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Methodology for Sustainable Development of Eco and Zero Carbon Cities

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Abstract – Sustainable development is considered the main factor for setting eco- cities. Different interactive relationships between the main elements for sustainable development and the actual situation of the different cities were taken into consideration at this study. The main objective of sustainable development is, how to meet and achieve the required standard specifications of eco –cities in urban planning. A case study was conducted for two cities, the first one was Masdar city in Abu-Dhabi, Emirates and the second was Gangneung city in South Korea. This study discusses the methodology of turning the existing cities to green cities by applying the main requirements and standards of the green cities. These requirements are based on physical, economical, social and environmental aspects. Turning the existing cities into green cities may be achieved by maintaining and developing the available natural limits and resources. Economical studies are based on different factors such as, standard of living and land values. Social studies included the size of community, rates of unemployment and illiteracy. The environmental studies included water resources, renewable energies and natural topography of the concerned cities.

Keywords: Sustainable development; Eco-cities; zero-carbon cities; Green cities.

I. INTRODUCTION

There are a lot of cities suffers from high levels of pollution which it is considered a huge problem. The main objective of this study is how to overcome this problem by applying different methodologies. The obtained results considered the main outlines which enable the urban designers to set up eco-cities. These objectives may be achieved by determining the required standards for green cities, using renewable energies also by studying the different experiments applied by different countries related to this issue. There are some questions need to answer:

- What are the standards required to design green cities?
- What are the advantages and disadvantages of green cities?
- What are the main requirements that must be in the eco cities?

II. METHODS

The main objective of sustainable development is to achieve the required standard specifications for eco-cities in urban planning. This study applied the historical inductive methodology to get the recommended requirements for eco-cities. Analyzing available readings and data enable researcher to satisfy the required standards for urban planning of eco-cities.

Using descriptive and analytical methodology helps the urban designer to study both the international and Arabic experiments for designing eco-cities. The main objective of applying this methodology is to maintain and preserve the sustainability of the concerned cities in the future. Applying comparative methodology helps the designer to compare between the existing experiments to get the required and ideal standards for turning these cities into eco-cities. Deductive methodology may be used after applying the previous methodologies to satisfy the main principles of sustainability. The interactive relations between main elements for sustainable development and the actual situation of the different cities were considered in this study. There are three types of green cities, the first type is eco-city, the second is sustainable city and the third is low carbon green city.

The concerned methodology studied two cases, the first one was an Arabic case and the other was an international case. The study gives a modifiable and applicable methodology required for any existing city. Fig. 1 illustrates the applied methodologies

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