AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF URBAN PLANNING DEPARTMENT

Guidelines for Brownfield Redevelopment Reuse, Case Study of Ramses Zone, Cairo, Egypt

A Thesis submitted in partial fulfillment of the requirements of the
M.Sc. in Urban Planning Engineering

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Statement

This thesis is submitted as a partial fulfilment of Master of Science in Architectural Engineering, Faculty of Engineering, Ain shams University.

The author carried out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other scientific entity.

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Abstract:

Heavy industrial decline throughout the past century left a large number of sites in inner cities empty and derelict.

A large number of sites were left in inner cities abandoned and empty due to heavy industrial decline through the past 100 years. As such industrial sites were no longer required within the cities but rather close to ports and direct roads, the need for such active industrial sites has diminished. Therefore, a need for urban rejuvenation processes to remediate these neglected sites that remain after decades unused and with them remain unused potential. Recently, independent projects attempt to utilize those potentials through a bottom-up approach.

This research uses Ramses Zone, in Cairo as a case study of brownfield sites. To do so, the study has developed two frameworks to identify brownfields and to evaluate them.

This research was conducted with the aim of guiding the government and urban developers in addition to other stakeholders with regard to urban development and particularly brownfield sites' redevelopment.

The first framework identifies potential brownfield on various steps. Beginning with potential brownfield sites' locations and ending with potential sites tax status.

The second framework studies the redevelopment option of a brownfield site to evaluate its viability by examining different elements. These elements stand on the community benefits as well as other local factors that affect the redevelopment process of a brownfield.

The above frameworks were used to reach the conclusion that Ramses zone is a brownfield that is qualified for urban redevelopment. Such frameworks can be further made use of if applied to other potential brownfield sites gradually can achieve sustainable development on a larger level.

Finally, we can get guidelines to identify and evaluates the redevelopment potential of brownfield sit

Keywords: brownfields, redevelopment, framework, guidelines

Table of Contents

List of Tables

List of Figures

List of Abbreviations

CBOs	Community-Based Organizations
EEAA	Egyptian Environmental Affairs Agency
USEPA	United States Environmental Protection Agency
NFA	No Further Action
SGN	Smart Growth Network
MCE	Multi-Criteria Evaluation
EIA	Environmental Impact Assessment
CBA	Cost Benefit Analyses
RRS	Ramses Railway Station
NOUH	National Organization of Urban Harmony
U.S	United State
WHO	World Health Organization
GCE	Greater Cairo's environmental
BR	Brownfield Redevelopment

1. Chapter One: Introduction

Chapter one presents background on brownfield, the problem they represent. This chapter also covers the research objectives, its questions, and design. Sustainability is as a fundamental tool for urban development. Hence, this research develops frameworks that are necessary to identify potential brownfield sites and evaluates the viability of their redevelopment. The end of this chapter outlines the structure of the case study.

1.1 Introduction:

Urban areas are parts of cities; characterized by high population density and human-made surroundings they set the theme for human activities. As population grows, and with migration bringing along greater numbers of inhabitants these urban areas expand. Overpopulation can have a downward effect on certain civilization due to various reasons. An outdated urban planning is one of those reasons specially when it doesn't respond well to rapid growth and expansion.

Another reason is industrial activities tend to be concentrated within the city since there is an abundance of resources such as the required infrastructure, the skilled labor, easy access to capital, and market. However, as cities develop, traditional industries that require large numbers of workers can't afford to remain in urban areas as rental cost increases year after year and everything else goes with it from infrastructure to labor.

Moving from the heart of the city to its outskirts in search of cheaper resources may affect people's residential patterns and in turn contributes to urban sprawl which could characterize such phenomenon as the following:

- Dispersed and spread development with low population density,
- Separation: people live somewhere and work somewhere else,
- Functional open space is missing.[1]

As businesses leave the city, they leave behind their previously developed industrial land abandoned and underutilized within the

urban zones. Brownfield are what those areas are labeled, and they are widely considered problematic for any city since most likely due to their industrial usages they may contain areas that are polluted. Such areas when exist can be a threat to neighboring areas [2].

In addition, assuming that urban sprawl is a phenomenon that requires intervention, brownfield sites when properly redeveloped to benefit the society and its developers could be a viable counter solution for such problem.[1]

Achieving sustainable development within a congested and overpopulated city could be carried out through the reclamation of Brownfields. [3]

In Brundtland Commission's report of 1987, sustainable development was defined as, "development that meets the needs of the present without compromising the ability of the future generations to meet their own needs" [4].

Randolph was one of the first to point out that brownfields' redevelopment could bring to a society much of the environmental, economic and social benefits it needs.

Redevelopment of an identified brownfield site could be a beneficial situation to its stakeholders; its neighborhood, sites developers and the local government assuming that brownfields are considered lucrative largely untapped land resource [5].

1.2 Research problem: the case of Ramses Square

Most development projects don't have proposed solutions for existing brownfield or how to deal with it. In Egypt, there are many unused areas which are classified as vacant land because they lack clear definition. Leaving these areas neglected unutilized may have a negative impact on economic and political and social aspects of life.

1.3 Hypothesis:

There are potential brownfield in Egypt that if reused may add value to their context.