International Journal of Innovation in Agriculture Sciences and Rural Development
Vol.3, NO.4 , P: 59 - 72
Received : 30 July 2021
Accepted : 23 October 2021

Sustainable Cities and Sustainability Indicators (Sustainable Cities (SC) and Smart Sustainable Cities (SSC))

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Abstract:
Assessing the sustainability and development of cities is a topic that has recently begun in countries around the world, especially in the developed countries of the present era, and their ultimate goal is to study the sustainability or instability, growth and development of cities and create a livable future for human beings. Contemporary to non-renewable and inexhaustible resources, the natural living conditions of the hair have made it unstable. On the other hand, continuous population growth, rapidly increasing resource consumption and climate change have created serious problems for human societies. In order to achieve a truly sustainable situation in cities, it is necessary to formulate policies to achieve sustainable cities. Sustainable organizations have placed more emphasis on environmental issues, such as energy conservation, anti-pollution measures in less car use, protection of nature and natural habitats, and the use of renewable sources instead of non-renewable sources. One of the basic pillars of sustainable urban development is the adaptation of development to climatic and indigenous characteristics. The research method in this article, due to its theoretical nature, is descriptive-analytical and the documentary-library method has been used to collect information. The key functions of the United Nations smart cities have been examined and strategies for creating a sustainable smart city have been outlined.

Keywords: sustainable city, urban sustainability, sustainable development, sustainability indicators, smart sustainable city

Introduction :
Building a sustainable and smart city as a vital strategy to reduce the problems posed by urban population growth and rapid urbanization and to overcome environmental change and climate change is inevitable. However, limited scientific research has been done in this regard. The issue of having a healthy planet, a viable future for humans is considered important

today. Creating environmental crises in cities and issues such as air pollution, water, soil and scarcity of water resources and consumption of non-renewable agricultural lands, global warming and climate change, and… issues that are not only fundamental issues for scientists, but also the city Due to the sensitive and decisive role of cities in achieving sustainable development and determining the future course of human life on Earth and accepting the principle that current cities are unstable and can not in the long run, the environment is a problem.Provide livable and quality for their city and town, different ideas and approaches to create more sustainable cities such as green city, healthy city, smart city, urban fuel, quality of life and livable cities… . In all these approaches and new patterns of urban development, attention to the natural environment and acceptance of the principle that the social and economic environment is part of the wider environment of the ecosystem of life and under its control, can be seen.

Sustainability

One of the key concepts in economics is business management. Sustainability. For the first time, it was environmental scientists who paid attention to the concept of sustainability, and the term gradually spread to other areas of management and found its place. What McAlroy says in his book Corporate Sustainability is that the term sustainability was first coined in modern writing by a German miner named Hans Karlowitz. There is another term that is sometimes translated as stability, and that is, stability. Stability, unlike stability, is not a desirable situation. Stability means not changing or minor changes. Sustainability refers to the ability of an ecosystem community, or any system that is currently operating, to operate indefinitely without being forced to collapse due to erosion and depletion of key resources.

Sustainable urbanization

Improving the quality of life in a city from ecological, cultural, political, social and economic dimensions, without burdening future generations, is called sustainable urbanization. In this view, the social and economic development of cities can be accompanied by the protection and preservation of land resources for the current and future generations.

Natural resources and the capacity of natural systems to adapt to the changes that humans make on earth are limited and must be considered when designing for growth. Undoubtedly, urban development in its current form threatens the life of the environment all over the world, which is why there is talk of sustainable urban development everywhere these days. But it is not really clear to most policymakers what the characteristics of a sustainable city are. The British policymakers report addresses a range of economic, social and environmental conditions. But how these conditions come together to build sustainable cities is not clear. Sustainability is a multidimensional concept, so any attempt to measure it must be multidimensional. First of all, we need to know the seriousness of cities for sustainable development. The main indicator to understand how serious a city is in the discussion of sustainable development is to see if this city has a sustainable development plan or not? Sustainable development plan is actually the strategic development plan of the city Is because sustainability is strategic. Some indicators that have been used in sustainable urban development plans

- Existence of a comprehensive regional plan
- Environmental goals

• Health goals
• Energy efficiency
• Local economic development goals
• Zandi quality indicators
• Issues related to environmental and social equalization
• Issues related to governance (administration of affairs) and the degree of authorized participation of citizens in decision-making processes
• Legal arrangements for the implementation of the plan
• The relationship between the city development plan and the regional plan and other upstream plans.

