate possible and desirable predictions, a consensus is formed. The method disaggregates responses of main factors using cluster analysis, which is thought to be more precise. There are two rounds in this study. Quantitative questions are answered in the first, whereas qualitative questions are being asked in the second, which involves panel member interviews. 2013 (Davidson)

205

Fuzzy Delphi	Fuzzy Delphi is most commonly used to reach an expert agreement on difficult subjects (Wu et al, 2013a). The benefit of the fuzzy Delphi approach is that almost every expert opinion can be taken into account and incorporated in order to reach common agreement (Wu et al, 2013a). Furthermore, it cuts down on inquiry time as well as time and cost consumed. The fuzzy Delphi method also has the benefit of being simple. A single investigation would include all expert opinions. As a result, this method will help you select criteria that are more successful (Wu et al, 2013 a). Rounds, on the other hand, differ, and anonymity must be maintained. The Fuzzy Delphi method is a conventional forecasting technique that does not necessitate a large sample size. When quantitative inquiries and statistical analysis are added, the study moves to larger samples to improve validity (Wu et al, 2013 a).

5.9.2. Fuzzy Delphi

The Delphi technique established by Helmer and his colleagues has been extensively utilized as a long-term forecasting technique, to date (Dalkey and Helmer, 1962). The traditional Delphi method is not without its drawbacks, it has a high cost of enforcement and modification of experts' respective opinions to reach coherent overall opinions, and a diminished consistency of expert opinions (Chung and Chiang, 2011). The Delphi method necessitates multiple expert interviews – usually more than twice – in order for predicted values to converge; this is a flaw in the Delphi. Repeated surveys result in higher costs and lower response rates, particularly whenever the surveys are complex (Chung and Chiang, 2011).

To mitigate the above difficulties, Murray et al. (1985) devised the Fuzzy Delphi method, which combines the Delphi method alongside fuzzy theory. Murray et al. (1985) added the membership function to fuzzy theory to guarantee that fuzzy rules are implemented in the forms of explanations to be provided to each member.

The membership functions and "the extent of expertise" were linked by Ishikawa et al (1993). This aided a customised expert panel specialising in the acknowledgement of exact membership functions specified in the questionnaire in a system of fuzzy rule propositions. As a result,

Ishikawa et al. (1993) ensured that exact fuzziness is consolidated in the Delphi study results, which can be statistically analysed using max-min and fuzzy integration algorithms. The assimilation of experts' opinions with fuzzy numbers is founded on the theories of cumulative frequency distribution and fuzzy integral, facilitating a balanced linguistic and systematic structure of rounds, leading to diminished iterations (Ishikawa et al, 1993). Hsu et al (2010), further acknowledges the advantages of Fuzzy Delphi compared to the other Delphi methods as follows:

1. As explained by Ishikawa et al (1993), it decreases research costs and time.
2. Individuals' different perspectives can be plainly stated without bias due to the integration of membership functions by fuzzy rule sets.
3. It provides a semantic structure that aids in the consistent expression of ideas.
4. The fuzziness in the problems being investigated is examined and resolved during the process.
5. The Fuzzy Delphi is easy to set up and use, with a straightforward analysis process that can statistically resolve concerns like multi-level, multi-attribute, and multi-scheme decision-making under ambiguity (Hsu et al, 2010; Murray et al, 1985).

Because the linguistic variables are phrases or propositions in a naturally or artificially language, Fuzzy Delphi may remodel them into fuzzy sets to substitute the crisp set. The concept is particularly useful in situations where traditional quantitative expressions are insufficient to convey the complexity or difficulty of the situation (Chen, 2014). This research takes advantage of one of the fuzzy Delphi technique's strengths: the ability to gather expert opinions and use them to identify a specific array of criteria and problems related to culture-led sustainable urban development.

From the literature review, it is noteworthy that the Delphi method is utilized to create the critical criteria by reaching agreement among independent Decision-makers in group decision making (Huang, Lin and Lin, 2008). However, the traditional Delphi method has always encountered low convergence of expert opinions, high cost of execution, and the likelihood that opinion organisers may refine certain expert opinions. Ishikawa et al (1993) thus proposed the concept of assimilating the traditional Delphi method and the fuzzy set theory to enhance the vagueness and ambiguity of the Delphi method. The fuzzy Delphi method does not possess

the above-mentioned weaknesses. Therefore, this study espouses the reconstructed fuzzy Delphi method, which is based on triangular fuzzy numbers. This technique is practiced identifying the key criteria and then to reduce the number of criteria. To lay the basis for encompassing the Delphi method to fuzzy environments, the essentials of fuzzy set theory and the fuzzy Delphi method are further discussed.

5.10 Fuzzy Set Theory

Fuzzy Set Theory was recommended officially for the first time by Lotfi Zadeh (1965), from the University of California in Berkeley. The theory has since been developed and enhanced since its debut and has been enforced in many areas (Zimmermann, 1991).

As stated earlier, the fuzzy set theory is an appropriate means of approaching ambiguity in the MCDM model. Thus, the fuzzy set theory is adopted in this research to model the ambiguity issue. First and foremost, it is best to furnish coherent descriptions of the terminology and concepts that are employed in the fuzzy set theory literature to elucidate the theory precisely.

5.10.1 Definition

The fuzzy set theory considers ambiguous data as probability distributions in the context of set memberships. A fuzzy set is a class of objects with a continuum of grades of membership. Such a set is represented by a membership (characteristic) function, which designates to each object a grade of membership ranging between zero and one. A tilde '~' will be placed above a symbol if the symbol represents a fuzzy set.

Let X be a collection of objects denoted generically by x, then a fuzzy set $\tilde{A}$ in X is a set of ordered pairs:

$$\tilde{A} = \{(x, \mu_{\tilde{A}}(x)), x \in \} \qquad\qquad (5\text{-}1)$$

Where $\mu_{\tilde{A}}(x)$ is called the membership function (generalised characteristic function), which maps X to the membership space M= [0,1]. A fuzzy set is represented by an ordered set of pairs, the first element of which represents the element and the second is the extent of membership. In the fuzzy set theory, the membership values are designated by a value in the range [0,1], with 0 denoting absolute non-membership and 1 denoting absolute membership. It is noteworthy

208

that there is no specific way to establish the membership function and it is mostly empirical and perceptual.

5.10.2 Basic Concepts and Operational Laws of Fuzzy Numbers

This section reviews some basic and related definitions of fuzzy set theory from Zadeh (1965).

Definition 1: Notations of Fuzzy Numbers

A fuzzy number, $\widetilde{m}$, is a special fuzzy subset of the set, $\mathfrak{R}$, of real numbers, which satisfy the following conditions (Dubois and Prade, 1980):

a) There exists a $x_0 \in \mathfrak{R}$ so that the degree of its membership, $\mu_{\widetilde{m}}(x_0)=1$; x_0 is called the mean value of $\widetilde{m}$.

b) The membership function, $\mu_{\widetilde{m}}$, is left and right continuous.

Laarhoven and Pedrycz (1983) defined a fuzzy number, $\tilde{A}$, on $\mathfrak{R}$, to be a triangular fuzzy number, which can be defined by a triplet (*l, m, u*) as shown in Figure 5-5. The parameters, *l, m* and *u* respectively indicate the smallest possible value, the most promising value, and the largest possible value that describe a fuzzy event. Its membership function is defined as:

$$\mu_{\hat{A}}(a,b,c)=\begin{cases} 0, & x < l \\ \frac{x-l}{m-l}, & l \leq x \leq m \\ \frac{u-x}{u-m}, & m \leq x \leq u \\ 0, & x > u \end{cases} \tag{5-2}$$

It is easy to see that a triangular fuzzy number, $\tilde{A} = (l,\ m,\ u)$ is reduced to a real number, M, if *l = m= u.* Conversely, a real number, *l*, can be written as a triangular fuzzy number, , $\tilde{A}= (l,\ m,\ u)$.
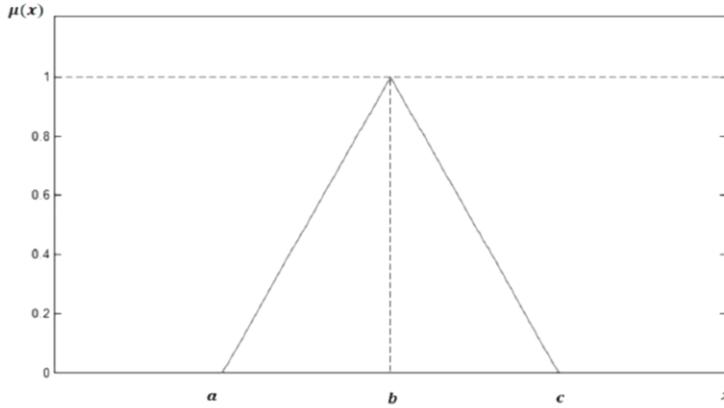
Figure 5-5: Triangular Fuzzy Number $\tilde{A}$= (*l, m, u*).

Definition 2: Fuzzy Algebraic Operations

Let $\tilde{M}$=(l_1, m_1, u_1) and $\tilde{N}$=(l_2, m_2, u_2) be two triangular fuzzy numbers. The algebraic operations of $\tilde{M}$ and $\tilde{N}$ can be expressed as follows (Zadeh, 1965):

• Fuzzy addition:

Addition of a TFN $\oplus$: $(l_1, m_1, u_1) \oplus (l_2, m_2, u_2) = (l_1 + l_2, m_1 + m_2, u_1 + u_2)$ (5-3)

• Fuzzy subtraction:

Subtraction of a TFN $\ominus$: $(l_1, m_1, u_1) \ominus (l_2, m_2, u_2) = (l_1 - u_2, m_1 - m_2, u_1 - l_2)$ (5-4)

• Fuzzy multiplication:

Multiplication of a TFN $\otimes$: $(l_1, m_1, u_1) \odot (l_2, m_2, u_2) = (l_1 \times l_2, m_1 \times m_2, u_1 \times u_2)$ (5-5)

• Fuzzy division:

Division of a TFN $\oslash$: $\tilde{M}^{-1}$ = $(\frac{1}{u_1}, \frac{1}{m_1}, \frac{1}{l_1})$ (5-6)

Definition 3: Linguistic Variable

According to Zadeh (1975), a linguistic variable is a variable that has its values in linguistic terms. In the environment of fuzzy decision-making, the linguistic variable approach is very beneficial in dealing with instances that are too intricate or ill-defined to be

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210

dealing with instances that are too intricate or ill-defined to be rationally described in traditional qualitative expressions. In MCDM, the fuzzy set theory and the linguistic variable concept are beneficial tools in dealing with the ambiguity of human thoughts and language in the decision-making process. Undoubtedly, the linguistic variable concept is often employed by decision-makers to convey their assessments with qualitative linguistic variables, and then fuzzy numbers are utilized to quantify the aforementioned qualitative linguistic variables. To illustrate, the ratings of substitutes by employing qualitative features could be conveyed as linguistic variables such as Very Poor (VP), Poor (P), Medium Poor (MP), Fair (F), Medium Good (MG), Good (G), and Very Good (VG). For example, 'poor' and 'very good' can be denoted by triangular fuzzy numbers (2, 3, 4) and (8, 9, 10), respectively.

In virtually all extant literature the employs fuzzy sets to quantify linguistic variables, triangular and trapezoidal fuzzy numbers have been in utilized as the most adequate choices due to their capacity to have linear functions. The property of being linear enables its application to be easy and unambiguous for related computations (Jamalnia and Soukhakian, 2009). Moreover, triangular and trapezoidal fuzzy numbers are symmetrical and possess a distinctive maximum value in their degree of membership functions. These characteristics enhance their adequacy in fitting to the features of linguistic terms (Jamalnia and Soukhakian, 2009). In particular, triangular fuzzy numbers are often utilized due to their simple nature of application with linear functions and their membership functions can be made with only a few constraints, which can even be reduced to two constraints, as in the case of symmetric fuzzy numbers. Founded on the aforementioned argument, all fuzzy numbers are considered to be triangular fuzzy numbers to quantify qualitatively variable linguistic expressions for the entirety of this study.

In the literature, different studies have used five-level, seven-level, or nine-level linguistic scales, which are converted into triangular fuzzy numbers. Chen and Ku (2008) summarized all applications of triangular fuzzy numbers and presented the fuzzy numbers associated with linguistic terms. The emphasis of this study is on seven-level linguistic scales for the fuzzy Delphi method and a five-level linguistic scale for the fuzzy AHP as shown in tables 5-6 and 5-7.

Table 5. 6: Linguistic scales used for fuzzy Delphi method

Linguistic variable	Fuzzy number
Very low	(0,0,0.1)
Low	(0,0.1,0.3)
Medium low	(0.1,0.3,0.5)
Medium	(03,0.5,0.7)
Medium high	(0.5,0.7,0.9)
High	(0.7,0.9,1.0)
Very high	(0.9,1.0,1.0)

Table 5. 7: Linguistic scales used for fuzzy AHP

Linguistic scale	Triangular Fuzzy Numbers	Reciprocal Fuzzy Numbers
Just equal	(1, 1, 1)	(1, 1, 1)
Moderately more important	(2, 3, 4)	(0.25, 0.33, 0.5)
Strongly more important	(4, 5, 6)	(0.16, 0.2, 0.25)
Very strongly more important	(6, 7, 8)	(0.12, 0.14, 0.16)
Absolutely more important	(9, 9, 9)	(0.11, 0.11, 0.11)

The application of following linguistic terms is also evident in the extant fuzzy Delphi (e.g. Bouzon et al, 2016; Chen and Ku, 2008; Yadollahi Farsi et al, 2012; Barbazza et al, 2014; habibi2 et al, 2014) as well as fuzzy AHP literature (e.g., Bozbura and Beskese, 2007; Bozbura, Beskese and Kahraman, 2007; Büyüközkan, 2004; Chen, Hsieh and Do, 2015; Cho and Lee, 2013; Ju, Wang and Liu, 2012; Kwong and Bai, 2003; Vatankhah, Zarra-Nezhad and Amirnejad, 2019; Vatankhah, Bouzari and Safavi, 2020).

5.11 The proposed Fuzzy Delphi method (Hsu et al, 2010)

Fuzzy Delphi is a hybrid of the traditional Delphi Method and Fuzzy Set Theory that aims to address some of the ambiguity in the Delphi panel consensus (Ishikawa et al, 1993). The Fuzzy Delphi Method is a more advanced version of the Delphi Method, as it employs triangulation statistics to determine the distance among levels of agreement within the expert panel.

As stated earlier, the Delphi method is a group knowledge procurement method that has been employed for over half a century. The calculations involved in the Delphi technique are founded on experts' opinions. Thus, any inaccuracies or discrepancies that may arise in the evaluation of experts' opinions will affect the outcome of calculations. In the conventional Delphi approach, despite experts' mental aptitudes and abilities being utilized for comparisons, the quantification of experts' opinions cannot completely mirror the way of human thinking. Employing fuzzy sets is more coherent with human linguistics and sometimes ambiguous descriptions and the application of fuzzy numbers is more appropriate for decision-making in the real world. The inaccuracy level is reduced in the utilization of fuzzy sets. A conventional issue of the Delphi method is solving the rounds of the Delphi technique. This study demonstrates that the fuzzy Delphi technique can be utilized in a *single round* for evaluating criteria (Ma et al, 2011).

The most compelling step in the formation of a set of survey questionnaire is in the decision of the suitable items in a construct. Clinging to extraneous items and eliminating vital items will undoubtedly mislead the course of a specific study. This study depicts the fuzzy Delphi method as one of the scientific analysis techniques to centralize consensus agreement within a panel of experts relating to each factors' as well as challenges' appropriateness. The fuzzy Delphi calls for only a small number of samples and the outcomes achieved are objective and reasonable (Kuo and Chen, 2008; Ma et al, 2011). The fuzzy Delphi technique is used in this study to:

➢ Determine the feasibility of the important key criteria, and also the most significant challenges, in order to develop the contextualised framework.

➢ To make the problem structure more understandable, lower the quantity of criteria by removing the least relevant ones (i.e. factors with weights below the thresholds of 0.7) or combining a few of them.

- Rather than using multiple questionnaires to obtain expert opinions from the decision-making committee, restrict the extra questionnaires to one.

- Save time and money by lowering the amount of times the survey must be repeated in order to achieve agreement in expert opinions.

- acting as a filtering mechanism by determining the mutual understanding among the decision-making group of experts and achieving consensus within the group.

Accordingly, several steps are involved in the application of fuzzy Delphi study as follows:

Step 1: Determine the critical factors as well as salient challenges concerning to study.

First, the critical factors concerning culture-led sustainable urban development and its potential challenges were established through a comprehensive literature review. Founded on the comprehensive review, the established factors and significant challenges are shown in Table 5-8.

Table 5. 8: Factors affecting the culture led sustainable urban development.

General category	Sub-category	Key debates	References
Social Justice	Community empowerment	• A wide range of opportunities for residents and service users to engage with networks, partnerships, and centers of power. • Both the terminology and degree of the transfer of power to citizens varies in different policy areas and contexts.	• Cdx&changes (Community development Exchange),2008
	Social participation	• Sustainable urban development needs several changes in attitude and approach on the part of local authorities, urban planners and the local population. • Public must have the right of participation and co-determination.	• Jost & Kay, 2010 • World Health Organisation (WHO), 2020

215		• Change in behaviour can only be achieved through persuasion and motivation.	
	Social mobility	• The movement of individuals, families, households, or other categories of people within or between social strata in a society. • For purpose of sustainable urban development, having equal chances of mobility is necessary.	• OECD, 2018
	Social cohesion	• Reducing inequality and socioeconomic disparities and fractures in the society by consolidate plurality of citizenship. • It reflects people's needs for both personal development and a sense of belonging and links together individual freedom and social justice, economic efficiency and the fair sharing of resources, and pluralism and common rules for resolving all conflicts.	• Cartwright & Zander, 1953 • Jeannotte, 2003 • Parsons, 2013 • OECD,2011
Self-reliance	Balanced economic growth	• It is a specific type of economic growth that is sustainable in the long term. • It is sustainable in terms of low inflation, the environment and balanced between different sectors of the economy such as exports and retail spending.	• Ruttan and Hayami, 2011 • Angelescu and Stanescu, 2004 • Muler, 2008
	Fair Trade	• This is an institutional arrangement designed to help producers in developing countries	• FINE,2001 • Hawrylyshyn, 2019

215

		achieve better trading conditions?	
		• It has important role in sustainable urban development by offering better trading conditions to, and securing the rights of, marginalized producers and workers in developing countries such as Iran.	
	Equity	• It refers to equal life chances regardless of identity to provide all citizens with a basic and equal minimum of income, goods, and services or to increase funds and commitment for redistribution.	• US EPA,2010 • Sphere,2020
Ecological balance	Natural resource management	• It refers to the management of natural resources such as land, water, soil, plants, and animals and focus on how management affects the quality of life for both present and future generations	• Muralikrishna & Manickam, 2017
	Urban biodiversity	• It refers to the variety and variability among living organisms found in a city and the ecological systems in which they occur. • It responds to a combination of biogeographic and anthropogenic factors, with a strong influence of the latter.	• Van Roon, 2005; Mallawaarachchi, Morrison, & Blamey, 2006 • Kellert, 2004
	Urban carrying capacity (UCC)	• This is an important conceptual underpinning that guides local governments in promoting sustainable urban development.	• Wei et al., 2015

		• This is the results of the interaction of multiple subsystems such as environment, resources, infrastructure and urban services. • This is a comprehensive evaluation for various elements involved in resources and services	
	Urban ecosystems	• These are the cities, towns, and urban strips constructed by humans. • An extremely important function of an urban ecosystem is to provide healthy and sustainable environments for both natural systems and communities.	• Sirnivas, 2015
Cultural sustainability	Cultural identities	• These are related to nationality, ethnicity, religion, social class, generation, locality or any kind of social group that has its own distinct culture.	• Belyh, 2017
	Tangible heritage	• It refers to physical artefacts produced, maintained, and transmitted intergenerationally in a society.	• Throsby, 2008; Srakar & Vecco, 2017 • UNESCO, 2003 • Hosagrahar, 2017; Potts, 2016; UN, 2016
	Intangible heritage	• Examples of intangible heritage are oral traditions, performing arts, local knowledge, and traditional skills. • Intangible cultural heritage is an important factor in maintaining cultural diversity in the face of growing globalization.	

		• An understanding of the intangible cultural heritage of different communities helps with intercultural dialogue and encourages mutual respect for other ways of life.	
	Cultural diversity	• This is a defining characteristic of humanity. • Cultural diversity creates a rich and varied world, which increases the range of choices and nurtures human capacities and values. • This is a driving force for sustainable development for communities, peoples and nations.	• Deekor & Maekae, 2015
	Cultural industries	• These are characterized by being at the intersection of economy and culture, having creativity at the core of their activities, artistic and cultural content, and links to innovation.	• SDGF, 2014
	Cultural geography	• It examines the cultural values, practices, discursive and material expressions and artefacts of people, the cultural diversity and plurality of society. • It examines how cultures are distributed over space, how places and identities are produced, how people make sense of places and build senses of place, and how people produce and communicate knowledge and meaning.	• Castree et al., 2013

Table 5. 9: Factors challenging the culture led sustainable urban development.

Conceptual challenges	*Myth*	*Counter-Narrative*	*References*
	• The culture of a place is fixed and timeless. • Culture does not belong to people. • Local identities are inherited and changeless. • It is possible to transmit local identity to future generations, but (local cultures) cannot be modified.	• History clearly shows that identities of local communities change over time. • Culture belongs to all people that live in a place. • Identities are always being built. • Identity is not a starting point; identity has become a negotiable destiny.	• Dessein et al., 2015 • Shaheed, 2015 • UNESCO,2014
	• Local or national sustainable development must respect cultural beliefs, practices, and traditions and cannot change any aspect of them. • Everything about cultural traditions and practices is good and must be safeguarded and conserved. • Traditions of groups and Local circumstances are more important than individuals.	• Culture is an integral part of human rights, and no one may invoke culture to infringe upon the human rights of individuals, guaranteed by international law, nor to limit their scope (bases on Un declaration of human rights) • The right to participate in cultural life has three essential and interdependent dimensions: creativity, access to cultural heritage, and diversity. • Those cultural practices that infringe upon the human rights of individuals must be modified to conform to the UN Declaration of Human Rights.	
	• Economic development is the absolute priority.	• The role of culture for sustainable development is crucial and depends on ensuring cultural rights and access for all.	

	• Culture is secondary to more important purposes. • Economic development cannot be as fast as it should be If focus on historic heritage, or traditions.	• Development only understood in economic terms is neither effective nor sustainable. • Creativity, Cultural heritage, and diversity are the foundations for the humane, inclusive, holistic, and long-term development of cities.	
	• Culture is a luxury that some society cannot afford. • At a local level, there are other priorities: fresh water, decent jobs, adequate housing, education.	• Sustainable development will not happen unless culture is considered explicitly as a key enabler. • Development interventions may succeed or fail depending on how compatible they are with local culture. • Culture includes the circulation of knowledge, and therefore of meaning. It is located at the very base among ecology (environmental science), economics, politics, and social fabric.	
	• Culture is something that should be left to the market. • Cultural goods and services are just commodities. They are naturally included in the individual and household expenditure as a matter of taste. • Cities should only invest in cultural infrastructure and events such as tourism and city branding if there is an economic return.	• The cities that solely see culture as a resource to attract investments and improve branding are identifying only a limited number of cultural manifestations. • Cultural vitality is an absolute necessity to city life because it infuses all spheres of living and lies at the foundation of freedoms, the public exchange of ideas, and societal wellbeing. • These dimensions infuse meaningful sustainable	

		development, which is experienced at a local level and requires local spaces for public debate and decision-making.	
Challenges to Operationalising Culture in Local Development	• Limitations due to target policies, bureaucratic silos, legislative frameworks, and administrative reluctance. • The complexity of the cultural sector and the cultural features of the community. • Inadequacy of indicators, measurement, and evaluation of progress and impacts • Underlaying issues of citizen participation, attention to gender, and overcoming segmentation.	• Hosagrahar, 2012b • Meyer-Bisch, 2013 • UNESCO,2014	

Step 2: Collect expert opinions via semi structured interview. After identifying the factors and the challenges, 10 experts (decision makers) from supreme council of Free Trade (FTZs) and Special economic Zones (SEZs) were invited to express their opinion regarding critical factors related to culture led sustainable urban development and its potential challenges via semi-structure interview. Because this research was conducted on the basis of the exploratory sequential mixed methods protocol, the semi-structured face-to-face interview technique was considered the most appropriate within the time available to complete the research. Furthermore, it gives the targeted participants the opportunity to express their opinions based on their experience as member of supreme council of free trade and special economic zones in Iran for purpose of developing a contextualised framework for culture-led sustainable development Kish as Free Trade zone in Iran. Specifically, the interview protocol has been derived from the extensive review of literature to cover the current gaps in the research. In addition, the choice of interview questions has been influenced by the aims of the study to best reflect the aims and objectives. Upon preparation of interview protocol, the suitability of the questions has been initially tested by sending out the question items to the President (Chairman) of Free zones in Iran Who is also included in the expert panel. Review of questions revealed that all items are appropriately designed and there were no difficulties in understanding questions. Therefore, no changes were made to the list of questions within the

interview protocol. A copy of interview protocol as well as ethical committee approval is presented in the appendix.

A face-to-face technique was chosen (rather telephone or web-based such as Skype or video conferencing) because this method is more personal and makes it easier to explore participants' experiences face-to-face. Furthermore, it gives the researcher the opportunity to ask complex and sensitive questions in order to collect comprehensive data (Collis & Hussey, 2014; Rebar & Macnee, 2010). This rationale is also supported by Easterby-Smith et al., (2012), who claim that semi-structured interviews give the researcher an opportunity to probe deeply, uncover new clues, open up new dimensions of a problem and secure vivid, accurate, inclusive account that are based on personal experience.

The content of interview has been interpreted using qualitative content analysis methodology through which experts' opinions were carefully coded and categorised. Specifically, content analysis is a method to analyse written, oral, vocal, and visual communication messages(koul,1988). Particularly, while assessing a new concept that the existing knowledge conferring the topic of interest is not sufficient, an inductive qualitative content analysis will be used (Cho and Lee, 2014; Elo and Kyngas, 2007). According to Elo and Kyngas (2007), " The concepts are derived from the data in inductive content analysis" (p. 107). The following table represents the results of inductive qualitative content analysis that follows the process of coding based on Elo and Kyngas's (2007) seminal study.

Table 5. 10: Inductive qualitative content analysis of semi-structured interview

Items	Key sentences/statement	Sub-categories	Generic categories	Main categories
Factors that effecting sustainable development in Kish				
1	If we want to have sustainable development, we need to focus on factors such as Optimum and maximum ability of Earth's systems to support human life and well-being.	Urban ecosystem	Environmental factors	Factors affecting the culture led sustainable urban development
2	Iran ranked as the second largest economy in the MENA region with a GDP of about USD 549 billion in 2012. Apart from oil and natural gas, the	Natural resource management		

	country's other natural resources include coal, chromium, copper, iron ore, lead, manganese, zinc, and sulphur.			
3	We have a wonderful configuration of biodiversity in Iran. This biodiversity contains some of the world's important genetic resources, being the home of the original stocks of plant and animal species of great commercial value such as wheat, sheep and goat. These valuable species have been preserved up to present day; for example, the wild ship.	Urban biodiversity		
4	The fact is that we are still trying to develop our understanding of UCC. We provide training program to our mangers to make sure they also have a good understanding of UCC. This Problem is also considered in Kish master plan -2005-2025	Urban carrying capacity (UCC)		
1	We are offering a wide range of opportunities for residents and service users. We try to engage them with networks, partnerships, and centres of power	Social justice	Social factors	Factors affecting the culture led sustainable urban development

2	We believe that if we want to be successful, we should be able to attract the attention of the larger publics. Also, we should be able to affect the attitudes of local authorities, urban planners, and the local population with the aim of sustainable development.	Social participation		
3	Mobility is necessary for sustainable urban development. That is why we try to provide such opportunity for everyone.	Social mobility		
4	I believe that sustainable development should be planned in a way that everybody in the local community have equal opportunities.	Social cohesion		
1	Economic development is achieved via careful consideration of inflation rates in Iran. In addition, I would say there should be a considerable balance between different sectors of the economy such as exports and retail spending	Balanced economic growth	Economic factors Economic factors	Factors affecting the culture led sustainable urban development
2	Equity and fair trade are two other factors for sustainable economic development in Kish.	Equity and Fair trade		

224

1	In current Kish master plan attention is being paid to people's identities such as nationality ethnicity, religion, and education	Cultural identities	Cultural factors	Factors affecting the culture led sustainable urban development
2	We have several industries here in Kish such as electronic industries, Home appliances industries, car manufacturing, Oil industry technical and engineering services, textile industries, Food, and hygienic industries, cellulose industries, non-metallic industries and we believe we can insert culture in any on them. Chemical industries	Cultural industries		
3	People living in Persian Gulf guild (such as Kish) are familiar with different cultures because this place has been an import and export port for long time , and a lot of families with different cultures such as Azeris, Kurds, Lurs, Turkman , and also Armenians and Assyrians . Also Arab Tribe that lived in Neighbouring area affect to cultural diversity in Kish	Cultural diversity		
Challenges for sustainable development in Kish:				
1	Unfortunately, we know less how to manage the endangered spices in Kish. This is one the important challenge for having sustainable environmental development in Kish.	Challenges affecting natural resource management, and urban biodiversity	Environmental challenges	Challenges towards culture led sustainable urban development.

2	Lack of environmental optimization plan and inappropriate development and construction approach are other environmental challenges that can be the danger to keeping the endangered spices.	Challenges affecting natural resource management and urban biodiversity		
3	Large and complex projects often face constraints such as complex project environment, lack of information, and uncertainties caused by new technologies. So, they need the appropriate approach for development and construction.	Challenges affecting natural resource management urban carrying capacity, and also urban ecosystem		
4	In Kish, some of project failure caused by Inappropriate developmental and construction approaches such as health town, and international exhibition Centre, and green town, and the most important one is artificial island in waters off the southern island of Kish.	Challenges affecting urban carrying capacity, and natural resource management, Urban biodiversity, and ecosystem.		
5	In Iran, drought, increased population, air pollution, climate change, industrial and agricultural production, sanctions, inefficient water natural resource use,	Challenges affecting ecosystem management, natural resource management, and urban biodiversity	Environmental challenges	Challenges that affect culture-led urban development

6	Due to lack of enforcement of existing environmental regulations agricultural land desertification, greater production demand on remaining arable areas is created.	Challenges affecting natural resource management, ecosystem, urban biodiversity		
1	There are a lot of opportunities and potentials in Kish, but we do not know the appropriate organizational approach towards these opportunities such as well-educated workforce. Lack of education and more significant financial and human resources will be necessary to tackle the problem regarding environmental issues	Challenges affecting community empowerment	Social challenges	Challenges affecting urban sustainable development
2	Unfulfilled residents' needs and requirements is another social challenge for sustainable development in Kish. As the president of free zone explain before, Low level of social services, and Inappropriate organizational approaches towards opportunities and potentials of the free zone can cause this challenge worse.	Challenges affecting community empowerment, social participation, and social cohesion		

227

3	Lack of training programmes for different organisations makes it difficult to proceed with our plans for sustainable development	Challenges affect community empowerment, social cohesion, and social participation		
4	In kish still social service level is low	Challenges affect social cohesion, participation and mobility		
5	Inappropriate inhabitation patterns can be observed among local communities.	Challenges affecting social mobility, cohesion		
1	Kish is in Persian Gulf and this area is very instable because of neighbouring countries and also Iran's political issues	Affect balance economic growth, fair trade, and equity	Economic challenges	Challenges affecting culture-led urban development
2	There are several Non-inhabited Island around Kish.			
3	Lack of investment advantages because some restriction rules in free zones, and needs the confirmation from mainland			
4	The instability in Iran's political situation provides good opportunities for neighbouring countries to increase their power.			
5	Insurance rate is high in Kish specially for economic loss , this is caused by political and economic instability in the Persian Gulf			
6	There are limited cruise lines in region. For example, we only have			

	one called Kish Hidden Pearl, and at the moment is under construction			
1	In Kish population is dived into two groups: people that come to Kish for work and study , and the residences that live in Kish from long time ago, so underlying issues of citizen participation and overcoming segmentation is one of the challenges, and that cause complexity of the cultural features in Kish .Decision makers in Kish need to have more knowledge about different challenges that integrate culture in to urban development can cause .	Challenges affecting cultural diversity and cultural identities	Cultural challenges	Challenges towards culture led sustainable urban development
2	There are still some people who do not believe in the role of culture in economic development, and this causes issue between people that come for business in Kish and residents that they believe that their identities are inherited and not possible to change that	Challenges affecting cultural identities, and cultural industries and also cultural geography		
3	Some of investors wants the conditional investment in cultural development, they will invest in cultural infrastructure and events such as tourism and city branding if there is an economic return.	Challenges affecting cultural industries		

	Studies of master plan (2005-2025) that the vice chairman mentioned before can be one of the ways that we can find the ways to face to these challenges mentioned above and needs to be update each year. And there is lack of information about the challenges regarding to cultural development in this master plan.			

The interview protocol is provided in the appendix B .

Steps 3: Determine the importance of each factor and each challenge through a questionnaire using linguistic variables described in Table 5-6. Particularly, triangular fuzzy numbers are used for evaluating the suitability of factors as well as the appropriateness of identified barriers. In addition, a geometric mean model (Ma et al, 2011) is used to determine the experts' group decision.

Step 4: Identification of important factors for culture-led sustainable urban development as well as the determination of salient challenges towards such development. In particular, this thesis followed Saaty's (1999) procedure to classify identified criteria into distinct clusters for the sake of simplicity. According to Saaty (1999), "A cluster allows one to think about grouping criteria that share a set of attributes" (p. 7). It appears that such classification would improve the quality of problem identification and facilitates the further computation process.

Therefore, identified list of all criteria have been grouped into distinct cluster based on feature similarities among criteria. This implies that criteria in the same cluster to be comparable or similar into the clusters or do not significantly differ in their importance priorities (Gasiea et al, 2010).

As shown in the following table, four main categories have been found to affect the culture led sustainable urban development which includes a total number of 19 sub-criteria. In addition, four main categories have been found to challenge the culture led sustainable urban development incorporating a total number of 25 relative sub-criteria. Even though, a

230

comprehensive angle has been used to identify all criteria affecting/ challenging the culture led sustainable urban development, it should be noted that covering all the criteria might have been impossible. However, the compositional configuration of identified factors affecting/challenging the culture led sustainable urban development appears to be conclusive enough to capture all necessary dimensions of the study problem.

Table 5. 11: Critical factors and salient challenges

Critical factors	Social justice	Community empowerment
		Social participation
		Social mobility
		Social cohesion
	Ecological balance	Natural resources management
		Urban biodiversity
		Urban carrying capacity
		Urban ecosystem
	Economic (self-reliance)	Balanced economic growth
		Fair trade
		Equity
	Cultural sustainability	Cultural identities
		Tangible and intangible heritage
		Cultural industries
		Cultural diversity
		Cultural geography
Salient challenges	Economic Challenges	Continuous instability in the region
		Increasing power of neighboring countries
		Domestic competition among islands for shared markets
		Being surrounded by non- inhabited islands
		geographical proximity to politically unstable countries
		High insurance rate in the Persian Gulf region
		Limited cruise lines in the Persian Gulf region
		Lack of investment advantages/ investment dissatisfaction

			Lack of successful benchmarking processes
	Social challenges		Unfulfilled local residents' needs and requirements
			Inappropriate inhabitation patterns
			Low level of social services
			Lack of organizational training programs
			Lack of managerial competence among regional managers
			Inappropriate organizational approaches towards opportunities and potentials of the free zone
	Environmental challenges		Lack of environmental optimization plan
			Inconsistent management of environmental resources
			Inappropriate land use
			Inappropriate developmental and construction approaches
			Inappropriate management of Endangered species
	Cultural challenges	Cultural conceptual challenges	Fixed and timeless culture
			Inherited and changeless local identities
			Fixed local culture
			Culture as a priority
			Conditional investment in cultural infrastructures
		Challenges to Operationalizing Culture in Local Development	Target policies, legislative frameworks, and administrative reluctance
			Complex cultural features of the community
			Inadequacy of indicators, measurement, and evaluation of progress and impacts

			Underlying issues of citizen participation and overcoming segmentation

As required by the final step in the fuzzy Delphi method, the important factors, as well as salient challenges, will be determined through comparing the weight of each criterion with the threshold "0.7".

The value of each criterion is calculated by the average of all criteria (either the development factor or the challenges) weight. That is,

Let $\tilde{a}$ be threshold value and $\tilde{a}_j$ is the weight of criterion j:

If $\tilde{a}_j \geq \tilde{a}$, then barrier j is selected.

If $\tilde{a}_j < \tilde{a}$, then barrier j is rejected.

5.11.1 The Rationale for Adopting Delphi

Delphi, according to Turoff and Linstone (2002), is a distinctive approach that allows individuals to explain themselves without concern of peer influence. As it is devoid of attitude influence and personal superiority, this decreases the impacts of pressures on specialists to change their opinion and promotes free thinking and continuous drafting of credible decisions (Delbecq et al, 1975). As a result, the Delphi technique specialises in creating consensus or identifying divergence of views between groups opposing or varying from one another, with the Delphi technique specialising in producing agreement or recognizing discrepancy of opinions among groups opposing or differing from one another (Kalaian and Kasim, 2012).

According to Hsu and Sandford (2007), the Delphi technique has the special capabilities to attain the following goals: identify or create a range of potential programme alternatives; examine or reveal basic principles or data linked to multiple judgments; gather information that may create agreement within the sample participants; correlate accurate decision on a particular subject.

Delphi's benefits made it an attractive resource for scientists to be used in future research, as well as allowing managers to make decisions based on data gathered through majority

233

consensus. Delphi is a technique for constructing a collective communication so that the process is effective in enabling a group of individuals to deal with a complicated situation, according to the concept widely used in research and in this study (Okoli and Pawlowski, 2004). Individual feedback adds to the information and expertise used to evaluate the group judgement or view and allows them to reconsider their opinions with some anonymity in order to achieve organised communications (Okoli and Pawlowski, *2004*).

