How to Design a Sustainable City

There is no doubt that cities must become more sustainable. In an ideal scenario, we could start from scratch and redesign them from the beginning. But that's not possible so we'll have to do with what we have now. With the knowledge and technology we have now, it's easier than ever to design a sustainable city.
The way we are building cities right now is not good for the environment, people nor the economy. As the population increases, the demand for food, water, and resources will also increase. It's safe to say that the earth will not be able to cope if we continue with our unsustainable habits, our fossil fuel addiction, and our consumerist lifestyle. Something must change.

Why are sustainable cities important?
There are many problems with our current cities including overconsumption of resources, carbon emissions, pollution, plastic waste, and poverty. These are just a few, I could go on. In developing countries, there is massive inequality within big cities. With overcrowding, it's becoming common for people to live in poorly-built slums.
And they are only expanding. With an increasing population, these problems will get much worse which is why it's so important to transform cities into green, smart cities. People and the environment will suffer otherwise.
To think that they cover such a small percentage of the earth, they have a disproportional impact on the planet.

Key Features of a Sustainable city
Now, here are 17 of the most essential features a city should have to be deemed sustainable. To achieve this, it would take money, time, and effort but it's our only option. We cannot keep building cities the way we currently are. That's neither sustainable nor beneficial for us. As more megacities are emerging, creating eco cities is more important than ever.

01. The 15-min model
The 15-minute city concept is perhaps one of the most important parts of making a sustainable city. Essentially everything you will need in your day to day life should be around a 15-minute walk from your house. This includes your work, supermarkets, shops, parks, gyms, and anything else you need for a happy life.

What this will do is reduce the need for cars. People will not need to drive every day to work. Long, polluting commutes will not be necessary. The 15-minute model is an innovative way to reduce carbon emissions and air pollution.

02. Sponge cities

Another amazing concept that was initially introduced by Professor Kongjian Yu is the idea of sponge cities. Currently, cities are made of impermeable material. Mainly concrete and tar. This is causing many problems and with climate change over the horizon, flooding is likely to increase.

Sponge cities aim to fix that problem and it's already implemented in a few cities around the world. The concept behind this is allowing water to flow naturally instead of obstructing its flow with man-made materials. Creating permeable pavements, having more vegetation, and introducing natural flood barriers are just some of the ways to create a sponge city.

Doing with will also filter and clean our water naturally for us.

03. Circular economy

A city cannot be truly sustainable if it doesn't use the circular economy model. While circular design is a relatively new concept for humans, it's how nature has always worked.

Our society is using the linear economy which means that we dig up resources to make stuff, buy new products and then discard them in landfills (or in the oceans). The circular economy aims to keep resources in use and create nearly no waste. Achieving this will require global corporation since it requires a system change.

It doesn't make sense to waste valuable natural resources by throwing them in the bin, never to be used again. The circular economy is a sustainable economy and will fix many of our current problems including depletion of the earth's resources, our plastic problem, and all the while will make the economy stronger.

04. Renewable energy

Turning our backs on fossil fuels is another big priority. In the near future, all our energy should come from renewables (or nuclear reactors). Besides, fossil fuels are a finite source. What are we going to do when we use it all up? On the other hand, renewable energy, as the name suggests, never runs out. In addition, it doesn't contribute to the climate crisis.

The era of fossil fuel must end soon. Thankfully, some countries like Puerto Rico are trying hard to do this by aiming to become carbon zero.

05. Green buildings

With all the technology we have at our fingertips, why choose to keep building the same we did 20 years ago? We can now create sustainable buildings that do not harm the environment, or at least not as much as conventional ones.

They should all be highly efficient to use the least amount of energy, be carbon zero, and be covered in vegetation. Good ventilation and insulation is also another part of green buildings. Finally, rather than digging up new materials, buildings should be built with recycled materials or use renewable ones such as sustainably sourced wood.

06. Vegetation

Cities should be covered by greenery. Trees and plants should be everywhere. We must integrate as much nature into our lives as possible. With green roofs, parks, urban forests we can once again reconnect to nature as we should be. Have you heard of vertical forests? It's exactly what it sounds like. It's a building filled with trees and plants from top to bottom. What an innovative way to add more vegetation into a city and not let it take up too much space.

07. Urban Farms

Or maybe you know them as vertical farms. They both mean the same thing. They are already used in countries like Japan and Singapore. Instead of growing crops outwards, they grow them upwards. We can use technology to grow plants within our cities, within buildings. It sounds crazy at first but with 8 billion people on the planet, do we really have another option? 50% of habitable land is already used for farming. We can't afford to use more land to grow our food.