Urban sustainability means attracting, maintaining and developing natural and human resources in cities. A sustainable city is a city that is planned in such a way that the urban community living in it is able to meet the needs of the current urban community without threatening the needs of future generations. Thus, the spatial organization of the city is presented as a space that should enable the urban community to achieve a sustainable city (Soltani, 2008).

Sustainable city

A sustainable city is a city that is able to survive because of the economic use of resources, the avoidance of over-production of waste, and their recycling as much as possible, the adoption of useful policies in the long run. A sustainable city, in contrast to modern cities, has a large volume of input versus a large volume of output. Sustainable city planners should focus on creating cities with less energy inputs and materials, and less waste and pollution (Turner, 2000). Sustainable cities are a viable alternative to destructive twentieth-century urban development. Environmental issues, social and human issues, such as adequate housing and minimum living are also considered (Bahraini, 1997).

A sustainable city is not only a clean city, but also a city where people can earn a fair income, provide adequate shelter, feel comfortable, and put their effort and time into preserving the image of the city. Building a strong, ecologically livable urban economy must be driven by efforts to preserve existing social groups and provide new forms of social cohesion and cohesion (Mukomo, 1999).

green City

Shahr-e Sabz is a city in which the energy, transportation and urban infrastructure infrastructure has reached its most stable state and the energy supply of the city through renewable sources such as solar and wind energy is supplied and the resulting energy is injected into the city through intelligent transmission networks. . The buildings in such cities are in the best possible condition in terms of energy consumption, water and waste production, access to clean transportation is possible for all inner-city routes, and intelligent urban management systems, excessive traffic. Will reduce citizens. In general, such cities bring healthier, more comfortable and more economical life to their citizens.

healthy city

The World Health Organization defines a healthy city as follows: "A healthy city is a city that is constantly striving to create and develop a physical and social environment and to develop sources of cooperation and participation in a way that enables people to mutually "Support others in performing all the functions of life and promoting the realization of their maximum latent power."

Because it is difficult to measure the necessary indicators on a regular basis, to set standards and to identify and determine the impact of each section of society on health, in some areas, such as Europe, assessing health problems is a mandatory part of any development plan.

There are now countless networks of healthy cities internationally, especially in the European region, but the key goal of all of these networks is to ensure that health standards and assessments are present in all urban management and design. Urban and urban development have been carefully considered.

Also, one of the important tools in the development of public health in cities is the development of social entrepreneurship.

In sum, the fundamental goals of the "healthy city" movement are to create a supportive environment for public health; Achieving quality of life for all; Provide basic health needs for all; And providing resources for access to health care.

The most important goal of this network is clearly to focus on health in all political, economic and social activities of governments in cities. Health is a pervasive issue that government and local authorities have a unique role to play in leading these activities, given their ability to support projects in the field of public health.

The "Healthy City" movement or program emphasizes comprehensive promotion, systematic policymaking, and design for health in the following areas:

1. The need to study and focus on urban poverty and inequality of citizens in terms of health facilities
2. The need to pay attention to vulnerable urban groups
3. The need to grow participatory management
4. Paying attention to social, economic and environmental factors and barriers in the health sector.

Ecological city

An ecological city is a sustainable city that can give the inhabitants a meaningful life. Without destroying the ecological base on which it relies. This view should be used in the reconstruction of existing urban textures, new developments around new cities and towns.

Sustainable Development

The term sustainable development in its broadest sense includes the proper management and efficient use of basic resources, natural resources, financial resources and manpower to achieve the desired consumption pattern along with the use of appropriate technical facilities and structure and organization to meet the needs of present and future generations. Satisfactory.

Attention to environmental issues around the world began after the intensification of polluting activities in the 1950s and 1960s, about 65 years ago. The first United Nations World Conference on the Environment was held in June 1972 in Stockholm. The outcome of the conference was 106 letters of recommendation outlining human dependence on the environment and shaping it, and rational use of resources from pollution reduction, public education, the environment, environmental research, and the creation of international environmental organizations. Recommended to countries. The United Nations Environment Program established and designated June 5 each year as World Environment Day.

