



Masagos Zulkifli

# Building a Healthy City

**I**n the face of climate change and other challenges to Singapore's living environment, Minister for the Environment and Water Resources **Masagos Zulkifli** shares with Joanna Tan about Singapore's approach to fostering a liveable environment that promotes health and well-being for citizens.

## What makes a healthy city?

I think there are three elements to a healthy city. The first is the environment. Municipal services must ensure that a city is not only clean with high standards of hygiene, but also pleasant and liveable. The second is social behaviour. If there is a good living environment but citizens have an unhealthy diet or lifestyle, this does not make for a healthy city.

And the third is how the city safeguards the environment and the welfare of its people when things go wrong. For instance, if there is chemical spillage into drains, this needs to be cleaned up quickly to ensure that public safety is not compromised. Health services should also be readily available for people who need them. These three aspects are the foundation of a clean, sustainable and healthy city.

## What factors have helped make Singapore a clean and healthy city?

In Singapore, each generation of leaders has built on the efforts of their predecessors. Take clean water for example. We have always ensured that our sewage is properly treated before it is discharged into the sea, which keeps the beaches and waters around us clean. This has enabled us to do two things. First, we have clean seawater for our desalination plants. Second, as the wastewater has already been treated, the cost of reclaiming that water for other purposes is lower. In fact, the cost of turning sewage water into NEWater is only a third of the cost of desalination.

And this is possible because of the cumulative benefits in building on what the last generation has done. This is what we need going forward—to make the right decisions, even if it means overcoming difficult challenges, so that the next generation can build on our work.

Masagos Zulkifli,  
Minister for the  
Environment and  
Water Resources







01



02

### What impact will climate change have on the living environment in Singapore?

Climate change will have an impact on three main areas. First, rising temperatures, which will be exacerbated by the urban heat island effect. Second, increased occurrences of extreme weather events. We must ensure that more intense rainfall does not result in flash floods in a built environment, and that there is infrastructure for water retention and management. Third, rising sea levels, which means we have to fortify our coasts and ensure that flooding from storm surges and high tides, together with a higher sea level, does not cause inundation in parts of Singapore.

**“We need to make the right decisions, even if it means overcoming difficult challenges, so that the next generation can build on our work.”**

The challenges of maintaining comfortable living and working conditions in Singapore will also be altered. For instance, the use of more air-conditioning to counteract rising temperatures will result in a higher carbon footprint. We need new paradigms to solve these evolving environmental problems. And we need to think about how our city can be designed and built to minimise the use of energy. Part of that entails a change in the way we live.

For example, the atrium of Our Tampines Hub was built without air-conditioning and designed to maintain a comfortable ambient temperature. This was achieved by facilitating air circulation through its design, and the installation of large fans. Such adaptive approaches are important as we address the different impacts of climate change.

Internationally, we are trying to convince the sceptics to be part of this endeavour. There are some countries that do not believe in climate change and worry about the impact on their economic growth, while others are at the other end of the spectrum. I think Singapore, as a small country with a track record of attaining growth without compromising our environment, has been able to play a constructive role. We have brought countries with diverse positions together, and offered the middle ground that it is possible to strive for economic progress while remaining environmentally sustainable.

### How does the private sector contribute to efforts against climate change? What about citizens at large?

Awareness of the importance of environmental sustainability and the adverse impact of climate change is now high, particularly among producers in the private sector. They recognise that if they do not produce sustainably, there will ultimately be pushback from consumers. Governments and regional groups have also taken proactive stances—for instance, the European Union has planned to phase out the use of palm oil from 2030.

In 2015, global green energy substitution reduced carbon dioxide emissions by 1.5 gigatonnes; however, forest fires in Indonesia released nearly 1 gigatonne of carbon dioxide. The resulting haze from the forest fires not only posed serious health hazards and incurred economic costs, it also represents a major setback in our efforts to fight climate change. This illustrates the magnitude of the impact of our actions. Producers need to take proactive steps towards becoming environmentally sustainable.

