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A Green Way

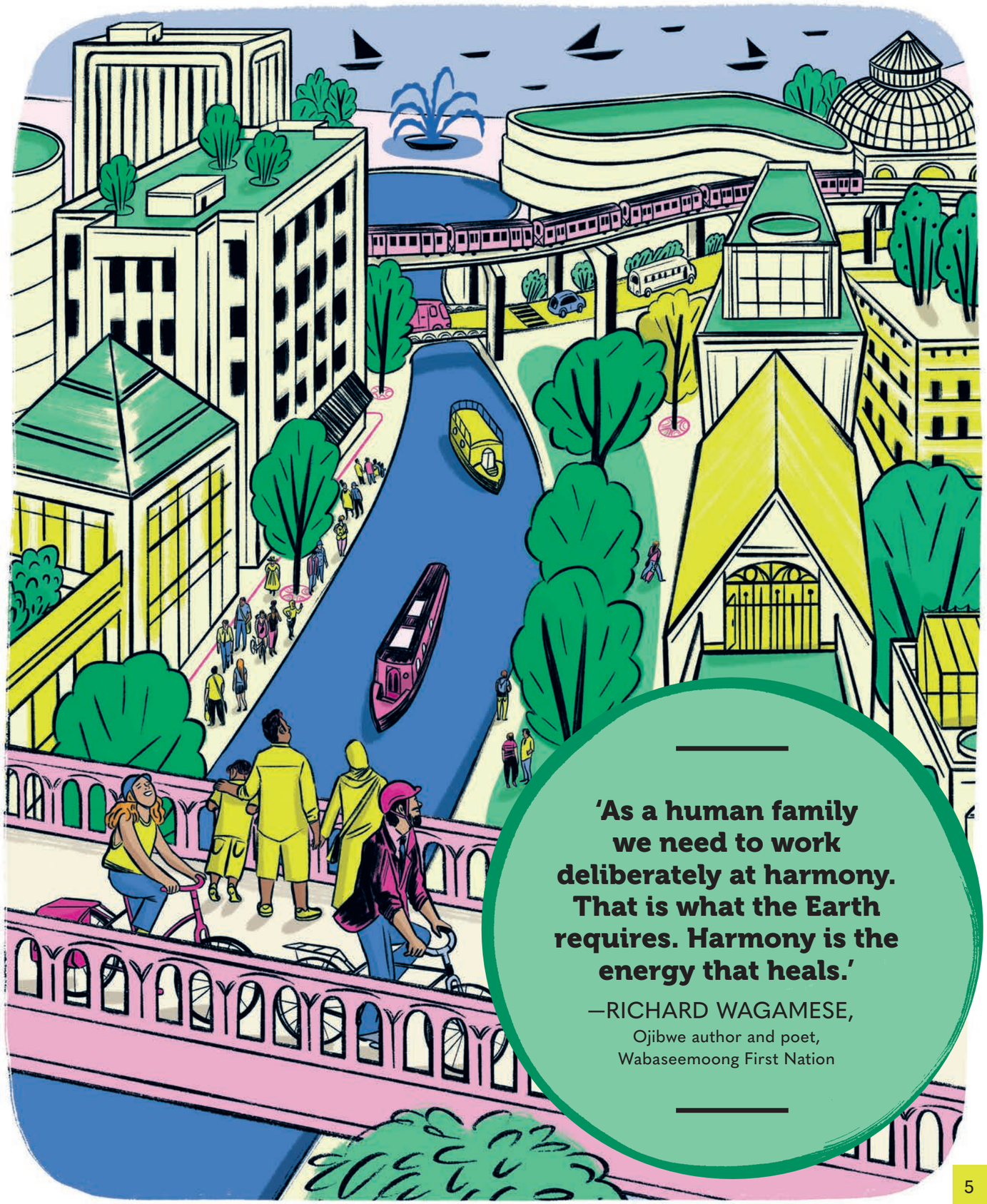
When you think of a city, you probably picture a busy, noisy place filled with paved streets, concrete footpaths, and buildings of all kinds. It's easy to forget that before there was a city, there was nature. In fact, nature is *still* there. And although you might not realise it, it is a very important part of our cities.

For instance, have you ever walked from a busy city street into a park filled with trees on a hot day? The cool, fresh air is such a relief from the steamy footpaths and shadeless roads! Whether that park was specially created or was once a forest that the city grew around, it's an example of nature's power to transform an urban environment.

