



TOWARDS SDG11: HOW URBAN GREENERY CAN HELP US BUILD SUSTAINABLE CITIES

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YOUNG REVIEWERS:



GULINA

AGE: 11



KARIM

AGE: 12



TAIMOOR

AGE: 11

In 2015, the United Nations launched 17 Sustainable Development Goals—efforts that should be taken to ensure the wellbeing of people and the planet by 2030. One of these goals aims to make cities sustainable by addressing environmental, social, and economic impacts to ensure cities are livable for future generations. This goal is important because more than half the world lives in cities now. Meeting the needs of many people in cities will not be easy, particularly with global problems like the hot temperatures experienced in cities, pollution, climate change, and food shortages. This is where urban greenery could help. Urban greenery includes the trees, parks, and other plants you see in cities. Greenery can help make our cities sustainable, providing benefits like cleaning the air, cooling the city in hot summer temperatures, and preventing

flooding during heavy rains. Greener cities could make life better and healthier for everyone.

VIDEO 1

Watch an interview with the authors of this article to learn even more!

SUSTAINABLE DEVELOPMENT

Meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability should consider the environment, society, and the economy.

CARBON EMISSIONS

When carbon compounds (like carbon dioxide) are released into the air after burning things like coal, oil or gas.

CLIMATE CHANGE

Long-term changes in global weather patterns, mainly caused by human activities like burning fossil fuels, leading to warming temperatures, extreme weather, and environmental impacts.

URBAN PLANNERS

People who design and implement plans for cities.

RESILIENT CITY

The ability of a city to withstand and recover in the event of shock, such as a natural hazard.

Watch an interview with the authors of this article to learn even more! ([Video 1](#)).

DEVELOPING SUSTAINABLE CITIES

The United Nations, an international organization made up of a group of countries working together to promote peace and development established 17 global **Sustainable Development** Goals (SDGs) in 2015. These goals aim to make the world a better place by 2030. One of these goals, SDG 11, focuses on making cities enjoyable, environmentally friendly places for people to live, safe from natural disasters. Over half of the world's population, about 4.4 billion people, live in cities now, and this number is expected to increase to 70% of the global population by 2050. Living in cities can improve people's lives, because cities often provide many opportunities for people of all backgrounds—including schools, workplaces, shopping areas, and entertainment activities.

The challenge is that cities, although they cover just 3% of Earth's land, **contribute to over 70% of carbon emissions**. SDG 11 aims to help cities become more sustainable through targets that make sure that everyone has a safe home, can access basic needs, lives close to green spaces, can recycle and dispose of waste easily, and can use eco-friendly transportation systems. Implementing these targets could help improve people's lives and protect the environment.

HOW DOES CLIMATE CHANGE IMPACT URBAN LIVING?

Climate change is causing extreme changes in weather patterns around the world, including dangerous heatwaves (periods of abnormally hot weather) and flooding. Climate change could disrupt our daily routines, such as going to school or even playing outdoors. Also, some foods may be in limited supply or become expensive, because water shortages, heatwaves, and flooding could affect crops. The good news is that **urban planners** can design cities to withstand climate change. An urban planner is a person who designs the main characteristics of a city. Urban planners need to think in the long term, about how to reduce heat and pollution in cities. They also need to have a plan for sudden extreme natural disasters caused by climate change, like heatwaves and floods. A **resilient city** is one that can withstand and recover from natural disasters.

In terms of heat in cities, roads and buildings are important considerations because they absorb and release heat from the sun. Heat is also emitted into the atmosphere by air conditioning units

URBAN HEAT ISLAND

The phenomenon that creates an air or surface temperature difference between urban and rural areas.

Figure 1

When heat is released from buildings and factories in cities without urban greenery, those cities could have larger amounts of air pollution and urban heat than cities with more urban greenery.

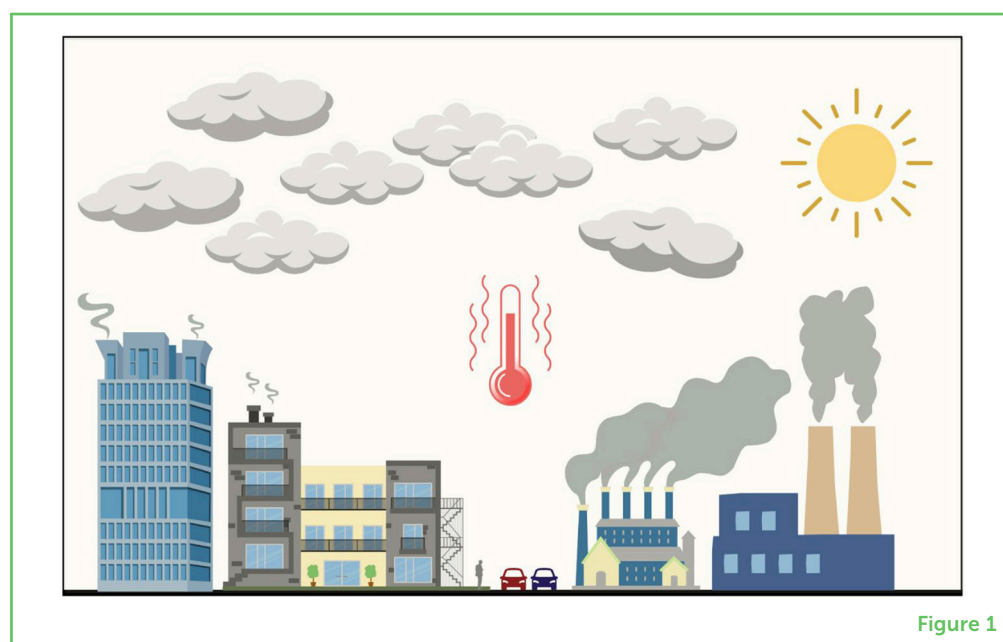


Figure 1

Climate change in cities could be particularly harsh in climates that are already hot, like the Middle East and North Africa. The average temperatures in this area are estimated to rise from 3–9°C by 2100. In such temperatures, the human body could face severe health risks, like heat strokes. This risk is bigger if people do not have easy access to water or are under direct sunlight for long periods. If temperatures increase more than 7°C, certain areas of the Middle East could become unlivable [2].

