THE UNITED NATIONS DEVELOPMENT PROGRAMME

Redefining urban areas as agricultural spaces

German International School
of The Hague
Model United Nations

[Name of Student Officer]

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Student Officer: Aqila Syahanjani

Position: Main Chair

Introduction

Rapid urbanisation has become one of the major defining global trends of the 21st century. According to the United Nations (UN), over half the world's population currently lives in urban areas, which is expected to continue to increase[1]. While urban growth has driven innovation and economic growth to unprecedented levels, it has also added pressure to challenges like food security, environmental damages, unemployment and many more. These issues are heavily highlighted in developing countries or less economically developed countries (LEDCs). The United Nations Development Programme (UNDP) can play a crucial role in addressing these challenges through meaningful debate and resolutions which integrate sustainable development strategies focusing on economic growth and social equality.

Traditionally, cities have been designed, not to produce but instead to consume, relying on rural areas and the international supply chain for food. This dependence can have a negative impact on a country's growth and development especially during supply chain crises like the 2008 financial crisis or 2020 COVID-19 pandemic, which highlights the importance of solving this issue now.

Urban agriculture has proven beneficial in LEDCs, where urbanisation can often cause areas receiving limited access to fresh food or employment opportunities, which can hinder a city's economic growth. For example, cities such as Accra, Ghana, have seen a rise in community-based farming, improving household food security as well as income, for both men and women alike and increase community engagement across the city.[9] Furthermore, green infrastructure such as green roofs and vertical farming can transform urban spaces in a way that increases biodiversity and contribute to local economic development.

In addition to social and economic benefits, solving this issue can also support local environmental sustainability. Natural architecture can be designed to mitigate the 'heat island effect' by improving air quality and reducing carbon emissions that derive from long distance food transportation. As climate change continues to threaten global food systems, integrating green infrastructure into urban planning can be the next step to take to achieve the 2030 Sustainable Development Agenda.

Definition of Key Terms

Urban agriculture
The process of growing food and produce and raising animals and livestock within cities using various methods such as green roofs and vertical farming (mentioned below.)[2] Urban agriculture can help boost a city's sustainability and sustain community engagement which is needed for an area's development.

Food security
A condition in which people have access to safe and nutritious food at all times.

Vertical farming
Vertical farming is a process of growing crops in vertically stacked layers, which is ideal in tight or narrow spaces. It uses a controlled environment, like using LEDs as a light source of aeroponics to limit the use or need of soil[3]. This controlled environment helps greatly improve food security, vertical farming being one of the major methods to create produce within cities.

Green infrastructure
Using natural or at least semi-natural architecture such as green roofs to enhance environmental quality and support local biodiversity.

Urbanisation
The process in which more and more people from rural areas continue to move to live in urban cities, due to economic factors such as better job opportunities or a way to increase an individual's quality of life. Rapid urbanisation can add a strain to infrastructure, housing, food systems and public services especially in developing countries.

Hydroponics/aquaponics
A technique that involves growing plants without soil, using nutrient-rich water instead. This allows crops to grow in limited spaces. Involving aquaculture (aquaponics) means using waste produced by fish to supply the plants with nutrients which the plants will in turn, help filter and clean the water. These techniques help decrease the resources needed in vertical farming and have a low environmental impact.[4]

General Overview

Urbanisation

Urban cities have traditionally served as the central area for economic development and culture rather than focusing on food production. As global populations grow, cities increasingly depend on rural regions and the international supply chain for food. This reliance can have negative effects and consequences considering certain disruptions such as pandemics (like the 2020 COVID pandemic), geopolitical tensions and other issues which can cause food insecurity. Green infrastructure could perhaps change this, if implemented correctly.

Food security and environmental impact

Urban agriculture helps address these challenges by producing fresh and nutritious food near high density areas. Studies show that urban farming initiatives help increase the availability of affordable produce, which in turn aids the local environment by decreasing carbon dioxide emissions involved in transportation. One example to refer back to is of urban agriculture in New York City, with rooftops like the Brooklyn Grange providing fresh organic produce to the city's residents which in turn reduces the city's already high carbon footprint.[13] Green infrastructure also aids with environmental benefits by reducing 'heat island' effects, improving air quality and increasing biodiversity. Heat island effects refers to when temperatures increase quicker in urban areas due to concrete infrastructure like roads and buildings, compared to rural areas which have more natural landscapes that can re-emit the sun's heat. This is happening more and more frequently especially in cities with little to no natural areas for the sun rays to absorb.[14]

Challenges and the way forward

Despite its benefits, urban agriculture faces many challenges and obstacles such as limited available land, high costs for the innovation and implementation of infrastructure. In addition, while urban agriculture can supply and stock certain amounts of nutritious fruits and vegetables it is unlikely to have a major impact on large scale food systems as its doesn't meet the demands and needs of an industrialised city. Nevertheless, urban agriculture is more than just a set of gardens, it creates an approach to stable food production, environmental sustainability and economic development within cities. And if the UNDP decides to take action, the first step would be to prioritise the Sustainable Development Goals, particularly SDG 2 (Zero hunger) and SDG 11 (Sustainable cities and communities)[15].

