



3GE COLLECTION ON AGRICULTURE

VERTICAL FARMING



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**3GE COLLECTION ON AGRICULTURE:
VERTICAL FARMING**



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Vertical Farming

In recent years, urban agriculture has become a popular countermovement, which aims to reduce the environmental impact of conventional agriculture, increase food security, and enhance social cohesion in cities. The continuous trends of increasing population, urbanization, lessening water supply, and continuing climate change have contributed to declining stocks of arable land per person. As land resources for agriculture decrease, policy makers are faced with the challenge of sustainability and feeding the rapidly growing world population which is projected to reach approximately 9.7 billion in 2050. Solutions for improving future food production are exemplified by urban vertical farming which involves much greater use of technology and automation for land-use optimization. The vertical farm strategy aims to significantly increase productivity and reduce the environmental footprint within a framework of urban, indoor, climate-controlled high-rise buildings. Recently, the application of Vertical Farming into cities has increased. Vertical farming is a cultivating vegetable vertically by new agricultural methods, which combines the design of building and farms all together in a high-rise building inside the cities. This technology needs to be manifest both in the agricultural technique and architectural technology together; however, little has been published on the technology of Vertical Farming.

The Vertical Farming is the advanced level of agriculture technology where this has to be practiced when there is unavailable of land and other requirements for the perfect structure of farming mode. Vertical Farming system is designed for the future purposes where the sources such as electricity, low level of water availability are may or may not be occurred in the future days. So in the way of handling those situations the system involved with the renewable resourcing process, where the wind mill can be used to generate electricity for the water pump process for supplying water to the crops, and solar energy are also added additionally to generate power for the producing of artificial sunlight to the crops.

This book entitled "Vertical Farming" deals the methodology, harvesting technique, water management and crop cultivation & yielding process. Considering the recently industrial revolution carbon dioxide gases is highly increased in very high manner, resulting in climate change and global warming effects in agricultural production. As growth in population is increasing rapidly and area of agricultural land is decreasing brought about the world's food security issue. Food sustainability improved by urban agriculture for a country and urban area's formation affected through its effect on planning, design and construction. All though adoption of concept of vertical farming with the growth of urban agriculture is not a straight forward process. There are numbers of factor to consider, for example, cultivation quantity and quality, design and supporting technology, in order to successfully implement vertical farming in the city. This concept can be used to explore the utilization of vertical spaces for horticultural crop production in urban areas. Increase in production of food by such technique can be used for conversation and recycling of natural resources. Sustainable urban growth can be achieved through ecofriendly vertical farming. Use of organic crop can reduce the Food borne diseases and illness.

This book explains how the vertical farm will have an incredible impact on changing the face of this planet for future generations.



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