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## Urban Agriculture during and Post Covid-19 Pandemic

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### Abstract

The uncalled-for pandemic situation caused due to novel Covid-19 virus had detrimental effects on both lives and economy. There was widespread job retrenchment around the globe. The movement of migrant workers to their native places had crippled the agro-industries in many parts of the country. The complete shutdown leads to travel disparities across the country that fractured the supply chain. Food insecurity became a concern in many parts of the world. Urban agriculture grew at a faster rate to maintain food security during the pandemic. It will be critically important even after pandemic to meet the ever-growing population in urban areas and reduce the burden on rural agriculture. Urban agriculture is of different forms like a kitchen garden, rooftop garden, backyard garden, vertical farming, greenhouse farming, beekeeping, etc. Urban gardening can play an important role to have positive socio-cultural impacts, improve the environment, health benefits and add revenues to the economy.

### Introduction

The Covid-19 pandemic that started in 2019 in China, to put a check on the spread of virus government of different countries declared a complete lockdown all over. The unprecedented pandemic situation, while adversely affected the life and living of the people around the globe, the agriculture sector was scarcely affected. It is evident from the escalated GDP in agriculture at the rate of 3.4% (Table 1) as compared to other segments during this difficult situation. When such a devastating pandemic is a greater challenge for the developed nations, developing nations have to face the draconian consequences of pandemic along with the huge burden on the economy. As a result, they are bound to suffer in terms of poverty and job curtailment. Reports of the Centre for Monitoring Indian Economy showed that 23.5% of the population were unemployed in April 2020 due to lockdown. The enormity of the Covid-19 assault has disrupted the activities and the supply chain management significantly and urban areas were cut off from the rural areas.

In due course, the lockdown triggered a panic button among the migrant workers and immediate countermeasures failed to stop the movement of workers to their native places which affected the production in agro-industries and leased lands. In a few days of an increase in lockdown, people started buying and stockpiling food stuffs which in turn created a temporary acute shortage of food at a local level. The travel restrictions resulted in logistic difficulties for the traders leading to supply delays and post-harvest losses. There was a lack of access to formal markets. It became difficult to keep pace with the demand in urban areas. Even though the government provided cereals for the people below the poverty line, many lower-

middle-class families suffered from poverty and hunger. Some people were left jobless, some half salaried and other groups were working from home. Sudden restrictions for movement lead to psychological problems either due to loneliness or joblessness. Even there were increased cases of suicides around the globe. To overcome this, urban agriculture could be an option to improve mental well-being and revenue. In another way, it can restrict the movement of people and limit the spread of the Covid-19 virus.

Table 1: Quarterly estimates of GVA and GDP of India

Industry	April-June 2019-20	April-June 2020-21
Agriculture, forestry & fishing	3.0 %	3.4 %
Manufacturing	3.0 %	- 39.3 %
Trade, hotel, transportation, communication & services related to broadcasting	3.5 %	- 47.0 %
Public administration, defence & other services	7.7 %	- 10.3 %
Gross Value Added (GVA)	4.8 %	- 22.8 %
Gross Domestic Product (GDP) (At basic prices in Q1 April-June 2020-21)	5.2 %	- 23.9 %

Source: National Statistical Office (NSO)

## Urban Agriculture

Urban agriculture or urban farming is a practice of growing food and food products within urban areas and peri-urban areas (in the vicinity and perimeter of urban areas). According to a report published by UN DESA/Population Division (2018), more than 68% of the world population is going to reside in urban areas and in India, the urban population stands at 461 million is expected to grow additionally by 416 million by 2050. Along with rural agriculture, urban gardening needs to extend its hands of help to meet the huge demand of this growing population. In a pandemic, urban agriculture has flourished during a few months of lockdown in many parts of the world like Jakarta, Singapore, and Australia.

In India, there have been lots of reports on successful urban gardeners. Some started it with a fear of food shortage and others used it as a stress buster. In the wake of the pandemic, urban farming has many advantages. Recently it is in high demand because of the consciousness of people towards increasing their immune system to fight the virus. People in urban areas are growing medicinal plants, vegetables, and fruits to get healthier chemical-free foods. Not only during pandemic, but also after the pandemic this farming can give entrepreneurship opportunities to many jobless people and can meet the demand of growing population. Crops like

green leafy vegetables (spinach, coriander, curry leaves, etc.), vegetables (tomatoes, Brinjal, capsicum, peas, guards, etc.), fruits (banana, guava, pomegranate, sapota, mango, etc.), medicinal and ornamental plants of short duration are highly suitable for urban farming.