The achievements that guide sustainable development are as follows:

1. The "Rio Declaration" or "Charter of the Earth", which contains 27 clauses, sets out the basic principles of the rights and behavior of nations in relation to the environment and sustainable development in such a way as to guarantee the life of future generations of human beings and other living beings. The Rio Declaration is more comprehensive than the Stockholm Declaration and the Declaration of the Human Environment.

2- "Convention on Biological Diversity", which was approved by the majority of countries participating in the conference and aims to preserve biodiversity of the world.

3. The "Climate Change Convention", which sets out the objectives and executive plans for the protection of the planet against climate change, including the production of greenhouse gases and the depletion of the ozone layer. The first meeting of the countries that ratified the Convention was held in March 1995 in Berlin.

4. The "principles of the forest", which was not proposed in the form of a convention due to lack of sufficient grounds, but was presented as a principle for the protection of forests for the balance of the world's climate.

5- "Agenda 21", which means the world agenda for the 21st century. Factors listed in Agenda 21 as contributing factors to sustainable development include: reforming non-discrimination-based international trade, combating poverty, changing consumption patterns, population control programs, supporting human health, and providing adequate housing for human beings. Integrating environmental development, atmospheric protection, proper land use, forest control, deforestation, mountain development, sustainable agricultural development, biodiversity conservation, sustainable biotechnology, protection and management of water resources, Toxic chemicals management, hazardous waste management, solid and hazardous waste management, atomic waste management.

In addition to technical programs, strengthening important social groups including women, youth, indigenous peoples, NGOs, local authorities, workers and farmers is also part of the Comprehensive Sustainable Development Plan and suggestions have been made in this regard. Due to the wide range of environmental and development programs, implementation methods to achieve the goals have been envisaged, including financial resources, mechanisms for the transfer of technical knowledge, scientific cooperation for sustainable development, public education, capacity building in countries, the establishment of international institutions. , Predict legal instruments and development of environmental database.

Sustainable development, which was the intellectual foundation of the Earth Summit programs, showed well the scope of affairs at the national and international levels. This scope included economic, social, cultural, technological affairs and the need for interactions between societies at the national and international levels. (Taheri, 2008).

Perspectives on sustainable development

- Technology sustainability

The group believes that achieving sustainable development in all areas is possible through the system and mechanism governing the existing political, economic and social arenas.

- Ecological sustainability

The followers of this group believe that the existing structures in today's societies are unstable and achieving sustainable development requires a new way of thinking to change these structures and changes must be made in the structure of existing political,

economic and social systems. Ecological sustainability offers solutions that first need to be reconsidered in relation to agriculture, housing, energy, urban design, transportation, the economy, the family, resources, forestry, deserts, and the core values of our lives. (Reports of the Fifth Conference on Environmental Quality (CEQ), 1974)

- Sustainability in architecture

The word sustainability has different meanings, but in architecture this word is not completely clear and has no clear definition and covers most of the issue of nature and land conservation. In fact, environmental issues can be considered as an area on which sustainable development emphasizes.

The main goals of sustainable development agreed by 193 countries are:

High-level representatives of UN agencies and civil society met in September 2015 and approved the 2030 Sustainable Development Agenda, which includes 17 main objectives and 169 specific objectives, at the UN General Assembly.

1. No poverty
2. No hunger
3. Optimal health
4. Quality of education
5. Sexual equality
6. Safe water and hygiene
7. Cheap and renewable energy
8. Good work and economy
9. Good infrastructure and innovation
10. Reduce inequality
11. Sustainable cities and communities
12. Safe use of resources
13. Action on the weather
14. Stable oceans
15. Sustainable use of land
16. Peace and Justice
17. Collaborations in sustainable development. (the 2030 Agenda for Sustainable Development, 2015)

Indicators of sustainable urban development:

The World Commission on Environment and Development lists the following principles as essential features of a sustainable city:

Increase economic and social opportunities to cover urban residents.

Reducing the share of energy in urban growth

- Optimal use of water, land and other resources needed for such urban growth.
- Minimize the amount of waste and sewage production and maximize waste recycling
- Creating management systems with sufficient power and efficiency to achieve economic, social and environmental goals
- Directing the technologies used in the city towards the goals of sustainable development

Strengthening the power of different urban areas

- Flexibility in dealing with unexpected disruptions in the city system.

