



**Final Year Project Showcase Batch 2018  
Year 2023**

<p><b>Department:</b> Architecture and Planning. <b>Programme:</b> Undergraduate.</p>	
<b>1</b>	<p><b>Project Idea</b></p> <p>Urban Agriculture can facilitate achieving food sustainability on a neighborhood level in cities.</p>
<b>2</b>	<p><b>Process</b></p> <p>The process involved extensive research from primary and secondary data to form a foundation for the design project. Literature review and field surveys were carried out to understand urban farming and its implementation in Karachi. Furthermore, target groups were involved in the research through interviews and surveys to obtain an existing overview of current agricultural practices and the expectations of the user from the proposed project.</p> <p>Experts consulted for this research included architects as well as agriculture experts. The questions asked from the agriculture experts were based on the agriculture practices that can be easily employed in urban areas, the ways of recycling and reusing water and the building typology most suitable for blending cultivation and the community. The architects were asked about the suitable building typology for this project, the architectural initiatives that can be taken to better facilitate urban agriculture in the existing context and identification of case studies that help in understanding the implementation of such projects globally.</p> <p>After analysis of research and case studies, a program was designed specific to this project so that the research and design would overlap together. An Urban Farming Complex that combined the multiple functions of Production, Education and Recreation was identified to be a beneficial project implemented on the basis of this research.</p>
<b>3</b>	<p><b>Outcome</b></p> <p>Blending agriculture and architecture to create an integrated Urban Farming Complex that would facilitate in achieving food security in cities, train the community in sustainable agricultural practices and provide local entrepreneurship to urban farmers.</p>
<b>4</b>	<p><b>Evidence (Theoretical Basis)</b></p> <p>Please provide the summary of the FYP instead of attaching the FYP report.</p> <p>According to the Global Food Report published by the World Food Programme, Pakistan is one of the 55 countries that are most vulnerable to food insecurity. With crops suffering damage and the rural community in turmoil after the floods of 2022, agriculture has been adversely affected and food shortage is predicted for the cities of Pakistan in the upcoming years.</p> <p>This research aims to study architectural initiatives to combat the issue of food crises.</p>



	<p>Furthermore, it focuses on discussing whether urban farming can be adopted in cities in order to achieve the SDG of zero hunger. Urban Farming is defined as growing crops within urbanized areas to provide a source of food and income for city dwellers. This research intends to explore the cohesion between urban farming and the built environment as a solution for food shortage.</p> <p>The methodology of this research is to study urban farming systems applicable throughout the world and to analyze their application in the context of Karachi, using case studies and technical evaluation of the latest systems used for urban agriculture.</p> <p>The expected outcomes of this research are to obtain an in-depth understanding of urban farming and the ways it can cater to food shortage. It will focus on integrating urban farming as an essential aspect of designing future buildings so that the city will be able to grow its own food sustainably. It will also help in evaluating the technology used for urban agriculture as well as the practical implementation of urban farming in the context of Karachi.</p>
5	<p><b>Impact on Sustainability of Urban Regions or SDG-11 “Sustainable Cities and Communities”</b></p> <p>Sustainability is a key aspect of the Urban Farming Complex. The project incorporates renewable energy sources such as solar panels for Controlled Environment Agriculture (CEA) units and greywater recycling to conserve and reuse water in irrigation. Composting and waste management strategies are implemented to minimize environmental impact and generate organic fertilizers for the farming operations.</p> <p>This project also aims to promote sustainable communities through the community engagement spaces integrated into the complex, including a farmer's market, a cafeteria, and gathering areas. These spaces promote social interaction, local entrepreneurship, and the exchange of ideas. The farmer's market serves as a direct link between farmers and consumers, making the complex a commercial venture that facilitates the residents in neighboring areas to procure fresh vegetables. The complex also incorporates educational facilities, including workshop halls and demonstration spaces. These spaces provide a platform for training on sustainable farming practices to urban dwellers, students, and farmers. As a result, the users of this project are being promoted to grow locally, grow green and learn effective and sustainable agricultural practices.</p>
6	<p><b>Competitive Advantage or Unique Selling Proposition</b></p> <p>(Cost Reduction, Process improvement, Attainment of any SDG (Sustainable Development Goal), increase of market share or capturing new market or having superior performance over a competitor. In summary, any striking aspect of the project that compels the industry to invest in FYP or purchase it. Some detailed description is required in terms of how, why when what. You can select one or more from the following dropdown and delete the rest of them). Please keep relevant options, delete the rest of them, and correct the sequence</p> <p>This project is focused on establishing a demonstration farm for urban agriculture with a pilot project introducing Controlled Environment Agriculture (CEA) technologies. Therefore, this Urban Farming Complex features a hybrid production zone with indoor farming units as well as outdoor farming area that collectively contribute to the revenue generation and the training facilities provided in the complex.</p>