The Delphi method, just like every other, has drawbacks, such as the fact that information gathered from a small group of individuals may well not be reflective. Nevertheless, it could be claimed that professionals share the opinions of a significant number of people, so a large sample is unnecessary (Kalaian and Kasim, 2012). The Delphi method does not rely on a statistical sample that is meant to be reflective of any population group. According to Okoli and Pawlowski (2004), it is a group decision that necessitates qualified experts with a thorough understanding of the situation. As a result, selecting competent experts is one of the most important criteria. Delphi is also more time-consuming than group process methods, as it necessitates written communication skills and member dedication (European Commission, 2008). The Delphi technique has been used by scientists in a wide range of scenarios as a tool for expert problem-solving. Because some of these methods are applied to specific problem types and outcome goals, the ''ranking and multiple choice-type" is widely used. Delphi has created a customised interpretation by arranging choices in order to reach an agreement on the perceived significance of a problem or its impact on a question's subject (Okoli and Pawlowski, 2004).

5.11.2 Choosing Expert Participants for the Fuzzy Delphi

Determining the correct objects in a construct is by far the most important step in creating a set of questionnaire surveys. Maintaining unnecessary items while removing relevant parts would undoubtedly skew the results of a study. The Fuzzy Delphi approach is one of the scientific analysis methods used in this thesis to reinforce consensus agreement among a group of experts on the suitability of each object. This approach eliminates uncertainty, diversity, and disparity among expert opinions, thus enhance the effectiveness of the chosen items. The primary goal of this study was to gain expert consensus on the appropriateness of the questionnaire's pre-selected objects.

The panel consists of 10 experts from the supreme council of Iran's free trade, industrial and special economic zones (see appendix B 1 for list of participants). There are two sets of questionnaires related to factors that affect sustainable urban development in Kish, and also the challenges to achieving this sustainability in Iranian contexts based on the extensive review of relative literature and interview analysis. As shown in table 5-12, the expert panelists who participated in the Delphi were industrial specialists in the areas of sustainable development and senior management positions.

Table 5. 12: Features of panelists

Respondents	Age	Gender	Organizational position	Organizational tenure
Expert 1	65	Male	President (Chairman) of Free zones in Iran	7 years
Expert 2	65	Male	Vice-chairman of Free zones in Iran	5 years
Expert 3	55	Male	Minister of Finance and Economic Affairs in Kish,	5 years
Expert 4	60	Male	Minister of Industries in Kish,	4 years
Expert 5	67	Male	Minister of Culture and Islamic Guidance,	5 years
Expert 6	65	Male	Minister of Roads and Urban Development,	4 years
Expert 7	60	Male	Minister of Foreign Affairs and trade	6 years
Expert 8	70	Male	Head of Sharif International university in Kish	7 years
Expert 9	63	Male	Head of tourism in Kish	5 years
Expert 10	68	Male	Head of domestic and international investment in Kish	7 years

The identities, on the other hand, were not included in the regarding data privacy secrecy, as demanded by the participants; this adheres with the fuzzy Delphi study, which preserves the confidentiality of the participants. The experts in question have met the following criteria:

• To be impartial in their evaluation and selection of the factors and/or challenges for the development of an appealed contextualised framework based on their expertise in responding the fuzzy Delphi queries, and

• To have technical skills and professional expertise in the industry of sustainable urban development and creative hub concept,

• Willingness and ability to engage during the survey

The proportion of professionals used for a Delphi study is usually defined by the amount of professionals necessary to construct a representative accumulation of judgments and the study team's ability to interpret information (Hsu and Sandford, 2007). Nevertheless, there has not been a consistent view of what constitutes an appropriate number of attendees in a Delphi study.

Nonetheless, Delbecq et al (1975) suggest that researchers use the smallest number of participants possible and then conduct follow-up investigations to confirm the findings. They also say that 10-15 experts may be adequate if the Delphi subjects' backgrounds and the experts' expertise are similar.

According to Hsu and Sandford (2007), when a Delphi study's sample is too small, the study might not have been believed to have given a representative pooling of views on the subject. If the sample is large, the Delphi technique's disadvantages, such as potential low response rates from experts who withdraw, conflict of views, and the length of time it takes to achieve agreement, can skew the results (Stata Press, 2013).

However, due to the mixed methodology of this study, statistical analysis is required. Statistical analysis is an important part of mixed methods research when it comes to developing the Delphi study and determining the panel's sample size. The sample size defines the amount of time spent and the probability of achieving a study's goal (Stata Press, 2013). Microsoft Excel has been used for statistical analysis in this study, and it can handle both large and small sample sizes.

As a result, this study concludes that a panel size of 10 experts is appropriate for achieving an appropriate sample size that meets both Delphi and statistical analysis standards. The panel, which is made up of ten experts from Iran's supreme council for free trade, manufacturing, and special economic zones, is made up of this. Derived from the literature search and interview analysis, there are two sets of questionnaires rated to factors that affect sustainable urban development in Kish, as well as the challenges to achieving this sustainability in Iranian contexts. Appendices B and C contain entire survey questionnaires.

236

5.12 Prioritization of identified factors using fuzzy AHP

The Analytic Hierarchy Process (AHP) is a theory of measurement based on pair - wise comparisons that depends on judgement to determine priority scales, which Shapiro and Koissi (2013) updated the Fuzzy Delphi to include. The (AHP) required the creation of hierarchies, which allowed the study to make decisions or perform measurements on pairs of elements regarding a criteria, resulting in preference scales, which were then synthesised throughout the structure to choose the superior option or criterion (Shapiro and Koissi, 2013). This study specifically aims to further assess the inherent priorities among identified factors as well as the ranking of challenges towards culture-led sustainable development. This section elaborates the key concept related to fuzzy AHP including decision-making process, group decision making, AHP method and the process through which the aforementioned factors, as well as determined challenges, are being prioritized using fuzzy AHP method.

5.12.1 Decision Making Process

 "Decision making (DM) is the study of identifying and choosing alternatives based on the values and preferences of the decision-maker(s). Making a decision implies that there are alternative choices to be considered, and in such a case we want to identify as many of these alternatives as possible but the idea is to choose the one that best fit with our objectives and values" (Harris, 1998)

Decision-making may begin with the identification of the following (Baker et al., 2002):

1) inclusion of decision maker(s) and decision stakeholder(s)

2) Reducing the likelihood of a disagreement over the problem's definition, objectives, and criteria.

Problem definition, requirements identification, objective formation, alternatives recognition, criteria definition, decision-making tool selection, alternative evaluation, and verification of the listed remedy regarding the problem have all been presumed to be part of a regular decision-making process. Baker et al. (2002), emphasize that the decision criteria should be:

- Able to differentiate among the alternatives to help the comparison of the performance of the options.
- Comprehensive to include all goals
- practical and meaningful

237

- Non-redundant

- limited in numbers

Culture-led sustainable urban development encompasses multiple steps that may include complementary quantitative and qualitative criteria and multiple decision-makers. For example, the aforementioned development might be associated with several factors such as social factors, environmental factors and economic factors. Thus, the selection and evaluation of key factors and challenges affecting culture-led sustainable urban development options (alternatives) could be classified as a Multi-Criteria Decision Making (MCDM) problem.

Classification of MCDM Different could be according to the type of data being used. Hence, there are deterministic, stochastic, or fuzzy MCDM methods (Triantaphyllou, 2000). Another classification of MCDM methods is according to the number of decision-makers who participated in the decision-making process. For example, single decision-maker MCDM techniques or group MCDM decision making. More often, nevertheless, identified criteria will be divided into groups of one level of main criteria, a second level of sub-criteria, and third-level in sub-sub-criteria in a tree-structure arrangement, also known as the decision tree (UK DTLR, 2001).

According to the techniques used, Goicoechea et al (1982) divides MCDM into three groups:

1. Outranking techniques,

2. Multi-attribute decision-making techniques, and

3. Mathematical programming techniques

On the other hand, the MCDM problems have been classified into two main groups (Ching-Lai and Yoon, 1981)

- Multi-objective decision making (MODM),

- Multi-attribute decision-making (MADM)

While the MODM method uses a continuous decision space encompassing non-pre-identified decision options, MADM method uses the discrete decision space, and each alternative can be assessed using a combination of analytical tools.

Zhou et al (2006) classify Decision Analysis (DA) methods into three main categories: Single objective decision-making methods, decision support systems, and MCDM. The study concludes that the Analytic Hierarch Process (AHP) (18%) is the most popular method, followed by Multi-

Attribute Utility Theory (MAUT) (17%), Multi-Objective Decision Making (MODM) (14%) and Decision Tree (DT) (14%). According to Simonovic (2002), the followings are the basic principlas of MCDM problems:

1. A list of possible candidates (e.g. DSM options)

2. identified number of criteria

3. decision-makers.

4. preference weights

5. For each criterion, a set of performance evaluation options

MCDM methods have shown to be prevalent and commonly used by researchers. The following section explains some relative studies by using this method. The following sections illustrate case studies (some of them from Iran) that have used from this multicriteria decision making for improving sustainability:

> Iran-Using Multi-Criteria Decision-Making Method (MCDM) to Study Quality of Life Variables in the Design of Senior Residences in Iran. This study conducted a meta-analysis on related sources published in the last 15 years to obtain indicators relevant to elderly people's residential space and its effect on their quality of life, which is a significant factor for social sustainability in Iranian urban growth. It analysed the sub-components derived from research and the evaluation of personal and group residences for senior citizens using multi-criteria decision-making method (MCDM) and analytic hierarchy process (AHP) by ten experts in Iran. sociocultural and physical factors had the most and least importance, respectively, among physical, perceptual, functional-skeletal, and sociocultural factors. According to the results, physical factors have more weight and impact in selecting a residence that suits the quality of life of the elderly in Iran, followed by perceptual factors. Furthermore, as compared to individual residences, collective residences have a higher relative weight in terms of being preferred as an elderly person's home. (Zarghami, Sharghi, Olfat, and Kousalari, 2018).

> Iran- Sustainable development refers to interactions between different aspects of economic, social, and environmental features designed to improve the quality of human

239

life. This study evaluates urban sustainability in different urban areas of the Kermanshah city of Iran. An important city in western Iran, Kermanshah, faces several social, economic, and environmental problems, thus confirming this research's need. This study was completed using multi-criteria decision-making (MCDM) methods, including SAW, ELECTRE, and TOPSIS. The results of these three methods indicated that different urban areas in Kermanshah city have different sustainability levels, and among the six urban areas, area 4 was designated as a priority. Also, this paper offers some necessary strategies on the issues relating to the planning and management of Kermanshah city. Furthermore, the results of the three methods were compared with each other. The Friedman Test's findings showed no meaningful difference between the applied methods (Zinatizadeh et al., 2017).

➢ The construction industry needs to assess its performance in the long term, considering the intangible parameters and tangible ones. Urban regeneration and infrastructural development have considerable impacts on the construction industry performance in developing countries. Therefore, to provide efficient and sustainable performance for the construction industry in the long term, it is crucial to determine the benchmarks and indicators from the perspective of those projects. In this context, this study's major objective is to represent a model showing the parameters affecting the sustainable performance of the construction industry from an urban regeneration perspective. Fuzzy Analytic Hierarchy Process (FAHP) analysis was employed to determine measures and indicators associated with sustainable performance, and a model was established to reach the study's objective. According to the FAHP analysis results, among measures such as Company Performance, Extrinsic, Economic, Environmental, Social and Innovational Factors set in the research, intangible values such as innovation and social protection were also found to have prior effects as well as the inevitable tangible ones such as cost, profitability, and macroeconomy to sustain the performance of the construction industry for urban regeneration projects in the long term (Isik and Aladag,2017).

➢ One of the critical priorities of a developing city is to provide public transportation. This subject encompasses city officials and residents and the environment, as well as economic, environmental, and social factors. For this purpose, multicriteria decision-

making methods for prioritising alternative public transportation projects have been used in Krkkale. It lays out three improvement projects: an "electric municipality bus," a "light rail system," and "modernization of existing vehicles and network optimization." The analytic hierarchy method and fuzzy technique for order preference by similarity to ideal situation (TOPSIS) application are used in this study to prioritise transportation projects based on economic, social, transportation, and environmental sub-criteria. This research aims to find the best project for more urban liveability in Krkkale, based on sustainability. Each sustainability criterion's weights were calculated using an analytic hierarchy process during the strategic decision-making process (AHP). The fuzzy TOPSIS method was used to rate the alternative projects proposed for Krkkale. Finally, the analytic decision process results are compared, and the municipal electric bus is chosen as the best project choice. This method's results can provide a solution for current urban planning needs and ensure a more open decision-making process shortly for improving sustainability in developing cities (Hamurcu and Eren, 2020).

5.12.2 Group Decision Making

In decision making situations when more than one decision-maker is involved in the process for deriving weights, a group prioritization procedure needs to be considered. In this thesis, a group of decision-makers/experts are engaged to achieve the research objectives in terms of identifying the priorities among identified factors for culture-led sustainable development as well as the ranking of challenges towards such development. Therefore, there is a need to review and analyze group prioritization methods for deriving the weights of the decision elements.

Before doing so, it is necessary to state the concept of group decision making. According to DeSanctis and Gallupe (1994), group decision making refers to the situation when "*two or more people who are jointly responsible for detecting a problem, elaborating on the nature of the problem, generating possible solutions, evaluating potential solutions, or formulating strategies for implementing solutions*" (p. 590).

Group decision making '*involves the weighted aggregation of different individual preferences to achieve a single collective preference*' (DeSanctis and Gallupe, 1994, p. 249).

The problem is to find a mathematical method for combining the information/preferences conveyed by the group members and determining the weights/priorities or rankings for the

decision alternatives in the group decision-making processes (Indrani and Saaty, 1993). Many axioms were suggested by Aczbl and Saaty (1983) to manage the process of group preference aggregation. The most common axioms for group preference aggregation (Ramanathan and Ganesh, 1994) are as follows:

- Recognition: Group preferences are arrived at only after considering all the member preferences.

- Universal domain: For all rationally possible individual preferences, the group preference aggregation procedure can define a pattern of group preference. That is, for any set of individual preferences, it should provide the group preference.

- Non-dictatorship: Individual preferences are aggregated to form a group preference. Individual preferences do not automatically become group preferences; they are still distinct from one another.

- Pareto optimality: If A and B are two elements/attributes, and all of the members of the group prefer A to B, the group decision should be in favour of A.

5.13 The Analytical Hierarchy Process

Thomas L. Saaty (1980) introduced the Analytic Hierarchy Process (AHP), a decision-making method that incorporates a comprehensive method for making optimum logical decisions under uncertainty decision situations characterised by conflicting criteria and uncertainty (Saaty, 1990). According to Triantaphyllou (2000), there are three steps to using any mathematical solution of alternatives decision-making technique:

1. Identify the appropriate criteria and options.

2. Calculate the criteria's significance weights.

3. Determine the relative importance of each option.

In any decision-making problem, priority derivation is extremely important (Wang, et al, 2005). The weights of the decision alternatives (in MCDM, these items may be criteria or options) are represented by the rankings (Mikhailov and Singh, 1999). The decision components' weights in MCDM represent the decision maker's views and decisions about the relative importance of the different parameters (Bryson and Mobolurin, 1994; Sen and Yang, 1998; Belton and Stewart, 2002).

Saaty (1980) proposed the AHP, which uses pair - wise comparison to assess the relative importance of criteria and alternatives. The ability of AHP to cope with qualitative and multi-dimensional decision matrix is its key strength. The AHP also provides a rational way to verify the consistency of the decision-makers' judgement, ensuring that the results are reliable (Ramanathan, 2001). According to Saaty (2008), AHP can be used to make decisions in four steps:

1. Define the problem, including the objectives and knowledge sought.

2. Creating a decision hierarchy that includes a decision goal at the top, primary goals, decision criteria, intermediate levels, and alternatives at the bottom.

3. Creating a collection of pairwise comparative matrices

4. The final priority and rating of the options are determined by aggregating the comparison results, or priorities.

The AHP then moves on to the decision matrix, which is created by calculating the relative importance of the alternatives in terms of each criterion. The decision-maker is asked to construct pair - wise comparisons of the effect of the m options on the *i-th* criterion, and then use any prioritisation procedure to produce relative importance weights for the alternatives. As a result, the AHP's fundamental principle is that in the decision-making process, both actual data and expert experience and knowledge are equally as important (McIntyre et al, 1999). Decisions taken with AHP, in particular, are made in two stages:

1- Hierarchical design; hierarchical design entails breaking down a decision problem into a series of decision components (i.e., goal, evaluation criteria and solution alternatives)

2- Hierarchy assessment, which entails eliciting weighted criteria and alternative preferences from stakeholders to determine alternative priorities.

Figure 5-6 illustrates a three-level AHP hierarchy to select an appropriate option. At the top of the hierarchy is the goal or the overall objective. In the second level the criteria which affect the choice of the best alternative. The lower level includes the alternatives under consideration for satisfying the overall decision goal. Arranging the goal, criteria and alternatives in hierarchy support the decision-maker to understand the relationships between decisions elements and assess the importance of each issue at each level and minimize the decision problem complexity.
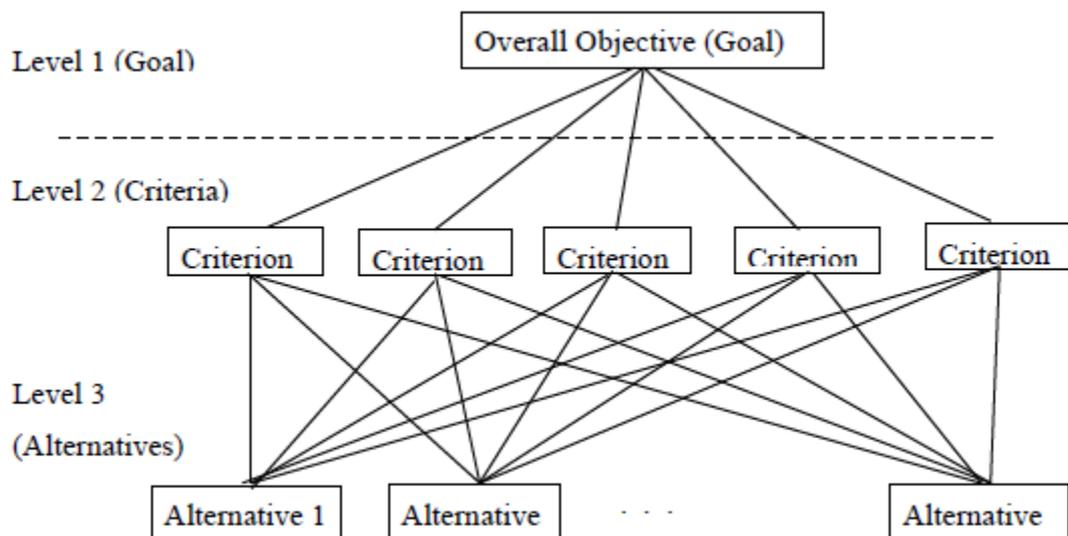
Figure 5. 5: Graphical representation of the hierarchy structure of the AHP method

Decision processes contain intangible criteria that are difficult to capture with human understanding, emphasising the importance of determining relative priorities in the decision process (Saaty,2005). The complete logic flow diagram for the AHP approach is shown in Figure 5.6.
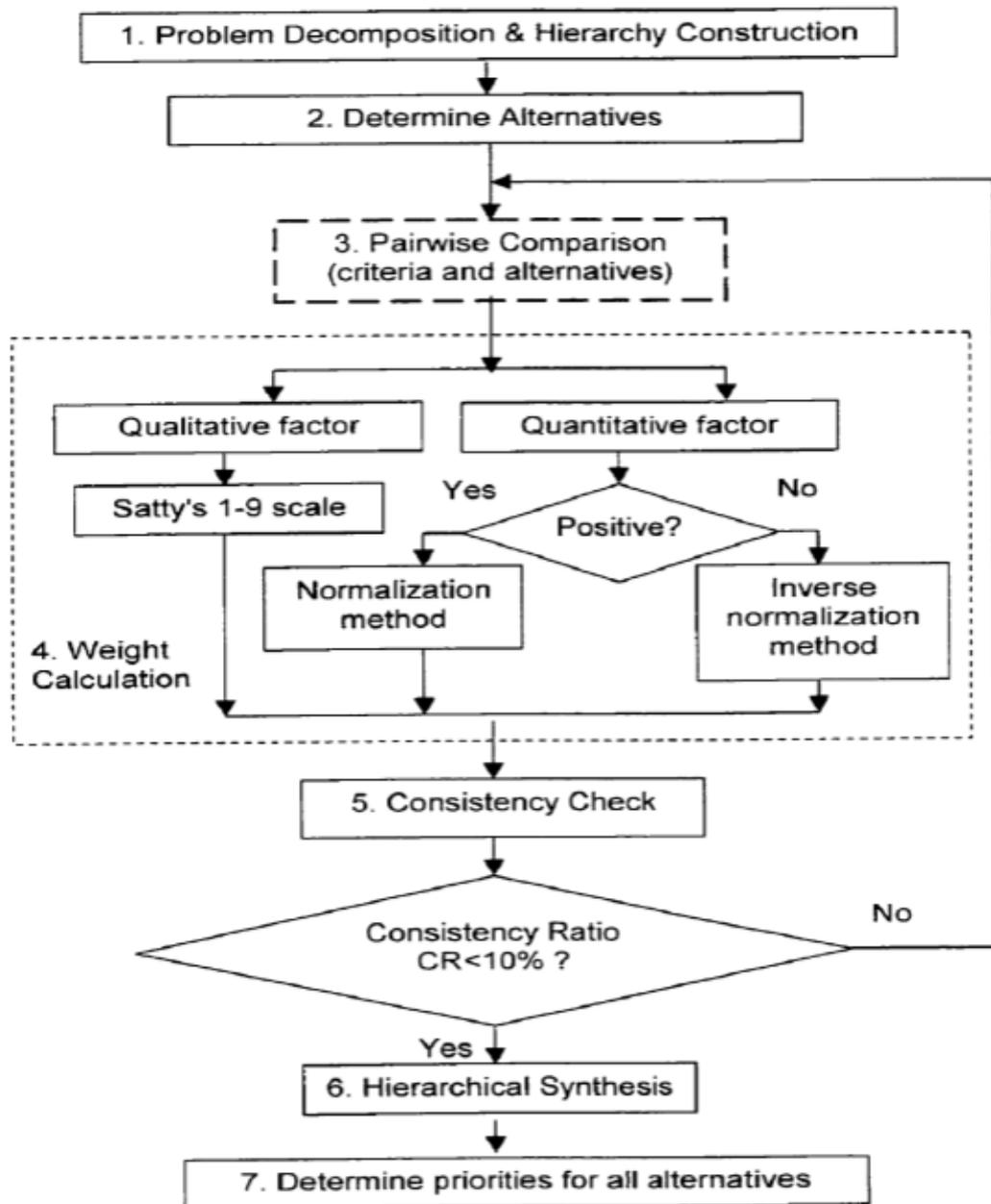
Figure 5. 6:Detailed logic flow diagram for AHP methodology (Saaty, 1990)

In addition, AHP uses the Eigen value method to determine the priorities via pairwise comparisons. It also provides a technique to calibrate the numeric scale for the measurement of quantitative and qualitative performances.

245

5.13.1 AHP applications

The applications of AHP are numerous and it has been used worldwide (Zahedi, 1986; Vaidya and Agarwal, 2006). As noted in (Saaty and Vargas, 1991) at least twelve types of problems may be addressed by the AHP, which include:

1. Setting priorities

2. Generating a set of alternatives

3. Choosing the best policy alternative

4. Determining requirements

5. Allocating resources

6. Predicting outcomes/Risk Assessment

7. Measure performance

8. Designing a system

9. Ensuring system stability

10. Optimizing

11. Planning

12. Conflict Resolution

The use of AHP methods as a solution methodology is especially suited for developing countries (Vaidya and Kumar, 2006) in order to properly analyse and choose complex financial as well as other structures. Furthermore, a review of related literature debating the use of AHP as a tool to determine decision-makers' preferences found several justifications for the method's suitability in multi-criteria decision-making circumstances:

1. Using the AHP pair - wise comparison scale, creating a pairwise comparison matrix for each relevant element of an issue is simple.

2. The AHP approach is based on expert consensus (Lee et al, 2007).

3. The AHP model breaks down the issue into a hierarchical system which allows decision-makers/stakeholders to envision the issue in terms of applicable criteria, sub-criteria, and alternatives in a systematic manner (Darvish et al, 2009).

4. The AHP method has been widely accepted by practitioners and academics as a leading multi-attribute decision model (Gass and Rapcsák, 2004). AHP is also recommended by many scholars as a better decision-making method than the majority of other decision-

making methods. For its theoretical simplicity and ease of application, the AHP method in rank-order weighting is becoming increasingly popular (Pohekar and Ramachandran 2004).

5. AHP offers an inconsistency checking procedure that allows illogical or hurried responses to be eliminated (Coyle, 2004).

6. The provision of commercial AHP software that supports the computation and offers many showing tools for quick viewing of the results simplifies the process.

7. AHP is a quantitative method that can be used to solve multi-criteria decision problems and can provide a platform for measuring qualitative characteristics in order to minimise subjectivity in decision making (Partovi, 2001; Scott, 2002; Mishra et al, 2007).

8. The AHP allows several goals to be simplified to individual choices by using pairwise comparison features. Since only two goals are being examined at any given time, a pairwise comparison makes assigning weights much easier for participants.

AHP is considered among a wide range of application areas in being an excellent research method tool, but compared to other multi-criteria evaluation methods reviewed, the combination of Delphi method with AHP and Fuzzy AHP application is expected to result in more rigorous outcomes.   AHP provides a logical framework for assessing qualitative design problems. The criteria's hierarchical structure aids in the organisation of the issue. It also has the advantage of being relatively easy to use, but it can be time-consuming if there are a lot of criteria and options to consider. Several experts raise concerns about the AHP, including the strict 1-9 scale's potential internal inconsistency and dubious theoretical foundation, and also the phenomena of rank reversal that may occur when a new alternative is presented, which was previously discussed by Belton and Stewart (2002).

5.13.2 Fuzzy AHP Concept

Managers and practitioners are concerned with the practical solutions by which they can make the best possible decision. However, decision-making has long been known as a complex and vague process (Li, Pei and Tian, 2017) which challenges decision-makers in practical situations. As discussed in section3-9, fuzzy set theory (Zadeh, 1965) can be a remedy that is proposed to facilitate subjective judgments and qualitative assessments. It appears that fuzzy AHP is an effective approach tackling the uncertainty and vagueness of decision-making process

(Mikhailov and Tsvetinov, 2004; Seçme, Bayrakdaroğlu and Kahraman, 2009) while dealing with fuzzy environments in decision-making problems and to select the best alternative according to the decision criteria (Boender, *et al,* 1989).

To solve multiple-criteria decision-making problems, the AHP technique has been widely used. The traditional AHP's main flaw is its inability to deal with the uncertainty and ambiguity that comes with mapping human decisions. Due to the vagueness of the decision-maker judgement, a crisp pairwise comparison with a conventional AHP would be unable to fully reflect the decision-maker judgement (Ayag, 2005). When the decision-fuzziness maker's is taken into account, fuzzy AHP is a synthetic extension of the classical AHP technique. To address the shortage in the traditional AHP as well as the ambiguity of human thinking, fuzzy AHP is introduced into the pair-wise comparison. Furthermore, the theory of fuzzy sets has expanded conventional mathematical decision theories to manage well with any ambiguity, confusion, and/or uncertainty problems that a probability distribution cannot properly address (Murphy, 1995).

The fuzzy set theory, which was aimed to the rationality of uncertainty, was first introduced by Zadeh (1965). The fuzzy set theory's ability to process ambiguous data is a significant contribution. Van Laarhoven and Pedrycz (1983) published the first paper in fuzzy AHP, which evaluated fuzzy ratios described by triangular membership functions. Essentially, ambiguity in the judgement leads to uncertainty in the rating of alternatives and also difficulties establishing preference consistency (Leung and Cao, 2000).

It was decided to use Fuzzy-AHP (FAHP) as the best approach to evaluate the priorities of factors and challenges affecting culture-led sustainable urban development, based on the covered literature review on MCDM, AHP, and FAHP, and the progress produced for its improvement, as well as the short fuzzy explanation of the previous paragraphs. The following main reasons, in particular, would better explain the use of fuzzy AHP:

- Adding a fuzzy approach to the traditional AHP model can help to create a clearer decision framework while also increasing the screening process' efficiency (Smimou et al, 2001).

- Fuzzy AHP may be used to address any hierarchical fuzzy difficulties related with AHP, such as mapping uncertainty (Zhu et al, 1999).

- Because fuzziness and ambiguity are prevalent in several decision-making situations, a fuzzy AHP method ought to be able to handle them (Mikhailov and Tsvetinov, 2004).

248

Several authors (e.g., Weck et al., 1997; Erdogmus et al., 2006; Duran and Aguilo, 2008; Ayag and Ozdemir, 2009; 2011; Wu et al., 2009; Yüksel and Dagdeviren, 2010) have all used fuzzy AHP methods to rate the options in MCDM problems. Those researchers studying fuzzy AHP have found that it is more efficient than traditional AHP in dealing with human judgments (Buckley et al, 1985; Chang, 1996; and Lootsma, 1997).

Even though conventional AHP and Fuzzy AHP methods for ranking alternatives in MCDM were widely implemented, there has been theoretical discussion about them (Belton and Gear, 1983; Belton and Stewart, 2002). The rank reversal problem is an important theoretical problem with AHP and Fuzzy AHP, as discussed in the literature. This refers to the launch of the new alternative that does not alter the range of outcomes on any criterion but may alter the rating of the other options in some cases (Belton and Gear, 1983; Belton and Stewart, 2002). As a consequence, whenever new options are introduced to AHP and Fuzzy AHP, previous assessments of the old alternatives must be withdrawn, and a new assessment must begin from scratch, taking into consideration the entire number of options, such as the new alternatives (Xu and Yang, 2001).

The weights that reflect the significance of the selection criteria play a critical role in analyzing the assessment process in the selection of the key aspects of culture-led sustainable urban development and its corresponding challenges; it is widely accepted that the significance of each criterion is not always gained with a standard prioritization approach. The fuzzy AHP approach was used in this thesis to rank the importance of each factor in the promotion of culture-led sustainable urban development. In addition, this technique was used to rank challenges in relation to the aforementioned development.

5.14 Proposed Fuzzy AHP

Since its first introduction by Saaty in 1997, AHP has been widely used as a practical decision-making method and weight estimation technique (e.g. Dyer and Forman, 1992; Nydick and Hill, 1992; Triantaphyllou and Mann, 1995; Vaidya and Kumar, 2006). According to the principals of AHP, experts' judgments are used as a basis for solving multi-criteria decision-making problems. As the language is rather fuzzy, hence, peoples' judgments and information seem complex and they can be barely expressed in precise numbers. That is, in situations challenging uncertainty, the decision-makers would feel more confident to express fuzzy judgments instead of crisp

evaluations (Wang, Luo and Hua, 2008). To avoid drawbacks associated with AHP in terms of mapping the decision-makers' evaluation and estimations using crisp numbers, Chang (1996) proposed extent analysis method for fuzzy AHP. Due to its simplicity in calculation, Chang's Fuzzy AHP and its extension is the most applied method to tackle alternative selection (Bozbura and Beskese, 2007; Bozbura, Beskese and Kahraman, 2007; Büyüközkan, 2004; Chen, Hsieh and Do, 2015; Cho and Lee, 2013; Ju, Wang and Liu, 2012; Kwong and Bai, 2003; Tang and Beynon, 2005; Wang et al, 2014; Zhu, Jing and Chang, 1999).

5.14.1 The Value of Fuzzy Synthetic Extent

Consistent with the tenets of extent analysis (Chang, 1996), if X = $(x_1, x_2, …, x_n)$ is considered as the object set and U = $(u_1, u_2, …, u_m)$ is considered as the goal set, there can be m extent analysis values for each object as follows:

$$M_{gi}^1, M_{gi}^2, M_{gi}^3, …, M_{gi}^m \qquad , i = 1, 2, …, n$$

Assuming all M_{gi}^j = (j= 1, 2… m) are TFNs, the value of fuzzy synthetic extent of the i_{th} object for "m" goals can be calculated using Eq.7:

$$S_i = \sum_{j=1}^m M_{gi}{}^j \odot \left[\sum_{i=1}^n \sum_{j=1}^m M_{gi}{}^j\right]^{-1} \tag{5-7}$$

According to Chang (1996), obtaining a weight vector for each criterion is associated with the principals of comparison for fuzzy numbers. Specifically, at this stage, the degree of possibility of one TFN being greater than the other TFN (i. e. $\tilde{M}_i = (l_i, m_i, u_i) \geq \tilde{M}_k = (l_k, m_k, u_k)$ should be calculated using Eq. 4 and expressed using Eq. 9:

$$V(M_i \geq M_k) = \sup_{x \geq y} \left[\min(\mu_{M_i}(x), \mu_{M_k}(y))\right] \tag{5-8}$$

$$V(M_i \geq M_k) = \mu_{M_i}(d) =$$

$$\begin{cases} 1, & if \ m_k \geq m_i \\ 0, & if \ l_i \geq u_k \\ \frac{l_i - u_k}{(m_k - u_k) - (m_i - l_i)}, & otherwise \end{cases} \tag{5-9}$$

As shown in figure 5.7, d represents the largest possible value between α_{S_i} and α_{S_k} .
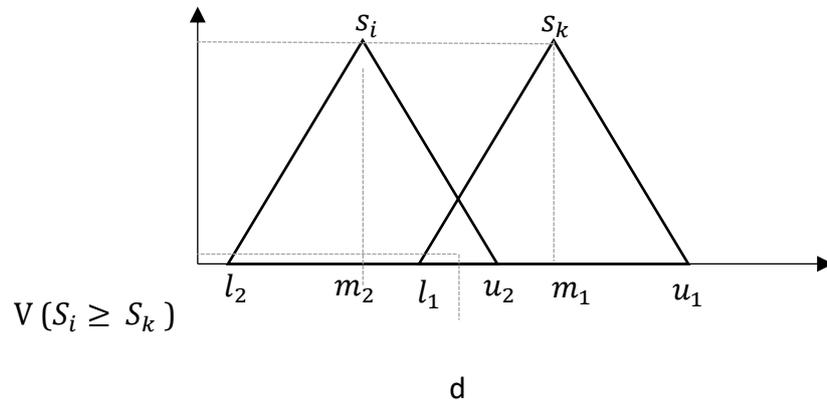
Figure 5. 7: Graphical representation of the largest possible value between α_{S_i} and α_{S_k}

The possibility degree for a convex fuzzy number to be greater than k convex fuzzy numbers M_i (i= 1, 2, k) can be obtained using Eq. 10:

$$V\ (M \geq M_1, M_2\ ,\ ....\ ,\ M_k) \qquad\qquad (5\text{-}10)$$

$$= V\big[(M \geq M_1)\,and\ (M \geq M_2)\,and \ldots and\ (M \geq M_{k)}\big]$$

$$= min\ V\ (M \geq M_i)\ ,\ i\text{= 1, 2, 3... }k$$

Assuming $\acute{d}\ (A_i) = min\ V(S_i \geq S_k)$ for k= 1,2,...,n; $k \neq i,$ then the weight vector is given by:

$$w' =(d'(A_1),\ d'\ (A_2)...\ d'\ (A_n))' \qquad\qquad (5\text{-}11)$$

The weight vector calculated using Eq. 7 represents fuzzy weights. Via normalization (Eq. 12), normalized weight vectors with "W" as a non-fuzzy number (Eq. 13) can be achieved:

$$w_i = \frac{w'_i}{\sum w'_i} \qquad\qquad (5\text{-}12)$$

$$w=(d(A_1),\ d\ (A_2)...\ d\ (A_n)) \qquad\qquad (5\text{-}13)$$

While figure 5-9 represents the hierarchical structure of factors affecting culture-led sustainable urban development, figure 5-10 is graphically displaying the configuration of challenges towards culture-led sustainable urban development. As shown in the aforementioned figures, there are three main levels in the hierarchical decision tree, with the first level concerning the goal, the second level representing proposed criteria and the third level demonstrating associated sub-criteria.
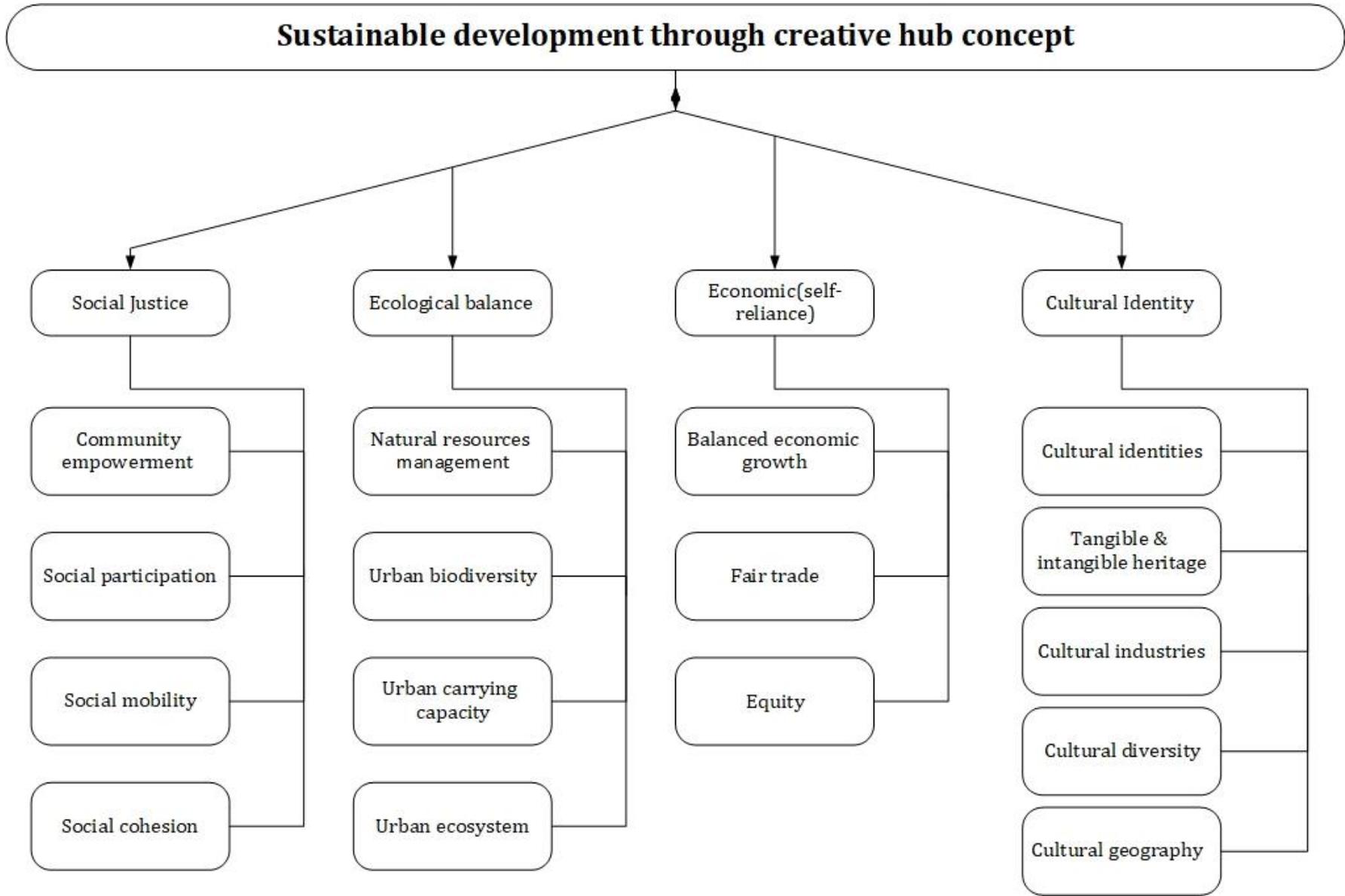
Figure 5. 8: Decision Tree for factors promoting culture-led sustainable urban development
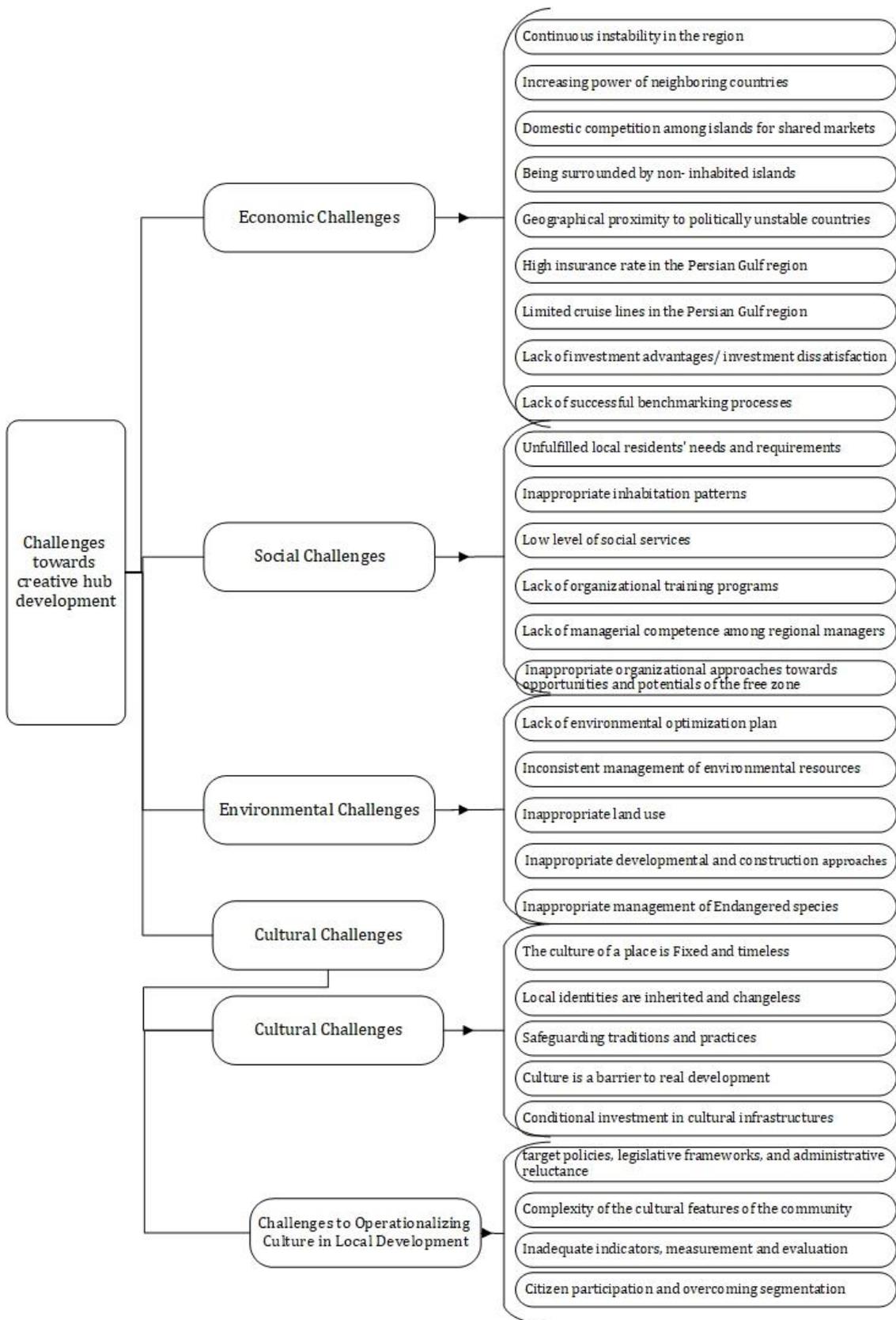
Figure 5. 9decision tree for challenges towards culture led sustainable urban development

Results of fuzzy Delphi from the previous phase of study resulted in the ultimate identification of factors to promote culture-led sustainable urban development as well as challenges towards such development. As required by fuzzy AHP, several pair-wise comparisons among study criteria and sub-criteria were developed using fuzzy linguistic terms. That is, owing to the fact that human judgments are fuzzy in nature, experts' opinions are captured by fuzzy measurement instrument with five distinctive levels: just equal, moderately more important, strongly more important, very strongly more important, and more important. Aforementioned questionnaires involving pairwise comparisons are represented in Appendix B 6 and B 7   addition, the measurement instrument including both the linguistic terms and their corresponding TFNs are displayed in table 5-13.