Indicators that should be considered in the study of urban sustainability include:

Population: The main factor in the discussion of urban sustainability is population and its economic, social, environmental and ultimately managerial effects on cities and even the biosphere. Examining the number of population, its growth rate, the rate of migration and its effects on the population structure of the city, etc. can be effective in achieving urban sustainability.

Economic situation: The main goal of the city in a global competitive environment should be focused on two points: one is the maximum use of economic potentials and capabilities and the second is the emphasis on creating diverse economic activities in the city, so that the city can withstand fluctuations and Unexpected

disturbances of the global environment have the necessary flexibility and resilience.

- Climate change: International environmental treaties create a key mechanism in which different nations and countries reach a common understanding of environmental problems and bilateral agreements to resolve and reduce these problems.

- Air pollution: Considering the fact that cities are the main polluters of environmental air quality on a local, national and international scale, recognizing their polluting and aggravating factors in urban environments and trying to reduce them from necessity Are the means of achieving urban sustainability.

- Natural water quality: the need to consider a city as sustainable, providing healthy water resources for residents, preventing disruption of biological and biological quality of surface and groundwater resources around cities and not causing pollution or disruption of other water resources Cities and biological areas around cities through overuse or pollution of biological resources of these cities.

Open society: Cities not only occupy different levels of a specific hierarchy, but are also part of a network. In this global network of cities, different streams of information, capital, labor, goods and services, etc. are flowing. The existence of interconnectedness between cities in various economic, environmental, social and cultural fields, etc., has caused cities in the global urban network to need to work together for their survival.

- Unified and integrated planning: For efficient and effective urban planning, integration in laws and regulations and executive rules between responsible institutions and organizations is essential. Creating and applying a set of integrated and systematic rules and regulations is a method that provides effective returns through thoughtful and coordinated collaborations that allow their feedback as a basic solution by cities to strengthen communication, cohesion. And continuity to be considered.

Ability and potential for innovation and innovation: In order for a city to have the capacity and potential for adaptability, it must be able to innovate and innovate. Without proper innovation and infrastructure, a city will not be able to adapt to new conditions with the right speed of action in the event of disruptions.

- Potential and capacity related to regional infrastructure: means infrastructure potentials, facilities and equipment that connect the city with the rest of the world, such as transportation systems (rail, air, road, sea) and connections. This infrastructure must be developed so as not to hinder the city's participation in the global economy.

Social Capital: According to American sociologist James Coleman, social capital is the ability of individuals to work together to achieve common goals in groups and organizations. To know the amount or capacity of social capital in a city, the following indicators can be used: number and type of organizations, non-governmental and local organizations and associations, their per capita and length of membership, social groups and its per capita number , The level of awareness and knowledge of people about social structures. In other words, social capital is determined by measuring the membership in groups and networks.

Education: Social change and mobility are related to the ability of the education system to equip the population with life skills as well as employment. As the urban economy becomes more global and the service sector more diverse, jobs become more specialized, and as

a result, the need to raise awareness to connect with the new world develops rapidly.

Security: Establishing security as the most basic human need, in addition to meeting the basic (physiological) needs, can also pave the way for meeting other needs such as belonging, respect and self-fulfillment. A sustainable city needs a stable and safe environment for its residents. (Khairgazi Imena, 1396).

Indicators and features of a sustainable smart city.

Today's decisions should not jeopardize the future of children and the next generation and what they choose in the future. We are all responsible for our individual and group actions.

- Sacrifice society for the stability of another society
- Natural resources must be used fairly effectively and not sustainably.
- The use of renewable resources is approved and encouraged by us,
- The use of non-renewable resources should be minimized. Consumption of renewable resources should not exceed the amount of renewable production.
- Establishing free communication between the people and the guild sector and all levels of government is important. We value cultural, economic and environmental diversity.
- Every society must provide a healthy, vital and safe environment for human interaction, education, employment, healthy recreation, entertainment and cultural development. (Asgari, 1397)

Smart and sustainable city, depending on the level of development of the city, the inherent characteristics of the city, the desire to change the current situation, available resources and the demands of citizens, includes a wide range of different urban components that support citizens.