Flooding is another extreme weather event due to climate change. Flooding occurs for two reasons. First, sea levels rise due to melting ice at the North and South Poles, which adds more water to the oceans, causing flooding in coastal cities. Second, climate change is causing heavier rainfall, which causes rivers to overflow; this large amount of water can be too much for current drainage systems to handle. Flooding in cities causes severe damage to buildings and homes. For example, even in a hot climate like Jeddah, Saudi Arabia, there was a massive flood due to heavy rains in 2009, damaging critical infrastructure [3]. Urban planners can reduce coastal flooding by planting trees like mangroves, which have special roots that slow down the flow of water into coastal cities.

URBAN GREENERY

Parks, trees, green spaces, within cities that improve the environment, reduce heat, and enhance quality of life.

EVAPOTRANSPIRATION

The process by which water is released through microscopic holes in plants' leaves, which helps cool the surrounding air.

Heatwaves and flooding are two reasons we need **urban greenery** to support the shift to sustainable cities. In the next section, we will focus on why urban greenery is so important.

WHAT IS THE CONTRIBUTION OF URBAN GREENERY TO SDG 11?

Increasing urban greenery plays an important role in achieving SDG 11. One of the targets of SDG 11 is for all people living in cities to have access to public green spaces. Urban planners can introduce urban greenery in a lot of different ways—from greenery on the ground, like trees and grass along roads and parks, to greenery on buildings, like green walls and green roofs. Urban planners design greenery to provide the greatest benefits to people. This could include making sure that trees are appropriately spaced and watered, and that local species of plants are used. Introducing urban greenery can make a city look more beautiful and can help the environment. The main environmental benefits of urban greenery are that it cools cities, removes carbon dioxide, acts as a pollution control, prevents flooding, and increases biodiversity [4].

Figure 2 shows a city full of urban greenery, including buildings covered with green walls and green roofs. The city also has many areas for green spaces. All this urban greenery helps lower air pollution and urban heat. The cooling effect of plants happens through creating shade and through **evapotranspiration**, which is when water in the plant's leaves evaporates into the air. When multiple trees perform evapotranspiration, like in a park, it reduces the urban heat island effect in the city [4]. Plants can also absorb carbon dioxide during photosynthesis. Reducing carbon dioxide in the atmosphere helps reduce global warming [5]. Urban greenery can also act as a natural filter, reducing large harmful dust particles when they stick to plant leaves, and filtering out pollutants from the air. Similarly, green walls can be used indoors to improve air quality inside buildings [6].

WHAT ABOUT THE SOCIAL BENEFITS OF URBAN GREENERY?

Urban greenery promotes people's physical and mental wellbeing by providing opportunities for recreation, exercise, and relaxation. Parks are spaces where families and communities can gather, increasing social interactions. Also, urban greenery can improve the mental health of city residents, making the city a more pleasant, healthier place to live. One city that has included a large number of green spaces successfully is Singapore—in 2022, more than **40% of the city was covered in urban greenery**. For this reason, Singapore is often referred to as a city in a garden. Greenery can also encourage people to develop environmentally friendly habits, such as walking and cycling

Figure 2

A city with urban greenery could have reduced amounts of air pollution and urban heat compared to a city with less urban greenery.



Figure 2

instead of using cars, thus reducing harmful emissions. These habits could help reduce urban heat and global warming and improve the community's health.

Due to all these benefits of urban greenery, there are several projects to protect and increase urban greenery worldwide. Some of these projects are in the Middle East, which has some of the highest temperatures on our planet. For instance, the Middle East Green Initiative (MGI) aims to plant 50 billion trees across the Middle East. In Saudi Arabia, the Saudi Green Initiative, also a part of the MGI, aims to grow **10 billion trees** in the upcoming years. These plans include regrowing local plants and trees that disappeared over time, as well as introducing greenery into big cities, such as the capital, Riyadh, one of the hottest cities on Earth.

GREENING CITIES FOR A SUSTAINABLE FUTURE

In conclusion, pursuing SDG 11 means focusing on creating more sustainable cities and communities. One way to achieve this is to rethink and redesign our current cities to include more urban greenery. We hope you learned how urban greenery can help cities address significant issues like extreme heat, air pollution, and flooding. Although increasing urban greenery might cost lots of money and require care and attention from all city residents, the co-benefits of urban greenery outweigh the potential costs. It is recommended that governments make more efforts to protect current greenery and spend more money and time on increasing the number of parks and the amount of greenery on buildings that will be accessible to all, including poorer people. Finally, it is important to monitor the benefits of urban greenery, both for the environment and for people,

to highlight its role in achieving SDG 11 and building a better world for everyone.

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YOUNG REVIEWERS

GULINA, AGE: 11

Hi, my name is Gulina. I am from Pakistan. I am concerned about climate change. I like cats, memes, video games, listening to music and hanging out with my friends.



KARIM, AGE: 12

A curious person with a love of math and research.



TAIMOOR, AGE: 11

Hi, my name is Taimoor. I am from Pakistan and I am 11 years old. My hobbies are games and playing cricket.



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