Table 5. 13: Linguistic terms and TFNs for importance comparison

Values		Linguistic values	TFN	Reciprocal TFNs	Explanation
1		Equal importance	(1, 1, 1)	(1, 1, 1)	Two elements contribute equally to the objective
3		Moderate importance	(2, 3, 4)	(0.25, 0.33, 0.5)	Experience and judgment slightly favor one element over another
5		Strong importance	(4, 5, 6)	(0.16, 0.2, 0.25)	Experience and judgment strongly favor one element over another
7		Very strong importance	(6, 7, 8)	(0.12, 0.14, 0.16)	One element is favoured very strongly over another
9		Extreme importance	(9, 9, 9)	(0.11, 0.11, 0.11)	The evidence favouring one element over another is of the highest possible order of affirmation
2,4,6,8		Intermediate values	-	-	Can be used to express intermediate values such that intensity of 2 corresponds to an element more favoured than 1 and less favoured than 3.

5.14.2 Inconsistency ratio in fuzzy AHP

A strong advantage of fuzzy AHP would be its ability to control decision consistency. That is, a decision maker's decision can always be judged against its appropriateness. The accepted threshold level for a matrix inconsistency ratio is 0.1 (Saaty, 1980). That is, a pair-wise comparison matrix with an inconsistency ratio (I.R) of less than 0.1 is accepted and can be used for further analysis. Random Inconsistency Index (R.I.I) for matrixes with random numbers has been calculated previously and can be calculated using the following equation:

$$\text{R.I.I} = 1.98 \left(\frac{n-2}{n} \right) \qquad (5\text{-}14)$$

The inconsistency index (I.I) for a distinct number of variables can be found in table 5-14.

Table 5. 14: Inconsistency index for random number of variables

n	1	2	3	4	5	6	7	8	9
R.I.I.	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45

For each matrix, the inconsistency ratio (I.R) can be calculated using Eq. (15):

$$\text{I.R.} = \frac{I.I.}{R.I.I.} \qquad (5\text{-}15)$$

5.14.3 Fuzzy AHP sampling and data collection

Experts all of whom had more than 3 years' experience at *Kish island free zones* were chosen and contacted (see appendix C 1).

One hundred and twenty executives accepted to take part in data collection. Due to the confidentiality of the data collection, respondents' names are not disclosed. A questionnaire containing a number of pair-wise comparisons has been sent to the respondents via email and all experts were asked to express their opinion regarding the relative importance of each criterion over the other. The survey took 2 weeks and the process yielded 100 usable questionnaires. Socio-demographic characteristics of the

respondents are provided in the following table. (see appendix B and C for list of participants).

Table 5. 15: Socio-demographic Characteristics of the Respondents

	Frequency	Percentage
Age		
18-25	5	5%
25-35	30	30%
35-45	45	45%
45 and more	20	20%
Total	100	100%
Gender		
Male	75	75%
Female	25	25%
Total	100	100%
Education		
Primary school	--	--
High school	--	--
Higher diploma	--	--
Undergraduate diploma	15	15%
Graduate and doctoral degree	85	85%
Total	100	100%
Organizational tenure		
Less than 1 year --		--
1-5 years	10	10%
6-10 years	55	55%
11-15 years	30	30%
More than 15 years	5	5%
Total	100	100%

5.15 Fuzzy Technique for order preference by similarity to an ideal solution (TOPSIS)

In most cases, the real-world layout is influenced by the inevitability of inconsistencies in the raw data, variables, and so on. The inaccuracy of criteria values, ambiguity in the

257

significance of criteria (weights), and interacting with qualitative, verbal, or incomplete information are all examples of uncertainty in the multi-criteria decision making (MCDM) situations. As previously stated, Zadeh's (1965) concept of fuzziness has proven to be an effective tool for including uncertainties in MCDM problems. Several fuzzy MCDM techniques have been established, including the fuzzy TOPSIS (Chen, 2000; Wang and Elhag, 2006; Wang and Lee, 2007; Krohling and Campanharo, 2011). TOPSIS is one of the most well-known multi-criteria decision-making techniques, having been developed by Hwang and Yoon (1981). TOPSIS is built on the concept that the final alternative chosen must have been the closest to the positive ideal solution (PIS) while being the furthest away from the negative ideal solution (NIS) (NIS). Expert judgments were obtained using crisp values in the conventional formulation of the TOPSIS method, as one would expect. Nevertheless, in real life, such precise measurements with crisp values may not always be feasible or accurate. To deal with the uncertainties of human decisions, it appears logical to substitute crisp value with linguistic terms. To introduce linguistic values, Fuzzy set theory has been expanded into the classical TOPSIS approach (Afshar, Marino, Saadatpour, and Afshar, 2011; Aiello, Enea, Galante, and La Scalia, 2009; Amiri, 2010; Aydogan, 2012; Baykasoglu, Kaplanoglu, Durmusoglu, and Sahin, 2013; Onut, Kara, and Isık, 2009; Sadi- Nezhad and Damghani, 2010; Zeydan and Colpan, 2009). Consistent with the current literature (e.g., Mahdavi, Iraj, Nezam Mahdavi-Amiri, Armaghan Heidarzade, and Rahele Nourifar. 2008) linguistic terms used in this study are displayed in table 5-16.

Table 5. 16: fuzzy TOPSIS linguistic terms and corresponding TFNs

Linguistic values	Score	TFN	Explanation
Very poor(VP)	1	(0,0,1)	Criteria is performing very poor regarding assigned attribute.
Poor (P)	2	(0,1,3)	Criteria is performing poor regarding assigned attribute.
Medium poor (MP)	3	(1,3,5)	Criteria's performance is considered medium poor regarding assigned attribute.
Fare (F)	4	(3,5,7)	Criteria's performance is considered fare regarding assigned attribute.
Medium good (MG)	5	(5,7,9)	Criteria's performance is considered medium good regarding assigned attribute
Good (G)	6	(7,9,10)	Criteria is performing good regarding assigned attribute.
Very good (VG)	7	(9,10,10)	Criteria is performing very good regarding assigned attribute.

According to OECD (2001), 11 principles can be considered as possible alternative solutions to leverage factors that affect the culture led urban sustainable development while being able to cope with the identified challenges. A detailed explanation of aforementioned principals is represented in the following table.

Table 5. 17: principles of sustainable urban development

Principles	Explanation
People-centered.	Ensuring long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor.
Consensus on long-term vision.	• Strategic planning should be based on a long-term vision with a clear timeframe upon which stakeholders agree. • A long-term vision needs to have the commitment of all political parties.
Comprehensive and integrated	Strategies should seek to integrate, where possible, economic, social and environmental objectives
Targeted with clear budgetary priorities	• A sustainable development strategy must be fully integrated in existing budget processes to ensure that plans have the financial resources to achieve their objectives. • The formulation of budgets must be informed by a clear identification of priorities.
Based on comprehensive and reliable analysis	• Identification of priorities must be based on a comprehensive analysis of the present situation. • Such analysis requires credible and reliable information on changing environmental, social and economic conditions, pressures and responses, and their correlations with strategy objectives and indicators.
Incorporate monitoring, learning and continuous improvement	Monitoring and evaluation need to be based on clear indicators and built into strategies to steer processes, track progress, distil and capture lessons, and signal when a change of direction is necessary.

High-level government commitment and influential lead institutions	Such commitment – on a long-term basis – is essential if policy and institutional changes are to occur, financial resources are to be committed and for there to be clear responsibility for implementation.
Building on existing processes and strategies	- A strategy for sustainable development should not be thought of as a new planning process but instead build on what already exists in the country, - thus enabling convergence, complementarity and coherence between different planning frameworks and policies.
Effective participation	- Broad participation helps to open up debate to new ideas and sources of information. - These should involve decentralized authorities, the private sector and civil society, as well as marginalized groups. - This requires good communication and information mechanisms with a premium placed on transparency and accountability.
Link national and local levels	- The main strategic principles and directions should be set at the central level such as economic, fiscal and trade policy, legislative changes, international affairs and external relations) - But detailed planning, implementation and monitoring would be undertaken at a decentralized (local) level, with appropriate transfer of resources and authority.
Develop and build on existing capacity	At the outset of a strategy process, it is important to assess the political, institutional, human, scientific and financial capacity of potential state, market and civil society participants.

Fuzzy TOPSIS incorporates several tentative steps to be taken, as follows:

Step 1. The linguistic rating values for the alternative with respect to criteria must be determined.

Assuming that there are m possible alternatives shown as A = $\{A_1, A_2, \dots, A_m\}$ to are to be evaluated against the criteria, C = $\{C_1, C_2, \dots, C_n\}$.

Before proceeding to main calculation, we need to have criteria weights to be determined that can be denoted by W_j (j = 1,2, … ,n). The performance ratings of each expert D_k (k = 1,2, … , k) for each alternative A_i (i = 1,2, … , m) with respect to criteria C_j (j = 1,2, … , n) are denoted by $\tilde{R}_k= \tilde{X}_{ijk}$(i= 1,2, … , m ; j= 1, 2, … , n; k= 1,2, … , K). $\mu_{\tilde{R}K(x)}$ is used to represent the membership function.

Step 2. Fuzzy ratings for alternatives must be aggregated.

Assuming that all experts' fuzzy opinions are captured using a TFN described as $\tilde{R}_k$= (ak, bk, ck), k= (1,2, … , k), then all rating can be aggregated using the following equation:

$\tilde{R}$= (a, b, c), k= 1,2, …, k

$$a= min_k\{a_k\}, b=\frac{1}{k}\sum_{k=1}^{k} b_k, \quad c= max_k\{c_k\}, \qquad (5\text{-}16)$$

If there are k decision makers expressing k fuzzy ratings, therefore, the fuzzy rating of the kth decision maker would be $\tilde{X}_{ijk}$= (a_{ijk}, b_{ijk}, c_{ijk}), where i= 1,2, … , m; j=1,2, … , n and the aggregated fuzzy ratings ($\tilde{X}_{ij}$) for all alternatives with respect to each criteria represented as $\tilde{X}_{ij}$ = (a_{ij}, b_{ij}, c_{ij}) can be calculated using the following equation:

$$a_{ij}= min_k\{a_{ijk}\}, \qquad b_{ij}=\frac{1}{k}\sum_{k=1}^{k} b_{ijk}, \qquad c_{ij}= max_k\{c_{ijk}\}, \qquad (5\text{-}17)$$

Step 3. Based on the experts' ratings, the fuzzy decision matrix must be developed.

Specifically, The fuzzy decision matrix for the alternatives ($\tilde{D}$) can be constructed as follows:

$C_1 C_2 C_n$

$$\tilde{D} = \begin{array}{c} A_1 \\ A_2 \\ \tilde{D} = \\ \\ A_3 \end{array} \begin{bmatrix} \tilde{x}_{11} & \tilde{x}_{12} & .. & .. & \tilde{x}_{11} \\ \tilde{x}_{21} & \tilde{x}_{22} & .. & .. & \tilde{x}_{2n} \\ .. & .. & .. & .. & .. \\ .. & .. & .. & .. & .. \\ \tilde{x}_{m1} & \tilde{x}_{m2} & .. & .. & \tilde{x}_{mn} \end{bmatrix} \quad i = 1,2,\ldots,m; \ j = 1,2,\ldots,n$$

Step 4. Constructed fuzzy decision matrix must be Normalized.

Linear scale transformation can be used to normalize the raw data using the equation provided below. This would help to bring the various criteria scales into a comparable scale.

$$\tilde{R} = [r_{ij}]_{m \times n}, \quad i= 1,2, \dots , m; \quad j= 1,2,\dots , n \qquad \text{(5-18)}$$

Where

$$\tilde{r}_{ij} = \left(\frac{a_{ij}}{c_j^+}, \frac{b_{ij}}{c_j^+}, \frac{c_{ij}}{c_j^+} \right) \quad \text{and } c_j^+ = max_j \ c_{ij} \text{ (benefit criteria)} \quad \text{(5-19)}$$

$$\tilde{r}_{ij} = \left(\frac{a_j^-}{c_{ij}}, \frac{a_j^-}{b_{ij}}, \frac{a_j^-}{a_{ij}} \right) \quad \text{and } a_j^- = min_j \ a_{ij} \text{ (cost criteria)} \quad \text{(5-20)}$$

Step 5. The weighted normalized matrix must be constructed.

The weighted normalized matrix $\tilde{v}$ for criteria can be obtained by multiplying the weights (W_j) of evaluation criteria with the normalized fuzzy decision matrix $\tilde{r}_{ij}$. Assuming $\tilde{v}_{ij} = \tilde{r}_{ij} \ (.) \ W_j$, therefore:

$$\tilde{v}_{ij} = (\tilde{a}_{ijk}, \tilde{b}_{ijk}, \tilde{c}_{ijk})$$

$$\tilde{V} = [\tilde{v}_{ij}]_{m \times n}, \quad i= 1,2, \dots , m; \quad j= 1,2,\dots , n \qquad \text{(5-21)}$$

Step 6. The fuzzy positive ideal solution (FPIS) and fuzzy negative ideal solution (FNIS) must be determined.

The FPIS (I^+) and FNIS (I^-) of the alternatives is calculated using the following equation:

262

$I^+ = (\tilde{v}_1^+, \tilde{v}_2^+, \ldots, \tilde{v}_n^+)$ where $\tilde{v}_j^+ = (\tilde{c}_j^+, \tilde{c}_j^+, \tilde{c}_j^+)$ and $\tilde{c}_j^+ = max_j \{\tilde{c}_{ij}\}$ (5-22)

$I^- = (\tilde{v}_1^-, \tilde{v}_2^-, \ldots, \tilde{v}_n^-)$ where $\tilde{v}_j^- = (\tilde{a}_j^-, \tilde{a}_j^-, \tilde{a}_j^-)$ and $\tilde{a}_j^- = min_j \{\tilde{a}_{ij}\}$ (5-23)

Step 7: The distance of each alternative from FPIS and FNIS must be calculated.

The distance (denoted as d^+ and d^-) of each weighted alternative i=1,2,3,…,m from FPIS and the FNIS is computed using the following equation:

$d_i^+ = \sum_{i=1}^n dv(\tilde{v}_{ij}, \tilde{v}_j^+),$ i=1,2,3,…,m   (5-24)

$d_i^- = \sum_{i=1}^n dv(\tilde{v}_{ij}, \tilde{v}_j^-),$ i=1,2,3,…,m   (5-25)

Step8. The closeness coefficient (CC_i) of each alternative must be obtained.

The calculation of CC_i using the following equation will determine the ranking order of all alternatives:

$CC_i = \frac{d_i^-}{d_i^- + d_i^+}$ (5-26)

Step 9. Alternatives can be ordered based on their relative rankings.

The different alternatives can be ranked based on the closeness coefficient (CC_i) in decreasing order.

5.15.1 Fuzzy TOPSIS sampling and data collection

The same expert panel members were invited to express their opinions regarding the performance level of each principle alternative with regard to each development criteria as well as challenges toward culture led sustainable urban development. To avoid extra wording, hence, the features of expert panel members will not be provided for the second time.

5.16 Minimizing Non-response in Data Collection

Every data collection appears to be hampered by non-response. Data was gathered for the purpose of the current thesis's fuzzy Delphi research, fuzzy AHP, and fuzzy TOPSIS. Because of the ditinct number of experts who were asked to participate in the fuzzy Delphi study, it was critical to address the issue of non-response. Such that, if the expert panellists refuse to continue collecting data, the quality of the information collected will be questioned. A review of the relevant literature yielded a number of guidelines for dealing with non-response bias. Franklin and Hart (2007), for instance, suggest that a trusted and qualified individual be appointed to assist in the recognition of other experts in the research subject of interest. Furthermore, this individual will assist with the initial introduction of the two parties, including the researcher and members of the targeted expert panel (Kalaian and Kasim, 2012). Turoff and Linstone (2002) indicate that if participants are inaccessible at any point during the study data collection, a variety of solutions such as offering incentives, making direct phone calls, setting deadlines, and using other direct communication channels could be used.

Current thesis also applied several remedial solutions to manage the non-response levels by conducting face to face interview with expert panel members. In addition, further contacts in terms of questionnaire distributions were established via each members' direct email address. In the email, the importance of panelist participation was significantly emphasized. Moreover, the anonymity and confidentiality of the respondents' identities and their answers were ensured. Accordingly, all members of the targeted expert panel understood the importance of their participation and potential negative impacts of their withdrawal from the data collection process. This ultimately enhanced participants' commitment and response rates.

5.17 Ethical Implications

The primary ethical issues of data collection is that the participants should not suffer any harm as a result of their participation in the study (Oppenheim, 2003). There are many ethical things to solve when conducting research (Saunders et al, 2012). These are some of them:

- Interviewees' and respondents' consent and possible deception,
- Confidentiality and anonymity of data from interviewees,

264

- Participation in a study is optional, and participants have the right to cancel partly or entirely from the research,
- Privacy of actual and potential interviewees and respondents,

These concerns were recognized and brought into account in this study. The fuzzy Delphi approach, in particular, is thought to be an ethical process that allows panellists to express themselves in a reasonable manner.

Such that, each panellist may share their opinion freely and fairly, and all expressed opinions will be considered. In addition, as noted in the preceding section, all participants were aware about the study's goals, the data collection process, and expected timescales, while data and participants' personal information are kept anonymous and secure. Moreover, panel members have been given the research team's contact details in case they have any queries.

All participants were given assurances of confidentiality during the Fuzzy AHP process, and they were asked to fill out the questionnaires freely and independently.

As a result, all postgraduate research students (PGRs) must receive ethical approval prior to beginning research with human subjects, animals, or human tissue, in accordance with the University of Salford research ethic policy. Following the provision in the ethical approval application guidelines, the researcher submitted the research data collection process to the research ethics panel of the College of Science and Technology (CST) of the University for their Consideration for approval. After a thorough scrutiny of the application, it was granted (see Memorandum reference number STR1920-04 in Appendix B2).

Chapter 6: Data analysis and results

6.1. Data Analysis of Fuzzy Delphi

As explained in the previous section, various different types of Delphi studies can be used in different studies. However, this thesis implemented a Fuzzy Delphi study and its relative questionnaire. Due to the nature of conducting a questionnaire that relies on experts' opinion regarding the appropriateness of factors and challenges affecting a culture led sustainable urban development, the fuzzy Delphi study will provide the necessary flexibility to choose and add appropriate statements to gauge experts' opinions.

More specifically, selection of fuzzy Delphi topics is associated with certain amounts of expertise related to the topic of interest (Davidson, 2013). Hence, the establishment of the panel was conducted by reaching experts in the field of urban planning as well as sustainable development and contacting them via email. It is expected that the panelists highly trained and expert enough regarding the topic being researched. According to Davidson (2013), adequate level of expertise would enable experts to express their opinions appropriately and accurately. Therefore, this study chose a sample of experts including President (Chairman) of Free zones in Iran, Vice-chairman of Free zones in Iran, Minister of Finance and Economic Affairs in Kish, Minister of Industries in Kish, Minister of Culture and Islamic Guidance, Minister of Roads and Urban Development, Minister of Foreign Affairs and trade, Head of Sharif International university in Kish, Head of tourism in Kish, and Head of domestic and international investment in Kish.

Even though conventional versions of Delphi studies included several rounds requiring extreme engagement of experts, the current study reduced the number of rounds by applying fuzzy Delphi study. In doing so, a letter was emailed to each expert, explaining the terms and the importance of experts completing all both phases. As mentioned in previous chapter, a collection of 10 industry experts was contacted to establish a panel with a variety of urban and sustainable development disciplines. As a result of an extensive review of the literature combined with the results of semi-structured interview the following table was developed that outlines the factors as well as challenges towards culture led sustainable urban development. Specifically, four main factors as manifested by Social justice, Ecological balance, Economic (self-reliance) and

Cultural sustainability were found to be the main criteria for culture led sustainable urban development. While Social justice incorporates four sub-criteria in terms of Community empowerment, social participation, Social mobility, and Social cohesion; ecological balance is manifested by four sub-criteria namely Natural resources management, Urban biodiversity, Urban carrying capacity, and Urban ecosystem. Moreover, Economic (self-reliance) is determined by its sub-criteria in terms of Balanced economic growth, Fair trade, and Equity. Finally, Cultural sustainability is the fourth important criteria for culture led sustainable urban development that is divided in to five sub-criteria namely Cultural identities, Tangible and intangible heritage, Cultural industries, Cultural diversity, and Cultural geography.

In addition to factors affecting culture led sustainable urban development, this thesis also focuses on the factors that challenge the aforementioned development. As a result, Economic Challenges, Social challenges, Environmental challenges, and Cultural challenges were found to be main criteria challenging the culture led sustainable urban development. Economic Challenges are identified in terms of its nine associated sub-criteria namely Continuous instability in the region, Increasing power of neighboring countries, Domestic competition among islands for shared markets, Being surrounded by non- inhabited islands , geographical proximity to politically unstable countries, High insurance rate in the Persian gulf region, Limited cruise lines in the Persian gulf region, Lack of investment advantages/ investment dissatisfaction, and Lack of successful benchmarking processes. In addition, Social challenges are manifested by Unfulfilled local residents' needs and requirements, Inappropriate inhabitation patterns, Low level of social services, Lack of organizational training programs

Lack of managerial competence among regional managers, and Inappropriate organizational approaches towards opportunities and potentials of the free zone. While Environmental challenges is distinguished via Lack of environmental optimization plan, Inconsistent management of environmental resources, Inappropriate land use, Inappropriate developmental and construction approaches, and Inappropriate management of Endangered species; cultural challenges are divided into two main sub-criteria: Cultural conceptual challenges and Challenges to Operationalizing Culture in Local Development.

267

Table 6. 1: factors affecting, and challenging culture led sustainable urban development

Critical factors	Social justice	Community empowerment
		Social participation
		Social mobility
		Social cohesion
	Ecological balance	Natural resources management
		Urban biodiversity
		Urban carrying capacity
		Urban ecosystem
	Economic (self-reliance)	Balanced economic growth
		Fair trade
		Equity
	Cultural sustainability	Cultural identities
		Tangible and intangible heritage
		Cultural industries
		Cultural diversity
		Cultural geography
Salient challenges	Economic Challenges	Continuous instability in the region
		Increasing power of neighboring countries
		Domestic competition among islands for shared markets
		Being surrounded by non- inhabited islands
		geographical proximity to politically unstable countries
		High insurance rate in the Persian gulf region
		Limited cruise lines in the Persian gulf region
		Lack of investment advantages/ investment dissatisfaction
		Lack of successful benchmarking processes
	Social challenges	Unfulfilled local residents' needs and requirements
		Inappropriate inhabitation patterns
		Low level of social services
		Lack of organizational training programs
		Lack of managerial competence among regional managers

268

		Inappropriate organizational approaches towards opportunities and potentials of the free zone	
	Environmental challenges	Lack of environmental optimization plan	
		Inconsistent management of environmental resources	
		Inappropriate land use	
		Inappropriate developmental and construction approaches	
		Inappropriate management of Endangered species	
	Cultural challenges	Cultural conceptual challenges	Fixed and timeless culture
			Inherited and changeless local identities
			Fixed local culture
			Culture as a priority
			Conditional investment in cultural infrastructures
		Challenges to Operationalizing Culture in Local Development	Target policies, legislative frameworks, and administrative reluctance
			Complex cultural features of the community
			Inadequacy of indicators, measurement, and evaluation of progress and impacts
			Underlying issues of citizen participation and overcoming segmentation

6.1.1. Interpreting Consensus

In order to be able to interpret the results of Delphi study, it is required to reach a consensus among experts about the significance and importance of each criteria in the study. According to Munier and Rondé (2001), there are several ways by which researchers measure the consensus among experts. Review of relative literature reveals that the nature of the criteria would affect the difficulty level to achieve consensus. Armstrong (2001) suggested descriptive statistics including median, mean and standard deviation as measurement tool to assess the level of consensus.

The current study endeavored to measure the consensus among the total numbers of 10 experts included in the expert panel. As discussed in the previous chapter, this study assumed the acceptance of each criterion to be included in the study if the weight of each criteria is judged to be equal or greater than 70%. That is, majority of consensus can be obtained once more than half the experts agree about the significance of each criterion included in the study. In other words, majority consensus can be obtained in case more than half of the responses (i.e., 10/2=5 experts, i.e. >50%) reach agreement regarding each criterion.

However, to ensure the robustness of identified configuration of factors and challenges affecting culture led sustainable urban development, this study assesses the fuzzy consensus area more than/equal to 70% which falls in vast majority consensus area. That is, items which acquire 70% of agreement among 100 experts will be kept for the further analysis and the rest below the threshold level will be discarded.

Current study used questionnaire to collect experts' opinion in the fuzzy Delphi phase due to its prevalent application in social science research (Oppenheim, 2000). Specifically, questionnaires are often used to survey people's beliefs, attitudes, feelings, or opinions regarding an issue under investigation and will allow researchers to reach a large number of respondents at a relatively low cost (Gillham, 2000). In addition, the results obtained from the questionnaires seem to be easier to analyze and interpret. Particularly used in the current study the online questionnaires are facilitating the data collection process in shorter amount of time and relatively lower cost.

Prior to sending out the questionnaires to all expert panel members, a pilot study was conducted with three panelists to ensure the panelist does not have problems

understanding the questionnaire items. Pilot study would help to refine the questionnaires, eliminate potential problems, and make them as concise as possible (Flynn et al, 1990; Gillham, 2000). In addition, it is assumed that pilot test improves the reliability of the questionnaire by eliminating ambiguous or difficult questions which may lead to unreliable answers, as a number of participants might understand such questions in a different way (de Vaus, 2002). In all, pilot sample did not have difficulties in understanding questionnaire, therefore no changes were made to the questionnaire. The data collected from the members of expert panel with regards to main factors affecting culture led sustainable urban development is shown in table 6-2.

Microsoft excel were used to obtain the results of tedious mathematical calculations. According to the results, all main factors gained majority consensus (i.e. weight ≥0.7) implying that all main criteria were assessed as important by experts. Therefore, they were all kept for study further analysis. In addition to main factors, relative sub-criteria associate with each main criterion were subject to experts' assessment. The results revealed that all sub-criteria are deemed acceptable (i.e. weight≥0.7). Hence, they are retained for the further analysis. The results of expert opinions regarding the significance of main criteria and their relative sub-criteria affecting the culture led sustainable urban development is provided in *tables* 6-3 to 6-11.

6.1.1.1. Fuzzy Delphi method assessing main factors affecting culture led sustainable urban development

1. Social justice

2. Ecological balance

3. Economic (self-reliance)

4. Cultural sustainability

Table 6. 2: Experts' opinions regarding creative hub development main criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{11}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1
c_{12}	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
c_{13}	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9
c_{14}	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1

Table 6. 3: Results of main factors affecting culture led sustainable urban development

Creative hub development main criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Social justice	0.69	0.86	0.96	0.83	Accepted*
Ecological balance	0.68	0.88	0.99	0.84	Accepted*
Economic (self-reliance)	0.71	0.87	0.96	0.84	Accepted*
Cultural sustainability	0.72	0.89	0.98	0.86	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.2 Fuzzy Delphi method assessing Social justice sub-criteria

1. Community empowerment

2. Social participation

3. Social mobility

4. Social cohesion

Table 6. 4: Experts' opinions regarding social justice sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{21}	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1
c_{22}	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
c_{23}	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9
c_{24}	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1

Table 6. 5: Results of Social justice sub-criteria assessment

Social justice sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Community empowerment	0.72	0.89	0.98	0.86	Accepted*
Social participation	0.75	0.92	0.99	0.88	Accepted*
Social mobility	0.69	0.86	0.96	0.83	Accepted*
Social cohesion	0.70	0.87	0.97	0.84	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.3 Fuzzy Delphi method assessing Ecological balance sub-criteria

1. Natural resources management

2. Urban biodiversity

3. Urban carrying capacity

4. Urban ecosystem

Table 6. 6: Experts' opinions regarding Ecological balance sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{31}	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
c_{32}	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9
c_{33}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
c_{34}	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9

Table 6. 7: Results of Ecological balance sub-criteria assessment

Ecological balance sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Natural resources management	0.79	0.93	0.99	0.90	Accepted*
Urban biodiversity	0.74	0.90	0.98	0.87	Accepted*
Urban carrying capacity	0.72	0.88	0.97	0.85	Accepted*
Urban ecosystem	0.627424	0.822547	0.958732	0.790933	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.4 Fuzzy Delphi method assessing Economic (self-reliance) sub-criteria

1. Balanced economic growth
2. Fair trade
3. Equity

Table 6. 8: Experts' opinions regarding Economic (self-reliance) sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{41}	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
c_{42}	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9
c_{43}	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9

Table 6. 9: Results of Economic (self-reliance) sub-criteria assessment

Economic (self-reliance) sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Balanced economic growth	0.70	0.87	0.97	0.84	Accepted*
Fair trade	0.59	0.79	0.95	0.76	Accepted*
Equity	0.79	0.93	0.99	0.90	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.5 Fuzzy Delphi method assessing Cultural sustainability sub-criteria.

1. Cultural identities

2. Tangible and intangible heritage

3. Cultural industries

4. Cultural diversity

5. Cultural geography

Table 6. 10: Experts' opinions regarding Cultural sustainability sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{51}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9
c_{52}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9
c_{53}	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
c_{54}	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1
c_{55}	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1

Table 6. 11: Results of Cultural sustainability sub-criteria assessment

Cultural sustainability sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Cultural identities	0.65	0.83	0.95	0.80	Accepted*
Tangible and intangible heritage	0.62	0.80	0.94	0.77	Accepted*
Cultural industries	0.74	0.90	0.98	0.87	Accepted*
Cultural diversity	0.71	0.88	0.98	0.85	Accepted*
Cultural geography	0.67	0.85	0.97	0.82	Accepted*

*Refer to part 6.1.1. for interpretation

As mentioned previously, this research also aims to identify factors that challenge the culture led sustainable urban development. Therefore, a questionnaire containing several assessments regarding identified challenges and their corresponding sub-criteria were submitted to expert panel members for their assessment. The results show that all main challenges in terms of Economic Challenges, Social challenges, Environmental challenges, and Cultural challenges and their immediate sub-criteria were rated as important (i.e. weight ≥0.7) as the majority of consensus were reached among all expert panel members. Hence, they are all retained for further study analysis. The results of experts' opinions regarding the importance of challenges are displayed in tables 6-12 to 6-25.

