Land Management Optimization
A Model For Multiple Land Use Efficiency

By

NIVEEN SABRY GOMAA MOHAMMED

Thesis submitted in partial fulfillment
Of
The requirements for her degree of

Doctor of Philosophy

In
Architectural Engineering

Department of Architectural Engineering
Faculty of Engineering, Fayoum

Fayoum University
2020

ABSTRACT

Many cities, especially Egyptian ones, are suffering many environmental and urban problems due to the steady increase in their population, such as the urban sprawl, the high population density, the constant pressure on infrastructure and services and the inability to implement cities' detailed plans, especially providing the areas necessary for services. Due to the unavailability of government-owned lands in cities suitable for urban development to meet the required areas for services; the urban planners searched to solve these problems and among the solutions comes the call for the multiple-use of lands; to maximize the usability of this non-renewable resource.

The importance of the research comes in line with the United Nations' Sustainable Development Goals for the year 2015, which were approved by Egypt with the idea of making cities resilient and sustainable, which can be achieved by using lands Multiple land-uses to maximize the benefits from it, without causing negative effects, by choosing compatible land uses that share the same location.

The research aims to create a model to increase the efficiency of multiple land use plots, as a guide for urban planning for existing cities.

To achieve this goal, the research was divided into three main parts:

- Theoretical study: to form an integrated background on the research topic and to clarify the basic concepts related to it.
- Analytical study: To analyze previous global and local experiences that have applied multiple land uses in city planning; to find a suitable way to implement this concept in Egypt.
- The Applied Study: The results of the theoretical and analytical study were tested by questioning the opinion of the concerned experts, then determining the compatibility between services and proposing a participatory matrix, and finally create a framework for applying the multiple-use of lands in Egypt.

The research concluded with a set of results, the most important of which is creating a model to increase the efficiency of multiple-land use plots, in the form of a framework for applying the "temporal multiple land uses" concept in Egypt, consisting of three stages, each of them has a set of objectives that it is proposed to be achieved using several mechanisms for which a number of parties are responsible. The research recommended to amend the current legislative and institutional frameworks in Egypt to suit the application of multiple-use of lands. It proposed the creation of an executive advisory committee, named "Multiple-Use Lands Management Committee" as one of the urban planning departments in cities' councils, as well as forming an administrative team for the multi-use project. It also emphasized and clarified the importance of the role and tasks of the local community in all stages of the framework.