

## **Vertical Farming for the Aviation Industry in Florida**

The aviation industry is a major contributor to the economy in Florida, providing 76,155 jobs in 2018 (Florida Department of Economic Opportunity, 2019). While the industry adds value to the State and connects it to the rest of the world, the environment is harmed in the process. The International Civil Aviation Organization (ICAO) predicts that aviation emissions will rise by 2.8-3.9 times compared to a 2010 baseline as the industry continues to grow. As a result, the industry is scrambling to develop initiatives and technologies to tackle its carbon emissions problem while adequately addressing social stability and economic development concerns (Lv, 2016). Until a significant technological breakthrough is achieved, it is generally accepted that a basket of measures must be applied to reduce total emissions associated with a flight. One understudied area for carbon emission reduction opportunities is an airline's inflight catering to find ways to grow food more efficiently in controlled environments nearby local airports. Vertical farming could offer an ideal solution.

### **Vertical Farming Mixed-Use Buildings**

Eliminating emissions involved in growing and transporting produce to airports for onboard meals is especially relevant in Florida as climate change is predicted to raise the local temperature which will ultimately reduce the yield in the agricultural sector (Anandhi et al., 2017). It also addresses the looming global shortage of arable land (Benke & Tomkins, 2018) since the yields produced can be up to 600 times more than traditional alternatives (Murray, 2020) and could be in the form of mixed-use high-rise buildings (Benke & Tomkins, 2018) located adjacent to airports.

### **Advantages of Vertical Farming Mixed-Use Buildings**

The controlled indoor environments shield crops from the elements and uses fewer resources in the process. Renewable energy sources, such as solar panels (ideal in sunny Florida), can be used to power the LEDs. Advancements such as hydroponics could be incorporated as well, and water can be recycled to produce more harvests annually (Murray, 2020). While airlines could grow organic produce for catering, the structures could also double as permanent flight and cabin crew housing or layover accommodation. The local community can be empowered in the process through new jobs growing produce.

### **Singapore Airlines Vertical Farming Precedent**

Singapore Airlines recently partnered with AeroFarms to launch its farm-to-plane service on flights departing Newark. The young initiative grows vegetables and leafy greens for the airline's business class appetizers. Instead of flying in ingredients from over 3,000 miles away, produce is grown locally. This cuts emissions, increases the freshness of the catering, and adds environmentally friendly businesses into the airline's supply chain (Slotnick, 2019).

### **Conclusion**

The aviation industry plays a significant role in Florida's economy. However, the environment is damaged in the process. Vertical farming is an innovative solution to the carbon emissions problem plaguing the industry. Forward thinking airlines, such as Singapore Airlines, have embraced this solution and are setting an example for other airlines to follow in their footsteps. Fortunately, the buildings can double as accommodation for airline crew while benefiting the local community through job creation. As such, it is a much-needed sustainable solution.

## References

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- Slotnick, D. (2019, September 18). *Business Insider* . Retrieved from Singapore Airlines, one of the most ritzy airlines in the world, is partnering with a high-tech urban farm to make sure it serves the best meal on every flight. Take a look inside the futuristic operation.: <https://www.businessinsider.com/farm-to-plane-singapore-airlines-aerofarms-local-2019-9>