There is growing demand from the public for environmentally friendly products. And there are some initiatives by producers to address the concerns of consumers. For example, the Singapore Alliance for Sustainable Palm Oil (SASPO) labels its products to ensure that consumers know they are sustainably produced. It is also important to educate the public on sustainable consumption—for example, reducing excessive usage of plastic bags. It will take a whole-of-society effort to protect our environment, and every effort counts.

01 Marina Barrage is a source of water supply, part of a comprehensive flood control scheme, and a destination for lifestyle activities.

02 Forest fires had caused severe air pollution and health threats in Indonesia in 2015.





01

**As climate change affects our living environment, it also improves the conditions for the spread of diseases like dengue. What solutions has Singapore come up with?**

We have been engaging the public on the importance of practising the five-step mozzie wipeout in their homes. This is critical because the majority of mosquito-breeding sites have been found in households. We must ensure that everyone does their part to ensure that they are not inadvertently breeding mosquitoes. In addition, we are looking at breeding Wolbachia-carrying male mosquitoes



02

**“The haze from the forest fires not only posed serious health hazards and incurred economic costs, it also represents a major setback in our efforts to fight climate change.”**

in the laboratory and releasing them into the environment, so that when female Aedes aegypti mosquitoes mate with them, their eggs do not hatch. The results have been promising



03

thus far, with more than 90% suppression of the mosquito population at the study sites. We are currently working on finding the most effective modality for optimal release of the male mosquitoes. While such innovative approaches will enhance our efforts to fight dengue, increased vigilance among citizens in preventing breeding spots remains the most important line of defence.

**Cities need access to food that provides sustenance and good health. What are the challenges facing Singapore when it comes to food security?**

Rising temperatures and the lack of water due to climate change are anticipated to have a negative impact on the global food supply. This may result in the imposition of export quotas or restrictions by food-producing

countries. Singapore is particularly vulnerable in such scenarios, as we import more than 90% of our food.

We are working towards fulfilling 30% of our nutritional needs through local agriculture by 2030. I have visited Amsterdam, where there is a lot of research and development in growing food, in an environment of ample water but scarce energy. I have also visited farms in the Middle East where there is a lack of water but a surplus of energy. In our case, we have neither water nor energy, and we have limited land. Therefore, we have to think about the kind of food that we want to grow, how we want to grow it, and how we can leverage technology and innovation to enable us to produce the minimum critical supply locally.

01 A National Environment Agency officer releasing Wolbachia-carrying mosquitoes in a public housing estate.

02 Mee Toh Primary School students trying their hand at composting food waste.

03 Students showing Minister Masagos the mushrooms that are cultivated at the National Junior College Agri-Tech Research Facility.



“Singapore’s model demonstrates that we can make economic progress while maintaining the integrity of the environment.”

01



02


**One common argument against environmental sustainability is that there is a trade-off with progress. Has this been the case for Singapore?**

Singapore’s model demonstrates that we can make economic progress while maintaining the integrity of the environment. We have been able to show the world how a densely populated urban environment can be a sustainable one.

When petrochemical firms expand their operations or new firms invest in Singapore, the government works closely with them to ensure a high standard of efficiency, and to implement sustainable practices. This includes respecting and not polluting the environment, and treating and managing by-products and waste. When foreign dignitaries visit Jurong Island, they are surprised by the lack of pollution. This is an example of what Singapore can bring to the world:

responsible production, developing urban solutions and leveraging science and technology to solve the environmental problems that humanity is facing.

The next generation will face more acute challenges and trade-offs that stem from climate change. But we must leave them a nation that gives them faith and hope.

In addition to the deeply embedded ethos of pursuing progress in tandem with environmental sustainability and social inclusion, earlier generations of leaders have left spaces and greenfield sites that the next generation can reimagine to meet their future needs. One of the defining characteristics of Singapore is that we are a city-state that has not deteriorated with age. Instead, we have adapted to changing circumstances and renewed ourselves with each passing year. I am confident that this legacy will endure into the future. 

- 01 Rich biodiversity continues to flourish in Singapore in spite of its highly urbanised environment.
- 02 Tree planting events are regularly organised to encourage Singaporeans to get involved in caring for the environment.