6.1.1.6 Fuzzy Delphi method assessing main challenges towards culture led sustainable urban development.

1. Economic Challenges

2. Social challenges

3. Environmental challenges

4. Cultural challenges

Table 6. 12:Experts' opinions regarding main challenges

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
c_{11}	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1
c_{12}	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1
c_{13}	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1
c_{14}	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9

Table 6. 13: Results of main challenges assessment

Creative hub development main criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Economic Challenges	0.78	0.92	0.98	0.89	Accepted*
Social challenges	0.69	0.87	0.98	0.84	Accepted*
Environmental challenges	0.65	0.84	0.97	0.81	Accepted*
Cultural challenges	0.72	0.88	0.97	0.85	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.7 Fuzzy Delphi method assessing Economic Challenges sub-criteria

1. Continuous instability in the region

2. Increasing power of neighbouring countries

3. Domestic competition among islands for shared markets

4. Being surrounded by non- inhabited islands

Table 6. 14: Experts' opinions regarding Economic Challenges sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{11}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
C_{12}	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1
C_{13}	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1
C_{14}	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1
C_{15}	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9
C_{16}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1
C_{17}	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9
C_{18}	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1
C_{19}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1

Table 6. 15: Results of Economic Challenges sub-criteria assessment

Economic Challenges	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Continuous instability in the region	0.74	0.89	0.97	0.86	Accepted*
Increasing power of neighboring countries	0.73	0.89	0.98	0.86	Accepted*
Domestic competition among islands for shared markets	0.65	0.83	0.95	0.80	Accepted*
Being surrounded by non- inhabited islands	0.61	0.80	0.95	0.77	Accepted*
Geographical proximity to politically unstable countries	0.66	0.84	0.96	0.81	Accepted*
High insurance rate in the Persian Gulf region	0.67	0.84	0.95	0.82	Accepted*
Limited cruise lines in the Persian Gulf region	0.62	0.80	0.94	0.77	Accepted*
Lack of investment advantages/ investment dissatisfaction	0.62	0.81	0.95	0.78	Accepted*
Lack of successful benchmarking processes	0.68	0.85	0.96	0.82	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.8 Fuzzy Delphi method assessing social challenges sub-criteria

1. Unfulfilled local residents' needs and requirements

2. Inappropriate inhabitation patterns

3. Low level of social services

4. Lack of organizational training programs

5. Lack of managerial competence among regional managers

6. Inappropriate organizational approaches towards opportunities and potentials of the free zone

Table 6. 16: Experts' opinions regarding social challenges sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{21}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.3	0.5	0.7	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9
C_{22}	0.5	0.7	0.9	0.9	1	1	0.3	0.5	0.7	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9
C_{23}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.3	0.5	0.7	0.9	1	1	0.5	0.7	0.9	0.9	1	1
C_{24}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.3	0.5	0.7	0.5	0.7	0.9	0.9	1	1	0.3	0.5	0.7	0.9	1	1	0.5	0.7	0.9
C_{25}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1
C_{26}	0.3	0.5	0.7	0.5	0.7	0.9	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1

Table 6. 17: Results of Social challenges sub-criteria assessment

Social challenges sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Unfulfilled local residents' needs and requirements	0.59	0.77	0.92	0.75	Accepted*
Inappropriate inhabitation patterns	0.53	0.73	0.90	0.70	Accepted*
Low level of social services	0.59	0.77	0.92	0.75	Accepted*
Lack of organizational training programs	0.61	0.78	0.90	0.75	Accepted*
Lack of managerial competence among regional managers	0.74	0.89	0.97	0.86	Accepted*
Inappropriate organizational approaches towards opportunities and potentials of the free zone	0.59	0.77	0.92	0.75	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.9Fuzzy Delphi method assessing Environmental challenges sub-criteria

1. Lack of environmental optimization plan

2. Inconsistent management of environmental resources

3. Inappropriate land use

4. Inappropriate developmental and construction approaches

5. Inappropriate management of Endangered species

Table 6. 18: Experts' opinions regarding Environmental challenges sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{31}	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9
C_{32}	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1
C_{33}	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9
C_{34}	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1
C_{35}	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1

Table 6. 19: Results of Environmental challenges sub-criteria assessment

Environmental challenges sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Lack of environmental optimization plan	0.77	0.93	0.99	0.89	Accepted*
Inconsistent management of environmental resources	0.77	0.93	0.99	0.89	Accepted*
Inappropriate land use	0.65	0.83	0.95	0.80	Accepted*
Inappropriate developmental and construction approaches	0.69	0.86	0.96	0.83	Accepted*
Inappropriate management of Endangered species	0.75	0.92	0.99	0.88	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.10 Fuzzy Delphi method assessing Cultural challenges sub-criteria

1. Cultural conceptual challenges

2. Challenges to Operationalizing Culture in Local Development

Table 6. 20: Experts' opinions regarding Cultural challenges sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{41}	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1
C_{42}	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1

Table 6. 21: Results of Cultural challenges sub-criteria assessment

Cultural challenges sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Cultural conceptual challenges	0.66	0.84	0.96	0.81	Accepted*
Challenges to Operationalizing Culture in Local Development	0.79	0.93	0.99	0.90	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.11 Fuzzy Delphi method assessing Cultural conceptual challenges sub-criteria

1. The culture of a place is Fixed and timeless

2. Local identities are inherited and changeless

3. Everything about cultural traditions and practices is good and must be safeguarded and conserved

4. Culture is a barrier to real development

5. *Conditional investment in cultural infrastructures*

Table 6. 22: Experts' opinions regarding Cultural conceptual challenges sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{411}	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9
C_{412}	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1
C_{413}	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1	0.7	0.9	1
C_{414}	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9
C_{415}	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1	0.9	1	1

Table 6. 23: Results of Cultural conceptual challenges sub-criteria assessment

Cultural conceptual challenges sub-criteria	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
The culture of a place is Fixed and timeless	0.69	0.86	0.96	0.83	Accepted*
Local identities are inherited and changeless	0.70	0.87	0.97	0.84	Accepted*
Everything about cultural traditions and practices is good and must be safeguarded and conserved	0.74	0.90	0.98	0.87	Accepted*
Culture is a barrier to real development	0.76	0.91	0.98	0.88	Accepted*
Conditional investment in cultural infrastructures	0.72	0.89	0.98	0.86	Accepted*

*Refer to part 6.1.1. for interpretation

6.1.1.12 Fuzzy Delphi method assessing Challenges to Operationalizing Culture in Local Development sub-criteria

1. Limitation due target policies, legislative frameworks, and administrative reluctance

2. Complexity of the cultural features of community

3. Inadequacy of indicators, measurement, and evaluation of progress and impacts

4. Underlying issues of citizen participation and overcoming segmentation.

Table 6. 24: Experts' opinions regarding Challenges to Operationalizing Culture in Local Development sub-criteria

	Expert 1			Expert 2			Expert 3			Expert 4			Expert 5			Expert 6			Expert 7			Expert 8			Expert 9			Expert 10		
C_{411}	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.9	1	1	0.9	1	1	0.9	1	1	0.5	0.7	0.9	0.5	0.7	0.9	0.9	1	1	0.7	0.9	1
C_{412}	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.7	0.9	1	0.9	1	1	0.7	0.9	1	0.5	0.7	0.9
C_{413}	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1
C_{414}	0.9	1	1	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.5	0.7	0.9	0.7	0.9	1	0.7	0.9	1	0.5	0.7	0.9	0.9	1	1

Table 6. 25: Results of Challenges to Operationalizing Culture in Local Development sub-criteria assessment

Challenges to Operationalizing Culture in Local Development	Fuzzy mean score			Defuzzified mean score	Accepted/rejected
Limitation due target policies, legislative frameworks, and administrative reluctance	0.74	0.90	0.98	0.87	Accepted*
Complexity of the cultural features of community	0.67	0.85	0.97	0.82	Accepted*
Inadequacy of indicators, measurement, and evaluation of progress and impacts	0.66	0.84	0.96	0.81	Accepted*
Underlying issues of citizen participation and overcoming segmentation	0.64	0.83	0.96	0.80	Accepted*

*Refer to part 6.1.1. for interpretation

6.2 Identifying priorities via fuzzy AHP

After identifying the configurational components of factors affecting and challenging culture led sustainable urban development through a careful determination of the level of importance for each criterion, the next phase requires the collection of decision makers' opinion regarding the relative importance of each criterion over the other. As discussed earlier in chapter three, this study uses Chang's extent analysis for fuzzy AHP to identify the inherent priorities among study criteria and their relative sub-criteria.

In doing so, another pilot study with 10 was conducted to ensure expert panel members do not have difficulties in understanding the questionnaire that contains several pair-wise comparisons. The results of pilot study revealed that the questionnaire items and instruction to complete the questionnaire were easy to understand and therefore, no changes were made to the initial format of fuzzy AHP questionnaire.

The number of pairwise comparisons follows the following equation:

$$(n\,(n-1))/2 \tag{6-1}$$

with *n* representing the number of criteria. For example, it has been revealed that four main criteria including …… are affecting culture led sustainable urban development. Therefore, the number of pairwise comparisons for main criteria assessment can be obtained as follows:

$$(4(4-1))/2 = 6$$

To capture experts' opinion regarding the relative importance of each criterion over the other, fuzzy linguistic variables were used as shown in table 5-6. In addition, to identify

the general impression of all 100 experts, geometric mean has been used to convert all pairwise comparison matrixes into one. Geometric mean for triangular fuzzy numbers can be obtained using the following equation:

$FAGR = (\Pi\,(l),\ \Pi(m),\ \Pi\,(u))$ (6-2)

6.2.1 Identifying priorities among factors affecting culture led sustainable urban development.

6.2.1.1 fuzzy AHP calculation among main factors affecting culture led sustainable urban development

The results of pairwise comparison matrix for main criteria affecting culture led sustainable urban development is provided in table 6-26.

Table 6. 26: Pairwise comparison matrix among main criteria

	Social justice			Ecological balance			Economic (self-reliance)			Cultural sustainability		
Social justice	1	1	1	0.699	0.971	1.358	0.454	0.674	0.995	0.443	0.584	0.80
Ecological balance	0.736	1.029	1.430	1	1	1	0.605	0.817	1.110	0.634	0.819	1.07
Economic(self-reliance)	1.004	1.483	2.201	0.900	1.223	1.652	1	1	1	0.519	0.699	0.99
Cultural sustainability	1.243	1.710	2.254	0.934	1.221	1.575	1.007	1.429	1.924	1	1	1

According to Chang's extent analysis, next step requires the calculation of fuzzy synthetic extent values shown by $\tilde{S}_i$ and can be obtained using the following equation:

$Si = \sum_{j=1}^{n} a_{ij}$ (6-3)

Therefore, fuzzy synthetic extent values for main criteria affecting the culture led sustainable urban development will b:

fuzzy synthetic extent values for the first row:

$(1, 1, 1) \oplus (0.6990, 0.9710, 1.3583) \oplus (0.4542, 0.6742, 0.9954) \oplus (0.4435, 0.5845, 0.8042) = (2.5967, 3.2297, 4.1579)$

fuzzy synthetic extent values for the second row:

$(0.7362, 1.0299, 1.4305) \oplus (1,1, 1) \oplus (0.6052, 0.8176, 1.1104) \oplus (0.6345, 0.8190, 1.0703) = (2.9760, 3.6664, 4.6111)$

fuzzy synthetic extent values for the third row:

$(1.0046, 1.4832, 2.2019) \oplus (0.9006, 1.2232, 1.6523) \oplus (1, 1, 1) \oplus (0.5197, 0.6994, 0.9924) = (3.4249, 4.4058, 5.8467)$

fuzzy synthetic extent values for the last row:

$(1.2434, 1.7109, 2.2546) \oplus (0.9344, 1.2211, 1.5759) \oplus (1.0076, 1.4298, 1.9241) \oplus (1, 1, 1) = (4.1854, 5.3618, 6.7547)$

Therefore,

$$Si = \sum_{j=1}^{4} a_{ij} \tag{6-4}$$

(2.5967, 3.2297, 4.1579)

(2.9760, 3.6664, 4.6111)

(3.4249, 4.4058, 5.8467)

290

(4.1854, 5.3618, 6.7547)

The next step involves the fuzzy summation of each column using the following equation:

$$S_i = \sum_{j=1}^{m} M_{gi}^{j} \tag{6-5}$$

$$S_i = \sum_{j=1}^{4} M_{gi}^{4} = (13.1831, 16.6637, 21.3704)$$

Assuming all M_{gi}^{j} = (j= 1, 2... m) are TFNs, the value of fuzzy synthetic extent of the i_{th} object for "m" goals can be calculated using Eq.7:

$$S_i = \sum_{j=1}^{m} M_{gi}^{j} \odot \left[\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^{j} \right]^{-1} \tag{6-6}$$

$S_{social\ justice}$= (0.1215, 0.1938, 0.3154)

$S_{Ecological\ balance}$ = (0.1393, 0.2200, 0.3498)

$S_{Economic(self-reliance)}$ = (0.1603, 0.2644, 0.4435)

$S_{cultural\ sustainability}$ = (0.1959, 0.3218, 0.5124)

According to Chang (...), the next step involved the identification of the degree of possibility of one criterion to be greater than the other which can be calculated using the following equation:

$$V\ (M_i \geq M_k) = \sup_{x \geq y} \left[\min(\mu_{M_i}(x), \mu_{M_k}(y)) \right] \tag{6-7}$$

$$V\ (M_i \geq M_k) = \mu_{M_i}(d) =$$

$$
\begin{cases}
1, & if \ m_k \geq m_i \\
0, & if \ l_i \geq u_k \\
\dfrac{l_i - u_k}{(m_k - u_k) - (m_i - l_i)}, & otherwise
\end{cases}
\qquad (6\text{-}8)
$$

Table 6-27 provides the aforementioned results for the main criteria affecting the culture led sustainable urban development:

Table 6. 27: The degree of possibility of each criterion be greater than the other one

	Social justice	Ecological balance	Economic (self-reliance)	Cultural sustainability	Minimum values
Social justice	-	0.87	0.69	0.48	0.48
Ecological balance	1.00	-	0.81	0.60	0.60
Economic (self-reliance)	1.00	1.00	-	0.81	0.81
Cultural sustainability	1.00	1.00	1.00	-	1.00

At this stage the weight vector can be obtained using the following equation:

w' =$(d'(A_1)$, d' (A_2)... d' $(A_n))'$ $\qquad$ (6-9)

therefore,

w' = (0.483, 0.602, 0.812, 1.000)

final step involved de-fuzzification of the weight vector obtained via previous step using the following equation:

$w_i = \dfrac{w'_i}{\sum w'_i}$ $\qquad$ (6-10)

w=$(d(A_1)$, $d(A_2)$... $d(A_n))$ $\qquad$ (6-11)

hence,

$w_{Social\ justice}$= 0.483/2.897=0.1667

$w_{Ecological\ balance}$= 0.602/2.897=0.2078

$w_{economic(self-reliance)}$ = 0.812/2.897 = 0.2803

292

$w_{Cultural\ sustainability}$ = 1.000/2.897=0.3452

w= (0.1667, 0.2078, 0.2803,0.3452)

The final calculation of fuzzy and normalized weight vectors is displayed in table 6-28:

Table 6. 28: Fuzzy and normalized weights

	Fuzzy weights	Normalized weights
Social justice	0.48	0.17
Ecological balance	0.60	0.21
Economic (self-reliance)	0.81	0.28
Cultural sustainability	1.00	0.35

Based on normalized weight vector, the priorities can be identified. According to the results, sustainable development using creative hub concept is primarily based on proper development of cultural sustainability (0.345). This is followed by improved economic (self-reliance) (0.280) among local residents, enhanced ecological balance (0.207), and better social justice (0.166) in the local community. In all, four main criteria manifested by ecological balance, economic factors, cultural identity and social justice are significant components of sustainable development (figure 6-1).

Social justice	0.167	Main Attributes
Ecological balance	0.208	
Economic (self-reliance)	0.280	
Cultural sustainability	0.345	
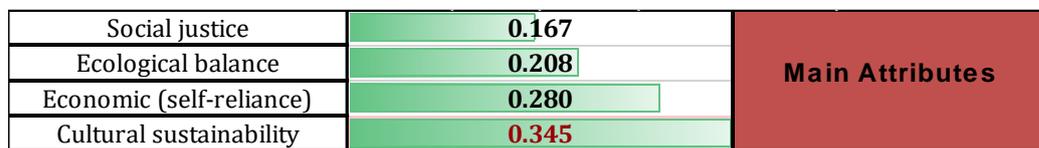
Figure 6. 1: main attributes nonfuzzy weights

6.2.2 Sub-criteria priority calculation

The next step in fuzzy AHP method, sub-criteria associated with each criterion must be compared separately. In doing so, for each set of sub-criteria, pairwise comparison questionnaire was developed and distributed among all expert panel members. Calculation of fuzzy and normalized weight vectors for all study sub-criteria followed the same procedure discussed above. According, the results will be provided in brief.

6.2.2.1 Social justice sub-criteria

1. Community empowerment
2. Social participation
3. Social mobility
4. Social cohesion

Table 6. 29: Pairwise comparison matrix for social justice sub-criteria

	Community empowerment			Social participation			Social mobility			Social cohesion		
Community empowerment	1.00	1.00	1.00	0.57	0.76	1.06	1.26	1.75	2.25	0.75	1.04	1.42
Social participation	0.95	1.32	1.77	1.00	1.00	1.00	0.90	1.23	1.66	0.77	1.06	1.47
Social mobility	0.44	0.57	0.79	0.60	0.81	1.11	1.00	1.00	1.00	0.58	0.78	1.07
Social cohesion	0.70	0.96	1.33	0.68	0.94	1.30	0.94	1.27	1.72	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Community empowerment)=(0.1708, 0.2755, 0.4360)

S(Social participation)= (0.1726, 0.2797, 0.4485)

S(Social mobility) = (0.1255,0.1920, 0.3023)

S(Social cohesion) = (0.1586, 0.2528, 0.4070)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Community empowerment)= *min* (0.984, 1.000, 1.000)= 0.984

d'(Social participation)= *min*(1.000, 1.000, 1.000)= 1.000

d'(Social mobility) = *min* (0.612, 0.596, 0.702)= 0.596

d'(Social cohesion) = *min* (0.913, 0.897, 1.000)= 0.897

The fuzzy weight vector:

w'= (0.984, 1.000, 0.596, 0.897)

Non fuzzy weight vector:

W= (0.2830, 0.2876, 0.1715, 0.2580)

Community empowerment	0.283	Social Justice Sub Criteria
Social participation	0.288	
Social mobility	0.172	
Social cohesion	0.258	

Figure 6. 2: Social justice sub criteria nonfuzzy weights

6.2.2.2 Ecological balance sub-criteria

1. Natural resources management
2. Urban biodiversity
3. Urban carrying capacity
4. Urban ecosystem

Table 6. 30: Pairwise comparison matrix for Ecological balance sub-criteria

	Natural resources management			Urban biodiversity			Urban carrying capacity			Urban ecosystem		
Natural resources management	1.00	1.00	1.00	1.28	1.69	2.20	1.51	1.99	2.45	0.95	1.30	1.73
Urban biodiversity	0.45	0.59	0.78	1.00	1.00	1.00	0.87	1.21	1.65	0.83	1.09	1.44
Urban carrying capacity	0.41	0.50	0.66	0.61	0.83	1.15	1.00	1.00	1.00	0.88	1.20	1.61
Urban ecosystem	0.58	0.77	1.05	0.69	0.92	1.21	0.62	0.83	1.14	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Natural resources) = (0.2251, 0.3531, 0.5394)

S(Urban biodiversity)= (0.1496, 0.2303, 0.3559)

S(Urban carrying capacity)= (0.1374, 0.2088, 0.3230)

S(Urban ecosystem) = (0.1373, 0.2078, 0.3214)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Natural resources)= *min* (1.000, 1.000, 1.000)= 1.000

d'(Urban biodiversity)= *min* (0.516, 1.000, 1.000)= 0.516

d'(Urban carrying capacity)= *min* (0.404, 0.890, 1.000)= 0.404

d'(Urban ecosystem) = *min* (0.399, 0.884, 0.995)= 0.399

The fuzzy weight vector:

w'= (1.000, 0.516, 0.404, 0.399)

Non fuzzy weight vector:

W= (0.4312, 0.2224, 0.1744, 0.1719)

296

Natural resources management	0.431	Ecological Balance Sub-Criteria
Urban biodiversity	0.222	
Urban carrying capacity	0.174	
Urban ecosystem	0.172	

Figure 6. 3: Ecological Balance sub-criteria nonfuzzy weights

6.2.2.3 Economic (self-reliance) sub-criteria

1. Balanced economic growth

2. Fair trade

3. Equity

Table 6. 31: Pairwise comparison matrix of Economic (self-reliance) sub-criteria

	Balanced economic growth			Fair trade			Equity		
Balanced economic growth	1.00	1.00	1.00	0.94	1.30	1.75	0.68	0.95	1.30
Fair trade	0.57	0.77	1.07	1.00	1.00	1.00	0.45	0.61	0.85
Equity	0.77	1.05	1.47	1.18	1.65	2.23	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Balanced economic growth)= (0.2247, 0.3486, 0.5327)

S(Fair trade)= (0.1735, 0.2548, 0.3838)

S(Equity)= (0.2533, 0.3966, 0.6182)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Balanced economic growth)= *min* (1.000, 0.854)= 0.854

d'(Fair trade)= *min* (0.629, 0.479)= 0.479

d'(Equity)= *min* (1.000, 1.000)= 1.000

The fuzzy weight vector:

w'= (0.854, 0.479, 1.000)

297

Non fuzzy weight vector:

W= (0.366, 0.205, 0.429)

Balanced economic growth	0.366	Economic (Self-Reliance) Sub-Criteria
Fair trade	0.205	
Equity	0.429	

Figure 6. 4: Economic (Self-Reliance) Sub-criteria nonfuzzy weights

6.2.2.4 Cultural sustainability sub-criteria

1. Cultural identities
2. Tangible and intangible heritage
3. Cultural industries
4. Cultural diversity
5. Cultural geography

Table 6. 32: Pairwise comparison matrix of Cultural sustainability sub-criteria

	Cultural identities			Tangible and intangible heritage			Cultural industries			Cultural diversity			Cultural geography		
Cultural identities	1.00	1.00	1.00	0.73	0.99	1.35	0.81	1.11	1.50	0.63	0.83	1.11	0.88	1.18	1.55
Tangible and intangible heritage	0.74	1.01	1.36	1.00	1.00	1.00	0.51	0.66	0.88	0.73	0.94	1.21	0.60	0.79	1.06
Cultural industries	0.67	0.90	1.23	1.14	1.52	1.96	1.00	1.00	1.00	0.70	0.93	1.23	0.78	1.08	1.45
Cultural diversity	0.90	1.20	1.59	0.83	1.07	1.38	0.81	1.08	1.43	1.00	1.00	1.00	0.69	0.89	1.17
Cultural geography	0.64	0.85	1.13	0.94	1.27	1.68	0.69	0.93	1.29	0.85	1.12	1.46	1.00	1.00	1.00

298

The value of fuzzy synthetic extent for designated sub-criteria:

S(Cultural identities) = (0.1269, 0.2023, 0.3212)

S(Tangible and intangible heritage) = (0.1117, 0.1730, 0.2714)

S(Cultural industries) = (0.1339, 0.2140, 0.3387)

S(Cultural diversity) = (0.1321, 0.2067, 0.3238)

S(Cultural geography) = (0.1291, 0.2040, 0.3230)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Cultural identities) = min (1.000, 0.941, 0.978, 0.991)= 0.941

d' (Tangible and intangible heritage) = min (0.831, 0.77, 0.805, 0.821) = 0.771

d' (Cultural industries) = min (1.000, 1.000, 1.000, 1.000) = 1.000

d' (Cultural diversity) = min (1.000, 1.000, 0.963, 1.000) = 0.963

d' (Cultural geography) = min (1.000, 1.000, 0.950, 0.986) = 0.950

The fuzzy weight vector:

w'= (0.941, 0.771, 1.000, 0.963, 0.950)

Non fuzzy weight vector:

W= (0.2036, 0.1666, 0.2162, 0.2082, 0.2054)

Cultural identities	0.204	
Tangible & intangible heritage	0.167	
Cultural industries	0.216	Cultural sustainability Sub-Criteria
Cultural diversity	0.208	
Cultural geography	0.205	

Figure 6. 5: Cultural sustainability sub-criteria nonfuzzy weights

To understand the ultimate ranking of sub-criteria, the global weight of each sub-criterion should be calculated. To do so, sub-criteria local weights should be multiplied

by their relative criteria. The results of global weight calculations are shown in the following table.

Table 6. 33: Criteria and sub-criteria local and global weights

Criteria weights	Sub-criteria	Local weights	Global weights
Social justice *(0.1667)*	Community empowerment	0.28	0.05
	Social participation	0.29	0.05
	Social mobility	0.17	0.03
	Social cohesion	0.26	0.04
Ecological balance *(0.2078)*	Natural resources management	0.43	0.09
	Urban biodiversity	0.22	0.05
	Urban carrying capacity	0.17	0.04
	Urban ecosystem	0.17	0.04
Economic (self-reliance*) (* *(0.2803)*	Balanced economic growth	0.37	0.10
	Fair trade	0.21	0.06
	Equity	0.43	0.12
Cultural identity *(0.3452)*	Cultural identities	0.20	0.07
	Tangible and intangible heritage	0.17	0.06
	Cultural industries	0.22	0.07
	Cultural diversity	0.21	0.07
	Cultural geography	0.21	0.07

In addition to understanding the priorities among factors affecting culture led sustainable urban development, this study, aims to understand the inherent priorities among salient factors that challenge the aforementioned development. Hence, all the sequential steps taken for the calculation of priorities among key factors and their relative sub-criteria will be repeated to identify which main challenge and challenge sub-criteria are mainly challenging the culture led sustainable urban development in the context of Kish Island free zone. Accordingly, the next section provides the results of tedious calculation to identify the priorities among factors challenging the culture led sustainable urban development.

6.**2.3 Identifying the priorities among factors challenging the culture led sustainable urban development.**

6.2.3.1 Main challenges

1. Economic Challenges

2. Social challenges

3. Environmental challenges

4. Cultural challenges

Table 6. 34: Pairwise comparison matrix among main challenges

	Economic Challenges			Social challenges			Environmental challenges			Cultural challenges		
Economic Challenges	1.00	1.00	1.00	0.93	1.30	1.76	1.29	1.77	2.31	0.64	0.85	1.14
Social challenges	0.57	0.77	1.08	1.00	1.00	1.00	1.22	1.65	2.18	0.74	0.95	1.23
Environmental challenges	0.43	0.56	0.78	0.46	0.61	0.82	1.00	1.00	1.00	0.50	0.67	0.90
Cultural challenges	0.88	1.17	1.56	0.81	1.05	1.36	1.11	1.49	1.99	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated criteria with response to the goal:

S(Social justice)= (0.1828, 0.2922, 0.4575)

 S(Ecological balance)= (0.1672, 0.2593, 0.4048)

S(Economic)= (0.1134, 0.1686, 0.2573)

S(Cultural identity)= (0.1799, 0.2799, 0.4348)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Social justice)= *min* (1.000, 1.000, 1.000)= 1.000

d' (Ecological balance) = min (0.871, 1.000, 0.916) = 0.871

*d'(Economi*c)= *min* (0.376, 0.498, 0.410) = 0.376

301

d'(Cultural identity)= min (0.954, 1.000, 1.000)= 0.954

Fuzzy weight vector:

w'= (1.000, 0.871, 0.376, 0.954)

Non fuzzy weight vector:

W= (0.3124, 0.2722, 0.1175, 0.2979)

According to the results, all four distinct categories of challenges share significant impact towards creative hub development. Specifically, economic challenges (0.312) are the most significant factors affecting creative hub development. This is followed by cultural challenges (0.298), social challenges (0.272) and environmental challenges (0.118). the graphical representation of shared non fuzzy weights of main challenges are displayed in figure 6-6.

Economic Challenges	0.3124	0.312	**Main Challenges**
Social challenges	0.2722	0.272	
Environmental challenges	0.1175	0.118	
Cultural challenges	0.2979	0.298	

Figure 6. 6: Main Challenges non fuzzy weights

6.2.3.2 Economic Challenges sub-criteria

1. Continuous instability in the region

2. Increasing power of neighbouring countries

3. Domestic competition among islands for shared markets

4. Being surrounded by non- inhabited islands

5. Geographical proximity to politically unstable countries

6. High insurance rate in the Persian Gulf region

7. Limited cruise lines in the Persian Gulf region

8. Lack of investment advantages/ investment dissatisfaction

9. Lack of successful benchmarking processes

Table 6. 35: Pairwise comparison matrix for economic challenges

	C_{11}			C_{12}			C_{13}			C_{14}			C_{15}			C_{16}			C_{17}			C_{18}			C_{19}		
C_{11}	1.00	1.00	1.00	1.31	1.74	2.29	1.23	1.60	2.05	1.28	1.66	2.14	0.68	0.93	1.26	1.01	1.33	1.76	1.33	1.79	2.31	1.00	1.34	1.73	0.92	1.30	1.76
C_{12}	0.44	0.57	0.76	1.00	1.00	1.00	1.02	1.35	1.78	1.11	1.44	1.87	1.23	1.61	2.09	0.58	0.77	1.04	1.35	1.78	2.26	1.42	1.95	2.54	1.04	1.35	1.72
C_{13}	0.49	0.63	0.81	0.56	0.74	0.98	1.00	1.00	1.00	0.57	0.74	0.99	0.58	0.75	1.02	0.39	0.49	0.64	1.33	1.76	2.23	1.25	1.62	2.11	0.47	0.62	0.85
C_{14}	0.47	0.60	0.78	0.53	0.69	0.90	1.01	1.34	1.75	1.00	1.00	1.00	0.46	0.62	0.85	0.47	0.61	0.79	0.91	1.16	1.47	0.91	1.20	1.56	0.49	0.65	0.85
C_{15}	0.79	1.07	1.48	0.48	0.62	0.82	0.98	1.33	1.73	1.18	1.62	2.16	1.00	1.00	1.00	0.46	0.62	0.84	0.57	0.75	1.01	0.66	0.72	0.81	0.77	0.87	0.99
C_{16}	0.57	0.75	0.99	0.97	1.30	1.72	1.56	2.05	2.56	1.26	1.64	2.12	1.19	1.62	2.18	1.00	1.00	1.00	0.58	0.76	1.01	0.58	0.75	0.98	0.52	0.69	0.96
C_{17}	0.43	0.56	0.75	0.44	0.56	0.74	0.45	0.57	0.75	0.68	0.86	1.10	0.99	1.34	1.75	0.99	1.31	1.72	1.00	1.00	1.00	0.72	0.95	1.28	0.61	0.80	1.09
C_{18}	0.57	0.75	1.00	0.39	0.51	0.70	0.47	0.62	0.80	0.64	0.84	1.09	1.24	1.38	1.52	1.02	1.33	1.72	0.78	1.05	1.38	1.00	1.00	1.00	0.54	0.69	0.92
C_{19}	0.56	0.77	1.08	0.58	0.74	0.96	1.18	1.61	2.11	1.18	1.55	2.04	1.01	1.15	1.30	1.04	1.45	1.92	0.91	1.25	1.65	1.08	1.45	1.85	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Continuous instability in the region) =(0.0883, 0.1459, 0.2379)

S(Increasing power of neighboring countries)= (0.0831, 0.1360, 0.2197)

S(Domestic competition among islands for shared markets)= (0.0601, 0.0960, 0.1550)

S(Being surrounded by non- inhabited islands)= (0.0567, 0.0906, 0.1454)

S(Geographical proximity to politically unstable countries)= (0.0623, 0.0989, 0.1581)

S(High insurance rate in the Persian Gulf region)= (0.0745, 0.1214, 0.1974)

S(Limited cruise lines in the Persian Gulf region)= (0.0572, 0.0914,0.1486)

S(Lack of investment advantages/ investment dissatisfaction)= (0.0603, 0.0938, 0.1480)

S(Lack of successful benchmarking processes) =(0.0774, 0.1260, 0.2031)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Continuous instability in the region) = min (1.000, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000)= 1.000

d' (Increasing power of neighboring countries) = min (0.930, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000) = 0.930

d' (Domestic competition among islands for shared markets) = min (0.572, 0.643, 1.000, 0.970, 0.760, 1.000, 1.000, 0.722) = 0.572

d' (Being surrounded by non- inhabited islands) = min (0.507, 0.578, 0.940, 0.909, 0.697, 0.991, 0.572, 0.658) = 0.507

d' (Geographical proximity to politically unstable countries) = min (0.597, 0.669, 1.000, 1.000, 0.788, 1.000, 1.000, 0.749)= 0.597

d' (High insurance rate in the Persian Gulf region) = min (0.817, 0.887, 1.000, 1.000, 1.000, 1.000, 1.000   , 0.964) = 0.817

d' (Limited cruise lines in the Persian Gulf region) = min (0.525, 0.595, 0.951, 1.000, 0.920, 0.712, 0.585,0.673) = 0.525

305

d' (Lack of investment advantages/ investment dissatisfaction) = *min* (0.534, 0.606, 0.976, 1.000, 0.944, 0.727, 1.000, 0.687) = 0.534

d' (Lack of successful benchmarking processes) = *min* (0.852,0.923, 1.000, 1.000, 1.000, 1.000, 1.000, 1.000) = 0.852

Fuzzy weight vector:

w'= (1.000, 0.930, 0.572, 0.507, 0.597, 0.817, 0.525, 0.534, 0.852)

Non fuzzy weight vector:

W= (0.1579, 0.1468, 0.0903, 0.0801, 0.0943, 0.1289, 0.0829, 0.0843, 0.1345)

1. Continuous instability in the region	0.158	
2. Increasing power of neighboring countries	0.147	
3. Domestic competition among islands for shared markets	0.090	
4. Being surrounded by non- inhabited islands	0.080	
5. geographical proximity to politically unstable countries	0.094	
6. High insurance rate in the Persian gulf region	0.129	Economic Challenges Sub-Criteria
7. Limited cruise lines in the Persian gulf region	0.083	
8. Lack of investment advantages/ investment dissatisfaction	0.084	
9. Lack of successful benchmarking processes	0.134	

Figure 6. 7:Economic challenges sub criteria nonfuzzy weights

6.2.3.3 Social challenges sub-criteria

1. Unfulfilled local residents' needs and requirements

2. Inappropriate inhabitation patterns

3. Low level of social services

4. Lack of organizational training programs

5. Lack of managerial competence among regional managers

6. Inappropriate organizational approaches towards opportunities and potentials of the free zone

Table 6. 36: Pairwise comparison matrix for social challenges sub-criteria

	C_{21}			C_{22}			C_{23}			C_{24}			C_{25}			C_{26}		
C_{21}	1.00	1.00	1.00	0.75	1.01	1.33	0.71	0.95	1.30	0.81	1.08	1.42	0.46	0.60	0.81	0.50	0.65	0.86
C_{22}	0.75	0.99	1.34	1.00	1.00	1.00	0.53	0.69	0.92	0.58	0.78	1.03	0.48	0.61	0.79	0.73	0.95	1.25
C_{23}	0.77	1.05	1.42	1.09	1.45	1.88	1.00	1.00	1.00	0.61	0.81	1.10	0.51	0.68	0.93	0.52	0.68	0.92
C_{24}	0.71	0.93	1.23	0.97	1.29	1.71	0.91	1.23	1.64	1.00	1.00	1.00	0.78	0.99	1.28	0.65	0.86	1.18
C_{25}	1.24	1.67	2.18	1.27	1.63	2.07	1.08	1.47	1.96	0.86	1.13	1.46	1.00	1.00	1.00	0.75	1.01	1.32
C_{26}	1.16	1.53	2.00	0.80	1.05	1.37	1.08	1.46	1.93	0.85	1.17	1.55	0.76	0.99	1.32	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Unfulfilled residents' needs and requirements) = (0.0891, 0.1415, 0.2263)

S(Inappropriate inhabitation patterns)= (0.0860, 0.1344, 0.2131)

S(Low level of social services)= (0.0948, 0.1517, 0.2443)

S(Lack of organizational training programs) = (0.1056, 0.1686, 0.2707)

S(Lack of managerial competence among regional managers)= (0.1306, 0.2114, 0.3365)

S(Inappropriate organizational approaches towards opportunities and potentials of the free zone)= (0.1191, 0.1924, 0.3088)

Calculation of degree of possibility of each criterion being greater than the other:

d' (Unfulfilled residents' needs and requirements) = min (1.000, 0.928, 0.817, 0.578, 0.678) = 0.578

d' (Inappropriate inhabitation patterns) = min (0.946, 0.872, 0.759, 0.517, 0.618) = 0.517

d' (Low level of social services) = min (1.000, 1.000, 0.891, 0.656, 0.755) = 0.656

d' (Lack of organizational training programs) = min (1.000, 1.000, 1.000, 0.766, 0.864) = 0.766

d' (Lack of managerial competence among regional managers) = min (1.000, 1.000, 1.000 , 1.000 , 1.000) = 1.000

d' (Inappropriate organizational approaches towards opportunities and potentials of the free zone) = min (1.000, 1.000, 1.000, 1.000, 0.904) = 0.904

Fuzzy weight vector:

w'= (0.578, 0.517, 0.656, 0.766, 1.000, 0.904)

Non fuzzy weight vector:

W= (0.1307, 0.1170, 0.1483, 0.1732, 0.2263, 0.2045)

	1. Unfulfilled local residents' needs and requirements	0.131	
	2. Inappropriate inhabitation patterns	0.117	
	3. Low level of social services	0.148	**Social challenges Sub-Criteria**
	4. Lack of organizational training programs	0.173	
	5. Lack of managerial competence among regional managers	0.226	
	6. Inappropriate organizational approaches towards opportunities and potentials of the free zone	0.204	

Figure 6. 8: Social challenges sub-criteria non fuzzy weights

6.2.3.4 Environmental Challenges Sub-criteria

1. Lack of environmental optimization plan

2. Inconsistent management of environmental resources

3. Inappropriate land use

4. Inappropriate developmental and construction approaches

5. Inappropriate management of Endangered species

Table 6. 37: Pairwise comparison matrix of Environmental Challenges Sub-criteria

	C_{31}			C_{32}			C_{33}			C_{34}			C_{35}		
C_{31}	1.00	1.00	1.00	0.41	0.54	0.73	1.18	1.59	2.07	0.96	1.32	1.79	0.81	1.10	1.47
C_{32}	1.37	1.86	2.44	1.00	1.00	1.00	1.13	1.51	1.97	1.19	1.63	2.16	1.16	1.56	2.03
C_{33}	0.48	0.63	0.85	0.51	0.66	0.89	1.00	1.00	1.00	0.68	0.89	1.19	0.52	0.71	0.99
C_{34}	0.56	0.76	1.04	0.46	0.62	0.84	0.84	1.13	1.48	1.00	1.00	1.00	0.70	0.94	1.26
C_{35}	0.68	0.91	1.23	0.49	0.64	0.87	1.01	1.40	1.92	0.79	1.06	1.43	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S (Lack of environmental optimization plan) = (0.1299, 0.2097, 0.3368)

S (Inconsistent management of environmental resources) = (0.1736, 0.2854, 0.4583)

S (Inappropriate land use) = (0.0948, 0.1473, 0.2345)

S (Inappropriate developmental and construction approaches) = (0.1061, 0.1679, 0.2686)

309

S (Inappropriate management of Endangered species) = (0.1183, 0.1897, 0.3074)

Calculation of degree of possibility of each criterion being greater than the other:

d' (Lack of environmental optimization plan) = min (0.683, 1.000, 1.000, 1.000) = 0.683

d' (Inconsistent management of environmental resources) = min (1.000, 1.000, 1.000, 1.000) = 1.000

d' (Inappropriate land use) = min (0.626, 0.306, 0.862   , 0.733) = 0.306

d' (Inappropriate developmental and construction approaches) = min (0.768, 0.447, 1.000, 0.873) = 0.447

d' (Inappropriate management of Endangered species) = min (0.899, 0.583, 1.000, 1.000) = 0.583

Fuzzy weight vector:

w'= (0.683, 1.000, 0.306, 0.447, 0.583)

Non fuzzy weight vector:

W= (0.2262, 0.3313, 0.1013, 0.1480, 0.1931)

1. Lack of environmental optimization plan	0.226	
2. Inconsistent management of environmental resources	0.331	
3. Inappropriate land use	0.101	**Environmental Challenges Sub-Criteria**
4. Inappropriate developmental and construction approaches	0.148	
5. Inappropriate management of Endangered species	0.193	

Figure 6. 9: Environmental challenges Sub-criteria non fuzzy weights

6.2.3.5 Cultural challenges sub-criteria

1. Cultural conceptual challenges
2. Challenges to Operationalizing Culture in Local Development

Table 6. 38: Pairwise comparison matrix of Cultural challenges sub-criteria

	Cultural conceptual challenges			Challenges to Operationalizing Culture in Local Development		
Cultural conceptual challenges	1.00	1.00	1.00	0.44	0.61	0.89
Challenges to Operationalizing Culture in Local Development	1.12	1.65	2.26	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S(Cultural conceptual challenges)= (0.2803, 0.3777, 0.5306)

S(Challenges to Operationalizing Culture in Local Development) = (0.4122, 0.6223, 0.9135)

Calculation of degree of possibility of each criterion being greater than the other:

d'(Cultural conceptual challenges)= *min* (0.326) = 0.326

d'(Challenges to Operationalizing Culture in Local Development) = *min* (1.000) =1.000