And guess what! We can make use of nature's incredible powers by designing our cities to include something called green infrastructure.

Infrastructure is what we call the system of human-engineered parts that keep a city running smoothly and safely. Traditional grey infrastructure, like sealed roads, bridges, and underground sewerage networks, is made of concrete, metal, and even plastic. Green infrastructure, on the other hand, makes use of the living things that grow and thrive in an urban environment, such as trees and plants. It also includes human-made systems that are inspired by or designed to work with nature, such as green roofs (specially designed roof ecosystems) and permeable paving (pavement that lets water run through into the earth below).

The great news is that many city-builders are now including green infrastructure in their plans. Why? Because a green city is more liveable and plays an important role in addressing climate change. As you will see in this book, lots of exciting projects around the world are harnessing nature's power to make cities that are great to live in and can help protect Earth's future. And you will discover ways that you, your family, your friends and classmates can get involved in making *your* city greener too!



'As a human family we need to work deliberately at harmony. That is what the Earth requires. Harmony is the energy that heals.'

—RICHARD WAGAMESE,
Ojibwe author and poet,
Wabaseemoong First Nation

CHAPTER 1

Cities:
A Great Invention that Could Be Even Better

Around the world, people like to live close to one another in permanent settlements, from smaller towns to sprawling cities. It might seem like a modern idea, but humans have lived together in this way for over fourteen thousand years!

The earliest cities started out as small villages that grew as more people moved from the countryside. Some of the first cities had tall walls and earthen barriers to protect those who lived there from wild animals and invaders, especially during times of war.

As urban populations grew, problems such as crowded living conditions needed to be addressed. For example, to make sure that people had drinking water, some cities built aboveground channels (called aqueducts) to take clean water from higher areas down to those living in lower areas. Drainage systems were needed to direct stormwater and stinky sewage to underground trenches that led away from areas where people lived. Bridges were sometimes built across rivers, and road systems were added to allow people to travel more quickly by foot, on horse, or in vehicles. All these things are part of the structures and services we call infrastructure.

These growing cities also needed to provide large areas that people could use as gathering places and as outdoor markets to sell food and other goods. And with so many people moving in, cities became places for sharing new ideas and for learning too. Soon there was a need for schools, TAFEs, and universities. In fact, some of the world's oldest cities are considered birthplaces of the arts and sciences. Hospitals were also built to help meet the health needs of these bigger populations.

The early cities had to expand beyond their original boundaries as more and more people moved in. And this is still happening today, with modern cities taking over more land to fit growing numbers of people and businesses. More than half of the people in the world live in urban environments, and this number is rising fast!

With cities taking up increasing amounts of space around the world, it's important that we design and build them in a way that protects the health of those who live there – and the health of the planet we call home.

Some **ANCIENT ROMAN BRIDGES** were designed as both aqueducts to carry clean water to cities and pedestrian crossings. A few were built so well, they are still being used today.

The oldest known permanent city is thought to be **SHEDET**, on the Nile River in Egypt. It was established around 4000 BCE. People still live there today, in a *much* more modern city called Faiyum.

Imagine if a desert city … became filled with mini-forests!

AMMAN MINI-FOREST, AMMAN, JORDAN

An industrial neighbourhood in Amman, Jordan's capital city, might not be the first place you think of when you imagine a forest. But that is exactly where you will find a thriving mini-forest! And it's actually just one of a number of mini-forests that have been planted around the city.

Inspired by Akira Miyawaki and his tiny forests, the designers of this project have turned unused spaces across Amman, including one location that used to be a rubbish dump, into tiny shade-producing forests. Part of their goal is to bring back the native trees that grew in these areas before the land was urbanised. These heat-resistant trees can survive in Jordan's dry landscape.

Although the mini-forests are each only about the size of a tennis court, they help lower the intense heat of the city, making life there more comfortable for humans and other creatures. Because of climate change, temperatures in the Middle East are rising almost twice as quickly as they are in other places around the world. But under the canopy of a mini-forest, the temperature can be over 12°C cooler than in the sun!

These mini-forests are also making a big difference to the environmental health of the neighbourhoods they are planted in, and they have created habitats for the local wildlife, such as butterflies, birds, and even foxes. And the closely planted trees – an important part of the Miyawaki approach – also help block the harsh desert winds and are more resistant to forest fires, which is a big concern in hot climates.