A smart and sustainable city can be a combination of the following:

• Developed urban area
• Smart and stable public sector
• Integrated infrastructure
• Intelligent transportation
• Intelligent physical safety and security
• Smart health
• Intelligent training
• Intelligent knowledge and knowledge sharing and social awareness
• Sustainable buildings with smart tools and appliances
• Sustainable consumption and users who control energy and water consumption,
• Sustainable, clean and green environment with air quality control and solid and liquid waste management
• Smart solutions to provide better services and infrastructure
• Smarter businesses based on digital technologies,
• green economy
• Renewable energies (Asgari, 1397)

The need for a sustainable smart city

1- It is not a smart city, when, everything is in it a lot. Lots of cars, high consumption of food, water, energy and…. One of the signs of a city's instability is the lack of sufficient resources. But municipal waste sources should be used as input for production or energy source. Municipal waste must first be converted and then used sustainably.

2- It is not a smart city, when the various networks that exist within this city are not able to communicate with each other through a system and cooperate and interact with each other. For example, when the power grid is unable to communicate with electrical appliances in the city, how can they know

when is the best time to consume energy? Also, when citywide parking lots are not equipped with smart parking meters, how can drivers find out where they can park their cars?

3- It is not a smart city, when the existing systems and networks are static and there is no dynamism in these systems. Waiting in a long line of traffic during rush hour is not smart, but smarter with fewer cars and more mobility. One of the hallmarks of a smart city is a high level of mobility that allows people to easily connect information, energy, and capital. Finally, it is not a smart city, when not all stakeholders are involved in the planning and decision-making process that will lead to development.

Solutions to creating smart cities

• Provide services for smart city challenges in well-known cities
• Intelligent ICT solutions in the city and region
• Project management consulting services for smart cities
• Establish an independent application management unit to run the smart city
• Smart environmental management solutions for cities as well as for smart industrial areas
• Hospital database management, blood bank and online counseling (smart health)
• Smart data centers
• Intelligent monitoring and security system
• Financial planning for smart city projects
• Architectural services for smart buildings
• Prepare a detailed project report for smart infrastructure components
• Intelligent transportation solutions (ITS intelligent transportation system), smart cards
• E-government, commerce, transactions, bills and online payments
• Intelligent physical infrastructure (water supply, sewerage, drainage, roads, smart energy solutions)
• Intelligent water management and measurement (view, control and analyze all data in one place)
• Innovative solutions for energy efficiency
• Public Internet Access Center
• Intelligent architecture
• Intelligent and sustainable design in the public arena
• safety and security
• View, control and analyze all data all in one place (Asgari, 1397)

Sustainable cities of the world

Cape Town as a coastal city is very vulnerable to the effects of climate change such as bad weather and rising sea levels. To combat this factor (climate change) as well as reduce the carbon footprint, the city developed the "Climate Change and Energy Action Plan", which emphasizes the use of renewable energy and the protection of green space. The city of Cape, with a per capita green space per capita, was included in the Economist Intelligence Unit's African Green City list in 2012, above the average land use category.

Valuing their lands and recognizing the importance of nature in the city's ability to adapt to climate change has made ecosystem mapping the most important strategy for identifying and protecting natural ecosystems. Some of their renewable energy strategies include solar farms, wind farms and solar water heaters. Cape Town's natural biodiversity, known for its extraordinary natural resources, contains some of the rarest species. Plants in the world.

Singapore, Freshwater is essential for both health and maintaining a healthy natural ecosystem. This element can be problematic in cities like Singapore that are not accessible. To overcome this problem, the city developed a water treatment strategy called "NE water". Singapore's new strategies and policies aimed

at improving the natural environment are part of the reason why it is the greenest city in Asia, which has the highest overall ranking in all environmental categories in the "Asia Green City List" in 2012. Slowly

Environmental projects such as the Living City Center (CLC) also contribute to the sustainability of a green city with the overall vision of creating and sharing knowledge in livable and sustainable cities.

Hong Kong In China, Hong Kong is a hub for trade, economy and green space. Most of the city's inhabitants live in parks, sidewalks, public gardens and other forms of green space. It is not surprising that land use is included in one of the most powerful environmental categories in the 2012 Asia Green City List. Nature protection is central to Hong Kong City's future policies and plans. As well as helping to manage and preserve nature, it also ensures that people continue to have access to it.