Fuzzy weight vector:

w'= (0.326, 1.000)

Non fuzzy weight vector:

W= (0.246, 0.754)

1. Cultural conceptual challenges	0.246	
2. Challenges to Operationalizing Culture in Local Development	0.754	**Cultural Challenges Sub-Criteria**

Figure 6. 10: cultural challenges sub-criteria nonfuzzy weights

6.2.3.6 Cultural conceptual challenges sub-criteria

1. Fixed and timeless culture

2. Inherited and changeless local identities

3. Fixed local culture

4. Culture as a priority

5. Conditional investment in cultural infrastructures

Table 6. 39: Pairwise comparison matrix of Cultural conceptual challenges sub-criteria

	C_{411}			C_{412}			C_{413}			C_{414}			C_{415}		
C_{411}	1.00	1.00	1.00	0.62	0.85	1.21	0.38	0.49	0.65	0.35	0.45	0.62	0.43	0.56	0.75
C_{412}	0.83	1.17	1.62	1.00	1.00	1.00	0.50	0.66	0.90	0.48	0.63	0.85	0.87	1.14	1.48
C_{413}	1.53	2.05	2.66	1.11	1.52	2.02	1.00	1.00	1.00	0.43	0.56	0.75	0.57	0.73	0.96
C_{414}	1.60	2.20	2.89	1.17	1.59	2.09	1.33	1.79	2.31	1.00	1.00	1.00	1.22	1.59	2.01
C_{415}	1.34	1.79	2.33	0.68	0.88	1.16	1.04	1.37	1.76	0.50	0.63	0.82	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S (The culture of a place is Fixed and timeless) = (0.0795, 0.1213, 0.1930)

S (Local identities are inherited and changeless) = (0.1052, 0.1663, 0.2664)

S (Everything about cultural traditions and practices is good and must be safeguarded and conserved) = (0.1334, 0.2121, 0.3365)

S (Culture is a barrier to real development) = (0.1816, 0.2954, 0.4689)

S (Conditional investment in cultural infrastructures) = (0.1307, 0.2048, 0.3215)

Calculation of degree of possibility of each criterion being greater than the other:

d' (The culture of a place is Fixed and timeless) = *min* (0.661, 0.396, 0.061, 0.427) = 0.061

d' (Local identities are inherited and changeless) = *min* (1.000, 0.744, 0.396, 0.779) = 0.396

312

d' (Everything about cultural traditions and practices is good and must be safeguarded and conserved) = *min* (1.000, 1.000, 0.650,1.000) = 0.650

d' (Culture is a barrier to real development) = *min* (1.000, 1.000, 1.000, 1.000) = 1.000

d' (Conditional investment in cultural infrastructures) = *min* (1.000, 1.000, 0.962, 0.607) = 0.607

Fuzzy weight vector:

w'= (0.061, 0.396, 0.650, 1.000, 0.607)

Non fuzzy weight vector:

W= (0.0226, 0.1460, 0.2395, 0.3683, 0.2235)
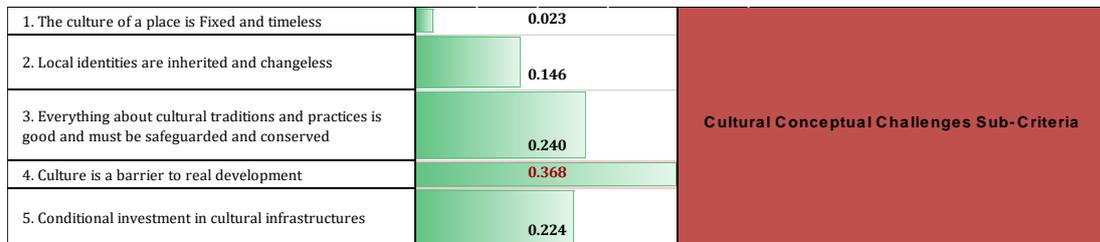
Figure 6. 11: Cultural conceptual challenges sub-criteria nonfuzzy weights

6.2.3.7 Challenges to Operationalizing Culture in Local Development sub-criteria

1. Target policies, legislative frameworks, and administrative reluctance

2. Complex cultural features of the community

3. Inadequacy of indicators, measurement, and evaluation of progress and impacts

4. Underlying issues of citizen participation and overcoming segmentation

Table 6. 40: Pairwise comparison matrix of Challenges to Operationalizing Culture in Local Development sub-criteria

	C_{421}			C_{422}			C_{423}			C_{424}		
C_{421}	1.00	1.00	1.00	0.98	1.34	1.77	1.10	1.53	2.02	1.13	1.54	2.03
C_{422}	0.57	0.75	1.02	1.00	1.00	1.00	1.13	1.56	2.07	0.84	1.13	1.46
C_{423}	0.49	0.65	0.91	0.48	0.64	0.88	1.00	1.00	1.00	1.03	1.35	1.72
C_{424}	0.49	0.65	0.88	0.68	0.89	1.19	0.58	0.74	0.97	1.00	1.00	1.00

The value of fuzzy synthetic extent for designated sub-criteria:

S (Limitation due target policies, legislative frameworks, and administrative reluctance) = (0.2015, 0.3230, 0.5043)

S (Complexity of the cultural features of community) = (0.1690, 0.2644, 0.4109)

S (Inadequacy of indicators, measurement, and evaluation of progress and impacts) = (0.1435, 0.2173, 0.3340)

S (Underlying issues of citizen participation and overcoming segmentation) = (0.1317, 0.1953, 0.2992)

Calculation of degree of possibility of each criterion being greater than the other:

d' (Limitation due target policies, legislative frameworks, and administrative reluctance) = min (1.000, 1.000, 1.000) = 1.000

d' (Complexity of the cultural features of community) = min (0.781, 1.000, 1.000) = 0.781

d' (Inadequacy of indicators, measurement, and evaluation of progress and impacts) = min (0.556, 0.778, 1.000) = 0.556

d' (Underlying issues of citizen participation and overcoming segmentation) = min (0.433, 0.653, 0.876) = 0.433

Fuzzy weight vector:

w'= (1.000, 0.781, 0.556, 0.433)

Non fuzzy weight vector:

W= (0.3609, 0.2820, 0.2007, 0.1564)

1. Limitation due target policies, legislative frameworks, and administrative reluctance	0.361	
2. Complexity of the cultural features of community	0.282	Operational Challenges Sub- Criteria
3. Inadequacy of indicators, measurement, and evaluation of progress and impacts	0.201	
4. Underlying issues of citizen participation and overcoming segmentation	0.156	

Figure 6. 12: Challenges to Operationalizing Culture in Local Development sub-criteria nonfuzzy weights

At this stage of calculation, the ultimate ranking of sub-criteria can be calculated to understand the priorities among all sub-criteria regardless of their immediate main criteria. As mentioned before, to obtain the global weights of each challenge, sub-criteria local weights should be multiplied by their relative criteria weight. The results of global weight calculations are shown in the following table.

Table 6. 41: criteria and sub criteria local and global weights

Criteria weights	Sub-criteria	Local weights	Global weights
Economic Challenges (0.3124)	Continuous instability in the region	0.16	0.05
	Increasing power of neighboring countries	0.15	0.05
	Domestic competition among islands for shared markets	0.09	0.03
	Being surrounded by non- inhabited islands	0.08	0.03
	geographical proximity to politically unstable countries	0.09	0.03
	High insurance rate in the Persian gulf region	0.13	0.04
	Limited cruise lines in the Persian gulf region	0.08	0.03
	Lack of investment advantages/ investment dissatisfaction	0.08	0.03
	Lack of successful benchmarking processes	0.13	0.04
Social challenges (0.2722)	Unfulfilled local residents' needs and requirements	0.13	0.04
	Inappropriate inhabitation patterns	0.12	0.03
	Low level of social services	0.15	0.04
	Lack of organizational training programs	0.17	0.05
	Lack of managerial competence among regional managers	0.23	0.06
	Inappropriate organizational approaches towards opportunities and potentials of the free zone	0.20	0.06
Environmental challenges (0.1175)	Lack of environmental optimization plan	0.23	0.03
	Inconsistent management of environmental resources	0.33	0.04
	Inappropriate land use	0.10	0.01

	Inappropriate developmental and construction approaches	0.15	0.02
	Inappropriate management of Endangered species	0.19	0.02
Cultural challenges (0.2979)	Cultural conceptual challenges	0.25	0.07
	Challenges to Operationalizing Culture in Local Development	0.75	0.22

According to the results, the most challenging step to be taken for culture led sustainable urban development would be the Operationalization of Culture in Local Development (0.2246) as manifested through Target policies, legislative frameworks, and administrative reluctance, Complex cultural features of the community, Inadequacy of indicators, measurement, and evaluation of progress and impacts, and Underlying issues of citizen participation and overcoming segmentation. . This is particularly followed by cultural conceptual challenges in terms of Fixed and timeless culture, Inherited and changeless local identities, Fixed local culture, Culture as a priority, and Conditional investment in cultural infrastructures. However, the results further demonstrate that Lack of managerial competence among regional managers (0.0615) would also act as a significant challenge associated with culture led sustainable urban development in the context of Kish as free trade zone in Iran.

In all, the results of fuzzy AHP calculation conferring challenges towards culture led sustainable urban development revealed that all identified challenges are contributing a significant share of impact to challenge the aforementioned development. Hence, they must be noticed and the remedial solutions must be offered to mitigate the negative impacts of such challenges.

Next chapter provides a detailed discussion of findings and theoretical land practical implications of study findings will be provided.

6.3 Identifying priorities of alternatives via fuzzy TOPSIS

After identifying the weights of each criteria affecting and challenging culture led sustainable urban development through fuzzy AHP, the next step requires the collection of expert panel members' opinion regarding the relative performance of each

alternative with regard to each criterion. As discussed earlier in chapter three, fuzzy TOPSIS requires a tentative step for the calculation and identification of FPIS and the FNIS. Specifically, a pilot study with 3 panelists was conducted to ensure expert panel members do not have difficulties in understanding the fuzzy TOPSIS questionnaire. The results of pilot study revealed that the questionnaire items and instruction to complete the questionnaire were easy to understand and therefore, no changes were made to the initial format of the questionnaire.

6.3.1 Identifying priorities of alternatives affecting culture led sustainable urban development

Once all expert panel members have expressed their opinions using linguistic terms (see table 5-16), the responses were aggregated using equation 5-17. Table 6-40 illustrates the results of experts' opinion regarding the relative performance of each alternative with regard to each criteria affecting culture led sustainable urban development. As required by fuzzy TOPSIS method, the constructed decision matrix must be normalized at this stage using Eq. 5-19 and 5-20(table 6-41). Once the decision matrix is normalized, weighted normalized matrix can be obtained by multiplying the normalized matrix with criteria weights (table 6-42).

Table 6. 42: Aggregated matrix for factors affecting culture led urban sustainable development

	Strategy for Sustainable economic development			Strategy for Sustainable social development			Strategy for Sustainable environmental development			Strategy for Sustainable cultural development		
A1	8.28	9.65	10.00	6.80	8.57	9.65	5.59	7.61	9.32	6.80	8.57	9.65
A2	6.80	8.57	9.65	5.59	7.61	9.32	8.28	9.65	10.00	3.56	5.59	7.61
A3	6.26	8.28	9.65	4.22	6.26	8.28	3.56	5.59	7.61	4.72	6.80	8.57
A4	6.80	8.57	9.65	6.26	8.28	9.65	3.98	6.08	7.88	4.72	6.80	8.57
A5	6.80	8.57	9.65	8.28	9.65	10.00	6.80	8.57	9.65	7.40	8.88	9.65
A6	6.80	8.57	9.65	6.08	7.88	9.32	7.61	9.32	10.00	7.61	9.32	10.00
A7	4.72	6.80	8.57	5.59	7.61	9.32	7.61	9.32	10.00	7.40	8.88	9.65
A8	4.22	6.26	8.28	5.13	7.05	8.57	3.00	5.00	7.00	5.59	7.61	9.32
A9	8.28	9.65	10.00	7.40	8.88	9.65	6.24	7.94	8.88	6.80	8.57	9.65
A10	6.80	8.57	9.65	8.28	9.65	10.00	5.59	7.61	9.32	4.22	6.26	8.28
A11	4.33	6.30	7.88	3.56	5.59	7.61	5.28	7.40	8.88	4.72	6.80	8.57

Table 6. 43: Normalized decision matrix for factors affecting culture led urban sustainable development

	Strategy for Sustainable economic development			Strategy for Sustainable social development			Strategy for Sustainable environmental development			Strategy for Sustainable cultural development		
A1	0.83	0.97	1.00	0.68	0.86	0.97	0.56	0.76	0.93	0.68	0.86	0.97
A2	0.68	0.86	0.97	0.56	0.76	0.93	0.83	0.97	1.00	0.36	0.56	0.76
A3	0.63	0.83	0.97	0.42	0.63	0.83	0.36	0.56	0.76	0.47	0.68	0.86
A4	0.68	0.86	0.97	0.63	0.83	0.97	0.40	0.61	0.79	0.47	0.68	0.86
A5	0.68	0.86	0.97	0.83	0.97	1.00	0.68	0.86	0.97	0.74	0.89	0.97
A6	0.68	0.86	0.97	0.61	0.79	0.93	0.76	0.93	1.00	0.76	0.93	1.00
A7	0.47	0.68	0.86	0.56	0.76	0.93	0.76	0.93	1.00	0.74	0.89	0.97
A8	0.42	0.63	0.83	0.51	0.70	0.86	0.30	0.50	0.70	0.56	0.76	0.93
A9	0.83	0.97	1.00	0.74	0.89	0.97	0.62	0.79	0.89	0.68	0.86	0.97
A10	0.68	0.86	0.97	0.83	0.97	1.00	0.56	0.76	0.93	0.42	0.63	0.83
A11	0.43	0.63	0.79	0.36	0.56	0.76	0.53	0.74	0.89	0.47	0.68	0.86

319

Table 6. 44: Weighted normalized decision matrix for factors affecting culture led urban sustainable development

	Strategy for Sustainable economic development			Strategy for Sustainable social development			Strategy for Sustainable environmental development			Strategy for Sustainable cultural development		
A1	0.23	0.27	0.28	0.11	0.14	0.16	0.12	0.16	0.19	0.23	0.30	0.33
A2	0.19	0.24	0.27	0.09	0.13	0.15	0.17	0.20	0.21	0.12	0.19	0.26
A3	0.18	0.23	0.27	0.07	0.10	0.14	0.07	0.12	0.16	0.16	0.23	0.30
A4	0.19	0.24	0.27	0.10	0.14	0.16	0.08	0.13	0.16	0.16	0.23	0.30
A5	0.19	0.24	0.27	0.14	0.16	0.17	0.14	0.18	0.20	0.26	0.31	0.33
A6	0.19	0.24	0.27	0.10	0.13	0.15	0.16	0.19	0.21	0.26	0.32	0.35
A7	0.13	0.19	0.24	0.09	0.13	0.15	0.16	0.19	0.21	0.26	0.31	0.33
A8	0.12	0.18	0.23	0.09	0.12	0.14	0.06	0.10	0.14	0.19	0.26	0.32
A9	0.23	0.27	0.28	0.12	0.15	0.16	0.13	0.16	0.18	0.23	0.30	0.33
A10	0.19	0.24	0.27	0.14	0.16	0.17	0.12	0.16	0.19	0.15	0.22	0.29
A11	0.12	0.18	0.22	0.06	0.09	0.13	0.11	0.15	0.18	0.16	0.23	0.30

Next step deals with the calculation of fuzzy positive ideal solution (FPIS) and fuzzy negative ideal solution (FNIS). In doing so, Eq. 5-22 and 5-23 is used to calculate the FPIS (I^+) and FNIS (I^-). The results are provided in the following table.

Table 6. 45: FPIS and FNIS

FPIS (I^+)	0.28	0.17	0.21	0.35
FNIS (I^-)	0.12	0.06	0.06	0.12

Identification of FPIS (I^+) and FNIS (I^-) would help to further compute the distance of each alternative from FPIS and FNIS using Eq. 5-24 and 5-25. Table 6-44 displays the results of the aforementioned calculation.

Table 6. 46: Distance of each alternative from FPIS and FNIS

	d^+	d^-
A1	0.19	0.50
A2	0.29	0.41
A3	0.36	0.35
A4	0.31	0.39
A5	0.17	0.51
A6	0.18	0.51
A7	0.24	0.46
A8	0.38	0.33
A9	0.18	0.50
A10	0.28	0.42
A11	0.39	0.33

Finally, fuzzy TOPSIS requires the calculation of the closeness coefficient (CC_i) of each alternative using Eq. 5-26. The results are provided in table 6-45.

Table 6. 47: Closeness coefficient (CC_i) of each alternative

	CC_i	Normalized CC_i	Rankings
1. People-centered	0.72	0.11	4
2. Consensus on long-term vision	0.59	0.09	7
3. Comprehensive and integrated	0.50	0.07	9
4. Targeted with clear budgetary priorities	0.56	0.08	8
5. Based on comprehensive and reliable analysis	0.75	0.11	1
6. Incorporate monitoring, learning and continuous improvement	0.74	0.11	2
7. High-level government commitment and influential lead institutions	0.66	0.10	5
8. Building on existing processes and strategies	0.47	0.07	10
9. Effective participation	0.74	0.11	3
10. Link national and local levels	0.61	0.09	6
11. Develop and build on existing capacity	0.46	0.07	11

6.3.2 Identifying priorities among alternatives to cope with the challenges towards culture led sustainable urban development

In addition to capture experts' opinions regarding the most appropriate alternative solutions to leverage factors affecting culture led sustainable development, all expert panel members were asked to express their judgment regarding the appropriateness of alternative solutions to cope with challenges towards culture-led sustainable urban development using linguistic terms (see table 5-16). All the steps taken are similar to the previous section. That is all the responses were aggregated using equation 5-17,5-18 and 5-19 and the results are illustrated in table 6-46.

Table 6. 48: Aggregated table for factors challenging culture led urban sustainable development.

	Economic challenges			Social challenges			Environmental challenges			Cultural conceptual challenges			Challenges to Operationalizing Culture in Local Development		
A1	4.72	6.80	8.57	7.61	9.32	10.00	6.80	8.57	9.65	7.61	9.32	10.00	4.72	6.80	8.57
A2	7.61	9.32	10.00	2.47	4.72	6.80	7.61	9.32	10.00	4.72	6.80	8.57	6.80	8.57	9.65
A3	4.72	6.80	8.57	4.72	6.80	8.57	7.61	9.32	10.00	6.80	8.57	9.65	6.80	8.57	9.65
A4	7.61	9.32	10.00	6.80	8.57	9.65	6.80	8.57	9.65	5.13	7.05	8.57	4.33	6.69	7.94
A5	6.80	8.57	9.65	7.61	9.32	10.00	8.28	9.65	10.00	8.28	9.65	10.00	8.28	9.65	10.00
A6	6.80	8.57	9.65	7.61	9.32	10.00	3.98	6.08	7.88	8.28	9.65	10.00	8.28	9.65	10.00
A7	4.72	6.80	8.57	4.72	6.80	8.57	4.72	6.80	8.57	4.72	6.80	8.57	6.80	8.57	9.65
A8	1.44	3.56	5.59	2.47	4.72	6.80	2.47	4.72	6.80	2.47	4.72	6.80	4.72	6.80	8.57
A9	7.61	9.32	10.00	7.61	9.32	10.00	8.28	9.65	10.00	8.28	9.65	10.00	8.28	9.65	10.00
A10	4.72	6.80	8.57	4.72	6.80	8.57	3.00	5.31	7.05	6.80	8.57	9.65	6.80	8.57	9.65
A11	7.61	9.32	10.00	4.72	6.80	8.57	6.80	8.57	9.65	6.80	8.57	9.65	8.28	9.65	10.00

Table 6. 49: Normalized matrix for factors challenging culture led urban sustainable development

	Economic challenges			Social challenges			Environmental challenges			Cultural conceptual challenges			Challenges to Operationalizing Culture in Local Development		
A1	0.17	0.21	0.31	0.25	0.27	0.32	0.26	0.29	0.36	0.25	0.27	0.32	0.51	0.64	0.92
A2	0.14	0.16	0.19	0.36	0.52	1.00	0.25	0.27	0.32	0.29	0.36	0.52	0.45	0.51	0.64
A3	0.17	0.21	0.31	0.29	0.36	0.52	0.25	0.27	0.32	0.26	0.29	0.36	0.45	0.51	0.64
A4	0.14	0.16	0.19	0.26	0.29	0.36	0.26	0.29	0.36	0.29	0.35	0.48	0.55	0.65	1.00
A5	0.15	0.17	0.21	0.25	0.27	0.32	0.25	0.26	0.30	0.25	0.26	0.30	0.43	0.45	0.52
A6	0.15	0.17	0.21	0.25	0.27	0.32	0.31	0.41	0.62	0.25	0.26	0.30	0.43	0.45	0.52
A7	0.17	0.21	0.31	0.29	0.36	0.52	0.29	0.36	0.52	0.29	0.36	0.52	0.45	0.51	0.64
A8	0.26	0.41	1.00	0.36	0.52	1.00	0.36	0.52	1.00	0.36	0.52	1.00	0.51	0.64	0.92
A9	0.14	0.16	0.19	0.25	0.27	0.32	0.25	0.26	0.30	0.25	0.26	0.30	0.43	0.45	0.52
A10	0.17	0.21	0.31	0.29	0.36	0.52	0.35	0.46	0.82	0.26	0.29	0.36	0.45	0.51	0.64
A11	0.14	0.16	0.19	0.29	0.36	0.52	0.26	0.29	0.36	0.26	0.29	0.36	0.43	0.45	0.52

Table 6. 50: Weighted normalized matrix for factors challenging culture led urban sustainable development

	Economic challenges			Social challenges			Environmental challenges			Cultural conceptual challenges			Challenges to Operationalizing Culture in Local Development		
A1	0.05	0.07	0.10	0.07	0.07	0.09	0.03	0.03	0.04	0.06	0.07	0.08	0.38	0.48	0.69
A2	0.05	0.05	0.06	0.10	0.14	0.27	0.03	0.03	0.04	0.07	0.09	0.13	0.34	0.38	0.48
A3	0.05	0.07	0.10	0.08	0.10	0.14	0.03	0.03	0.04	0.06	0.07	0.09	0.34	0.38	0.48
A4	0.05	0.05	0.06	0.07	0.08	0.10	0.03	0.03	0.04	0.07	0.09	0.12	0.41	0.49	0.75
A5	0.05	0.05	0.07	0.07	0.07	0.09	0.03	0.03	0.04	0.06	0.06	0.07	0.33	0.34	0.39
A6	0.05	0.05	0.07	0.07	0.07	0.09	0.04	0.05	0.07	0.06	0.06	0.07	0.33	0.34	0.39
A7	0.05	0.07	0.10	0.08	0.10	0.14	0.03	0.04	0.06	0.07	0.09	0.13	0.34	0.38	0.48
A8	0.08	0.13	0.31	0.10	0.14	0.27	0.04	0.06	0.12	0.09	0.13	0.25	0.38	0.48	0.69
A9	0.05	0.05	0.06	0.07	0.07	0.09	0.03	0.03	0.04	0.06	0.06	0.07	0.33	0.34	0.39
A10	0.05	0.07	0.10	0.08	0.10	0.14	0.04	0.05	0.10	0.06	0.07	0.09	0.34	0.38	0.48
A11	0.05	0.05	0.06	0.08	0.10	0.14	0.03	0.03	0.04	0.06	0.07	0.09	0.33	0.34	0.39

As mentioned in the previous section, the step deals with the calculation of fuzzy positive ideal solution (FPIS) and fuzzy negative ideal solution (FNIS). In doing so, Eq. 5-22 and 5-23 are used to calculate the FPIS (I^+) and FNIS (I^-). The results are provided in the following table.

Table 6. 51: FPIS and FNIS

FPIS (I^+)	0.31	0.27	0.12	0.25
FNIS (I^-)	0.04	0.07	0.03	0.06

Identification of FPIS (I^+) and FNIS (I^-) would help to further compute the distance of each alternative from FPIS and FNIS using Eq. 5-24 and 5-25. Table 6-50 displays the results of the aforementioned calculation.

Table 6. 52: Distance of each alternative from FPIS and FNIS

	d^+	d^-
A1	0.97	0.29
A2	0.98	0.28
A3	1.03	0.20
A4	0.94	0.34
A5	1.12	0.08
A6	1.10	0.10
A7	0.99	0.24
A8	0.73	0.69
A9	1.13	0.07
A10	1.00	0.23
A11	1.09	0.12

Finally, fuzzy TOPSIS requires the calculation of the closeness coefficient (CC_i) of each alternative using Eq. 5-26. The results are provided in table 6-51.

Table 6. 53: Closeness coefficient (CC_i) of each alternative

	CC_i	Normalized CC_i	Rankings
1. People-centered	0.23	0.11	3
2. Consensus on long-term vision	0.22	0.11	4
3. Comprehensive and integrated	0.16	0.08	7
4. Targeted with clear budgetary priorities	0.27	0.13	2
5. Based on comprehensive and reliable analysis	0.06	0.03	10
6. Incorporate monitoring, learning and continuous improvement	0.08	0.04	9
7. High-level government commitment and influential lead institutions	0.19	0.09	5
8. Building on existing processes and strategies	0.48	0.24	1
9. Effective participation	0.06	0.03	11
10. Link national and local levels	0.19	0.09	6
11. Develop and build on existing capacity	0.10	0.05	8

To overcome the challenges towards culture-led urban sustainable development, results suggest managers to primarily build on strategies for sustainable development which are not supposed to be considered as a new planning process but instead build on what already exists in the country.

In addition, managers are encouraged to develop and implement sustainable development strategies which are well established in their current budget processes to make sure those plans acquire necessary financial resources to cover designated objectives. More importantly, mangers must consider the inherent priorities while budget formulation. In addition, long-term positive impacts of approved strategies on disadvantaged and marginalized groups, such as the poor must be ensured.

329

Chapter 7

7.1 Discussion

Owing to the growing share of cultural goods, services, and intellectual property in world trade and the challenges to cultural diversity and identity associated with contemporary globalization, the field of culture has become increasingly prominent in cities' global development. Also, there is an increasing consciousness that the protection and promotion of cultural awareness are vital to universal human rights, fundamental freedoms, and securing ecological and genetic diversity. Urban development and political economy have paid unexpectedly little attention to local culture's complexities in urban sociology. A more detailed approach to local culture is needed in the urban political economy to understand the dynamics of growth in places, where local identity and concerns with culturally compatible development affect that process. This standpoint premises that sustainable development is only achievable if there are harmony and alignment between cultural diversity and that of social equity, environmental responsibility, and economic viability.

This thesis discusses the concept of creativity and creative hub and their possible role in developing Kish Island. Creativity is a crucial engineer for facilitating social harmony, sustainable human development, technological invention, and the scientific revolution, manifesting in human activities at different levels, from everyday life to advanced technology industries. Also, as a critical product of human culture and a tool for enriching culture, creativity has an extraordinarily intimate but complicated relationship with culture. Creativity, in a way, is inherent in the culture. "In other words, if culture is the "context," then creativity is the "object" that is likely to become a new "background" for "creativity (objects)" that is emerging and coming." Without the presence of culture, nobody can live well and be innovative. Creativity is profoundly rooted in all cultures, but cultures in various parts of the world have different meanings and qualities (Shao et al., 2019).

A creative hub concept is now a fundamental concept that needs extensive research. The creative hub includes essential features for residents' creativity to flourish. The concept of a creative hub and a creative place is a fluidized, networked, and open community that accepts people of all ages and backgrounds with new ideas, capital diversity, and a willingness to take risks (Landry, 1995). A creative hub is a place for the development of innovation, and this potential is enhanced by the creative industry, which is a desirable location for citizens' work and lives, as well as a beautiful tourist destination, and is capable of flourishing various economic sectors and the development of new research centres (Ebrahimi, 2007; Gharehbaglou et al., 2014).

This research aims to develop a contextualised framework for culture-led urban development through this new concept (creative hub) in Kish. In developing this framework, the literature review elaborates on culture as the fourth pillar of sustainable development and the social, economic, and environmental dimensions. Besides, this research examines both the culture-led sustainable development in terms of how it has evolved as a global plan and how the cultural arena can affect the construct of sustainable development. In this way, this thesis outlines a conceptual framework for sustainable urban development through the creative hub concept to facilitate more significant policy space and choice by developing countries such as Iran. This framework sets with a specific focus on the issues for Kish as free trade zone (FTZ) because of the priority this country has given to the concept of culture in sustainable development, especially in its current comprehensive plan of Kish for sustainable development (Dreis and Zomer, 2005) (see appendix A 21 for Kish master plan (2005-2025)).

Against this backdrop, the knowledge conferring the configurational components of culture-led urban sustainable development does not exist. The lack of knowledge conferring is especially the case for Iran, a developing middle eastern country where the knowledge of sustainable urban development is still in its infancy. Accordingly, this thesis aimed to develop and propose a contextualized framework for culture-led urban sustainable development in Iran. In doing so, an extensive review of the literature led to the identification and development of an initial list of all factors and challenges towards

331

culture-led urban sustainable development. Following the literature review, a panel of experts consisting of 10 experts from the Kish Island free zone were shaped to gauge their opinion regarding the factors mentioned above and challenges. Specifically, a fuzzy Delphi study was conducted to identify the verified version of factors and challenges towards culture-led urban sustainable development. The fuzzy Delphi study results were further applied in the fuzzy AHP method to identify the designated criteria' rankings and the relative sub-criteria. Since fuzzy AHP does not provide ultimate solutions to the decision problem; hence, fuzzy TOPSIS has been implemented to identify the relevance of 11 principles of sustainable urban development about each criteria affecting and challenging culture-led urban sustainable development. The study findings pattern can provide strategic solutions for managers and practitioners who are attempting to incorporate the concept of a creative hub in sustainable urban development.

7.2. Summary of findings

As a result of the literature review combined with the semi-structured interview results, the following table develops that outlines the factors and challenges towards culture-led sustainable urban development (Table 7.1).

Table 7. 1: Factors affecting, and challenging culture led urban sustainable development.

Critical factors	Social justice	Community empowerment
		Social participation
		Social mobility
		Social cohesion
	Ecological balance	Natural resources management
		Urban biodiversity
		Urban carrying capacity
		Urban ecosystem
	Economic (self-reliance)	Balanced economic growth
		Fair trade
		Equity
	Cultural sustainability	Cultural identities
		Tangible and intangible heritage
		Cultural industries
		Cultural diversity
		Cultural geography
		Continuous instability in the region
		Increasing power of neighbouring countries
		Domestic competition among islands for shared markets

Salient challenges	Economic Challenges	Being surrounded by non- inhabited islands	
		geographical proximity to politically unstable countries	
		High insurance rate in the Persian Gulf region	
		Limited cruise lines in the Persian Gulf region	
		Lack of investment advantages/ investment dissatisfaction	
		Lack of successful benchmarking processes	
	Social challenges	Unfulfilled local residents' needs and requirements	
		Inappropriate inhabitation patterns	
		Low level of social services	
		Lack of organizational training programs	
		Lack of managerial competence among regional managers	
		Inappropriate organizational approaches towards opportunities and potentials of the free zone	
	Environmental challenges	Lack of environmental optimization plan	
		Inconsistent management of environmental resources	
		Inappropriate land use	
		Inappropriate developmental and construction approaches	
		Inappropriate management of Endangered species	
	Cultural challenges	Cultural conceptual challenges	Fixed and timeless culture
			Inherited and changeless local identities
			Fixed local culture
			Culture as a priority
			Conditional investment in cultural infrastructures
		Challenges to Operationalizing Culture in Local Development	Target policies, legislative frameworks, and administrative reluctance
			Complex cultural features of the community
			Inadequacy of indicators, measurement, and evaluation of progress and impacts
			Underlying issues of citizen participation and overcoming segmentation

Specifically, four main factors, as manifested by social justice, Ecological balance, Economic (self-reliance), and Cultural approach to sustainability, were the main criteria for culture-led sustainable urban development. While Social justice incorporates four sub-criteria in terms of Community empowerment, social participation, Social mobility, and Social cohesion, the ecological balance is manifested by four sub-criteria, namely Natural resources management, Urban biodiversity, Urban carrying capacity, and Urban ecosystem. Moreover, its sub-criteria are determined by economic (self-reliance) in Balanced economic growth, Fairtrade, and Equity. Finally, Cultural sustainability is the

333

fourth important criterion for culture-led sustainable urban development divided into five sub-criteria: cultural identities, Cultural diversity, Tangible and intangible heritage, and cultural geography.

In addition to factors affecting culture-led sustainable urban development, this thesis also focuses on the factors that challenge the aforementioned development. As a result, Economic Challenges, Social challenges, Environmental challenges, and Cultural challenges were the main criteria challenging the culture-led sustainable urban development. Economic Challenges are identified in terms of its nine associated sub-criteria, namely Continuous instability in the region, Increasing power of neighbouring countries, Domestic competition among islands for shared markets, Being surrounded by non- inhabited islands, geographical proximity to politically unstable countries, High insurance rate in the Persian Gulf region, Limited cruise lines in the Persian Gulf region, Lack of investment advantages/ investment dissatisfaction, and Lack of successful benchmarking processes. Besides, Social challenges are manifested by Unfulfilled residents' needs and requirements, Inappropriate inhabitation patterns, Low level of social services, Lack of organizational training programs, Lack of managerial competence among regional managers, and Inappropriate organizational approaches towards opportunities potentials of the free zone. While Environmental challenges are distinguished via Lack of environmental optimization plan, Inconsistent management of environmental resources, Inappropriate land use, Inappropriate developmental and construction approaches, and Inappropriate management of Endangered species; cultural challenges are divided into two main sub-criteria: Cultural conceptual challenges and Challenges to Operationalizing Culture in Local Development.

The results were particularly synthesized with the results of the fuzzy Delphi study. According to the results, all main factors, as manifested by an extensive review of relative literature and interview analysis, gained majority consensus (i.e., weight ≥0.7), implying that all main criteria were assessed as important by experts. Therefore, they were all kept for further study analysis. In addition to main factors, relative sub-criteria associate with each main criterion was subject to experts' assessment. The results

334

revealed that all sub-criteria are deemed acceptable (i.e., weight≥0.7). The following part explains the configuration components of questionnaires (result one).

7.1.1. Result 1: identifying the configurational components of questionnaires (fuzzy Delphi)

There are two sets of questionnaires rated to affect sustainable urban development in Kish and the challenges to achieving this sustainability in Iranian contexts based on the critical literature review and interview analysis.

According to the fuzzy Delphi results, all main factors that affect sustainable development as manifested by an extensive review of relative literature and interview analysis gained majority consensus (i.e., weight ≥0.7), implying that all main criteria were assessed as important by experts. In addition to main factors, relative sub-criteria associate with each main criterion was subject to experts' assessment. The results revealed that all sub-criteria are deemed acceptable (i.e., weight≥0.7).

This research also aims to identify factors that challenge the culture-led sustainable urban development. Therefore, a questionnaire containing several assessments regarding identified challenges and their corresponding sub-criteria was submitted to expert panel members for their assessment. The results show that all main challenges in developing a framework for sustainable development and their immediate sub-criteria were rated as important (i.e., weight ≥0.7) as most consensus was reached among all expert panel members.

After identifying the configurational components of factors affecting and challenging culture-led sustainable urban development through a careful determination of each criterion's level of importance, the next phase requires the collection of decision makers' opinions regarding each criterion's relative importance over the other (result two).

7.1.2. Result two: Decision makers' opinions about the relative importance of each factor over the other (fuzzy AHP):

The Fuzzy AHP method is used to identify each factor's relative importance over the other.

➢ Identifying priorities among factors affecting culture led sustainable urban development:

According to the results, sustainable development using the creative hub concept is primarily based on developing the cultural approach to sustainability (cultural sustainability factors) (0.345). This approach is followed by improved economic (self-reliance) (0.280) among residents, enhanced ecological balance (0.207), and better social justice (0.166) in the local community. In all, four main criteria manifested by ecological balance, economic factors, cultural sustainability factors, and social justice are significant components of sustainable development (table *7.2)*. Also, the implementation of fuzzy AHP helped to identify the priorities among sub-criteria related to all aforementioned main criteria to developed and promote culture-led urban sustainable development. As shown in chapter 6, all sub-criteria's global weight was calculated to compare sub-criteria priorities regardless of their immediate criteria. The results confirmed the significance of equity (0.120), balanced economic growth (0.102), management of natural resources (0.089), cultural industries (0.746), and cultural diversity (0.718) as the top five predictors of culture-led urban sustainable development.

Table 7. 2: Criteria and sub-criteria local and global weights

Criteria weights	Sub-criteria	Local weights	Global weights
Social justice *(0.1667)*	Community empowerment	0.283	0.0471761
	Social participation	0.2876	0.04794292
	Social mobility	0.1715	0.02858905
	Social cohesion	0.258	0.0430086
Ecological balance *(0.2078)*	Natural resources management	0.4312	0.08960336
	Urban biodiversity	0.2224	0.04621472
	Urban carrying capacity	0.1744	0.03624032
	Urban ecosystem	0.1719	0.03572082
Economic (self-reliance*)* *(0.2803)*	Balanced economic growth	0.366	0.1025898
	Fair trade	0.205	0.0574615
	Equity	0.429	0.1202487
Cultural factors (**0.3452***)*	Cultural identities	0.2036	0.07028272

336

	Tangible and intangible heritage	0.1666	0.05751032
	Cultural industries	0.2162	0.07463224
	Cultural diversity	0.2082	0.07187064
	Cultural geography	0.2054	0.07090408

> Identifying priorities among factors challenging the culture led sustainable urban development:

As shown in Chapter 6, in addition to understanding the priorities among factors affecting culture led sustainable urban development, this study, using fuzzy AHP to understand the inherent priorities among salient factors that challenge the aforementioned development. According to the results, all four distinct categories of challenges share significant impact towards creative hub development. Specifically, economic challenges (0.312) are the most significant factors affecting creative hub development. This is followed by cultural challenges (0.298), social challenges (0.272) and environmental challenges (0.118) (table 7.3).

