

# [With an emphasis on the need for restoration](https://assignbuster.com/with-an-emphasis-on-the-need-for-restoration/)

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With the constant migration ofpeople to cities has resulted them to grow in size and expand it’s services butdue to this rapid growth many essentials have been side-lined or neglectedwhich has made these urban hubs prone to a lot of issues but major being thelimited green spaces and presence of urban heat island. Even in the Parisaccords there was an emphasis on the need for restoration of natural habitatsand prevent further deforestation (Davis et al. (2017)). Many new techniquesand methods have been introduced and implemented with resounding success but inmany cases, they have not been introduced in a large scale or are not relevantto the present context to have a major change or effect on the presentconditions. This paper focus on the one such principal “ The Garden city” it’spositive and negative aspects and opens the idea on integrating other methodswith this core idea.

“ The sights andsounds of everyday life affects everyone” – Victor Hugo (F. J. Osborn) (pg1)Garden City : the twentieth century marked the invention of Aeroplane and Garden city; Onemarked man the ability to fly and the other gave him a better dwellingspace.  (Howard)  (pg1).  It is an urban planning principal inwhich “ green belts” surround self-containedcommunities, these communities contain proportionate areas of agricultureresidences and industry.

Sir Ebenezer Howard wanted tocombine both town and county in order to give the working class an alternativeto work in the agriculture sector. His idealisedgarden city would house 32, 000 people on a site of 6, 000 acres (2, 400 ha), planned on a concentric pattern with open spaces, public parks and six radial boulevards, 120 ft (37 m) wide, extending from the centre.(Goodall, 1987).

Verticalgardens: A garden that grows vertically using supportsystems, rather than horizontally. vertical garden  can also be extended to even the plants thatgrown on a trellis or even a fence . This isn’t a modern concept as vertical gardens existed in ancienttime with example of hanging gardens of Babylon to narrow back yards of palacescovered in vines in the Mediterranean region dating 2000 years back (Kohler2008). Roof Gardens : When the roof of a building is converted to a garden. While roof prove a aesthetical look they are also used for growingroof plantings which may yield food, hydrological benefits, temperaturecontrol, corridors or habitats for wildlife, recreational opportunities, architecturalenhancement and in providing large scale ecological benefits (Louise2009)Vertical farming : The use of vertical stacked layers for the productionof  medicinalan food based plants. integrated structures and/or vertically inclined surfaces(such as in a shipping container , used warehouse or skyscraper). The ideas formodern vertical faming include controlled-environment agriculture (CEA)technology and the  usage of indoorfarming, where there is control over all environmental factors.

Thesefacilities utilize fertigation , environmental control (temperature , gases, humidity ) and artificialcontrol of light.  1.    Study: Garden City The author (F. J. Osborn)praised ebinizer howard’s unique combination proposal. Which included8 points such as : Amenities : whichgives the houses with private gardens, space for schools, parks , parkways andspaces for other functional uses.

Town and countryrelationship : the defined town area is surrounded by a large reserved land foragriculture which enables a mutual benefit for town and farm people. UnifiedLandownership : The entire site was to be put under trust or quasi-publicownership. This would help secure the social element and making the planningcontrolled. This development wasa social reform with emphasis on land management and self-government. While’Garden city’ experiment was initially started in  Letchworth Garden City and Welwyn Garden Cityreceiving both criticism and prise over the years.

For example, in a journal(Parham, SBoyfield, K R, Garden City Perpectives, 2016) praises the ideaand states that Garden Cities have demonstrated very few negative connotationsand associations. High profile initiatives, such as the 2014 Wolfson EconomicsPrize co-ordinated by Policy Exchange. But according to author (Abel, C, 2010)who states that the garden cities build with Howard’s principal have faced automobiledependent, low-density suburbs of Australia’s major cities. Subject to extendeddroughts, shrinking farmlands and raging bushfires, the continent isparticularly vulnerable to the effects of climate change.

While the great many aspects ofgarden city were to improve the daily lives for the people in terms ofenvironmentally and socially, But, it a cannot be implemented in a modernperspective for various reasons due to the ever-expanding cities and the slowdecline of agricultural field due to rapid city expansion and climate change.  The scope of the garden city isvery small as it handles only a population of approximately of thirty thousandover a large area which would be an economic burden. While the idea was to movepeople out of the cities it increased the dependency on automobiles which inturn negates its positive effects and the small population it handles do nothave a drastic effect on the major urban cities which are affected by urbanheat Island, air and sound pollution. Vertical Farming The author (Voss 2012)states that importance of vertical farming over modern day agriculture whichhas a lot of negative effects on the environment. he points most of his studythat based on the works of Prof Dickson Despommier, who introduced the conceptin 2009. He relocated the indoor farming to the urban environment.