• Sydney In Australia, the city of Sydney has created a vision called "Sustainable Sydney in 2030", with plans to become as green, global and connected as possible by 2030. Sydney's plans to "green the city" and "urban ecology" are two powerful parts of the blueprint and are very determined to build a strong relationship with nature. The view of the "green city" section is to plant more trees throughout the city and eventually grow them as a canopy for the city, which will be 50% wider than what is currently in place. It cools the city to 2 degrees Celsius and also contributes to the health of the community in the midst of cleaner air.

Stockholm In Sweden, Stockholm was the first city that the European Commission named the Green Capital of Europe in 2010 and serves as a model for sustainable cities. The city of Stockholm, which topped the European Green City List of Buildings and Transportation in 2012, imposed a higher tax on vehicles to reduce greenhouse gas emissions from cars. Driving inside the city, allocated. This very effective solution reduced car smoke and increased the active lifestyle through cycling and walking. The city committed to energy efficiency and the environment and a healthy community.

Copenhagen In Denmark, the European Commission has named the city the Green Capital of Europe. The goal of the long-term environmental plans of Copenhagen is to be able to neutralize carbon in the city by 2025. At the top of the European Green City List in 2012, the prevailing environmental structure and society have been the strongest tools to achieve the goals.

Oslo In Norway, Oslo, another European city with ambitious goals of sustainability, plans to reduce carbon dioxide emissions by up to 50% and greenhouse gases by up to 95% between 1990 and 2030. The city of Oslo ranks first in both the carbon dioxide emissions category and the energy category in the 2012 European Green City List, largely due to their use of renewable energy sources and energy-saving policies.

The city of Oslo has developed a "climate change adaptation strategy" to achieve a resilient climate. According to the Oslo City Council, the development of green spaces that will effectively improve water crisis management will be a golden key. The city of Oslo uses implementation and nature conservation as a way to manage and regulate healthy ecosystems.

San Francisco in California USA San Francisco has been an environmental sanctuary for many years since the founding of the Sierra Club, and has topped the list of all Canadian and American green cities on the 2012 Canadian-American Green List. San

Francisco became widely known for its environmental activities, which focused on recycling and "zero waste" policy. Residents must remove recycled materials, mixes and trash. This policy was effective because they recycled 72% of their waste in 2009. This works by reducing waste disposal, energy consumption and air pollution through recycling, elements.

Bogota, Colombia City officials at the 5th UCLG World Congress in Bogota proposed a "public space policy framework" that includes the importance of the natural environment and the sustainable development of green space and its obligation to maintain a sustainable and resilient city. The use and creation of public green space was recognized as an important strategy in adapting to climate change and improving public health. Designers should set aside a certain amount of green space for more parks around homes, as part of an urban design principle in Bogota.

UN Sustainable Smart Cities

In 2019, the "Smart Cities" initiative to bring cities and the private sector closer together globally - with the support of 17 UN agencies - was integrated into the UN Sustainable Cities Implementation Program.

The U4SSC implementation plan is based on shared partnership networks with governments, international organizations, the United Nations, and the private sector. One of the key components of the U4SSC implementation program is the provision of a global digital solution platform for businesses, cities and professionals, tailored to the needs of the public sector and private sector solutions, and establishing sustainable development goals at the city level. he does.

Key performance indicators

Cities are the hubs of innovation that drive economic development, however, in a nascent period of urban growth, urbanization can have adverse effects on the environment and citizens. In this regard, the U4SSC initiative has developed a set of key performance indicators for Sustainable Smart Cities (SSCs) to provide benchmarks for evaluating participation in creating smarter and more sustainable cities to achieve the Sustainable Development Goals (SDGs).

These indicators allow cities to measure their progress over time, compare their performance with other cities, and, through analysis and sharing, publish best practices and set standards for progress in meeting Provide SDGs locally. City leaders benefit from strategic planning and measuring the progress of the city towards the smart individual goals of their city. As we strive to achieve the UN Sustainable Development Goals, cities benefit from information and communication technologies and technologies. They use digital to solve these urban challenges.

