Vertical Urban Agriculture

What's the context?

The UN predicts the population of the world will reach **almost 10 billion**. Meanwhile, **14% of all food produced is wasted before it even reaches consumers**. As we look to feed an ever-growing number of mouths, it is clear existing food supply chains aren't fit for purpose. Growing crops closer to the point of use will fight waste and limit environmental damage.

What did we do?

Green City Farming is making the way we grow crops greener, more efficient and more sustainable. Drawing on and applying Expleo engineering expertise relating to fluid water, plastic component modelling and electrical power systems it has been able to conceptualise and develop a method that allows crops to be grown in urban environments where they are needed, in large volumes. Using a combination of hydroponics and aeroponics – approaches that allow crops to be grown without soil, using mineral solutions in water or mists – the Urban Vertical Agriculture method will help communities produce and feed themselves using their own sustainable crops.

What's the impact?

Urban Vertical Agriculture has **the potential to help alleviate the food crisis that faces our growing population**. Farming is one of the greatest threats to freshwater supplies worldwide, but this new soil-less method has the potential to address that, **using 90% less water than traditional methods**. The use of low-energy LED lighting minimises both energy usage and heat generation. Moving production closer to the point of use will shorten supply chains, reducing carbon emissions and costs. Furthermore, protection from insects and bacteria means crops are non-GM and pesticide-free.

What's next?

The project has now moved past the conceptual level to real-world deployments with use across commercial kitchens looking to provide 'farm to table' experiences. While created for urban environments, **pilots are ongoing in South Africa as proof of space-effective farming**. Meanwhile, conversations with facilities management groups are ongoing as they look to develop green, multi-use spaces in cities and towns.