

GREEN

"Live a Global, Renewable, Energy-efficient, Environmentally-friendly, and Natural life"



Project name: Carbon-reducing vertical gardens in cities

Group members: Fion, Sienna, Thomas, Jerry

Global goal: Sustainable Cities and Communities(Goal 11), Climate Action(Goal 13)

Introduction: We are team GREEN from Shenzhen College of International Education. We realise that many vegetables and fruits in the Shenzhen market are imported from other provinces and countries. While transporting the products by planes or vehicles, there are many CO₂ emissions. We build vertical urban gardens in the neighbourhood balconies to reduce carbon footprint and create a food source for the city. We also hold educational activities to promote the ideas of eliminating carbon emissions and maintaining city sustainability. We believe, through every single step of our action, we will achieve our final goal and make the city better.



Action:

Phase 1: Based on our goals, we hope to do public education about carbon emissions and the ways to reduce them and the importance of sustainable cities. We **researched** the topics and had face-to-face discussions once a week to share what we had learned. To see how much people know about carbon concepts and city sustainability, we conducted an **online survey** to test their knowledge about the climate, with questions such as "Choose the correct definition of carbon footprint." We also ask about their concerns about the environment. We received 100 replies, with an age range of 10 to 86.

Due to the COVID-19 lockdown in Shenzhen, we could only stay at home. So we turned the vertical space in our apartment building, such as the balconies, into **small gardens**. We planted vegetables and fruits such as strawberries, cabbages, and green onions and recorded their growth via pictures.

Phase 2: We **analyzed the data** collected from the survey. We found out that 88% of people hoped to contribute to environmental protection, indicating that most people realized the importance of climate action. However, only 56% chose the correct definition when testing the carbon footprint concept. The participants also claimed they are not so familiar with carbon concepts, with a mean of 3.2 points out of 5 points for familiarity. These results showed that there might be a lack of professional environmental education. In addition, we asked whether people are willing to reduce carbon emissions in their lives. Most people said, "Yes, because I wish to protect the environment." There are also answers like "For living quality, I won't choose to eliminate carbon emissions," "I don't really know how to do that," and "Protecting environment has nothing matter with me." We found that some people might not realize the severeness of climate change and its relation to every individual. Therefore, we concluded that many people have the mind of protecting the environment and living a sustainable life, while they do not know how to achieve it in practice. And several people are not aware of the importance of climate action and sustainability. We decided to hold educational activities to inform people about these topics.

Phase 3: After studying samples, we decided to hold an **online forum** introducing two sustainable goals and some essential terms of carbon emission. Twenty participants joined the discussion, with 19 students and a presentation from Shenzhen Power Supply Bureau, which provides electricity to the whole city. We presented Sustainable City and Community and Climate Change's goals and two essential terms: Carbon Neutrality and Carbon Footprint, with detailed explanations. We used a carbon footprint calculator and discussed our most significant area of carbon emissions and how to reduce the emissions.



The online forum

Additionally, we collaborated with the representative from Shenzhen Power Supply Bureau. Shenzhen Power Supply Bureau advertised using less electricity and reducing carbon to customers on their WeChat mini-program with our inspiration.

After lockdown, the fruit and vegetables in our balconies were nearly mature. We went back to school and started our small garden on the campus building rooftop.

Future plan:

1. Because of the COVID lockdown, the progress of planting is not fast. After all the vegetables are mature, we will donate them to local charity groups such as the elderly activity centres.
2. We will go on running and expanding the campus and balcony vertical gardens. And we plan to hold more activities at school, including seminars and vegetable days, to educate students about the importance of carbon reduction and sustainability.

Impact:

1. We planted vegetables on the balconies of the neighbours. In the community, many of our neighbours learn about the idea of vertical gardens and their impact on reducing carbon footprint. In addition, we also start growing vegetables on the rooftop of campus buildings and promoting our vertical garden to students in the school. After class, we invite some students to visit our garden and learn about this creative way to reduce carbon emissions.
2. We posted our project introduction and information on our school GSL club's Wechat official account in 2 posts and have 557 views in sum.
3. We held an online seminar about carbon concepts and how we can reduce our carbon footprints. We promote the seminar on WeChat moment, a platform that connects a total of about 1000 contacts on our WeChat. In total, there were 20 participants involved in the discussion. Nineteen of them are students from our school. Also, a representative from Shenzhen Power Supply Bureau joined our meeting. We discuss the severe impact of high carbon emissions and how to reduce them. The Shenzhen Power Supply Bureau representative agreed with our thoughts and decided to promote our ideas on their WeChat mini-program.

The challenges we faced and what we have learnt:

Firstly, the COVID pandemic is the greatest challenge for us when doing the project. We initially planned to start our vertical garden on the campus rooftop after winter vacation. However, there was a sudden COVID outbreak in the city, and we all experienced a lockdown. Therefore, we had to change our plan and grow the vegetables on the neighbourhood balconies instead of the school campus. And finally, after we returned to school in April, we started planting on the school building rooftops. We decided to use the internet during the online session periods to promote our project, so we held an online forum. We learn to be flexible during this time, utilizing all the online resources to achieve our goals.

In addition, we have also learnt that implementing a plan could be challenging. We encounter lots of problems during execution. For example, since the weather in Shenzhen is always humid, insects are inevitable. The insects infected our strawberry leaves, and we had to cut them down. But fortunately, the strawberry fruit is still healthy. From these experiences, we learn that the situation is not always ideal. There can be many incidents happening, so we have to be prepared to deal with them.

Last but not least, we gain many essential skills while doing the project. Before the project, none of us in the team knew how to make videos. However, in the final phase of the project, we all learn to create short videos -- planning, shooting materials, and editing. We also become experts at growing vegetables. We believe these are all practical skills that we will frequently use in the future.



Our vertical gardens