Vertical forests, take a lot less space and produce more food. And there's an added bonus. Food doesn't have to be transported a long way since it is grown within the city.

08. Eco cars

In an ideal city, cars would not exist. If we used the 15-minute cities model, then in our every day lives, we would not need to drive.

But since I doubt that cities can become completely carless, we can at least stop producing polluting cars and use an alternative. Right now the

best we have are electric cars. They are not perfect, but a better alternative to petrol/diesel cars. Then there are hydrogen cars, but they still have a long way to go.
We must find a clean way to power cars because now it's completely unsustainable. Transport is one of the biggest contributors to climate change, cause air pollution, and cause awful traffic jams every morning.

09. Reduce light pollution
Light pollution is an underrated problem. It affects wildlife more than you think. Reducing light pollution will be tricky, but not impossible. There are a few ways to tackle light pollution.
The most obvious one is to switch off any lights at night that are not being used, including decorative lights. If it's not needed it should be switched off. Street lighting could be designed better too. Outdoor lighting should be switched to warm-colored LED lights to save more energy. Finally, cities could implement smart technology that switches off lighting at certain times during the night.

10. Clean public transport
More people must start using public transport. But that to happen, it must become cheaper and more accessible to everyone. Public transport should run on clean energy so that it doesn't pollute the city's atmosphere. It should also be very efficient to reduce overcrowding which is what currently happens in big cities like London.
The key to effective public transport is diversification. This means there should be a variety of modes of transport for people to choose from.

11. Self-sufficient
Cities should become self-sufficient meaning they should make (nearly) everything they need. This includes creating a lot of their own food, catching their own water, and producing their own energy. If cities become self-sufficient we could massively reduce the world's carbon footprint since fewer things would be transported across the globe.
Singapore for instance has one of the most efficient water management systems. It collects rainwater, recycles wastewater, and desalinates seawater for people to safely use.
Self-sufficiency should be the target of all future cities.

12. Waste management

In a sustainable city, we wouldn't produce as much waste as we do now. Since the invention of plastic, landfills have been filling up a lot quicker and soon we won't have any more space to put our waste since plastic and other material take hundreds of years to degrade.
Switching to a circular economy as mentioned above is the best option to tackle this global issue. And what waste we do produce, should be either composted or recycled in some way. There needs to be a mindset switch. It has become so easy to buy new things, no one is interested in fixing what they have, it's easier to go on Amazon and buy a new one.
Waste management needs to quickly improve, especially in developing countries because it's polluting nature and destroying ecosystems.

13. Climate-resilient
The effects of climate change are inevitable. Cities must become resilient to what is coming. Some cities will need to find a solution to overheating, others to flooding, and some to droughts. Each county will be affected differently, but all will be affected in some way.
For once, countries and cities need to think and plan ahead for the sake of their people. Climate change is not only an environmental problem, it's a social challenge too.

14. Reduce Demand
Now, this point is quite different from the rest on the list because it's not something that can be easily implemented. Rather, it's a change of mindset in our society. We don't need nearly as much stuff as we buy. All it's doing is wasting precious natural resources.
We are living in a consumerist and materialist world where people are always looking for more. However, it's not how it used to be. We need to go back to our old habits.

15. Smart technology
Technology has come a long way. It's only logical to use it to our advantage and use it to make cities better. By using smart technology, we could connect the city and its people even more. This kind of advanced technology could be used and applied to nearly anything. Energy, transportation, and buildings for instance.
Smart technology could reduce our energy consumption and make roads flow smoother. Cities that have this type of technology are also referred to as smart cities, and a smart city is a sustainable city. While technology has its downsides, let's use it for good and create a more eco-friendly world.

16. Dense cities

Dense does not equal overcrowded. The reason we need to make dense cities is simply that we cannot continue to cut down trees and destroy more ecosystems to make space for ourselves. It's possible to create sustainable but densely populated cities. A good example is Singapore. It's one of the most densely populated cities yet the city is covered with vegetation and considered one of the most sustainable cities in the world as explained below.

The balance between buildings and vegetation will determine if the city is sustainable or overcrowded.

17. Healthy environment

A healthy environment is another important feature when designing a sustainable city. It must not compromise the health of its citizens. This can be done by adding green spaces, reducing the number of cars on the road, and creating outdoor activities for everyone.

It should be a safe environment for everyone no matter someone's age, background or gender.