Table 7. 3: criteria and sub criteria local and global weights

Criteria weights	Sub-criteria	Local weights	Global weights
Economic Challenges (0.3124)	Continuous instability in the region	0.1579	0.0493
	Increasing power of neighbouring countries	0.1468	0.0458
	Domestic competition among islands for shared markets	0.0903	0.0282
	Being surrounded by non- inhabited islands	0.0801	0.0250
	geographical proximity to politically unstable countries	0.0943	0.0294
	High insurance rate in the Persian Gulf region	0.1289	0.0402
	Limited cruise lines in the Persian Gulf region	0.0829	0.0258
	Lack of investment advantages/ investment dissatisfaction	0.0843	0.0263
	Lack of successful benchmarking processes	0.1345	0.0420
Social challenges (0.2722)	Unfulfilled local residents' needs and requirements	0.1307	0.0355
	Inappropriate inhabitation patterns	0.1170	0.0318
	Low level of social services	0.1483	0.0403
	Lack of organizational training programs	0.1732	0.0471
	Lack of managerial competence among regional managers	0.2263	0.0615
	Inappropriate organizational approaches towards opportunities and potentials of the free zone	0.2045	0.0556
Environmental challenges (0.1175)	Lack of environmental optimization plan	0.2262	0.0265
	Inconsistent management of environmental resources	0.3313	0.0389

	Inappropriate land use	0.1013	0.0119
	Inappropriate developmental and construction approaches	0.1480	0.017
	Inappropriate management of Endangered species	0.1931	0.0226
Cultural challenges (0.2979)	Cultural conceptual challenges	0.246	0.0732
	Challenges to Operationalizing Culture in Local Development	0.754	0.2246

Also, this study identified the priorities among sub-criteria related to all factors that challenge the culture-led urban sustainable development. According to the results, the most challenging step to be taken for Culture led sustainable urban development would be the Operationalization of Culture in Local Development (0.2246) as manifested through Target policies, legislative frameworks, and administrative reluctance, Complex cultural features of the community, Inadequacy of indicators, measurement, and evaluation of progress and impacts, and Underlying issues of citizen participation and overcoming segmentation.

This challenge is mainly followed by cultural conceptual challenges (0.0732) in terms of Fixed and timeless Culture, Inherited and changeless local identities, fixed local Culture, Culture as a priority, and Conditional investment in cultural infrastructures .

However, the results further demonstrate that Lack of managerial competence among regional managers (0.0615) would also act as a significant challenge associated with Culture led sustainable urban development in the context of the Iranian free zone. There are Other challenges such as continuous instability in the region (0.0493), lack of organisational training programs (0.0471), Increase power of neighbouring countries (0.0458), and low level of social services (0.0403).

In all, the fuzzy AHP calculation results conferring challenges towards Culture led sustainable urban development in Kish as one of the Iranian free zones revealed that all identified challenges are contributing a significant share of impact to challenge the aforementioned development. Hence, they must be noticed, and remedial solutions must be offered to mitigate such challenges' negative impacts.

7.1.3. Result three: Identifying priorities of alternative solutions affecting culture led sustainable urban development (fuzzy TOPSIS)

After identifying the weights of each criteria affecting and challenging culture-led sustainable urban development through fuzzy AHP, this thesis looks at collecting expert panel members' opinions regarding each alternative solution's relative performance (11 principles for strategic planning) concerning each criterion using linguistic terms. As discussed earlier in chapter four, fuzzy TOPSIS is used for this purpose. Fuzzy TOPSIS is based on the concept that the ultimate alternative being chosen must have the shortest possible distance from the positive ideal solution (PIS) while having the farthest distance from the negative ideal solution (NIS).

Ultimately, 11 principles of sustainable urban development were considered to assess whether and how they can optimize the application of each factor affecting culture-led urban sustainable development while attenuating the impact of factors challenging culture-led urban sustainable development. (Strategies for sustainable development's DAC guidelines, OECD, 2001).

1. People-centered.
2. Comprehensive and integrated
3. Consensus on long-term vision.
4. Based on comprehensive and reliable analysis
5. Targeted with clear budgetary priorities.
6. Building on existing processes and strategies
7. Incorporate monitoring, learning and continuous improvement.
8. High-level government commitment and influential lead institutions
9. Develop and build on existing capacity.
10. Effective participation
11. Link national and local levels

The results suggest that mangers must identify the priorities based on a comprehensive analysis of the present situation while such analysis requires reliable and credible

information on changing environmental, social, and economic conditions, pressures and responses, and their correlations with strategy objectives and indicators (0.110). In addition, managers are expected to incorporate monitoring, learning and continuous improvement (0.109) based on clear indicators and built into strategies to steer processes, track progress, distil and capture lessons, and signal. Moreover, the results endorsed the importance of effective participation of board members (0.108) to open up debate to new ideas and sources of information via decentralization of authorities and ease of communication.

7.1.4. Result four: Identifying priorities among alternatives to cope with the challenges towards culture led sustainable urban development (fuzzy TOPSIS).

This thesis, in addition to capture experts' opinions regarding the most appropriate alternative solutions to leverage factors affecting culture led sustainable development, all expert panel members were asked to express their judgment regarding the appropriateness of alternative solutions to cope with challenges towards culture-led sustainable urban development using linguistic terms.

To overcome the challenges towards culture-led urban sustainable development, results suggest managers primarily build on strategies for sustainable development that are not supposed to be considered a new planning process but instead build on what already exists in the country (0.24). This strategy would enable convergence, complementarity and coherence between different planning frameworks and policies.

In addition, managers are encouraged to develop and implement sustainable development strategies fully integrated in existing budget processes to ensure that plans have the financial resources to achieve their objectives. Specifically, the formulation of budgets must be informed by a clear identification of priorities (0.13). Moreover, the strategies must ensure long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor (0.11).

It is important to be mentioned that all other principles are important and should use for purpose of strategic planning for purpose of sustainable development in Kish. These

are the six most appropriate alternative solutions to leverage factors affecting and challenging culture led sustainable development .

7.2. Practical implications

Iran's involvement in free zones can be traced back to the 1970s when it first proposed Kish Island's possible establishment as a flagship free trade zone in the Persian Gulf.

Since the conclusion of the war with Iraq and economic rehabilitation in the late 1980s, Iran has followed a strategy of attracting foreign investment and promoting regional trade by giving preferential status to the so-called "Free Trade-Industrial Zones" (FTZs) and "Special Economic Zones" (SEZs). To date, six FTZs (Kish is one) and sixteen SEZs have been set up throughout Iran. The FTZs are geographically placed for their future foreign ties and have an eye on markets outside Iran and SEZs.

Due to the comparatively recent past of several of Iran's zones, serious study into these zones' efficacy and effects are still not finalized. However, the proof is available highlights a composite image and a daunting beginning for many zones. For example, Kish Island, the most popular of Iran's zones, is renowned for its growth as a hub of domestic commerce and trade rather than an export platform.

The current study about sustainable development in Kish as FTZ in the Persian Gulf in Iran is conceptually broken into Four constituent parts: environmental sustainability, economic sustainability, and socio-political sustainability, and cultural sustainability. Requirements for health and safety (social factors) and environmental topics in the world are proof for anyone. Besides, Energy (economic) has played an important role in economic development worldwide, especially in developing countries. However, the integration of culture into sustainable urban development plans still not known for decision-makers in Kish.

Also, the Possibility, planning, and implementation of any project or plan, which include even technical or economic advantage, if they have any disadvantages for purpose sustainability are not recommended. Thus, the national and international standards

341

(strategies) are generated to overcome cultural, economic, environmental, and social sustainability challenges.

These findings can be used by the supreme council of Iran's free trade, industrial and special economic zones as a reference for Kish to overcome the micro and Marco challenges for sustainable development in Kish, and also can be used in the improvement of the comprehensive plan of Kish. Based on this research result, the management system in Kish can be successful in sustainable development if it used all the parameters such as Environmental, economic, social, and cultural factors. Also, they should integrate cultural factors such as cultural diversity and heritage into economic activities, environment, and society. The following sections explain the factors affecting and challenging sustainable development in Kish. Also, help decision-makers in Kish develop the best strategies to overcome these challenges.

7.2.1. Practical implications of factors affecting culture led urban sustainable development.

The following sections illustrate the priorities of factors that affect culture-led sustainable development in Kish:

7.2.1.1. Cultural sustainability:

Based on the AHP results explained above, cultural sustainability is the most important factor for sustainable development. The priorities of sub-criteria related to cultural sustainability are cultural industries followed by cultural diversity, cultural geography, cultural identities, and tangible and intangible heritage (explained in detail in literature). The following section explains how culture as the most important factor can affect economic growth, social cohesion, and stability, and meanwhile can be effective for environmental sustainability:

> ➤ If the government prioritises cultural industries, cultural tourism, and traditional livelihoods, culture can be a platform for economic development in Kish. Micro-enterprises, including cultural goods and services, frequently require little capital investment. Furthermore, cultural infrastructure and institutions, including

342

universities, museums, cinemas, and cultural centres, are massive revenue generators and job creators.

➢ Culture can be a device for social stability in Kish if Kish decision-makers start paying attention to a shared interest in cultural diversity, which fosters positive and constructive engagement. In the meantime, keep in mind that culture helps communities reconstruct their interrupted livelihoods and restoring psychological well-being in all of its forms. Furthermore, as one of the world's oldest populated areas, cultural heritage in Iran creates wealth and builds social cohesion by mobilising communities around its treatment and support. Cultural festivals promote interaction.

➢ If decision-makers pay attention to values and beliefs, culture can be a vehicle for environmental sustainability in Kish. Cultural values, local awareness, and traditional environmental management practices can all be valuable tools in achieving ecological sustainability. Furthermore, biological, and cultural diversity are intricately linked to interdependent and mutually reinforcing interactions between humans and nature. Also, Kish's decision-makers should remember that acquired conventional expertise and community environmental management practises are central to sustainability and essential for the place's and people's survival. Kish, as a new island in the process of urbanisation, will embrace their interdependence by engaging local communities with diverse cultural identities in conservation initiatives (UNESCO, 2010). In addition to all of these issues, there are various environmental challenges in Kish, such as rapid coastal growth, land-based pollution, oil, and gas production, and shipping, all of which can be resolved through positive practises rooted in local cultures that value a balance between the natural and human worlds.

7.2.1.2 Economic balance:

As previously stated, economic sustainability (self-reliance) is a second critical aspect for long-term development in Iran. Preferences for self-reliance sub-criteria include balanced economic growth and fair trade.

Durable economic development is dependent on the three-dimensional development described below (Angelescu and Stanescu, 2004, pp.19-20):

1. Economic: intended to foster creative thinking and expand humankind's scientific growth potential.

2. Social: To reduce the disparities among social classes (assuring that all people with different classes have equality of chances and access to education, culture, information, and the possibility to create tangible welfare).

3. Ecological: logical capital utilisation, consumption, and utilisation efficiency add value to long-term advantage in achieving sustainable economic development in the long run, thus further making a contribution to repletion timespan for utilised assets and extending the life cycle of the used resource base.

"According to Simon Kuznets, economic growth often consists of growing the potential of a country to produce more and more different economic products by cutting edge technology for development and structural and ideological adaptability (Muler, 2008), this way demonstrating the macroeconomic essence of the concept (on economic, ecological, and social dimension)" (Ruttan and Hayami, 2011, p. 82).

Economic growth is based on the direct relationship between resource input and production and GDP output, as well as various measures of growth efficiency, such as the rational consumption of allocated resources on industry sectors and the efficiency in qualitative distribution and redistribution in domains that excel and represent a competitive/comparative advantage against other countrified *domains. The* sustainable economic growth model, chosen as a tie from the moment in which the Great Recession is founded on the durable economic growth model, is a reform of the durable economic

344

growth. To achieve sustainable economic growth, decision-makers in Kish need to follow this new model.

The sustainable economic growth model is based on obtaining economic growth by approaching a national or union economic system through the same mechanisms and levers found in a corporation but shifted at the level of national work levers.

This way, an ultra-efficient approach to pollution and social security issues can be obtained. The main innovation is achieving long-term economic stability and social welfare progress, assuring harmonic welfare between the economy, society, nature, and technology.

Decision-makers in Kish with different political groups in Iran must agree that sustainable development results cannot be yielded in the short run through different economic growth models such as traditional, durable, and sustainable economic models. All these economic models have been configured and developed to achieve long-term economic growth. The acquired result suggests increased consumption of resources and excessive utilisation of production factors in the short run.

Moreover, for durable and sustainable economic growth, there is a need to quantify through a result, but the traditional economic model's used metrics are logical but not complete. As a result, in the long run, Kish decision-makers will require new methods for evaluating, possibly through a framework based on performance indicators from a global business that can be converted to the macroeconomic environment for assessing sustainable economic growth.

7.2.1.3 Environmental balance:

As previously stated, environmental sustainability is a third critical aspect for sustainable development in the Iranian context. Natural resource management is the most important sub-criteria for ecological balance, accompanied by urban biodiversity, urban carrying capacity, and urban ecosystem.

Natural resource management is the most important sub-criterion in this thesis, according to the AHP analysis, followed by urban diversity, urban carrying capacity, and
345

urban ecosystem. The section below is a description of each sub-criteria for achieving sustainable environmental development:

➢ **Natural resource management:** The efficient usage of natural resources such as soil, water, minerals, climate, oceans, forestry, and wild flora and fauna is natural resource management. Integrating these resources does provide ecosystem services that improve human life quality. Natural resource management offers critical assistance in both consumptive and public-good services. Nutrient recycling, soil productivity, climate cycles, and air and water purification are all aided by ecological processes. Furthermore, ecological processes promote nutrient recycling, soil productivity, climate cycles, and air and water purification. Natural resource management (NRM) is a significant subset of sustainability issues. Agriculture, water allocation, and tourism are examples of such activities. NRM is concerned with conserving biodiversity, the control of animals and pest plants, and soil and water quality preservation. Also, NRM claims to support watershed or catchment management practices and landscape-scale management strategies (Lemos and Agrawal, 2006). This thesis demonstrates the importance of greater integration, coordination, and attention to the various topics of environmental and natural resources. Traditional environmental policies developed incrementally over long periods to solve simple problems are generally unsuited to current multi-scalar environmental challenges.

➢ **Urban biodiversity:** It refers to the variety of organisms found in urban areas and the ecological environment in which they live. It reacts to both anthropogenic and biogeographic influences, with the latter having a significant impact. Biodiversity is often used to assess an environment's health since a healthy ecosystem may support a diverse life range. Researchers can discover toxic air and unclean water issues due to a lack of biodiversity. As a result, Kish's decision-makers should pay more attention to this issue. The City Biodiversity Index (CBI) is one such index (also known as the Singapore Index). This index was created in

2008 and has been used to compute the biodiversity threshold of cities worldwide, including Lisbon, Montreal, and Helsinki (Ansgroupglobal, 2018). This index can help organise decision-free zones in Kish. A city (Kish) can use the index by comparing its environment to its key components. Native biodiversity in cities, ecosystem services, governance, and biodiversity management are among the index's key components. There are many indicators for all of these components, such as "water quantity regulation," "biodiversity budget allocation," and "proportion of protected natural areas." The CBI has also shown urban planners where more work needs to be done regarding sustainable urban biodiversity (see appendix A 14 for more details about CBI). Furthermore, it is critical to determine what biodiversity outputs are required early in the development process as they will influence later phases of evolution and, as a result, the costs and viability of a project. The following factors related to urban biodiversity should indeed be regarded when designing a new urban development plan:

- Create biodiversity corridors within developments that connect to their surroundings.
- Building sites that are appropriate for shaping the streets and infrastructure to the landscape should be planned.
- Where roadways cut through wildlife habitat, traffic-calming models may be beneficial.
- Prevent the fragmentation of existing vegetation and habitat.
- Wherever feasible, watercourses should be preserved, and vegetation along waterways should be preserved or replanted (Tyne, 2000; Van Room, 2005).
- Limit impervious surfaces to reduce the impact of development on aquatic biodiversity.
- Using indigenous species, maintenance costs, resources, and effort can be decreased.
- Vegetation should be water sensitive, non-invasive, and a sensible mix of natives and exotics; all biodiversity (not just trees and grass) should be

347

considered; and urban consolidation minimise the influence of cities on the natural countryside as well as biodiversity and natural environments inside of cities. As a result, innovative approaches to increasing urban biodiversity must be considered (Whitford and Handley, 2001; Daniels and Tait, 2005).

➢ **Urban carrying capacity** (UCC) is a critical conceptual underlying principle that directs Kish and the Iranian government in supporting sustainable urban development. As main aspects assessing an urban area's UCC, there are five major UCC components. Environmental impacts and natural resources, infrastructure and urban services, public perception, institution setting, and society supporting capacity are the five main UCC components (Wei et al., 2015). (more details in section 2.6.3.3). Besides, several main principles can aid in the selection of appropriate UCC metrics:

- Scientific accuracy, operability, hierarchy, completeness, and dynamic
- Rich implications to the state of present conditions and link ultimate impacts with human activities
- Providing policy implications with a forecasting function as to trend and proactive measures
- Providing a testing ground for validating related theories with underlying factors.
- A small and manageable set of indicators is desirable for an effective assessment framework.
- A high degree of sensitivity to the underlying conditions where they exist.
- Easy to quantify and reliably measurable.
- Uniformity and consistency of indicators across cities
- Good data availability

Furthermore, either for qualitative or quantitative evaluations of UCC circumstances, a set of benchmarks, standards, and guidelines is required. Thus, establishing benchmarks is a critical step in monitoring, measuring, and adjusting UCC by aligning urban development goals with available resource distributions. The choice of benchmarks

348

appears to be subjective, and it has a significant impact on the presentation and precision of predicting outcomes.

The recommended/acceptable/optimal UCC thresholds vary significantly across cultures. In the Iranian context, there are three sources for recognising standards:

1. The first one is Kish's Five-Year Plan. It serves as a blueprint for Kish's development, officially announcing the 1399-1404 goals, strategies, overall emphasis, and development paths.

2. The second is the outcome of a study on sustainability conducted by the Tehran Urban Planning & Research Centre (TUPRC).

3. The third method is to conduct reviews of academic studies that include benchmarks applicable to Iranian cities (Wei et al, 2015).

> **Urban ecosystems**: are those where residents live in high densities or where developed facilities occupy a significant proportion of the area. (Pickett et al., 2001). Various factors affect urban ecosystems, such as population density, overall population, proximity or distance between urban dwellings, land-use patterns, and employment outside the primary sector that determine the urban areas between countries or states (Gómez-Baggethun and Barton, 2013). Verma and Raghubanshi (2018) identified two significant challenges in applying sustainability monitoring programs for a healthy ecosystem in urban areas: the first one is selecting relevant indicators, and the second one is about their application. This type of monitoring requires repeated assessments and policies tailored to local conditions. Governance and planning play an essential role in determining urban ecosystems' nature, including education, urban design and planning, environmental laws, and their implementation (Kapoor et al., 2020).

In Iran, drought, increased population, war, air pollution, climate change, industrial and agricultural production, sanctions, inefficient water natural resource use, and lack of enforcement of existing environmental regulations have contributed to its current urban ecosystem crisis. Insufficient water resources force people to migrate, put pressure on

others, and drain Aquifers. Air pollution has made living conditions in Iran's cities increasingly challenging. Wind erosion is also furthering agricultural land desertification, creating greater production demand on remaining arable areas. On the other hand, Iran's environmental future can positively influence the collaboration of the public, private and non-profit sectors. Awareness and education and more significant financial and human resources will be necessary to tackle the problem. So, having ecosystem management is necessary for Iran because It can provide healthy and sustainable environments for both natural systems and communities (Tahbaz, 2016).

7.2.1.4 Social justice:

As mentioned above, social justice is a fourth important factor for sustainable development in the Iranian context. Sub-criteria's priorities related to social justice are social participation, community empowerment, social cohesion, and social mobility.

Those who work for social justice in Iran seek to redistribute power to improve individuals' well-being through equal access to healthcare, justice, and economic opportunity. While these organisations have contributed to the push for social justice, the proactive changes required frequently fall to public administrators. In the Iranian government, non-profit organisations, institutions, public health, and regulatory bodies shape social justice policies and procedures.

Such public officials must balance the need for social change and the realities of economic and political systems before attempting to reinforce the system. The public administrator in Kish must understand that social justice progress necessitates cleverly designed public policies. Effective policies in today's highly polarised political environment also necessitate a clear understanding of political, economic, and social systems and a thorough understanding of any intervention's legal and social consequences. Furthermore, the public administrator in Kish should spend attention to social justice values such as the citizen's equal value, the absolute opportunity to meet their basic needs, the need to spread opportunities and life chances as widely as possible, and finally, the requirement to reduce and, where possible, eliminate unjustified inequalities. Iran's government should also consider the possibility that social

350

justice progress will be slow. This effort will compensate by reducing inequality and improving people's lives. The following section explains the social justice principles that the Iranian government should take into account:

> **Access to resources i**s a basic tenet of social justice. Sadly, societies have had varying access levels in many social areas due to socioeconomic status, education, employment, and environment. Education, for instance, is related to greater job opportunities, higher-paying job opportunities, and economic advancement. As a result, equal and fair education is limited when access to quality. It feeds the cycle of unemployment, low-wage occupations, and poverty, restricting access for subsequent generations. By levelling the playing field in terms of resource access, underserved communities' access to resources increases, affecting health, education, and the community**.** In terms of public policy, this could imply free public education for all levels of people, removing the financial challenges caused by economic disparities in the educational system. As a result, the government could incorporate equal and fair funding allocation for vital resources, thereby improving students' quality of education in vulnerable populations.

> **Equity:** To accomplish social justice and receive equitable opportunities for success, it is critical to provide equitable resources that concentrate on the particular needs of the community and their people. Endorsing for justice may imply endorsing for policies that address systemic barriers. Enforcing inclusive education policies and increasing the number of educators available to students based on their needs would be critical first steps.

> **Diversity:** As public administrators become more aware of the differences between individuals and groups, they will be better able to design policies that address the needs of all. These policies would assist leaders in recognising, accepting, and confronting all existing barriers. Recognizing diversity and embracing cultural diversity will also broaden opportunities and access. Discrimination occurs when a person can be decreased by enacting laws that

make it illegal to discriminate on the basis of ethnicity, gender, gender identity, religion, marital status, sexual orientation, age, physical capacity, and a variety of other human attributes.

➢ **Participation:** Individual people must have the resources and a platform to participate in the development of policies that affect their well-being if social justice is to be achieved. When well-intentioned public officials fail to bring diverse perspectives to the table, they can create exclusionary policies. In powerful government positions, a small group of people often create policies. Public administrators can avoid this by closely examining who will be involved in decision-making, purposefully inviting advocates for underrepresented groups, and enabling them to apply for long-term and long-lasting positions.

➢ **Human rights:** The most important concept is that of human rights. Human rights apply to all people, regardless of socioeconomic status. Human rights and social justice are inextricably linked, and neither can exist in isolation. These rights are embodied in laws that guarantee free speech, voting rights, criminal justice protections, and other fundamental liberties. Furthermore, social justice is an umbrella term that encompasses a wide range of issues in society, including access to healthcare, reproductive rights, access to a good education, employment discrimination, voting discrimination, and disability discrimination. Women's empowerment is empowerment because women in local cultures are in charge of interpreting cultural forms, practises, and meanings and passing them on to future generations (women's empowerment is a salient issue to achieve the Millennium Development Goals).

The best way to put these five principles into action depends on the circumstances. Cooperation, as one principle, may, for instance, prioritise a time so that a better understanding of the circumstance can be taken. All principles are important and should not be overlooked in the pursuit of social justice. It is critical to recognise that the ideal of perfect social justice will almost certainly never be realised. There is no finish line, but things improve when society values the five principles. Inequalities are reduced, and

people's lives are transformed with each victory, no matter how small (Kent State University Official Website, 2020). After identifying the priorities of factors that affecting sustainable development, the following section explains the priorities of challenges for sustainable development in Kish based on AHP results.

7.2.2 Practical implications of factors challenging culture led urban sustainable development.

In addition to understanding the priorities among factors affecting culture-led sustainable urban development, this study aims to understand the inherent priorities among salient factors that challenge the development, as mentioned above. According to the results, all four distinct categories of challenges significantly impacting hub development. Specifically, economic challenges (0.312) are the most significant factors affecting creative hub development. This challenge is followed by cultural challenges that are defined in conceptual and operational challenges (0.298), social challenges (0.272), and environmental challenges (0.118) (table 7.3).

Among the economic challenges, continuous instability in the region, increasing power of neighbouring countries, and domestic competition among islands for the shared market are the most important ones (see table). In addition, among the social challenges, the lack of managerial competence among regional managers, inappropriate organisational approaches towards opportunities and potential of a free zone, and lack of organisational training programmes are the most important ones based on AHP results. Among environmental challenges, inconsistent management of environmental resources, lack of environmental optimisation plan, and inappropriate management of endangered species are the most important ones. Finally, the cultural challenges are defined in operational challenges and conceptual challenges. The operational challenges are more important than conceptual challenges based on the results. Among the cultural conceptual challenges, culture is a barrier to real development, belief that everything about cultural traditions and practices Is good and must be safeguarded, and conditional investment in cultural infrastructures are the most important ones. Furthermore, among the operational challenges, limitations due to target policies, legislative
353

frameworks, and administrative reluctance, the complexity of the community's cultural features, and inadequacy of indicators, measurement, and evolution of progress and impacts are the most important ones.

7.2.3 Find the best strategy for sustainable development and overcome challenge.

A strategy for sustainable development and overcoming challenges could be defined as a coordinated set of engaging and continually improving processes for assessment, discussion, capacity-building, scheduling, and investment that integrates society's economic, social, environmental, and cultural goals whilst also seeking trade-offs where feasible. This strategy is also supported by a set of principles (Table 7.4).

Upon determining the weights of each criterion affecting and challenging culture led sustainable urban development using fuzzy AHP, it is critical that the Iranian government understands the priorities of alternatives (principles) affecting culture led sustainable urban development, as well as the priorities among alternatives (principles) to deal with the challenges to culture led sustainable urban development. Fuzzy TOPSIS is used for this reason.

A review of the relevant literature demonstrated that 11 principles that can be considered as possible reasonable options to leverage factors that influence culture-led urban sustainable development while coping with the identified challenges (based on DAC standards and requirements in the OECD) (see appendix A9 and A10). The following table (7.4) provides a detailed explanation of the previously mentioned principals:

Table 7. 4:principles for strategy for sustainable development

Principles	Explanation
People-centred.	Assuring that disadvantaged and marginalised groups, such as the homeless, benefit in the long run.
Consensus on long-term vision.	Strategic planning should be based on a long-term strategy with a defined timeline that is agreed upon by all stakeholders. Both political parties must be committed to a long-term strategy.

Comprehensive and integrated	Wherever possible, strategies should aim to combine economic, social, and environmental goals.
Targeted with clear budgetary priorities	- To ensure that strategies have the financial resources to accomplish their goals, a sustainable development policy must be completely incorporated into current budget processes. - A common understanding of goals must drive the budget formulation.
Based on comprehensive and reliable analysis	- Priorities must be defined based on a thorough examination of the current situation. - This type of study necessitates accurate and reliable data on evolving environmental, social, and economic environments, pressures, and responses and their connections to strategic goals and indicators.
Incorporate monitoring, learning and continuous improvement	To steer processes, track progress, distil and capture lessons, and signal when a change of direction is needed, monitoring and assessment must be based on simple metrics and integrated strategies.
High-level government commitment and influential lead institutions	Such commitment – on a long-term basis – is essential if policy and institutional changes occur, financial resources are to be committed, and there to be clear responsibility for implementation.
Building on existing processes and strategies	A strategy for sustainable development should not be viewed as a new planning method but rather to build on what is already in place in the country, allowing for convergence, complementarity, and coherence among various planning frameworks and policies.
Effective participation	- The inclusion of many people in the discussion helps to open it up to new ideas and knowledge sources. - Decentralized authorities, the private sector, civil society, and oppressed groups can all be involved. - Effective participation necessitates effective communication and information systems, focusing on transparency and accountability.
Link national and local levels	The key strategic principles and directions, such as economic, fiscal, and trade policy, legislative adjustments, foreign affairs, and external relations, should be set at the national level. However, thorough preparation, execution, and monitoring should be done at the decentralised (local) level, with appropriate resource and authority transfers.

355

Develop and build on existing capacity	It is critical to evaluate the political, institutional, human, science, and financial ability of potential policy, business, and civil society participants at the start of a strategy process.

Reference: Strategies for sustainable development's DAC guidelines, OECD, 2001

Managers must take priority alternatives impacting culture-led urban development based on thorough analysis of the current situation, which includes valid and reliable information on changing environmental, social, and economic situations, stresses, and responses, and also their inferences with strategic objectives and indicators, according to the fuzzy TOPSIS results (0.110). Managers must also integrate monitoring, learning, and quality improvement (0.109) into their techniques, which must be based on coherent benchmarks, direct processes, track progress, distil and draw lessons, and message. Besides that, the findings supported the significance of effective board member participation (0.108) in broadening the discussion to include fresh concepts and information assets through decentralisation of power and ease of communication.

Furthermore, the most suitable viable alternatives to leverage factors that affect culture-led sustainable development in the Iranian context are, first and foremost, strategies that are centred on credible and accurate analysis, and secondly, strategies that incorporate monitoring, learning, and continuous improvement. Furthermore, strategies should focus on active involvement by decision makers and other stakeholders.

To tackle the obstacles of culture-led urban sustainable development, the findings indicate that managers mainly focus on sustainable development strategies that are not intended to be regarded as a new development process but rather build on what already exists in the country. This would allow for convergence, complementarity, and coherence among various planning frameworks and policies.

Managers are also urged to design and execute sustainable development strategies that are fully integrated into existing budget processes to ensure that plans have the financial resources to achieve their goals. Moreover, policies must make sure that disadvantaged and marginalized communities, such as the homeless, benefit in the long run.

Other principles for developing strategy for effective urban development are also important and should be considered in decision making. These findings are based on the opinions of specialist panel members on the relative performance of each alternative in relation to each criterion for the purpose of strategic planning for sustainable development. The sections that follow examine Kish's current strategies and propose new approaches to overcoming challenges:

7.2.3.1 Current strategy in Kish

There are different standards that are currently used in Kish for the purpose of urban development such as ISO 50001(energy management system) , ISO 14001 (environmental management) , OHSAS 18001(Occupational Health and Safety Assessment Series) and HSE-MS which is structured by Oil and Gas production (OGP) (a guide to select the appropriate tools for improve HSE culture) . Also, the EHSE strategy (Environmental, Health, Safety & Energy strategy) should meet the above standards. All these standards and strategies are international models, but their main goal is to match the requirement of energy management (economic) in Health, Safety (social) and Environmental Management. In addition, review of literature shows that Kish has good executive management by using EHSE strategy to develop sustainable environmental, social, and economic projects, and overcome to related challenges. The current strategy identifies circumstances where certain tools are unlikely to be effective and may even be counter-productive within a given EHSE culture.

This thesis looks at current strategies in Kish and tries to match them with the new model for sustainability. In September 2015, the United Nations General Assembly adopted the "2030 Agenda for Sustainable Development", with 17 ambitious, universal goals to transform our world. (explained in detail in literature), and mention that no development can be sustainable without including culture. So, the Iranian government should update its management system and integrate culture into social, economic, and environmental activities for sustainable development.

The following section suggest new strategy that integrate culture in environment, economic, and society for purpose of sustainable development.

357

7.2.3.2 A strategy suggested for culture-led sustainable urban development in Kish.

As noted in the earlier section, the current strategy used in Kish is EHSE. Based on this strategy, sustainable development will be guided by Health and Safety (social), Energy (economic), and Environmental needs. This strategy is based on research and analysis of the requirements of ISO 50001, ISO 14001, OHSAS 1801, and the main HSE Standards (see appendix A 18, A 19, A 20 for more details about these strategies). This study aims to use this strategy and the four components of sustainable development goals (culture, economic, environmental, and social factors) to create the best strategy in Kish to resolve the current challenges regarding sustainable development. Therefore, this thesis suggests the new strategy called the CEES (cultural, economic, environmental, and social strategy) for sustainable development.

Based on a new sustainability model, culture is an essential pillar in the sustainability model. So, coordination and integration with other plans, strategies, and actions in the FTZ are necessary to affect the FTZ's purposes and duty for the purpose of sustainable development. Also, it is important to know that it is the first research that integrates culture into the current strategy in Kish. Also, the literature review about Kish illustrates a lack of information about current cultural development in this Island (Padash et al., 2011, 2007; Jackson, 1997).

This suggested strategy (CEES) has four main updates than the old version of the strategy in Kish:

> ➢ First and foremost, this strategy regards culture as a major element of long-term development in all of its aspects. Via the tangible and intangible heritage, creative industries, and different artistic expression facets, culture contributes to the economy, social stability, and environmental protection. Culture is a repository of knowledge, definitions, and principles that pervade all aspects of our lives, and it explains how humans live and interact on both global and regional scales. Some of the cultural factors important for long-term growth are

discussed further (Rivière, 2009). Language, culture, education, family traditions, decision-making structures, and hierarchical processes are examples of social practises (social-cultural integration).

➤ Second, this strategy considers social factors in a broader context, stating that social sustainability depends on health and safety and certain variables such as socioeconomic participation, community empowerment, social cohesion, and social mobility (explained in detail in literature).

➤ Third: this strategy focus on non-oil based economy (economy that is not dependent on oil revenues) because there are lots of other industries in Kish such as electronic industries, metal and car manufacturing industries, mineral and non-metallic industry, packing industries, garment and textile industries that can be used for purpose of economic sustainability, and integrate culture in to these industries can help Kish to have balanced economic growth, and more sustainability (Padash et al., 2011; Dreis&Zomer ,2020).

➤ Fourth, the current strategy (EHSE) for sustainable development in Kish, as explained in section 7.2.3.1, follows ISO 14001 (environmental management rules) for achieving ecological balance and protecting Kish Island's coastlines. In addition, as discussed earlier in this thesis, the role of culture for sustainable development moves into a framing, contextualising and mediating mode that can balance all three of the existing pillars and guide sustainable development between economic, social, and ecological pressures and needs. Based on this fact, having sustainable environmental development in Kish depends on how production cultures and consumption cultures are altered and adapt to the changing socio-political, ecological, and technological context. Therefore, this strategy focus on eco-cultural construct as a critical factor for sustainable development.

In the meantime, globalisation, with its ever-increasing social and economic interdependence, provides development opportunities while also posing a huge challenge to local communities, livelihoods, and identities. Conflicts and wars, endemic

poverty, economic collapse, rapid urbanisation, and environmental destruction have made individuals more prone to change and the effects of natural disasters, resulting in the gradual deterioration of local cultures. As UNESCO (2009) suggests, culture in all of its forms is critical to addressing these major issues through the key roles mentioned below:

- Culture, as both a driver of development and a desirable outcome of continued development, provides solutions that respond to local specificities.
- culture's role in economic growth, human development, and other areas.
- as a repository of environmental knowledge,
- Inclusionary principles and global ethics enable only the most marginalised groups and individuals to take part in and benefit from development processes.
- Culture is a symbolic power to bring order and predictability to communities worldwide.

As mentioned before about the suggested strategy (CEES), this thesis looked at the social sustainability from a broader perspective and discussed that social sustainability is not only dependent on health and safety. It mentions that social justice is a fourth important factor for sustainable development in the Iranian context (based on AHP result). The priorities of sub- criteria related to social justice are social participation followed by community empowerment, social cohesion, and social mobility (explained in detail in literature).

The Iranian government should attention to values of social justice: such as equal worth of all citizens, their equal right to be able to meet their basic needs, the need to spread opportunities and life chances as widely as possible, and finally the requirement that we reduce and where possible eliminate unjustified inequalities (IPPR, 1994). Therefor this strategy that is called CEES defines the sustainable development from 4 dimensions (Cultural factors, Economic. Environmental, and social factors). Kish island should follow this strategy to find sustainable solutions whist balancing its purposes in the CEES ways.

7.2.3.3 Suggested Strategy' *s principles*

The Kish Island's management should define principles to achieve the strategy for sustainable development. There are 11 principles for strategic planning for sustainable development (extracted from DAC guidelines for sustainable development OECD, 2001). All of these principles are important and should be considered by strategic planner in Kish, However, the most important ones are selected based on the questionnaire results from expert panel in Kish (by using fuzzy TOPSIS).

- Managers must identify the priorities based on a comprehensive analysis of the present situation, which necessitates accurate and reliable data on evolving environmental, social, and economic circumstances, stresses, and responses and their links to strategic objectives and indicators.

- Managers are required to integrate tracking, learning, and quality improvement based on specific benchmarks and designed into strategies to direct processes, track progress, distil and capture lessons, and signal.

- Effective participation of board members can open up the debate to new ideas and information sources via decentralization of authorities and ease of communications.

- Managers primarily build on sustainable development strategies that are not supposed to be considered a new planning process but instead build on what already exists in the country. This would enable convergence, complementarity, and coherence between different planning frameworks and policies.

- Managers are encouraged to develop and implement sustainable development strategies fully integrated into existing budget processes to ensure that plans have enough financial resources to achieve their objectives. Specifically, the formulation of budgets must be informed by a clear identification of priorities.

- The new strategy must ensure long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor.

In addition to these principles, the decision-makers in Kish need to modify the current strategic planning process and move it in the direction of a- culture-led sustainable

development strategy. This includes identification, coordination, and continuous improvement of mechanisms for balancing cultural, economic, environmental, and social concerns of mullite stakeholders (see section 2.13.2.1). The way these mechanisms are coordinated must be consistent with the principles discussed above. The following section explains mechanisms that can apply to strategic planning in Kish for sustainable development: (E&P,1994; OECD,2001).

1.Leadership and commitment: It discusses top-down engagement and business culture, all of which are critical to the system's success. Kish Island (KI) Management should establish and maintain an organisational culture that supports the CEES, based on:

- Belief in the desire of the Kish Island to enhance CEES efficiency.
- motivation to enhance one's own CEES results.
- Individual responsibility and transparency for CEES success are accepted.
- Participation and engagement in CEES production at all levels.
- Commitment to a good CEES.

2. CEES policies and strategic objectives: It discusses the company's intentions, principles of conduct, and aspirations with respect to cultural identities, self -reliance, ecological balance, and social justice. The Kish Island's management identify and record its CEES policies and strategic objectives, ensuring that they:

- are in line with the parent company's policies.
- are relevant to the Kish island's activities, products, and services and their implications for society, the environment, culture, and the economy.
- are compatible with the rest of Kish Island's policies.
- are equally relevant to the rest of Kish Island's policies and objectives.
- are implemented and preserved at all levels of the organisation.
- is open to the public.
- apply its own responsible standards in the absence of laws and regulations.
- Allow the Kish Island to set CEES goals that commit the island to continuing to improve CEES efficiency.