	<p>The competitive advantage this urban farming complex has on the market is that by bringing agriculture closer to urban dwellers, it is creating a symbiotic relationship between the city and its food sources. Not only does it promote sustainable production and consumption of vegetables, it also involves the community to learn urban farming, grow their own vegetables, support local urban farmers and buy green as well as promote a sustainable and healthy food source generation. It creates a new market for urban farmers who are involved in traditional farming as well as Controlled Environment Agriculture strategies.</p>
a	<p><b>Attainment of any SDG</b> (e.g. How it is achieved and why it is necessary for the region)</p> <p><b>SDG#12: Responsible Consumption and Production:</b> has been attained through this project by the sustainable growth of vegetables that constitute an essential portion of our daily intake. Through this project, hyperlocal agriculture and community involvement is being promoted, enabling food sources to be produced close to the consumers and thus achieving sustainability in production and consumption.</p> <p>This project also aims to facilitate achieving SDG 2 of zero hunger for the region which is essential to prevent food crises and malnourishment created due to shortage of food sources. The urban farming complex will cater to achieving food security in terms of daily consumed vegetables for the specific region.</p>
b	<p><b>Environmental Aspect</b> (e.g. carbon reduction, energy-efficient, etc.)</p> <p>By introducing urban farming in the region, this project is minimizing carbon footprint and contributing to the addition of green space to reduce the heat island effect. Urban agriculture will facilitate in achieving food security, use up the greenhouse gas accumulated in dense environments and act as an oasis of nature and comfort to the surrounding environment.</p>
c	<p><b>Cost Reduction of Existing Product</b></p> <p>This project focuses more on the availability of the product (vegetables) rather than the cost reduction. However as the product is being produced close to the consumers, the reduction in transportation from rural to urban areas contributes in making the vegetables more affordable.</p>
d	<p><b>Process Improvement which Leads to Superior Product or Cost Reduction, Efficiency Improvement of the Whole Process</b> (e.g. What is the issue is current process and what improvement you suggests)</p> <p>Currently, the complex was designed as a demonstration farm with CEA technologies pilot project due to the lack of technical expertise and awareness of CEA in the general public. In the near future, if such projects are implemented to train people in CEA and sustainable agricultural practices, then a high tech urban farm can be proposed that would focus on generating higher yield of product and optimum use of available urban space for food production. A more advanced CEA farm would increase the efficiency of production and result in more agricultural products to be sold commercially at the produce market.</p>
e	<p><b>Expanding of Market share</b> (e.g. how it expand and what is the problem with the current market)</p>

	<p>Currently, the market share consists of vegetables brought from agricultural lands of Ghara, Hyderabad, Malir, Gadap, Kathore and Vindar. This project will expand the market share for locally grown vegetables that have better shelf life as they are not transported from far off agricultural lands. Vegetables and leafy greens have lower shelf life compared to fruits and other agricultural products so transportation from rural to urban areas affects the nutritional values of the food items. If these vegetables and greens are grown close to the consumers, they will have better nutritional value and transportation costs as well as the carbon footprint will be minimized.</p>	
f	<p><b>Capture New Market</b> (e.g. Niche market or unaddressed segment)</p> <p>Urban farming in itself is a new market gaining the public's attention over the past few years. Establishing urban farms such as the one proposed in this thesis project will capture a new market of urban farmers and CEA technology farmers that are currently not operating on a large scale.</p>	
7	<p><b>Target Market</b> (Industries, Groups, Individuals, Families, Students, etc) Please provide some detail about the end-user of the product, process, or service</p> <p>Urban farmers, students, agriculture enthusiasts and families. The end users of this project are people who take part in the farming operations such as production and processing as well as training the students and interns who sign up for the training program. Furthermore, the consumers also make up a major part of the target market and they are the people living in surrounding areas who have access to the urban farming complex to buy fresh vegetables from the produce market.</p>	
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10	<b>Pictures</b> (If any)	<p>MASTERPLAN</p>



# SUSTAINABLE URBAN REGIONS

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