The use of information and communication technology and digital technologies offers urban stakeholders:

• Productivity in urban operations and services,
• A tool to improve the quality of life (quality of life)
• Ways to foster environmental sustainability.

However, sustainability and intelligence are long-term propositions that require thoughtful planning and measurement and monitoring of progress. To achieve this goal, an evidence-based approach based on relevant, high-quality data and the use of best practices is needed.

U4SSC helps cities measure their performance through key performance indicators (KPIs) for smart sustainable cities (SSCs). These indicators are based on an international standard

(ITU-T Recommendation Y.4903 / L.1603 "Key Performance Indicators for Smart

Sustainable Cities to Assess Achieving Sustainable Development Goals").

These indicators provide a standard way for cities to collect data needed to measure performance and progress in:

• Achieving the Sustainable Development Goals (SDGs);

Becoming a smarter city and

Becoming a more sustainable city

The U4SSC KPI provides cities with tools to evaluate and monitor their sustainable development progress to achieve SDG.

According to the SSC, the KPI consists of 91 indicators. Each U4SSC KPI has been selected through a review process by international experts and UN agencies to capture a city's performance in three dimensions: economic, environmental, community and culture. Each of these dimensions provides a separate view of progress and, when reported together, provides a comprehensive view of a smart sustainable city.

Within each dimension, there are sub-dimensions that focus on specific functional areas and progress.

KPIs are then divided into main and advanced indicators. The main indicators are the indicators that most cities are able to report. Advanced indicators provide a deeper view of a city and measure progress on more advanced initiatives.

Through this comprehensive framework that enables top-down and bottom-up analysis, the U4SSC KPI tells the full story of a city's intelligence and sustainability!

The U4SSC KPI is also the basis of the U4SSC Smart Sustainable City Index. This index uses U4SSC city data to provide a comparative ranking of cities in various aspects.

As a city leader, you will benefit from using the U4SSC KPI for strategic planning, measuring your city's progress on smart city personal goals, gathering decision support, setting policies, and increasing city marketing for investment. And your businesses will be better placed to grow in an innovative, supportive and connected environment, as new companies are attracted to all its possibilities. Your citizens will enjoy a better quality of life, easy access to services and a healthy and clean environment. More than 100 cities around the world currently use the KPI, including Dubai, Singapore, Manizales, Montevideo, Maldonado, Foshan, Wuxi, Guangshan, Cairo, Polly, Trondheim, Alsund, Moscow, Valencia and Rimini. (Afshari, 1396)

Conclusion:

Undoubtedly, urban development in its current form threatens the survival of the environment around the world, so these days, there is talk everywhere of sustainable urban development. Sustainable urban development as an important part of sustainable development based on the optimal use of natural resources Based . Urban development, as part of national development policies, moves towards achieving economic growth and ensuring social justice. However, it is not possible to accurately depict a sustainable city and determine the ways to achieve it, because sustainability varies greatly from global to indigenous. What is considered an international standard is a good model for an ideal society. But it is rarely possible to have all these indicators in a community, communities with urban planning and management and the need for public participation in planning can achieve it. Sustainable city is a reasonable replacement for the destructive urban planning of the twentieth century, and in addition to paying attention to environmental issues, it also pays attention to social and human issues, such as adequate housing and minimum living. Given

that sustainable development focuses more on qualitative and human criteria.

Therefore, in order to achieve a real sustainable situation in cities, it is necessary to formulate policies to achieve sustainable cities. Despite the importance of the economic aspects of development, it seems that development is more than economic growth, and in addition to improving the material standard of living, it also includes social justice and indigenous values and traditions. Private companies, knowledge-based institutions and citizens all have useful knowledge and information about the city. A city that does not use this vast amount of data and information cannot be educated and inspired by others. The smart city is based on knowledge sharing and collaboration at all levels of society. Such a society is an open society in which one person can use another person's idea, develop it, and ultimately bring it back to society. Smart and sustainable city, depending on the level of development of the city, the inherent characteristics of the city, the desire to change the current situation, available resources and the demands of citizens, includes a wide range of different urban components that support citizens. In this study, after expressing the general concepts of sustainable cities, ecologically sustainable cities and indicators of urban sustainability, as well as key performance indicators of smart cities of the United Nations and examples of cities

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