362

3.CEES's organization, resources, and documentation

It deals with the organisation of individuals, resources, and documents in order to achieve good CEES results. The Kish Island management should define, record, and communicate the roles, responsibilities that are necessary to implement the CEES performance, including but not limited to:

- allocation of resources and staff for the production and implementation of the CEES management system.
- Take steps to ensure that CEES policy is followed.
- Obtaining, interpreting, and distributing information on CEES issues.
- Keeping track of disciplinary steps and opportunities for CEES improvement.
- Recommendation, implementation, or provision of frameworks for enhancement and verification of their effectiveness.
- Maintaining activity control as corrective actions are enforced.
- Control of emergencies.

4.CEES Risk Evaluation and management

This section focuses on identifying CEES hazards, assessing risks for all operations, goods, and facilities, and developing risk-reduction strategies. The essential steps of risk management:

• Identify hazards and consequences

• Establish screening guidelines

• Document significant hazards and effects, as well as any relevant legal specifications • Evaluate hazards and effects

• Implement selected risk mitigation measures

• Identify and assess risk mitigation strategies

 • Set detailed goals and success standards

5.Planning

The Kish Island should keep plans for achieving CEES goals and performance standards within its overall work programmer. These plans should include the following:

- A detailed summary of the goals.
- At each relevant role and organisational level, assign responsibility for setting and achieving goals and performance requirements.
- How they would be accomplished.
- Specifications for resources
- Development time frames.
- inspiring and empowering employees to adopt a CEES culture that is appropriate.
- processes for providing personnel with feedback on CEES results.
- Processes for recognising successful individual and team CEES results.
- Assessment and follow-up mechanism.

6.Implementation framework and monitoring

This framework specifies how activities should be carried out and tracked, as well as how disciplinary measures should be taken if appropriate. According to CEES policy, activities and tasks should be carried out in accordance with procedures and work instructions established during the planning stage.

7.CEES Auditing and reviewing

As a routine part of business control, the Kish Island should maintain procedures for conducting audits to determine:

- Whether or not CEES management framework components and procedures are performed efficiently and in accordance with planned arrangements.
- The company's CEES strategy, goals, and success standards are met by the CEES management system.
- Compliance to applicable legal standards.

364

- Identification of areas for development, contributing to improved CEES management over time.

Besides, these mechanisms can improve the management system in Kish. To achieve culture-led sustainable development, strategic planners need to add these mechanisms to the current management system in Kish. This update management system (CEESMS)can be used from these mechanisms to improve CEES performance. It also describes situations in which such tools (which cover a wide range of processes) are unlikely to be successful and, in certain cases, counterproductive within a CEES culture.

Furthermore, this strategy's main goal is to introduce a new element (culture) into the current Kish (EHSE) strategy to demonstrate that the existing strategic document is essential to the future of one of Iran's FTZs. It shows how the FTZ's plans, tactics, and activities are coordinated and integrated. It explains how the FTZ's goals and associated duties can be met through sustainable development and improved CEES efficiency. This strategy is also the first study to demonstrate cultural influences in one main subject model. Furthermore, Kish strategic planners should use the CEES model because Kish Island has a history of finding long-term solutions while balancing the purpose and duty in an EHSE manner.

In conclusion, besides these steps for developing, coordinating, and improving new strategy (CEES), the following proposed measures can support culture's role in an updated sustainable development strategy that strategic planners can pay attention to them:

1) Integration of culture into governance:

- Include culture in the creation, assessment, and implementation of development in order to promote inclusive, equitable, and sustainable development.

2) Capitalizing on the cultural Sectors that contribute to Economic Development and could reduce poverty:

- Promoting cultural tourism, cultural and creative industries, cultural institutions, and culture-based urban revitalization as powerful economic subsectors that create good jobs, stimulate local growth, and encourage entrepreneurship.
- Culture-led economic development should take into account the protection of cultural assets, which are often fragile and represent a one-of-a-kind and non-renewable resource.

3) Fostering the environmental sustainability by capitalizing on traditional information.

4) Including traditional expertise and practises in sustainable environmental plans, as well as looking for synergies between traditional environmental practises and high-tech solutions.

5) Culture as a Tool for Promoting Social Cohesion

6) Promoting intercultural dialogue in order to harness social harmony and thus create a development-friendly environment.

7) Using the arts to promote social cohesion and entrepreneurial development, especially among youth and in post-conflict and post-disaster situations (UNESCO's Thematic Think Piece, 2012).

7.3 Contextualise framework for culture-led urban development in Kish

After identifying the configurational components of factors affecting and challenging culture-led sustainable urban development through a careful determination of each criterion's level of importance, and secondly, identifying the factors affecting and challenging culture-led urban development in Kish, and finally identifying the principles and mechanisms for balancing cultural, economic, environmental, and social concerns of decision-makers in Supreme council of Free trade and special Economic zone in Kish, the following figure illustrates the suggested contextualised framework for culture-led

366

urban development through the concept of a creative hub in the Iranian context. The priority of the four concepts (main criteria) are shown by (I, II, III, IV), and the numbers show the most important factors in each dimension (sub-criteria) (1 the most critical sub-criteria for each concept in the Iranian context) (author's own). Also, this figure shows the priorities of factors that challenging culture-led urban development that is showed by (A, B, C) (A the most important one based on collected data from expert panels in Kish) (see table 7.2 and 7.3 for details of results from questionnaires and interview). Besides, identification of principles that can be considered as possible options to leverage factors influence culture-led urban sustainable development while coping with the identified challenges, and also identification, coordination, and continuous improvement of mechanisms for balancing cultural, economic, environmental, and social concerns of mullite stakeholders are crucial for developing this framework. The priorities of these principles and the mechanism that can modify the current strategic planning process and move it in the direction of a culture-led sustainable development strategy are shown in sections (7.2.3.2 and 7.2.3.3). These findings are based on a study of the literature and an interpretation of the results of interviews and questionnaires obtained from Kish expert panels.

I. Cultural sustainability factors:
1.Cultural industries
2.Cultural diversity
3.Cultural geography
4.Cultural identities
5.tangible and intangible heritage

II. Economic:
1.Equity
2.Balanced economic growth
3.Fair trade

III. Environment:
1.Natural resource management
2.Urban biodiversity
3.Urban carrying capacity
4.Urban ecosystem

IV. Social justice:
1 Social participation
2Community empowerment
3.Social cohesion
4.Social mobility

B:Cultural challenges

A:Economic Challenges

D:Environmental challenges

C:Social Challenges

Suggested Strategy (CEES)

Modify the current strategic planning process and move to the direction of culture-led development

A Framework for Culture-led Sustainable development through the concept of creative hub in Kish

Figure 7.1: A contextualised framework for culture-led urban development through a creative hub concept in the Iranian context (Kish). The priority of factors that affecting culture-led urban development (main criteria) are shows by (I, II, III, IV), and the numbers show the most important (sub-criteria) (1 the most important sub-criteria). The priorities of factors that challenge culture-led urban development are shown by (A, B, C, D) (A the most important one). Sub-criteria's priorities for challenges are explained in the table (7.3). The priorities of principles that can be considered as possible options to leverage factors influence culture-led urban sustainable development while coping with the identified challenges and the mechanism that can use to modify the current strategic planning process and move it in the direction of a culture-led sustainable development strategy are shown in sections (7.2.3.3 and 7.2.3.3)*. These findings are based on a study of the literature and an interpretation of the results of interviews and questionnaires obtained from Kish expert panels(Author's own).

7.4 Theoretical contributions

The main significant contribution of findings to the theory would be the identification and prioritization of factors affecting as well as challenging the culture-led urban sustainable development. Specifically, this thesis added to the creative hub literature by determining cultural sustainability, economic (self-reliance), social justice, and ecological balance as main indicators of culture-led urban sustainable development framework, respectively in Iranian context. In particular, the proposed decision tree (figure n) demonstrated the breakdown of sub-criteria related to each criterion affecting the culture-led urban sustainable development.

In addition, the current study adds to urban sustainable development knowledge base by identifying and prioritizing the significant challenges towards culture-led urban sustainable development. Specifically, economic challenges (0.312) are the most significant factors affecting creative hub development. This is followed by cultural challenges (0.298), social challenges (0.272) and environmental challenges (0.118).

Moreover, the current study adds to urban sustainable development knowledge base by identifying priorities of alternative (11 principles for strategic planning management) that affecting culture led sustainable urban development .The results suggest that mangers must identify the priorities based on a comprehensive analysis of the present situation while such analysis requires credible and reliable information on changing environmental, social and economic conditions, pressures and responses, and their correlations with strategy objectives and indicators (0.110). In addition, managers are expected to incorporate monitoring, learning and continuous improvement (0.109) based on clear indicators and built into strategies to steer processes, track progress, distil and capture lessons, and signal. Moreover, the results endorsed the importance of effective participation of board members (0.108) to open up debate to new ideas and sources of information via decentralization of authorities and ease of communications.

Also, the current study adds to urban sustainable development knowledge base by identifying priorities among alternatives to cope challenges towards culture led sustainable urban development. To overcome the challenges towards culture-led urban
369

sustainable development, results suggest managers to primarily build on strategies for sustainable development which are not supposed to be considered as a new planning process but instead build on what already exists in the country. This would enable convergence, complementarity and coherence between different planning frameworks and policies.

In addition, managers are encouraged to develop and implement sustainable development strategies which are fully integrated in existing budget processes to ensure that plans have the financial resources to achieve their objectives. Specifically, the formulation of budgets must be informed by a clear identification of priorities. Moreover, the strategies must ensure long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor.

Based on these findings, the current study, particularly, adds to urban sustainable development knowledge by suggestion new strategy that is called Culture-Economic-Environment-Social (CEES) strategy. CEES modelling, which has been detailed under the practical implications section, will overarch strategic document and central to the Kish's future. This strategy can coordinate and integrate with other plans, strategies, and actions in the Kish to affect the FTZ purposes and duty. It indicates how the Kish purposes and associated duty will be delivered through 4 pillar sustainable development model. This strategy is a new update for the current management system in Kish because all current strategies in Kish are based on the old sustainability model (three pillars) and do not integrate culture into environmental, economic, and social development.

7.5 Conclusions

Turning the page into the twenty-first century, all countries especially developing country such as Iran are faced with a new era of immense opportunity as well as uncertainty. This story is being rewritten at a speed and on a scale that was unimaginable in the previous century. Global shifts have generated new economic, political, environmental, and social landscapes with increasingly marked inequalities. Policies, strategies, assumptions, and tendencies that had previously proved reliable have lost resonance, and there is an urgency to adjust to new realities.

This research was conducted in a quest for developing a contextualised framework for culture-led urban development through the concept of creative hub in Kish (as Free trade zone (FTZ)) in Iran. The objective of the theory of "creative hub" is developing strategies for achieving a new model for integrate culture to economic, environment and society for purpose of sustainable development.

The impact of culture on creativity is typically manifested in three ways: (1) people from different cultures or settings have distinct implicit and/or explicit conceptions of creativity; (2) individuals from different cultures, particularly those from individualist and collectivist cultures, show differences in preferred creative processes and creative processing modes. For example, usefulness seems more important than novelty in the East, whereas novelty seems equally important as usefulness, if not more so, in the West) when they are engaged in creative endeavours; (3) creativity may be assessed using different measures based on culture-related contents or materials, and findings are accurate only when culturally appropriate or culturally fair measures are used (Shao et al, 2019).

There are significant aspects of culture crucial for sustainable development are as follows:

➢ Farming, diet, hygiene, childbirth, construction materials, natural resource use, and environmental protection are examples of practices and processes of inhabitation embedded in local knowledge accumulated over time.

371

- Traditional livelihoods focused on cultural forms, and local practices, with the opportunity to pass down skills and expertise from generation to generation.

- Buildings and architecture, literature, art, crafts, dance, music, storytelling, and films are examples of distinct cultural styles and creative expressions.

- Global ethics promote human rights, equality for all persons and groups, including gender equality, and democracy while celebrating cultural pluralism and dialogue.

- Individuals and groups benefit from information dissemination because it fosters creativity, innovation, and intellectual growth while avoiding harmful practices that violate global ethics.

- They are safeguarding and nurturing distinctive cultural forms and the mechanisms that create them (UNESCO,2010).

Additionally, several key drivers of action can help achieve sustainable urban development through the concept of a creative hub, such as:

- Establish a territorial approach to urban growth focused on strategic planning based on culture.

- Applying what was learned from the past's creative practices to create more compact communities focused on mixed urban growth.

- Encouraging urban redevelopment through the growth of creative and cultural industries, facilities, and events

- enhancing public spaces' quality and increasing access to them by culture.

- Investing in cultural infrastructure and sectors, capacity-building programs, and emerging technology to boost cities' cultural competitiveness.

- encouraging the renewal and rebirth of cultural heritage through sustainable cultural tourism that benefits local communities and individuals.

- Reinforcing the notion of culture as an aspect of identity and dialogue to help communities fight inequalities and aid education and social cohesion.

- Ensuring everyone's cultural rights and respecting cultural diversity, which aids in the development of inclusive cities.

- Highlighting the role of culture in urban resilience strategies and
- developing indicators and follow-up tools to assess and quantify culture's contribution to urban development.

A literature review is used as a source to develop the initial version of the conceptual framework. Afterwards, content analysis of interviews and a fuzzy Delphi study is used to validate the elements of the questionnaires that are filled by expert panel in Kish , and a second version was developed after adding important factors and related challenges that are extracted from questionnaire survey for sustainable urban development in Kish into the heart of the framework to find best strategic plan to overcome to these challenges (contextualised framework).

It has been more than two decades that the concept of sustainability has been gained a basic role in the global, regional, national, and local development plans (urban design and planning). Therefore, studies have tried to transform sustainability into principles and rules of urban design and planning. Nevertheless, urban planners' scientific and professional society in Iran has not achieved a properly formulated set of principles and rules.

This framework will aid decision makers in the strategic planning process for culture-led urban sustainable projects in Kish. Culture-led development essentially means creating the social and economic conditions through a proper strategic coordination for the purpose of sustainability.

For this purpose, it is necessary to consider the range of actions of city government and other institutions. So, this thesis looks at global report to examine the contribution of culture to urban sustainability from two analytical angles: look at different case studies in different parts of world (global level), and key thematic insights about role of culture in urban development. The results from this study, along with following case studies provide concrete guidelines for Iranian governments to integrate culture into urban policies as unique resource for urban regeneration and innovation, and social, economic, and environmental development.

Following this process, several key messages and recommendations have emerged based on local and regional trends over time and informed by a thorough reflection on current challenges and opportunities. These recommendations first address overarching strategic needs in terms of sustainable development outcomes, each of them affirming that safeguarding and promoting culture is a precondition to achieve sustainable urban development.

7.6 Research Limitations and future research directions

The results of research studies should be interpreted in light of its limitations. This is also the case for the current study. Above all, this study was conducted in Iran, a developing country where the knowledge of sustainable urban development based on the concept of creative hub is still in its infancy. This would imply a limitation to generalise the results of the study findings to other regions in Iran. Particularly, it is important to underline that this research is based on the experiences and judgments of experts in Kish that they do not involve in such a project before and is the first one in the literature that offers culture -led urban regeneration framework in Iranian contexts.

Accordingly, it seems plausible to replicate the rigorous method of the current study in other countries with distinctively different cultures to broaden the knowledge pertaining to culture led sustainable urban development while updating the proposed framework if necessary. This shows the need for empirical analysis to make essential update in this framework.

It is assumed that the conceptual framework proposed in this research can be the foundation for a generalised sustainable planning framework in culture-led urban regeneration projects. It is worth remembering that the context of sustainability differs according to geographical location, and it is important to highlight that a customised model of a planning framework is the one that achieves sustainability in the projects.

Moreover, a test and retest of reliability are recommended to be conducted on the local community to measure the change in knowledge and sustainability perception levels after knowledge empowerment.

In addition, the current thesis's challenges are primarily based on national and regional challenges faced by Kish free zone. However, the Kish management system should pay attention to global challenges such as endemic poverty, conflicts and wars, rapid urbanization, the financial crisis, and environmental degradation have rendered people all the more vulnerable to change and to the impacts of natural disasters and have led to the progressive loss of local cultures. This issue is an important issue to integrate culture into different projects such as cultural industries, cultural tourism, and traditional livelihoods. Once challenges are identified, Kish's decision-makers can find the best strategies to overcome these challenges.

Finally, the strategies proposed to foster developmental factors and cope with challenges towards culture led sustainable development are primarily based on 11 universally accepted principles. However, there might be other approaches including fuzzy SWOT analysis which may identify the most appropriate strategies for culture led urban sustainable development from a different perspective (i.e., strength, weaknesses, opportunities, and threats). Accordingly, future research studies are encouraged to advance the current knowledge conferring appropriate configuration of strategies for culture-led sustainable urban development using fuzzy SWOT analysis and similar exploratory research methods.

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Appendix A

A 1) The sustainable development agenda (SDGs)

The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The 17 Goals were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals.

Today, progress is being made in many places, but, overall, action to meet the Goals is not yet advancing at the speed or scale required. 2020 needs to usher in a decade of ambitious action to deliver the Goals by 2030 (2030 agenda for sustainable development)

Goal 1 : No poverty : Economic growth must be inclusive to provide sustainable jobs and promote equity

Goal2: The food and agriculture sector offers key solutions for development , and is central for hinger and poverty eradication

Goal 3: Good health and wellbeing : Ensuring healthy lives and promoting the well being for all ages is essential sustainable development

Goal 4: Quality education : obtaining a quality education is the foundation to improving people's lives and sustainable development .

Goal 5: Gender equity : gender equity is not a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world

Goal 6: Clean water and sanitation : clean, accessible water for all is an essential part of the world that we want to live in

Goal 7: Affordable and clean energy : energy is central to nearly every major challenge and opportunity

Goal 8 : Decent work and economic growth : Sustainable economic growth will require societies to creative the conditions that allow people to have quality jobs.

Goal 9 : Industry, innovation and infrastructure : investments in infrastructure are crucial to achieving sustainable development

Goal 10 : Reduced inequalities : to reduce inequities, policies should be universal in principle, paying attention to the needs of disadvantages and marginalized populations.

Goal 11 : sustainable cities : there needs to be a future in which cites provide opportunities for all , with access basic services , energy, housing , transportation, and more .

Goa1 12 : Responsible consumption and production : Responsible production and consumption

Goal 13 : Climate action : Climate change is a global challenge that affects every one, every where .

Goal 14 : Life below water: careful management of this essential global resource is a key feature of a sustainable future .

Goal 15 :Life on land : Sustainably manage forests, combat, desertification, halt and reserve land degradation, halt biodiversity loss

 Goal 16: Peace , justice, and strong institutions : Access to justice for all, and building effective, accountable institutions at all levels.

Goal 17 : Partnerships : Revitalize the global partnership for sustainable development (UNESCO,2015).

A2) Goal 11: Make cities inclusive, safe, resilient, and sustainable (UN SDGs-11)

Cities are hubs for ideas, commerce, culture, science, productivity, social development and much more. At their best, cities have enabled people to advance socially and economically. With the number of people living within cities projected to rise to 5 billion people by 2030, it is important that efficient urban planning and management practices are in place to deal with the challenges brought by urbanization. (UN SDGs -11) includes:

11.1 By 2030, ensure access for all to adequate, safe, and affordable housing and basic services and upgrade slums.

11.2 By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated, and sustainable human settlement planning and management in all countries.

11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

11.7 By 2030, provide universal access to safe, inclusive, and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities (report of the interagency and expert group on sustainable development goal indicators (IAEG-SDGs), 2016)

408

A 3) United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)

The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) was adopted by the General Assembly on Thursday, 13 September 2007, by a majority of 144 states in favour, 4 votes against (Australia, Canada, New Zealand and the United States) and 11 abstentions (Azerbaijan, Bangladesh, Bhutan, Burundi, Colombia, Georgia, Kenya, Nigeria, Russian Federation, Samoa and Ukraine).

It establishes a universal framework of minimum standards for the survival, dignity and well-being of the indigenous peoples of the world and it elaborates on existing human rights standards and fundamental freedoms as they apply to the specific situation of indigenous peoples (Assembly, 2007).

A4) **Universal Declaration of Human Rights (UDHR)** is a milestone document in the history of human rights. Drafted by representatives with different legal and cultural backgrounds from all regions of the world, the Declaration was proclaimed by the United Nations General Assembly in Paris on 10 December 1948 (General Assembly resolution 217 A) as a common standard of achievements for all peoples and all nations. It sets out, for the first time, fundamental human rights to be universally protected and it has been translated into over 500 languages. (United Nations General Assembly ,1948).

A5) Millennium Development Goals (MDGs)

The United Nations Millennium Development Goals are eight goals that all 191 UN member states have agreed to try to achieve by the year 2015. The United Nations Millennium Declaration, signed in September 2000 commits world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. The MDGs are derived from this Declaration, and all have specific targets and indicators. The MDGs have been superseded by the Sustainable Development Goals.

The Eight Millennium Development Goals are:

- to eradicate extreme poverty and hunger;

- to achieve universal primary education;

- to promote gender equality and empower women;

- to reduce child mortality;

- to improve maternal health;

- to combat HIV/AIDS, malaria, and other diseases;

- to ensure environmental sustainability; and

- to develop a global partnership for development. (United Nations Millennium Declaration,2000).

A6) Agenda 21, the Rio Declaration on Environment and Development, and the Statement of principles (27 principles) for the Sustainable Management of Forests were adopted by more than 178 Governments at the United Nations Conference on Environment and Development (earth Summit) (UNCED) held in Rio de Janeiro, Brazil, 3 to 14 June 1992. Agenda 21 is a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment.

The full implementation of Agenda 21, the Programme for Further Implementation of Agenda 21 and the Commitments to the Rio principles, were strongly reaffirmed at the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa from 26 August to 4 September 2002 (UNCED,1992).

A 7) Earth Summit (1992): United Nations Conference on Environment and Development (UNCED), byname Earth Summit, conference held at Rio de Janeiro, Brazil (June 3–14, 1992), to reconcile worldwide economic development with protection of the environment. The Earth Summit was the largest gathering of world leaders as of 1992, with 117 heads of state and representatives of 178 nations in all attending. By means of treaties and other documents signed at the conference, most of the world's nations nominally committed themselves to the pursuit of economic development in

410

ways that would protect the Earth's environment and non-renewable resources (Johnson,1994).

A 8) World Summit (2002): Johannesburg Summit 2002 - the World Summit on Sustainable Development(WSSD) - brought together tens of thousands of participants, including heads of State and Government, national delegates and leaders from non-governmental organizations (NGOs), businesses and other major groups to focus the world's attention and direct action toward meeting difficult challenges, including improving people's lives and conserving our natural resources in a world that is growing in population, with ever-increasing demands for food, water, shelter, sanitation, energy, health services and economic security (Hens,2005).

A9) OECD: The Organisation for Economic Co-operation and Development (OECD) is an international organisation that works to build better policies for better lives. Its goals are to shape policies that foster prosperity, equality, opportunity, and well-being for all. Also, establishing evidence-based international standards and finding solutions to a range of social, economic, and environmental challenges (OECD,2001). Also, the OECD supports the United Nations in ensuring the success of the 2030 Agenda for Sustainable Development by a strong track record in policy work with developed and developing countries, and measures and systems for monitoring performance.

A10) The OECD Development Assistance Committee (DAC) is the leading international forum for bilateral providers of development co-operation. Its main objective is to promote development co-operation and other policies to contribute to sustainable development.

A 11) Hangzhou Outcomes:

The participants gathered in Hangzhou on the occasion of the International Conference on "Culture for Sustainable Cities" (10-12 December 2015), wish to express their gratitude to the Hangzhou Municipal People's Government for generously providing an excellent platform to formulate recommendations for the implementation of the 2030

411

Agenda for Sustainable Development regarding the role of culture in sustainable development and the elaboration of an effective "New Urban Agenda" to be adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III, Quito, Ecuador, 17-20 October 2016) (Hangzhou Outcomes, 2015) .

A 12) What is Habitat III?

Habitat III is a bi-decennial conference (1976, 1996 and 2016) focused on addressing the challenges associated with urbanization.

In 1976, governments started to recognize the challenges posed by the rapid growth of our cities. As a result, the United Nations held its first Conference on Human Settlements in Vancouver, Canada in 1976. The outcome of this conference was the Vancouver Declaration, which stated that "adequate shelter and services are a basic human right" and that "governments should assist local authorities to participate to a greater extent in national development".

This declaration was accompanied by the Vancouver Action Plan, which contained 64 recommendations for national action including the requirement for shelter, infrastructure, and services to be planned and integrated into development. A further outcome was the establishment of a dedicated UN organization two years after the conference, which is known today as UN-Habitat.

Two decades later the United Nations held its second Conference on Human Settlements, Habitat II, in Istanbul in 1996. The outcome of the conference was the Istanbul Declaration, which endorsed the universal need for adequate shelter and the need to achieve sustainable human settlements in an increasingly urbanizing world. The conference also represented a significant landmark for the international municipal movement.

Habitat III (took place from 17-20 October 2016 in Quito, Ecuador.) will be the first major global conference since the Sustainable Development Goals (SDGs) 2030 Agenda entered into force in January 2016, and will enable a discussion on the opportunities that urbanization brings to the implementation and achievement of the SDGs. Habitat 412

III will also assess progress made on the recommendations made at Habitat II. Habitat III will seek to reinvigorate a global commitment to sustainable urbanization and will focus on how to implement the New Urban Agenda (see next appendix) and realise sustainable urban development and housing solutions in our cities over the next 20 years.

A 13) The New Urban Agenda is a document which will be formally adopted at the Habitat III conference. The document provides the global standards for the achievement of sustainable urban development to transform the way we construct, manage, operate, and live in our cities. It will guide the efforts around urbanization for a wide range of actors including nation states, city and regional leaders, funders of international development, the private sector, the United Nations programmes, and civil society for the next 20 years.

The New Urban Agenda guiding principles are:

Leave no one behind, ensure urban equity and eradicate poverty	Achieve sustainable and inclusive urban prosperity and opportunities for all	Foster ecological and resilient cities and human settlements

• Providing equitable access for all, to physical and social infrastructure
  ➢ Adequate housing and shelter at the canter of the agenda
  ➢ Public spaces as an enabler of socio-economic function of the city
• Recognizing and leveraging culture, diversity and safety in cities
• Enabling and strengthening participation and enhancing liveability and quality of life.
	• Enhancing agglomeration benefits of urbanization and avoiding land speculation,
	• Fair and equitable employment creation, productivity, competitiveness, diversification and
	• Innovation through a sustainable economic development
		• Driving sustainable patterns of consumption and production,
		• Protecting and valuing ecosystems and biodiversity, and
		• Adapting to and mitigating the impact of climate change while increasing urban systems resilience to physical, economic, and social shocks and stresses

The **key components** of the New Urban Agenda that will provide direction for the successful transformation of our cities are:

Urban Rules and Regulations: The outcomes in terms of quality of urban settlement depend on the set of rules and regulations that are framed and made effective. Strengthening urban legislation, providing predictability and directive to the urban development plans to enable social and economic progression.

413

Urban Planning and Design: Strengthen urban and territorial planning to best utilize the spatial dimension of the urban form and deliver the urban advantage.

Municipal Finance: Establishing effective financing frameworks, enabling strengthened municipal finance and local fiscal systems in order to create, sustain and share the value generated by sustainable urban development (Charles, 2016).

A 14) The City Biodiversity Index (also known as the Singapore Index) is an index created in 2008 that is used by cities around the world such as Montreal, Lisbon, and Helsinki, to measure their biodiversity. The Index works on a scoring system, and a city can score up to 92 points based on how well it matches the index's criteria. To use the index, a city checks its environment against the index's core components: native biodiversity in the city, ecosystem services, and governance and management of biodiversity. There are indicators within each of these core components such as "proportion of protected natural areas", "regulation of quantity of water", and "budget allocated to biodiversity". Each indicator can score a maximum of four points. The city measures itself against the index on an annual basis, using its first year's results as a baseline from which they can compare and, if necessary, improve. As more cities have adopted this index, there has also been a rise in living walls around the world. This is because the CBI has shown city planners that more work needs to be done to help local biodiversity, yet previous building means that natural habitats must fit in to the urban environment. With little space for parks or trees, living walls and green roofs are a great alternative that can add to the area's biodiversity (ansglobal,2018).

A 15) Comparison of Iran's labour code with employment regulations in the FTZs

414

Characteristic	Labour Code	Zone Regulations
Fixed term contracts	Allowed but the maximum duration determined by the Ministry of Labour and Social Affairs.	No such limit.
Resolution of labour disputes	Through a tripartite Board of Inquiry.	Through the Board of Settlement of Disputes in relevant Zones.
Termination of employment	Limited to six events: (i) the worker's death: (ii) the worker's retirement; (iii) the worker's total disability; (iv) the expiry of a fixed term contract; (v) the completion of work under a contract concluded for a specified assignment; and (vi) the worker's resignation.	Same list plus an additional conditionality: the cancellation of the employment contract by the employer and the employee in cases stipulated in the employment contract in accordance with the Decree.
Severance payment in case of contract termination	Quite generous (for example, in case of termination on grounds of total disability or retirement, as well as of the completion of a fixed term contract, the worker to be paid an amount equal to the last monthly wage for each year of completed service (and two monthly wages for each year of service if the disability is work related).	Negotiated individually. However, whenever the dismissal of the worker is judged acceptable by the Board of Settlement of Disputes, the Board shall confirm his/her dismissal and shall obligate the employer to pay (15) days of salary to the employee for each year of his/her service (e.g., not more than half of the severance in other parts of the country).
Probationary period	Not more than one month for unskilled and semi-skilled workers, and three months for skilled workers.	Same.
Hours of work	Limited to 8 hours per day but overtime is allowed so that total hours of work should not exceed 44 hours in any week.	Limited to 176 hours in four successive weeks (or 44 hours on average per week) but the parties are free to negotiate the actual working hours per each day or week within the total limits.
Overtime wage premium	40 percent of the standard hourly wage.	Up to the parties to agree on the premium.
Working hours	Daily: 6.00 am – 10 pm Night shift: 10 pm – 6.00 am.	Same.
Annual leave	One month including four Fridays.	A total of 20 days (including Fridays).

Characteristic	Labour Code	Zone Regulations
Minimum wage	Set centrally by the High Labour Council.	Shall not be less than the minimum legal wages in Iran.
Recruitment of foreign citizens	Allowed subject to work permit.	Same, but foreign workers not to exceed 10 percent of total employment population in each zone.
Welfare benefits	Relevant services and certain benefits and bonuses (such as annual bonus to workers) are established centrally.	The Authority of the Free Zone will establish funds independently or jointly with the Social Security Organization and/or insurance companies for relevant benefits and services.
Worker organisations	No independent unions recognised or allowed. However collective labour negotiations and contracts allowed under certain conditions. Moreover, provision for worker organisations in the form of 'Islamic Societies'. The by-laws, functions, powers and mode of operation of these must be formulated by the Ministries of Interior, and Labour and Social Affairs, and the Islamic Propagation Organization, and approved by the Council of Ministers	Workers' and Employers' organisations not covered (focusing largely on individual labour relationships).
General	Far more prescriptive and detailed as far as suspension or termination of employment contract; remuneration; or working conditions for vulnerable groups, such as women and youth.	Only vaguely covers occupational safety and health; provision of training or employment of foreign citizens; and does not cover issues such as collective bargaining and agreements; or workers' welfare services.

Source: Based on World Bank analysis (Hakimian, 2009).

A 16) Comparison of rules and regulations in FTZs and SEZs

Tables 3: Comparison of Rules & Regulations in Ftzs and Sezs

	Description	FTZ	SEZ
Similarities			
1	Import of goods from abroad into the Zone to be sold in the zone or re-exported abroad, but not re-imported to the mainland	Free from all kinds of taxes and duties, but local levies and fees are collected according to the services rendered by the executive departments.	Same.
2	Re-exporting imported goods to the zone	Free from all kinds of taxes and duties.	Same.
3	Warehousing in the Zone	Available with no grace period for clearance of goods	Same.
4	Unloading, loading, transit and Transhipment of merchandises abroad	Free from all kinds of taxes and duties, only warehousing and local charges shall be collected.	Free from all kinds of taxes and duties, only warehousing and local charges shall be collected.
5	Certificate of Origin	Issued by the Zone Authority for the goods to be re-exported partially, and or for value-added in the Zone.	Issued by the S.E. Zone Authority for the goods to be re-exported partially, and or for value-added in the Zone.
6	Utilization of land and natural reserves	Land is sold and/or leased to the Iranian nationals, but only leased to the foreigners.	Land is sold and/or leased to the Iranian nationals, but only leased to the foreigners.
7	Protection of foreign capital investment	Accepted, protected and guaranteed.	Accepted, protected and guaranteed.
8	Social security, social insurance	The mainland social security regulations enforced.	The mainland social security regulations enforced.
9	Labour law, labour and industrial relations	Subject to the regulations enforced in the Free Zones.	Subject to the regulations enforced in the Free Zones.

	Description	FTZ	SEZ
10	Employment of foreign personnel	Up to the 10 % of the workforce employed in the enterprise.	Up to the 10 % of the workforce employed in the enterprise.
Differences			
1	Entry to the Zones	No entry visa needed for the Zones (visa issued at the point of entry)	Subject to the law concerning alien's entrance into the mainland.
2	Registration of a company	Application must be submitted to the Free Zone authority.	Application must be submitted to the S.E.Z. Authority.
3	Foreign ownership	Up to 100% of foreign capital investment.	Up to 49% of foreign capital investment (subject to the law and regulations on foreign capital investment enforced in the mainland).
4	Foreign Exchange rates	Free market exchange rates in the Zone.	Domestic banking exchange rates in the mainland.
5	Certificate of Origin	Issued by the Zone Authority for the goods to be re-exported partially, and or for value-added in the Zone.	Issued by the S.E. Zone Authority for the goods to be re-exported partially, and or for value-added in the Zone.
6	Retail selling	Allowed, except in the Arvand, Aras and Anzali Free Zones.	Not allowed at all.
7	Offshore banking services and operations by private sector	Available in the free zones.	Only domestic banking services operation by the state banks.
8	Guaranteeing of foreign investments against nationalization and confiscation	Shall be guaranteed by the Zone Authority, or the government, and approved by the Board of Ministers (depending on the sums involved).	Subject to the "Law on the attraction and protection of foreign investments".

Source: based on information provided bt FTZ Authority (Hakimian, 2009   )

A17) Collection of laws and regulation related to Free Trade, Industrial and Special Economic Zones that are compiled by department of compiling, expurgating, and publishing law and regulations and translated by Yaghoob Javadi in 2017 can be find in this link https://investiniran.ir/Portals/0/410.pdf .

416

A18: ISO 50001 Energy Management: Used by large and small organizations across the world to manage and reduce energy use and costs, ISO 50001 is an excellent framework to help implement an energy management system (EnMS). From large retailers to smaller manufacturers and small businesses, the standard offers organizations the opportunity to become more resilient against energy costs and availability. ISO 50001 can be used to reduce costs, comply with legislation, or increase your sustainability, implementing the standard **provides a systematic approach to achieving all three.**

A 19) ISO 14001 Environmental Management (EMS): provides guidance on how to consider multiple aspects of your business procurement, storage, distribution, product development, manufacturing, etc.- so that it reduces it impact on the environment. It also drives you to evaluate how you manage emergency response, customer expectations, stakeholders, and your relationships with your local community.

A 20) OHSAS 18001 was one of the International Standard for Occupational Health and Safety Management Systems. It provided a framework for the effective management of OH&S including all aspects of risk management and legal compliance, and it addressed occupational health and safety rather than any specific product safety matters.

A 21) Purpose and vision of Kish master plan

This report contains the final version of Kish Island's comprehensive plan in Iran. The master plan is a flexible and long-term planning document that provides guidance for future development and should be considered in all development plans in Kish. The Kish master plan (2005-2025) contains the following:

- A summary of Kish Island's current situation is taken from the results of the previous master plan in Kish in 1998.
- The planning framework is used to prepare the master plan. Includes the following topics:

- General planning objectives, operational objectives, and policies.

- An overall strategy for future development and a conceptual discussion of form and structure.

- Forecasts and plans up to the planning horizon in 2025.

- Long term land use plan.

- Recommendations and proposals (projects) for future development through design elements in this master plan.

- A discussion of feasibility considerations.

A 22) Brundtland report: In 1987, the World Commission on Environment and Development (WCED), which had been set up in 1983, published a report entitled «Our common future». The document came to be known as the «Brundtland Report» after the Commission's chairwoman, Gro Harlem Brundtland. It developed guiding principles for sustainable development as it is generally understood today.

The Brundtland Report stated that critical global environmental problems were primarily the result of the enormous poverty of the South and the non-sustainable patterns of consumption and production in the North. It called for a strategy that united development and the environment – described by the now-common term «sustainable development». Sustainable development is defined as follows: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. "In 1989, the report was debated in the UN General Assembly, which decided to organize a UN Conference on Environment and Development.

Appendix B

Interview and fuzzy Delphi questionnaire

B1 : Sample size for semi structure interview and Fuzzy Delphi questionnaires

B2: Ethical approval

B3: Invitation for interview participation

B4: Fuzzy Delphi interview protocol

B5: Invitation to fuzzy Delphi questionnaires

B6: Fuzzy Delphi Questionnaire for factors that affecting culture-led sustainable urban development.

B7: Fuzzy Delphi Questionnaire for Challenges affecting culture-led sustainable urban development in Kish Island

Appendix B1: Sample size for semi structure interview and fuzzy Delphi questionnaire

Sample size for this pilot will be 10 participants that are selected from Supreme Council of Iran's Free Trade, Industrial & special Economic Zones in Kish.

The list of participants:

1. President (Chairman) of Free zones in Iran,
2. Vice-chairman of Free zones in Iran
3. Minister of Finance and Economic Affairs for Free zones in Iran,
4. Minister of Industries in Free zones in Iran ,
5. Minister of Culture and Islamic Guidance,
6. Minister of Roads and Urban Development,
7. Minister of Foreign Affairs and trade
8. Head of Sharif International university in Kish
9. Head of tourism in Kish
10. Head of domestic and international investment in Kish

Appendix B2: Ethical approval

University of
Salford
MANCHESTER

Research, Innovation and Academic
Engagement Ethical Approval Panel

Doctoral & Research Support
Research and Knowledge Exchange,
Room 827, Maxwell Building
University of Salford
Manchester
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www.salford.ac.uk/

29 October 2019

Attieh Moezoddin

Dear Attieh,

RE: ETHICS APPLICATION STR1920-04 – A Framework for Culture-led Urban development
through creative hub concept (Case study of Iranian Free zone (Kish))

Based on the information you provided, I am pleased to inform you that your application STR1920-04
has been approved.

