Alexandria University
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City Development through Urban Retrofitting

A Thesis

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II. ABSTRACT.

The huge impact of urban population growth leads to difficulty of dealing with the ageing building stock and existing infrastructure in cities. This in turn affected on the climate change crisis subsequently, many problems have appeared such as huge energy consumption, increasing carbon dioxide emissions, rising temperatures, heat, water and air pollution stress, health problems, flooding and urban food insecurity. Additionally, the absence of the whole cities future vision in its different urban development projects. According to the previous problems, this research sets baseline solutions of creating a specific city future vision throughout implementing retrofitting strategy on all scales. It starts from building and urban retrofitting projects, upgrades them to retrofit city's facilities management, reaches to national sustainable retrofitting and finally, the consideration of the global responsibility for climate change.

Then, the research discusses the eight urban retrofitting key issues (energy, transportation, waste management, water, materials and resources efficiency, land uses, skilled labors and population), analyses its varies dimensions in details and tries to explain it by several project examples.

After that, the research describes the three cities future development visions (smart, compact and self-reliant) after applying urban retrofitting, explaining its retrofitting differences on all retrofitting key issues and compares vision's focus factors. Also, the research applies its findings on the case study to retrofit New Borg el-Arab City (NBC) in to "eco-self-reliant vision" throughout implementing urban retrofitting projects on the eight urban retrofitting factors, retrofitting city's local management and reach social sustainability. Finally, the research concludes general retrofitting frame work for city's development future and sets initial recommendation for Egyptian cities future visions.