The focus goestowards the water where he states the growing need for water for the growingpopulation and nearly use of approximately 70% of fresh water of which most ineither evaporated or run-off. The water used in vertical farming on the otherhand can be controlled using methods such as Hydroponics and Aeroponics whichcan potentially conserve up to 95% of water which eliminates agriculturalrunoff and it negative effects on both environment and humans. He also statesthat due to the controlled environment the water lost through evaporation andtranspiration can be claimed and reused. (Voss 2012). Another aspect of modern agriculture is the land requiredfor production. Based on studies (Groom, Meffee & Carroll, 2005) theplanets biodiversity and ecosystem have been severely effected this includesestuaries, wetlands, grasslands, tropical and temperate forests as these landshave been altered for cultivation purpose.

These ecosystems can be graduallyrepaired with the help of vertical farming. As translocating the foodproduction would relieve and give time for the mother nature to repair the land(Groom, Meffee & Carroll, 2005). This could intern help increasebiodiversity and carbon sequestration.  Another aspect of modern agriculture is the land requiredfor production. Based on studies (Groom, Meffee & Carroll, 2005) theplanets biodiversity and ecosystem have been severely effected this includesestuaries, wetlands, grasslands, tropical and temperate forests as these landshave been altered for cultivation purpose. These ecosystems can be graduallyrepaired with the help of vertical farming.

As translocating the foodproduction would relieve and give time for the mother nature to repair the land(Groom, Meffee & Carroll, 2005). This could intern help increasebiodiversity and carbon sequestration. Vertical faming occupies much less areaas it is stacked floors over one another instead of spreading horizontally. As Ebenezer Howard wanted to have an interactionbetween the town and farmlands. Vertical garden achieves the same. Inthe present scenario fossil fuel in consumed for transportation and storage. Transportation for agricultural foods is source for pollution and greenhousegas emission. Vertical farming meets the needs of an increasing urbanization.

Buildings used for farming can be placed anywhere while outdoor fields arestatic in location. By strategically placing vertical farms inside or in thenear vicinity of urban centres and cities, it would meet the need forlocalization of food production (Voss 2012). Green Roofs Green roofs are considered as one of the most effectiveresolution for several problems both in building and urban level related to theenvironment.

In their research (Jaffal et al. (2012)) they state that greenroofs improve storm water management, reduce air and noise pollution, increaseanimal and vegetal biodiversity in cities and reduce carbon footprint. They further state that the longevity of the roofingmembranes is improved by green roofs as the thermal stress they are subjugatedto is limited. The paper further states that the building energy performance isgreatly impacted by green roofs through a series case studies and calculationsas roof gardens provide solar shading, thermal resistance andevapotranspiration. The paper also identifies the green roofs into two categories : effective (15-20 cm soilthickness) and intensive (15-20 cm thickness).

With the former being easier forretrofitting as additional strengthening is not required for the smaller load (Jaffalet al. (2012)). Vertical Gardens Vertical gardens are useful tools in urban environments forthe mitigation of noise pollution.  Itcan be stated that many places in urban environments or even inside buildingsare reverberant or noisy.

Thermal mass is used as a measure to maintaincomfortable and stable indoor. As a result acoustically hard materials such asmasonry wall and concrete are used in which sound absorption is lacking. However, these do not drastically decrease the noise and increase urban heatisland effect.   The paper also states that Vertical gardens also lead in thereduction of heat transfer between surrounding environment and a building basedon various other papers and studies. It further claims based on studies thatVolatile Organic Compounds in the air are filtered by the microbial activity ofroot systems, the leaves capture particulate matter and wellbeing andproductivity increases coupled up with decrease in stress levels when incontact with plants. To support their claims the paper shows the result ofexperiments done with 50 modules of garden spread across an area of 10.

125 m2. The author further states that based on required specific acoustic designersworking on vertical gardens should tune the thickness of the substrate. Forexample thinner substrate are more suitable if lower frequencies are not takeninto consideration; thicker substrate is more suitable if lower frequencies areessential. Another research (davis, 2015 ())  states that the vertical gardens can be usedas evaporate coolers.

This is achieved through a mathematical model and laterexperimented with setup models. 2.   Conclusion of the Study While these elements affect a building and their surroundingthey do not have a largescale effect.

As they are yet to be implemented in alarge scale. While Ebinizer Howard’s garden city may not be suitable to thepresent context it still addresses many issues, we face today. With the ever-expandingcities it can be investigated that the aspect of developing a city extension withmore vertical elements having a multi-functional role incorporated with emphasison roof gardens, vertical gardens and farming integration with with the ‘ uniquecombined proposals’ of garden city. The modern garden city will be able toaddress many of the environmental issues in a city and give the city a unique aestheticallook.