If there are any changes to the project and/ or its methodology, please inform the Panel as soon as
possible by contacting S&T-ResearchEthics@salford.ac.uk

Yours sincerely,

Dr Devi Prasad Tumula
Deputy Chair of the Science & Technology Research Ethics Panel

Appendix B3:   Invitation Letter for interview Participants

To: Supreme Council of Iran's Free Trade, Industrial & special Economic Zones

My name is Attieh Moezoddin, and I am a PhD Student in the School of the Built Environment. I would like to invite you to take part in my research on "**Developing a contextualised framework for Culture-Led Urban development through creative hub concept (case study of Iranian free zone (Kish))".** This Research intends to investigate the idea of the creative hub, both in theory and in practice to develop a contextualised framework for the development of a creative hub as an effective and supportable tool for urban development.

The entire interview is expected to last between 60 to 90 minutes. Your answers to these questions will be treated firmly confidential and would be used for this academic research only. Please be advised that your participation is voluntary, you can withdraw at any stage without giving any reason and your data will be destroyed.

Your response will be a very important part of this research. I really appreciate if you can confirm your interest to participate in this study by replying to this email. Please do not hesitate to contact me if you have any question about this research and your participation.

Confidentiality: All information provided will be treated with complete confidentiality, and findings from this research will be use for the sole purpose of this research and for academic publications. For further clarification or information, please do not hesitate to contact me or my research supervisor via our below email address.

I hereby agree to participate in the research:

Name of Participant: ……………………………. Date…………………… Signature…………………

Yours faithfully

Name of Researcher   Research Supervisor

Attieh Moezoddin   Prof Hisham Elkadi

Email: A.Moezoddin@edu.salford.ac.uk   H.Elkadi@salford.ac.uk

422

Appendix B4:

Fuzzy Delphi interview protocol

Items	Questions
1.	Please briefly explain your position and how many years you have been in this position
2.	What do you feel a community should have, and currently exist, in place to help with sustainable development in Kish?
3.	Do you believe the community (Kish) is ready to learn about new development? /How do you think this can be enhanced? What type of policies the Supreme Council of Iran's Free Trade have to take in action to enhance this problem?
4.	how do you consider the importance of cultural policies in urban development in Free zones in Iran, and related operational challenges to integrate that to current policies?
5.	What are the challenges regarding to the development of creative hub in Kish?
6.	Do you think organizations that are making decision are able to change the way they make decision easily for purpose of sustainable development? How this can be enhanced?
7.	What are the impacts of sustainable economic on sustainable urban development? (How do you think positive economic/ sustainable economic can lead to sustainable urban development / can improve the urban development?)
8.	How do you think having a contextualised framework of creative hub can lead to a sustainable urban development? What are its benefits? What else should be considered in having such framework?
9.	What are the current developments in Kish regarding to sustainable development
10.	Do you think this development follow the international standards
11.	About current master plan in Kish, I there any strategy involved?
12.	Which areas in master plan need to be improved?

Appendix B5

Invitation Letter for Questionnaire Participants

Dear Sir/Madam

My name is Attieh Moezoddin, and I am a PhD Student in the School of the Built Environment. I would like to invite you to take part in my research on "A **framework for Culture-Led Urban development through creative hub concept (case study of Iranian free zone (Kish)).** This Research intends to investigate the idea of the creative hub, both in theory and in practice to develop a contextualised framework for the development of a creative hub as an effective and supportable tool for urban development.

Your participation will involve responding to two sets of questionnaires regarding to factors that affecting and challenging sustaianble development in Kish. Your completed response to the questionnaire will be treated firmly confidential and would be used for this academic research only. The questionnaire data will be kept and used anonymity during this study. Please be advised that your participation is voluntary, you can withdraw at any stage without giving any reason and your data will be destroyed.

Your response will be a very important part of this research. I really appreciate if you can confirm your interest to participate in this study by replying to this email. Please do not hesitate to contact me if you have any question about this research and your participation.

Best wishes,

Researcher name: Attieh Moezoddin

Email: A. Moezoddin @edu.salford.ac.uk

Appendix B6

Fuzzy Delphi Questionnaire
Factors affecting culture-led sustainable urban development in Kish Island

Dear respondent
This survey is aimed to assess the suitability of factors affecting **culture-led sustainable urban development** in Kish Island. Accordingly, you are kindly invited to fill out the questionnaire regarding the importance of each criterion presented in the following table.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact A.Moezoddin@edu.salford.ac.uk
Thank you for your kind cooperation.
Factors affecting the **culture-led sustainable urban development** in Kish Island

Criteria	Sub-criteria
Social justice	Community empowerment
	Social participation
	Social mobility
	Social cohesion
Ecological balance	Natural resources
	Management of ecological resources
	Urban biodiversity
	Urban carrying capacity
	Urban ecosystem
Economic (self-reliance)	Balanced economic growth
	Fair trade
	Equity
Cultural identity	Cultural identities
	Tangible and intangible heritage
	Cultural industries
	Cultural diversity
	Cultural geography

Section I.

Please use the following 7-point scale to indicate the importance of each criterion to   promote **culture-led sustainable urban development** in Kish Island.

Linguistic variable	Fuzzy number	Explanation
Very low	(0,0,0.1)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is very low.
Low	(0,0.1,0.3)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is low.
Medium low	(0.1,0.3,0.5)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium low.
Medium	(03,0.5,0.7)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium.

Medium high	(0.5,0.7,0.9)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium high.
High	(0.7,0.9,1.0)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is high.
Very high	(0.9,1.0,1.0)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is very high.

Section II:

Main criteria evaluation:
Social justice
Ecological balance
Economic (self-reliance)
Cultural identity

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Social justice							
Ecological balance							
Economic (self-reliance)							
Cultural identity							

Section III.

Social justice Sub-criteria evaluation
Community empowerment
Social participation
Social mobility
Social cohesion

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Community empowerment							
Social participation							
Social mobility							
Social cohesion							

Section IV.

Ecological balance Sub-criteria evaluation
Natural resources
Management of ecological resources
Urban biodiversity
Urban carrying capacity
Urban ecosystem

426

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Natural resources							
Management of ecological resources							
Urban biodiversity							
Urban carrying capacity							
Urban ecosystem							

Section V.

> **Economic (self-reliance)** Sub-**criteria evaluation**
> Balanced economic growth
> Fair trade
> Equity

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Balanced economic growth							
Fair trade							
Equity							

Section VI.

> **Cultural identity Sub-criteria evaluation**
> Cultural identities
> Tangible and intangible heritage
> Cultural industries
> Cultural diversity
> Cultural geography

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Cultural identities							
Tangible and intangible heritage							
Cultural industries							
Cultural diversity							
Cultural geography							

427

Fuzzy Delphi Questionnaire
Challenges affecting culture-led sustainable urban development in Kish Island

Dear respondent
This survey is aimed to identify important challenges affecting **culture-led sustainable urban development** in Kish Island. Accordingly, you are kindly invited to fill out the questionnaire regarding the importance of each criterion presented in the following table.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact A.Moezoddin@edu.salford.ac.uk
Thank you for your kind cooperation.

Challenges affecting the **culture-led sustainable urban development** in Kish Island

Criteria	Sub-criteria	
Economic Challenges	1. Continuous instability in the region	
	2. Increasing power of neighbouring countries	
	3. Domestic competition among islands for shared markets	
	4. Being surrounded by non- inhabited islands	
	5. geographical proximity to politically unstable countries	
	6. High insurance rate in the Persian Gulf region	
	7. Limited cruise lines in the Persian Gulf region	
	8. Lack of investment advantages/ investment dissatisfaction	
	9. Lack of successful benchmarking processes	
Social challenges	1. Unfulfilled local residents' needs and requirements	
	2. Inappropriate inhabitation patterns	
	3. Low level of social services	
	4. Lack of organizational training programs	
	5. Lack of managerial competence among regional managers	
	6. Inappropriate organizational approaches towards opportunities and potentials of the free zone	
Environmental challenges	1. Lack of environmental optimization plan	
	2. Inconsistent management of environmental resources	
	3. Inappropriate land use	
	4. Inappropriate developmental and construction approaches	
	5. Inappropriate management of Endangered species	
Cultural challenges	1. Cultural conceptual challenges	1. The culture of a place is Fixed and timeless
		2. Local identities are inherited and changeless
		3. Everything about cultural traditions and practices is good and must be safeguarded and conserved
		4. Culture is a barrier to real development
		5. Conditional investment in cultural infrastructures

428

	2. Challenges to Operationalizing Culture in Local Development	1. Limitation due target policies, legislative frameworks, and administrative reluctance
		2. Complexity of the cultural features of the community
		3. Inadequacy of indicators, measurement, and evaluation of progress and impacts
		4. Underlying issues of citizen participation and overcoming segmentation

Section I.

Please use the following 7-point scale to indicate the importance of each criterion to promote **culture-led sustainable urban development** in Kish Island

Linguistic variable	Fuzzy number	Explanation
Very low	(0,0,0.1)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is very low.
Low	(0,0.1,0.3)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is low.
Medium low	(0.1,0.3,0.5)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium low.
Medium	(03,0.5,0.7)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium.
Medium high	(0.5,0.7,0.9)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is medium high.
High	(0.7,0.9,1.0)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is high.
Very high	(0.9,1.0,1.0)	The importance of the factor to promote culture-led sustainable urban development in Kish Island is very high.

Section II:

Main criteria evaluation:
Economic Challenges
Social challenges
Environmental challenges
Cultural challenges

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Economic challenges							
Social challenges							
Environmental challenges							
Cultural challenges							

Section III:

Sub criteria evaluation:
Continuous instability in the region
Increasing power of neighbouring countries
Domestic competition among islands for shared markets
Being surrounded by non- inhabited islands
geographical proximity to politically unstable countries
High insurance rate in the Persian Gulf region
Limited cruise lines in the Persian Gulf region
Lack of investment advantages/ investment dissatisfaction
Lack of successful benchmarking processes

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Continuous instability in the region							
Increasing power of neigh boring countries							
Domestic competition among islands for shared markets							
Being surrounded by non-inhabited islands							
Geographical proximity to politically unstable countries							
High insurance rate in the Persian gulf region							
Limited cruise lines in the Persian gulf region							
Lack of investment advantages/ investment dissatisfaction							
Lack of successful benchmarking processes							

Section IV:

Sub criteria evaluation
Unfulfilled residents' needs and requirements
Inappropriate inhabitation patterns
Low level of social services
Lack of organizational training programs
Lack of managerial competence among regional managers
Inappropriate organizational approaches towards opportunities and potentials of the free zone

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Unfulfilled local residents' needs and requirements							
Inappropriate inhabitation patterns							
Low level of social services							

Lack of organizational training programs							
Lack of managerial competence among regional managers							
Inappropriate organizational approaches towards opportunities and potentials of the free zone							

Section V:

> **Sub criteria evaluation**
> Lack of environmental optimization plan
> Inconsistent management of environmental resources
> Inappropriate land use
> Inappropriate developmental and construction approaches
> Inappropriate management of Endangered species

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Lack of environmental optimization plan							
Inconsistent management of environmental resources							
Inappropriate land use							
Inappropriate developmental and construction approaches							
Inappropriate management of Endangered species							

Section VI:

> **Sub criteria evaluation**
> Cultural conceptual challenges
> Cultural operational challenges

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Cultural conceptual challenges							
Cultural operational challenges							

Section VII:

> **Sub criteria evaluation**
> The culture of a place is Fixed and timeless
> Local identities are inherited and changeless
> Everything about cultural traditions and practices is good and must be safeguarded and conserved
> Culture is a barrier to real development
> Conditional investment in cultural infrastructures

	Very low	Low	Medium low	Medium	Medium high	High	Very high
The culture of a place is Fixed and timeless							
Local identities are inherited and changeless							

431

Everything about cultural traditions and practices is good and must be safeguarded and conserved							
Culture is a barrier to real development							
Conditional investment in cultural infrastructures							

Section VIII:

> **Sub criteria evaluation**
> Limitation due target policies, legislative frameworks, and administrative reluctance
> Complexity of the cultural features of the community
> Inadequacy of indicators, measurement, and evaluation of progress and impacts
> Underlying issues of citizen participation and overcoming segmentation

	Very low	Low	Medium low	Medium	Medium high	High	Very high
Limitation due target policies, legislative frameworks, and administrative reluctance							
Complexity of the cultural features of the community							
Inadequacy of indicators, measurement, and evaluation of progress and impacts							
Underlying issues of citizen participation and overcoming segmentation							

432

Appendix C

Fuzzy AHP Questionnaires

C1: Sample size for Fuzzy AHP Questionnaires

C2: Invitation to Fuzzy Delphi Questionnaires

C3: Questionnaire 1 (Factors affecting culture-led sustainable urban development in Kish Island).

C4: Questionnaire 2 (Challenges affecting culture-led sustainable urban development in Kish Island).

C1: Sample size for questionnaire for AHP

Sample size for AHP questionnaires will be 120 participants that are selected from panel experts in Free trade zones (FTZs) and Special Economic Zones (SEZs) in Iran. The list of participants is as follow:

➢ **List of participants from higher positions in supreme council of free trade and special economic zones in Iran (10 participants)**

1. President (Chairman) of Free zones in Iran,
2. Vice-chairman of Free zones in Iran
3. Minister of Finance and Economic Affairs for Free zones in Iran,
4. Minister of Industries in Free zones in Iran,
5. Minister of Culture and Islamic Guidance,
6. Minister of Roads and Urban Development,
7. Minister of Foreign Affairs and trade,
8. Head of Sharif International university in Kish,
9. Head of tourism in Kish
10. Minister of domestic and international investment in Free zones in Iran

➢ *The list of participants in 7 Free trade zones in Iran: estimated (35 participants)*

1. Head of Free trade in all free trade industrial zones

2. Head of finance and economic affairs in all 5 FTZs

3. Head of culture and Islamic guidance in all FTZs

4. Head of foreign affairs and trade in all FTZs

5. Head of domestic and international investment in all FTZs

➢ *The list of participants in 15 special economic zones (SEZs): estimated (75 participants)*

1. Head of special economic zone in all SEZs

2. Head of economic affairs in all SEZs

3. Head of culture and Islamic guidance in all SEZs

4. Head of foreign affairs in all SEZs

5. Head of domestic and international investment in all SEZs

Invitation Letter for Questionnaire Participants

Dear Sir/Madam

My name is Attieh Moezoddin, and I am a PhD Student in the School of the Built Environment. I would like to invite you to take part in my research on "A **framework for Culture-Led Urban development through creative hub concept (case study of Iranian free zone (Kish)).** This Research intends to investigate the idea of the creative hub, both in theory and in practice to develop a contextualised framework for the development of a creative hub as an effective and supportable tool for urban development.

Your participation will involve responding to two sets of questionnaires regarding each criterion's relative importance over the other presented in the tables in the questionnaires. These questionnaires are about identifying the priorities between factors that affecting and challenging the sustainable development in Kish. Your completed response to the questionnaire will be treated firmly confidential and would be used for this academic research only. The questionnaire data will be kept and used anonymity during this study. Please be advised that your participation is voluntary, you can withdraw at any stage without giving any reason and your data will be destroyed. Your response will be a very important part of this research. I really appreciate if you can confirm your interest to participate in this study by replying to this email. Please do not hesitate to contact me if you have any question about this research and your participation.

Best wishes,

Researcher name: Attieh Moezoddin

Email: A. Moezoddin @edu. Salford.ac.uk

Appendix C3
Fuzzy AHP Questionnaire
Factors affecting culture-led sustainable urban development in Kish Island

Dear respondent
This survey is aimed to identify important factors affecting culture-led sustainable urban development in Kish Island. Accordingly, you are kindly invited to fill out the questionnaire regarding the relative importance of each criterion over the other presented in the following table.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact ……………………………………..
Thank you for your kind cooperation.

Factors affecting the **culture-led sustainable urban development** in Kish Island

Criteria	Sub-criteria
Social justice	Community empowerment
	Social participation
	Social mobility
	Social cohesion
Ecological balance	Natural resources
	Management of ecological resources
	Urban biodiversity
	Urban carrying capacity
	Urban ecosystem
Economic (self-reliance)	Balanced economic growth
	Fair trade
	Equity
Cultural identity	Cultural identities
	Tangible and intangible heritage
	Cultural industries
	Cultural diversity
	Cultural geography

Section I.

Please use the following 9-point scale to indicate the relative importance of each criteria and sub-criteria.

values	Linguistic values	Explanation
1	Equal importance	Two element contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favour one element over another
5	Strong importance	Experience and judgment strongly favour one element over another
7	Very strong importance	One element is favoured very strongly over another
9	Extreme importance	The evidence favouring one element over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values	Can be used to express intermediate values such that intensity of 2 corresponds to an element more favoured than 1 and less favoured than 3.

Criteria	Priorities																		Criteria
A	9	8	7	6	5	4	3	2	1	2	3 √	4	5	6	7	8	9	B
A	9	8	7	6	5	4 √	3	2	1	2	3	4	5	6	7	8	9	C
B	9	8	7	6	5	4	3	2	1	2	3	4	5	6 √	7	8	9	C

Section II:

Main criteria evaluation:
Social justice
Ecological balance
Economic (self-reliance)
Cultural identity

Criteria	Priorities																		Criteria
Social justice	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Ecological balance
Social justice	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Economic (self-reliance)
Social justice	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural identity
Ecological balance	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Economic (self-reliance)
Ecological balance	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural identity
Economic (self-reliance)	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural identity

Section III.

Social justice Sub-criteria evaluation
Community empowerment
Social participation
Social mobility
Social cohesion

Criteria	Priorities																		Criteria
Community empowerment	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social participation
Community empowerment	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social mobility
Community empowerment	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social cohesion
Social participation	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social mobility
Social participation	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social cohesion
Social mobility	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social cohesion

Section IV.

Ecological balance Sub-criteria evaluation
Natural resources
Management of ecological resources
Urban biodiversity
Urban carrying capacity
Urban ecosystem

Criteria	Priorities																	Criteria
Natural resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Management of ecological resources
Natural resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban biodiversity
Natural resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban carrying capacity
Natural resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban ecosystem
Management of ecological resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban biodiversity
Management of ecological resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban carrying capacity
Management of ecological resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban ecosystem
Urban biodiversity	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban carrying capacity
Urban biodiversity	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban ecosystem
Urban carrying capacity	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Urban ecosystem

Section V.

Economic (self-reliance) Sub-criteria evaluation
Balanced economic growth
Fair trade
Equity

Criteria	Priorities																	Criteria
Balanced economic growth	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Fair trade
Balanced economic growth	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Equity
Fair trade	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Equity

Section VI.

Cultural identity Sub-criteria evaluation
Cultural identities
Tangible and intangible heritage
Cultural industries
Cultural diversity
Cultural geography

Criteria	Priorities																	Criteria
Cultural identities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Tangible and intangible heritage
Cultural identities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural industries
Cultural identities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural diversity
Cultural identities	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural geography
Tangible and intangible heritage	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural industries
Tangible and intangible heritage	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural diversity
Tangible and intangible heritage	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural geography
Cultural industries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural diversity
Cultural industries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural geography
Cultural diversity	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural geography

Appendix C 4
Fuzzy AHP Questionnaire
Factors challenging culture-led sustainable urban development in Kish

Dear respondent
This survey is aimed to identify important challenges towards culture-led sustainable urban development in Kish Island. Accordingly, you are kindly invited to fill out the questionnaire regarding the relative importance of each criterion over the other presented in the following table.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact A. Moezoddin@edu.salford.ac.uk
Thank you for your kind cooperation.

Challenges affecting the **culture-led sustainable urban development** in Kish Island

Criteria	Sub-criteria		
Economic Challenges	1. Continuous instability in the region		
	2. Increasing power of neighbouring countries		
	3. Domestic competition among islands for shared markets		
	4. Being surrounded by non- inhabited islands		
	5. geographical proximity to politically unstable countries		
	6. High insurance rate in the Persian Gulf region		
	7. Limited cruise lines in the Persian Gulf region		
	8. Lack of investment advantages/ investment dissatisfaction		
	9. Lack of successful benchmarking processes		
Social challenges	1. Unfulfilled local residents' needs and requirements		
	2. Inappropriate inhabitation patterns		
	3. Low level of social services		
	4. Lack of organizational training programs		
	5. Lack of managerial competence among regional managers		
	6. Inappropriate organizational approaches towards opportunities and potentials of the free zone		
Environmental challenges	1. Lack of environmental optimization plan		
	2. Inconsistent management of environmental resources		
	3. Inappropriate land use		
	4. Inappropriate developmental and construction approaches		
	5. Inappropriate management of Endangered species		
Cultural challenges	1. Cultural conceptual challenges	1. The culture of a place is Fixed and timeless	
		2. Local identities are inherited and changeless	
		3. Everything about cultural traditions and practices is good and must be safeguarded and conserved	
		4. Culture is a barrier to real development	
		5. Conditional investment in cultural infrastructures	
	2. Challenges to Operationalizing Culture in Local Development	1. Limitation due target policies, legislative frameworks, and administrative reluctance	
		2. Complexity of the cultural features of the community	

		3. Inadequacy of indicators, measurement, and evaluation of progress and impacts
		4. Underlying issues of citizen participation and overcoming segmentation

Section I.

Please use the following 9-point scale to indicate the relative importance of each criteria and sub-criteria.

values	Linguistic values	Explanation
1	Equal importance	Two element contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favor one element over another
5	Strong importance	Experience and judgment strongly favor one element over another
7	Very strong importance	One element is favored very strongly over another
9	Extreme importance	The evidence favoring one element over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values	Can be used to express intermediate values such that intensity of 2 corresponds to an element more favored than 1 and less favored than 3.

Hint: comparing criteria A with criteria B, if they share the same importance please choose 1. If the criteria on the right possessed more importance, please choose the relative score on the right side and vice versa.

Criteria	Priorities																		Criteria
A	9	8	7	6	5	4	3	2	1	2	3 √	4	5	6	7	8	9		B
A	9	8	7	6	5	4 √	3	2	1	2	3	4	5	6	7	8	9		C
B	9	8	7	6	5	4	3	2	1	2	3	4	5	6 √	7	8	9		C

Section II:

Main criteria evaluation:
Economic Challenges
Social challenges
Environmental challenges
Cultural challenges

Criteria	Priorities																	Criteria
Economic Challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social challenges
Economic Challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Environmental challenges
Economic Challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural challenges
Social challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Environmental challenges
Social challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural challenges
Environmental challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Cultural challenges

Section III:

Sub criteria evaluation:
Continuous instability in the region
Increasing power of neighbouring countries
Domestic competition among islands for shared markets
Being surrounded by non- inhabited islands
geographical proximity to politically unstable countries
High insurance rate in the Persian Gulf region
Limited cruise lines in the Persian Gulf region
Lack of investment advantages/ investment dissatisfaction
Lack of successful benchmarking processes

Criteria	Priorities																	Criteria
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Increasing power of neighbouring countries
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Domestic competition among islands for shared markets
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Being surrounded by non- inhabited islands
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	geographical proximity to politically unstable countries
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High insurance rate in the Persian Gulf region
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
Continuous instability in the region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes

Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Domestic competition among islands for shared markets
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Being surrounded by non- inhabited islands
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	geographical proximity to politically unstable countries
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High insurance rate in the Persian Gulf region
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
Increasing power of neighbouring countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Being surrounded by non- inhabited islands
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	geographical proximity to politically unstable countries
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High insurance rate in the Persian Gulf region
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction

	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Domestic competition among islands for shared markets	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
Being surrounded by non-inhabited islands	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	geographical proximity to politically unstable countries
Being surrounded by non-inhabited islands	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High insurance rate in the Persian Gulf region
Being surrounded by non-inhabited islands	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region
Being surrounded by non-inhabited islands	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
Being surrounded by non-inhabited islands	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
geographical proximity to politically unstable countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	High insurance rate in the Persian Gulf region
geographical proximity to politically unstable countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region
geographical proximity to politically unstable countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
geographical proximity to politically unstable countries	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
High insurance rate in the Persian Gulf region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Limited cruise lines in the Persian Gulf region

High insurance rate in the Persian Gulf region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
High insurance rate in the Persian Gulf region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
Limited cruise lines in the Persian Gulf region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of investment advantages/ investment dissatisfaction
Limited cruise lines in the Persian Gulf region	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes
Lack of investment advantages/ investment dissatisfaction	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of successful benchmarking processes

Section IV:

Sub criteria evaluation
Unfulfilled local residents' needs and requirements
Inappropriate inhabitation patterns
Low level of social services
Lack of organizational training programs
Lack of managerial competence among regional managers
Inappropriate organizational approaches towards opportunities and potentials of the free zone

Criteria	Priorities																	Criteria
Unfulfilled local residents' needs and requirements	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate inhabitation patterns
Unfulfilled local residents' needs and requirements	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Low level of social services
Unfulfilled local residents' needs and requirements	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of organizational training programs

	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	
Unfulfilled local residents' needs and requirements	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of managerial competence among regional managers
Unfulfilled local residents' needs and requirements	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate organizational approaches towards opportunities and potentials of the free zone
Inappropriate inhabitation patterns	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Low level of social services
Inappropriate inhabitation patterns	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of organizational training programs
Inappropriate inhabitation patterns	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of managerial competence among regional managers
Inappropriate inhabitation patterns	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate organizational approaches towards opportunities and potentials of the free zone
Low level of social services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of organizational training programs
Low level of social services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of managerial competence among regional managers
Low level of social services	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate organizational approaches towards opportunities and potentials of the free zone
Lack of organizational training programs	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Lack of managerial competence among regional managers
Lack of organizational training programs	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate organizational approaches towards opportunities and potentials of the free zone
Lack of managerial competence among regional managers	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate organizational approaches towards opportunities and potentials of the free zone

Section V:

445

Criteria	Priorities																		Criteria
Lack of environmental optimization plan	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inconsistent management of environmental resources
Lack of environmental optimization plan	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate land use
Lack of environmental optimization plan	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate developmental and construction approaches
Lack of environmental optimization plan	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate management of Endangered species
Inconsistent management of environmental resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate land use
Inconsistent management of environmental resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate developmental and construction approaches
Inconsistent management of environmental resources	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate management of Endangered species
Inappropriate land use	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate developmental and construction approaches
Inappropriate land use	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate management of Endangered species
Inappropriate developmental and	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inappropriate management of Endangered species

construction approaches																		

Section VI:

> **Sub criteria evaluation**
> Cultural conceptual challenges
> Challenges to Operationalizing Culture in Local Development

Criteria	Priorities																		Criteria
Cultural conceptual challenges	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Challenges to Operationalizing Culture in Local Development

Section VII:

> **Sub criteria evaluation**
> The culture of a place is Fixed and timeless
> Local identities are inherited and changeless
> Everything about cultural traditions and practices is good and must be safeguarded and conserved
> Culture is a barrier to real development
> Conditional investment in cultural infrastructures

Criteria	Priorities																		Criteria
The culture of a place is Fixed and timeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Local identities are inherited and changeless
The culture of a place is Fixed and timeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Everything about cultural traditions and practices is good and must be safeguarded and conserved
The culture of a place is Fixed and timeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Culture is a barrier to real development
The culture of a place is Fixed and timeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Conditional investment in cultural infrastructures
Local identities are inherited and changeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Everything about cultural traditions and practices is good and must be safeguarded and conserved
Local identities are inherited and changeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Culture is a barrier to real development

Local identities are inherited and changeless	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Conditional investment in cultural infrastructures
Everything about cultural traditions and practices is good and must be safeguarded and conserved	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Culture is a barrier to real development
Everything about cultural traditions and practices is good and must be safeguarded and conserved	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Conditional investment in cultural infrastructures
Culture is a barrier to real development	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Conditional investment in cultural infrastructures

Sub criteria evaluation
Limitation due target policies, legislative frameworks, and administrative reluctance
Complexity of the cultural features of the community
Inadequacy of indicators, measurement, and evaluation of progress and impacts
Underlying issues of citizen participation and overcoming segmentation

Criteria	Priorities																	Criteria
Limitation due target policies, legislative frameworks, and administrative reluctance	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Complexity of the cultural features of the community
Limitation due target policies, legislative frameworks, and administrative reluctance	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inadequacy of indicators, measurement, and evaluation of progress and impacts
Limitation due target policies, legislative frameworks, and administrative reluctance	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Underlying issues of citizen participation and overcoming segmentation
Complexity of the cultural features of the community	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Inadequacy of indicators, measurement, and evaluation of progress and impacts
Complexity of the cultural features of the community	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Underlying issues of citizen participation and overcoming segmentation
Inadequacy of indicators, measurement, and evaluation of progress and impacts	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Underlying issues of citizen participation and overcoming segmentation

Appendix D

Fuzzy TOPSIS Questionnaires

D1: Sample size for TOPSIS Questionnaires

D2: Invitation for TOPSIS Questionnaire

D3: Fuzzy TOPSIS Questionnaire 1 (relative significance of each selected criteria to all 4 designated strategies for sustainable development in Kish)

D4: Fuzzy TOPSIS Questionnaire 2 (relative significance of each selected to all challenges towards sustainable development in Kish)

D1: Sample size for Fuzzy TOPSIS Questionnaires

Sample size for this pilot will be 10 participants that are selected from Supreme Council of Iran's Free Trade, Industrial & special Economic Zones in Kish.

The list of participants:

1. President (Chairman) of Free zones in Iran,
2. Vice-chairman of Free zones in Iran,
3. Minister of Finance and Economic Affairs for Free zones in Iran,
4. Minister of Industries in Free zones in Iran,
5. Minister of Culture and Islamic Guidance,
6. Minister of Roads and Urban Development,
7. Minister of Foreign Affairs and trade,
8. Head of Sharif International university in Kish,
9. Head of tourism in Kish
10. Minister of domestic and international investment in Free zones in Iran

D2 :   **Invitation Letter for Questionnaire Participants**

Dear Sir/Madam

My name is Attieh Moezoddin, and I am a PhD Student in the School of the Built Environment. I would like to invite you to take part in my research on "A **framework for Culture-Led Urban development through creative hub concept (case study of Iranian free zone (Kish)).** This Research intends to investigate the idea of the creative hub, both in theory and in practice to develop a contextualised framework for the development of a creative hub as an effective and supportable tool for urban development.

Your participation will involve responding to two sets of questionnaires regarding the relative significance of each selected criteria to all 4 designated strategy for sustainable development in Kish, and also regarding relative significance of each selected to all challenges towards sustainable development in Kish. Your completed response to the questionnaire will be treated firmly confidential and would be used for this academic research only. The questionnaire data will be kept and used anonymity during this study. Please be advised that your participation is voluntary, you can withdraw at any stage without giving any reason and your data will be destroyed.

Your response will be a very important part of this research. I really appreciate if you can confirm your interest to participate in this study by replying to this email. Please do not hesitate to contact me if you have any question about this research and your participation.

Best wishes,

Researcher name: Attieh Moezoddin

Email: A. Moezoddin @edu.salford.ac.uk

**A framework for culture-led urban development
through creative hub concept. (case study of Iranian free zone (Kish)) .**

Dear respondent
This survey is aimed to identify the proprieties of principles for planning strategies for sustainable development in Kish. Accordingly, you are invited to fill out the questionnaire regarding the relative significance of each selected criteria (principles for planning strategies for sustainable development) corresponding to all 4 designated strategy for sustainable development in Kish presented in the following table. The table below explains all principles.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact on A.Moezoddin@edu.salford.ac.uk
Thank you for your kind cooperation.
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Attributes (strategies **for sustainable development in Kish):**
1.   Strategy for Sustainable economic development
2.   Strategy for Sustainable social development
3.   Strategy for Sustainable environmental development
4.   Strategy for Sustainable cultural development

Alternatives (international Principles for strategic planning for sustainable development)

Principles	Explanation
People-centred	Ensuring long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor.
Consensus on long-term vision.	• Strategic planning should be based on a long-term vision with a clear timeframe upon which stakeholders agree. • A long-term vision needs to have the commitment of all political parties.
Comprehensive and integrated	Strategies should seek to integrate, where possible, economic, social and environmental objectives
Targeted with clear budgetary priorities	• A sustainable development strategy must be fully integrated in existing budget processes to ensure that plans have the financial resources to achieve their objectives. • The formulation of budgets must be informed by a clear identification of priorities.
Based on comprehensive and reliable analysis	• Identification of priorities must be based on a comprehensive analysis of the present situation. • Such analysis requires credible and reliable information on changing environmental, social and economic conditions, pressures and responses, and their correlations with strategy objectives and indicators.
Incorporate monitoring, learning and continuous improvement	Monitoring and evaluation need to be based on clear indicators and built into strategies to steer processes, track progress, distil and capture lessons, and signal when a change of direction is necessary.
High-level government commitment and influential lead institutions	Such commitment – on a long-term basis – is essential if policy and institutional changes are to occur, financial resources are to be committed and for there to be clear responsibility for implementation.

Building on existing processes and strategies	• A strategy for sustainable development should not be thought of as a new planning process but instead build on what already exists in the country, • thus, enabling convergence, complementarity and coherence between different planning frameworks and policies.
Effective participation	• Broad participation helps to open up debate to new ideas and sources of information. • These should involve decentralized authorities, the private sector and civil society, as well as marginalized groups. • This requires good communication and information mechanisms with a premium placed on transparency and accountability.
Link national and local levels	• The main strategic principles and directions should be set at the central level such as economic, fiscal and trade policy, legislative changes, international affairs and external relations) • But detailed planning, implementation and monitoring would be undertaken at a decentralized (local) level, with appropriate transfer of resources and authority.
Develop and build on existing capacity	At the outset of a strategy process, it is important to assess the political, institutional, human, scientific and financial capacity of potential state, market and civil society participants.

Section I.

Please use the following 6-point scale to indicate the relative performance of each Criteria corresponding to each attribute.

Linguistic values	Score	Explanation
Very poor	1	Criteria is performing very poor regarding assigned attribute.
poor	2	Criteria is performing poor regarding assigned attribute.
Medium poor	3	Criteria's performance is considered medium poor regarding assigned attribute .
Fare	4	Criteria's performance is considered fare regarding assigned attribute.
Good	5	Criteria is performing good regarding assigned attribute.
Very good	6	Criteria is performing very good regarding assigned attribute.

Alternatives \ Attributes	Strategy for Sustainable economic development	Strategy for Sustainable social development	Strategy for Sustainable environmental development	Strategy for Sustainable cultural development
People-centred				
Consensus on long-term vision				
Comprehensive and integrated				
Targeted with clear budgetary priorities				
Based on comprehensive and reliable analysis				
Incorporate monitoring, learning and continuous improvement				
High-level government commitment and influential lead institutions				
Building on existing processes and strategies				
Effective participation				
Link national and local levels				
Develop and build on existing capacity				

Appendix D 4

A framework for culture-led urban development
through creative hub concept. (case study of Iranian free zone (Kish)) .

Dear respondent
This survey is aimed to identify the priorities of principles for planning strategy to overcome challenges. Accordingly, you are invited to fill out the questionnaire regarding the relative significance of each selected criteria (principles for planning strategies for sustainable development) corresponding to all challenges towards sustainable development in Kish presented in the following table. The table below explains all principles.
Any sort of information collected during our research will be kept in confidential. If you have any questions about the research, please do not hesitate to contact on A. Moezoddin@edu.salford.ac.uk
Thank you for your kind cooperation.

Attributes (challenges towards sustainable development in Kish):
1. Economic challenges
2. Social challenges
3. Environmental challenges
4. Cultural conceptual challenges
5. Challenges to Operationalizing Culture in Local Development

Alternatives (international Principles for strategic planning for sustainable development)

Principles	Explanation
People-centered.	Ensuring long-term beneficial impacts on disadvantaged and marginalized groups, such as the poor.
Consensus on long-term vision.	• Strategic planning should be based on a long-term vision with a clear timeframe upon which stakeholders agree. • A long-term vision needs to have the commitment of all political parties.
Comprehensive and integrated	Strategies should seek to integrate, where possible, economic, social and environmental objectives
Targeted with clear budgetary priorities	• A sustainable development strategy must be fully integrated in existing budget processes to ensure that plans have the financial resources to achieve their objectives. • The formulation of budgets must be informed by a clear identification of priorities.
Based on comprehensive and reliable analysis	• Identification of priorities must be based on a comprehensive analysis of the present situation. • Such analysis requires credible and reliable information on changing environmental, social and economic conditions, pressures and responses, and their correlations with strategy objectives and indicators.
Incorporate monitoring, learning and continuous improvement	Monitoring and evaluation need to be based on clear indicators and built into strategies to steer processes, track progress, distil and capture lessons, and signal when a change of direction is necessary.

High-level government commitment and influential lead institutions	Such commitment – on a long-term basis – is essential if policy and institutional changes are to occur, financial resources are to be committed and for there to be clear responsibility for implementation.
Building on existing processes and strategies	• A strategy for sustainable development should not be thought of as a new planning process but instead build on what already exists in the country, • thus enabling convergence, complementarity and coherence between different planning frameworks and policies.
Effective participation	• Broad participation helps to open up debate to new ideas and sources of information. • These should involve decentralized authorities, the private sector and civil society, as well as marginalized groups. • This requires good communication and information mechanisms with a premium placed on transparency and accountability.
Link national and local levels	• The main strategic principles and directions should be set at the central level such as economic, fiscal and trade policy, legislative changes, international affairs and external relations) • But detailed planning, implementation and monitoring would be undertaken at a decentralized (local) level, with appropriate transfer of resources and authority.
Develop and build on existing capacity	At the outset of a strategy process, it is important to assess the political, institutional, human, scientific and financial capacity of potential state, market and civil society participants.

Please use the following 6-point scale to indicate the relative performance of each Criteria corresponding to each attribute.

Linguistic values	Score	Explanation
Very poor(VP)	1	Criteria is performing very poor regarding assigned attribute.
Poor (P)	2	Criteria is performing poor regarding assigned attribute.
Medium poor (MP)	3	Criteria's performance is considered medium poor regarding assigned attribute .
Fare (F)	4	Criteria's performance is considered fare regarding assigned attribute.
Medium good (MG)	5	Criteria's performance is considered medium good regarding assigned attribute
Good (G)	6	Criteria is performing good regarding assigned attribute.
Very good (VG)	7	Criteria is performing very good regarding assigned attribute.

Alternatives / Attributes	Economic challenges	Social challenges	Environmental challenges	Cultural conceptual challenges	Challenges to Operationalizing Culture in Local Development
1. People-centred					
2. Consensus on long-term vision					
3. Comprehensive and integrated					
4. Targeted with clear budgetary priorities					
5. Based on comprehensive and reliable analysis					
6. Incorporate monitoring, learning and continuous improvement					
7. High-level government commitment and influential lead institutions					
8. Building on existing processes and strategies					
9. Effective participation					
10. Link national and local levels					
11. Develop and build on existing capacity					

457