aided design systems in solving any problem in the presence of source data in the form of a paper map, which will greatly simplify the complexity of work, reduce its time and improve the quality of design results.

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URBAN AND TRANSPORT PLANNING

The rapid developments that the world is witnessing in all aspects of life, especially after the industrial and technological revolution, have led to the emergence of new challenges related to the environment, which in turn have been reflected in the called ecological, green, and sustainable cities. Cities are responsible for about 80% of global emissions of carbon and greenhouse gases and account for about 75% of energy consumption worldwide. The share of energy demand for transport purposes is about 20% of energy consumption worldwide, and transport operations are responsible for

the emission of about 23% of greenhouse gases because of energy consumption as a result of vehicle movement on the roads, which represents about 74% of this sector. The International Energy Agency assumes that urban transport will increase globally by 100% by 2050, which will lead to an increase in carbon emissions by 70% despite improvements in the technology used in urban transport[1] .

In light of this, the challenges in Arab cities in the field of urban transport are more complex, especially in cities with low economies[2] . Therefore, the idea of this research paper stems from the imperative of planning urban cities characterized by a sustainable urban transport system that is commensurate with environmental, economic and social factors and the international agreement on climate that was reached in December 2015 in Paris. In addition to the Arab orientation, Egypt is a pioneering model for new cities to solve urban problems and overpopulation, and since transportation is one of the most prominent urban problems, the importance of research lies in laying the sound foundations and identifying obstacles to sustainable urban transportation for new cities, which number up to 31 new cities, including the new administrative capital. The research aims to reach a sustainable transport system to push the new Arab city towards sustainability. To reach this goal, the research pursues knowledge of the sustainable foundations and concepts of the urban transport system and a review of global experiences to extract the pillars of sustainable urban transport and its measurement criteria. And then reviewing the reality of the new Egyptian cities through a case study and identifying the current reality of the urban transport system and comparing it with

what is planned in the original master plan and the updated strategic plan.

The main problem is the reality of the current urban transport system for the new Arab cities. There is a large gap between the current state of the urban transport system and global sustainable transport.

A sustainable city: or eco-city is a city designed with environmental impact in mind, to reduce the required inputs from the production of energy, water, food, waste, carbon and methane air pollution, and water pollution. Urban transport is one of the most important influences on city planning and one of the most important basic elements of a sustainable city, through the successful integration between planning and urban development and the method of controlling the size and density of cities and planning and managing urban transport means in them. Sustainable cities improve public transportation and increase pedestrian routes to reduce vehicle emissions. This requires a radically different approach to city planning, with integrated work, all of which needs careful consideration of optimal building density to make public transportation highly efficient while developing solutions to reduce unplanned urban sprawl by discovering new ways to enable people to live close to work[3].

High Density: Density is an essential component of integrated planning and plays an important role in sustainable planning and sustainable urban transport because it supports reducing the use of resources and benefiting from public transportation services. Low density does not support the principles of walking and public

transportation, and low density is one of the characteristics of urbanization and is a major reason for reliance on private cars, inefficient infrastructure and increased pollution. For these reasons, sustainable planning supports four times this density[4].

Figure (1-1) CLIFF MOUGHTIN, 2003[4]

From the figure we notice the difference between the high density of 150 people / hectares for the population of a residential area of 780 m in diameter, which limits the use of transportation, encourages walking and easier access to services, in addition to increasing social ties. Therefore, the importance of high density lies in the proper planning of sustainable and integrated transport, and it is an indicator of the extent to which the goal has been achieved in the planning visions and systems. Increasing density increases the efficiency of transportation systems. Increasing services at public transport stops and lanes encourages their use, thus reducing the use of cars and reducing the pollution emanating from them[4].

Thus, it can be said that the high-density relationship with transport enhances integrated planning, reduces the use of urban transport, reduces energy consumption, reduces carbon emissions and

pollution, and provides more opportunity for the urban transport system to be more sustainable, and thus a new, more sustainable city[4].

World experiences of sustainable cities: the importance of studying Arab and international experiences lies in emphasizing the importance of transport in its sustainability. These experiences carry in their vision and strategy models and sustainable orientation in all its aspects, the most important of which is sustainable urban transport and its impact on its planning and environmental safety in addition to the use of clean green energy, and it was one of the most important foundations for achieving urban transport Sustainable is the high density and orientation of the city that is compatible with the planning of its streets, the road network and the integration of land uses. We also note that the planning of the urban transport system relied on integrated planning that supports high density and walking for the purposes of the various population and rely heavily on public transportation and green transportation

Dusseldorf City development : The city of Dusseldorf in Germany has transformed Federal Road No. 1 into parks, public spaces, pedestrian and bicycle paths, and the construction of a 2-km tunnel to transport vehicle traffic away from the shore of the Rhine River and restore the link between the city and the river.

It is worth noting that the city built that road to solve the traffic crisis in 1957, but it caused the city's isolation from the river's shore, and it cost 550 million German marks to fix that mistake and three years of hard work to return the city to humans on December 15, 1993.

Figure (1-2) Dusseldorf City development

Shanghai city development: The city of Shanghai in China has developed the waterfront, improved the quality of life and corrected the mistakes of the past, by converting the highway (11 traffic lanes) that cuts off the river from the city into a local road (4 traffic lanes) and demolishing the Yan'an Bridge, in addition to providing traffic lights for pedestrian crossing, relying on transportation Collective, increasing the area of public spaces and consolidating its relationship with urbanization of the city.

The city is for people, not cars, a concept that the city of Shanghai with a population of 27 million people has succeeded in achieving and improving the quality of life by respecting scientific

principles and professional norms and launching an international planning competition in 2010 to reach the best possible solutions, in addition to community dialogue

Figure (1-3) Shanghai city development

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