## Types of Urban Agriculture

- **Backyard Gardening:** It is growing of some short duration vegetables and fruits in the small backyard space behind the house. Neighbours can share each other’s backyard space to cultivate and meet their daily requirements or for marketing purposes.
- **Kitchen Garden:** It is growing vegetables and fruits with the kitchen waste as manure. It helps to meet the daily needs of a small family and saves money.
- **Rooftop Gardening:** In urban areas where there is constrain of space, a group of families can use their rooftop for the cultivation of required crops. It is the best way to produce food for daily use and even surplus food will be sent to the market to earn money.
- **Vertical Gardening:** It is the use of vertical space and grows more food per unit area. This can be done in big apartments or old abandoned buildings.
- **Street Gardening:** In localities, the available pavements and empty areas can be used for landscaping which increases the aesthetic value and used for recreational purposes.
- **Greenhouse Farming:** Greenhouse can be set up in an empty area near a locality by a group of local people to grow vegetables and fruits. The controlled environment of greenhouses helps produce more as compared to open cultivation.
- **Container Gardening:** This is the use of waste materials like bottles, bags, baskets, broken containers and many more to grow crops. Bag gardens and hanging bottle gardens have increased in houses recently.
- **Wasteland Gardening:** Many plots of government are abandoned for years. This can be given in lease to farmers for cultivation of crops which will keep the land fertile and add profit to farmers.
- **Peri-Urban Agriculture:** It is farming in the vicinity of urban areas. This can reduce the transportation cost for the farmers and they can earn more profit out of it.
- **Urban Animal Husbandry:** Urban dwellers can choose a location and rear different types of animals like dairy, poultry, sheep, goat, etc. based on the demand of local people. Dairy will be of the great demand for people in urban areas who completely depend on packed milk.
- **Urban Beekeeping:** Though it comes with various restrictions in urban areas, bee rearing for honey and pollination purposes could have a lot of income generation and environmental benefits.

• **Urban Aquaculture:** As the people of urban areas are dependent on frozen seafood, culturing varieties of fish in an artificial pond or any water resources available can be of great demand to obtain fresh seafood for local people.

## Advantages of Urban Agriculture during and Post Pandemic

### 1. Nutritional and Health Benefits

It allows to access fresh nutritious chemical-free foods. It can increase food security among local communities. Moreover, it helps people to involve themselves in physical exercise in lockdown and enhance the mental wellness of people. As the fruits and vegetables are fresh and unprocessed, it retains essential vitamins and minerals.

### 2. Economic Benefits

For some urban gardens, the cost of production is negligible as they use an organic way of farming. Apart from meeting the daily demand of the family, the surplus can be sold in the local market to raise profit. The woman house makers can also contribute to family income this way. As during pandemic, many lost their job, this can be the best way to generate job opportunities. This system has the potentiality for entrepreneurship development among unemployed people. Besides, wasteland agriculture can reduce government maintenance costs.

### 3. Socio-Cultural Benefits

During the lockdown, interaction among people had decreased. This is a great approach wherein limited people can form a community and cultivate their food in their locality. It will help strengthen their social bonds. They can increase the aesthetic value of society and increase greenery around which in turn will have a positive impact on the psychological well-being of people.

### 4. Environmental Benefits

Urbanisation is going to be a great threat to the environment in near future; hence, making cities green can save biodiversity around the city. Rooftops of big malls, green bridges, growing crops in unused lands and pavements can reduce environmental pollution in cities. This method will increase greenery around the city, reducing pollution to a large extent and improves the quality of air. Vertical and rooftop gardens can decrease the heat in the

apartment. Aquaculture can save the water bodies from getting polluted with sewage effluents.



Figure 1: Advantages of urban agriculture during and post COVID-19 pandemic

## Disadvantages of Urban Farming

- It has the potential to pollute the environment if chemicals are used.
- Land availability is a constraint.
- In some urban areas, water scarcity is a major problem.
- In some forms of urban agriculture, the production costs are very high.

## Conclusion

The Covid-19 pandemic taught us the dependence of urban cities on rural areas for food grains, vegetables, livestock, etc. This points out a need for an alternative source of food for an unforeseen circumstance. Growing food products in urban and peri-urban areas can tackle the scarcity of food in any situation. Urban agriculture can play a significant role in developing healthy and sustainable urban cities.

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