Major Parties Involved

United Nations Development Programme (UNDP)
The UNDP can help support sustainable urban development through food security initiatives and other conventions. However, this committee has no binding power to make countries purposefully consider this.

UN-Habitat
Another UN organisation that focuses on increasing quality of life and urban settlements. They support policies that integrate green infrastructure and often collaborates with the UNDP.[6]

National governments
National governments play a major role in creating legally binding policies that can integrate urban agricultural techniques into national and state wide development and its cooperation is needed in order to genuinely create an impact.

Local communities

Without internal cooperation from local communities and governments, the final step to redefine urban development cannot be fulfilled, which highlights its importance in this topic. They also benefit highly from the implementation of whatever programmes or policies have been put into place.

Singapore
Singapore is one of the leading examples of integrating agriculture into dense urban environments. Due to their limited land as well as high dependence on imports, the country has various technological innovations involving vertical farming and other high-tech techniques[5]. They serve as an example for many other countries struggling to adapt their urban cities to places of biodiversity and environmental growth.

Timeline of Events

1976
The first UN-Habitat conference, highlighting the importance of sustainability in urban areas

1992
The UN Conference on Environment and Development. The first of its kind to mention sustainable land use and the importance of local food systems. Influenced later initiatives.

1996
The second UN-Habitat conference, which emphasised a little more on food security

2008
Global financial crisis. This shows how dependent cities are on food imports, making local governments explore ways to integrate agriculture into urban cities.

2015
Adoption of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals[7]

2017
UNDP's launch of the Urban Poverty Reduction Programmes[8]

Previous attempts to solve the issue

Over the past several decades, governments, international organisations and local authorities have implemented various initiatives to integrate agriculture into urban environments as a means of addressing food security. The efforts have demonstrated the potential of urban agriculture as well as the existing limitations that can hinder large-scale development.

One of the most notable examples is Havana, Cuba. The city implemented The Havana Urban Agriculture Policy in 1998, after economic hardships, and was launched alongside the

National Urban Agriculture Group. This policy helped onset the food crisis after the fall of the socialist countries, spurring in local food production.[10] It was financed through public funds and the voluntary work of urban farmers and although there wasn't an aforementioned limitation, the policy has sunk into the background, and although useful hasn't been mentioned in global political environments, discussing this issue.

Another example, although previously mentioned, is Singapore. Singapore, being only approximately 700km2,[11] has had to be creative in its land usage, employing urban agricultural techniques and green infrastructure to produce food for its population. This in turn also reduces its severe reliance on food imports. Through investing heavily in newer technologies and innovations, Singapore is one of the main countries taken as an example. However, due to its small size, it has been very difficult to replicate in larger areas and can only be followed with high amounts of capital, making it inaccessible to LEDCs and other developing countries.

Lastly, several international organisations such as the UNDP and UN-Habitat have supported various programmes and research on sustainable urban food systems but without local governmental coordination, the implementation of these programmes have often been limited, resulting in almost no impact worldwide. An example to consider, however, is the Sustainable Development Goals and the 2030 Agenda[12], which has made countries at least scrutinise its pre-existing policies and regulations.

Overall, all these previous attempts to redefine urban areas have proven effective to specific cities or countries but have struggled to achieve widespread, tangible results which must be addressed in future solutions.

Possible Solutions

Integrating urban agriculture into national policy
One of the most effective ways to redefine urban areas as agricultural spaces is through formal policy creation and integration. With support from the UNDP, governments and governmental institutions can either revise their existing national development plans or create new rules or regulations that officially recognises urban agriculture as legitimate land use. This includes the allocation of spaces for community gardens, green roofs and other green infrastructures in city planning. By legalising urban agriculture, this also adds security to urban farmers, particularly in developing countries where informal urban farming is often restricted, in terms of both their access to public resources and land. This can ensure sustainable food production in urban areas legally.

Supporting new technologies
As seen through the example of Singapore, the government invested heavily in innovations designed specifically for green infrastructure. However, this may not be the most realistic option, especially for LEDCs. Thus, the UNDP can facilitate partnerships that provide financial support and technical assistance to support urban agriculture. International cooperation can also help spread intelligence and affordable technologies from developed to developing countries, increasing productivity and green infrastructure implementation.

Strengthening community engagement

Community involvement is essential for long term success in any project involving urban agriculture. Community gardens can provide opportunities to other groups besides men such as women and youth, creating employment opportunities and improving access to nutritious food. The UNDP could then further support education and training programmes by teaching residents the importance of green infrastructure and putting sustainable farming techniques and other skills into practice. Additionally, awareness can be spread through campaigns promoting the social and environmental benefits of urban agriculture.

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