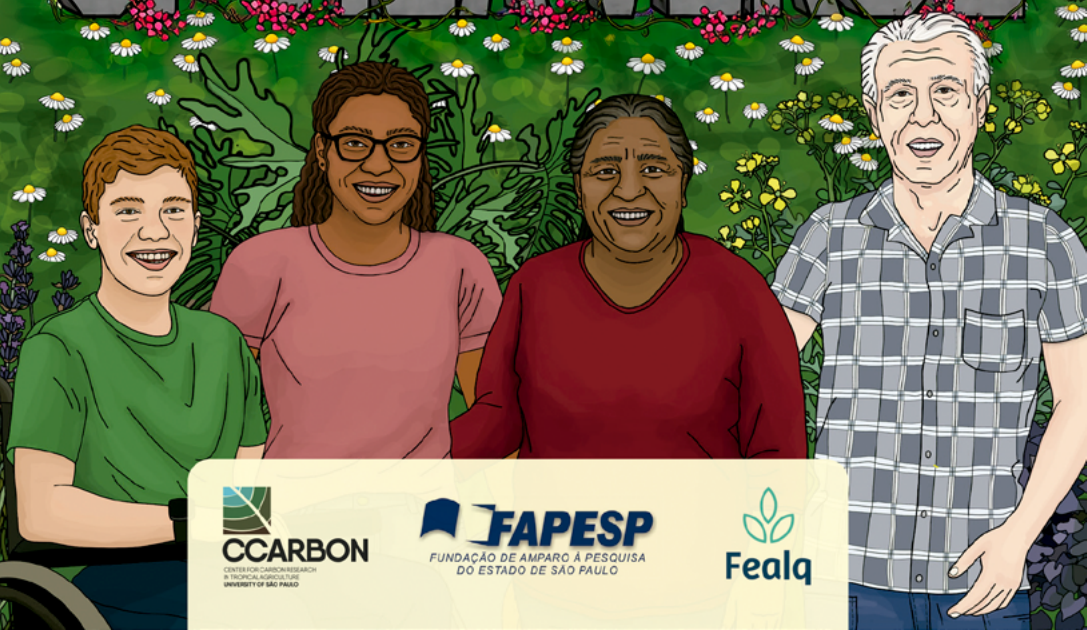


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PAULA MARTINS NERY (ILLUSTRATIONS)

THE GUARDIANS OF VILA VERDE



THE GUARDIANS OF VILA VERDE



CCARBON

CENTER FOR CARBON RESEARCH
IN TROPICAL AGRICULTURE
UNIVERSITY OF SÃO PAULO



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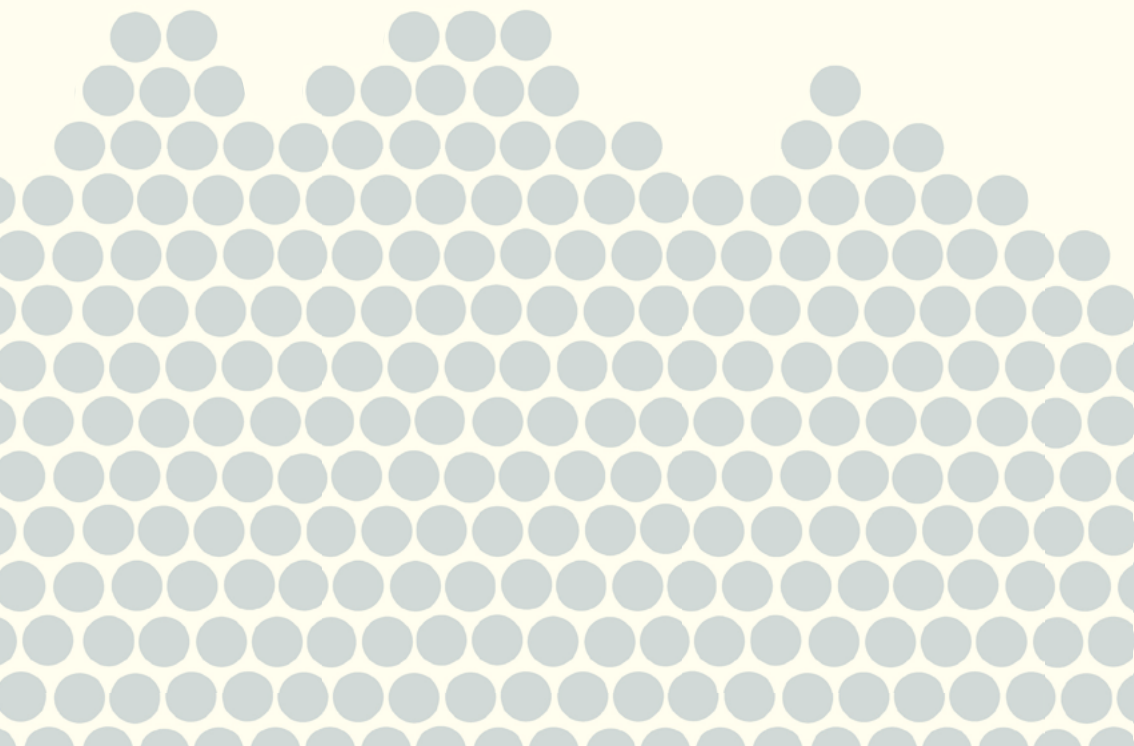
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PREFACE

This book proposes some reflections about our real connections and necessities. Modernity has brought us countless benefits, facilitated our lives, and enabled changes that will accompany us for the rest of our lives.

However, this very modernity, driven by technology, has disconnected us from ourselves and distanced us from nature. We have stopped interacting with the one that gives us what to eat, what to drink, what to wear, purifies our air, and protects us in many different ways, in order to interact instead with the clicks of our digital worlds.

In this book, we meet Maya, a curious and determined young woman who is deeply moved by the tragedy that occurred in a neighborhood of her city, Vila Verde. Witnessing the suffering of a resident affected by the floods in their neighborhood, the young warrior Maya sets out to leave the “bubble” of electronic screens to understand what is happening around her.



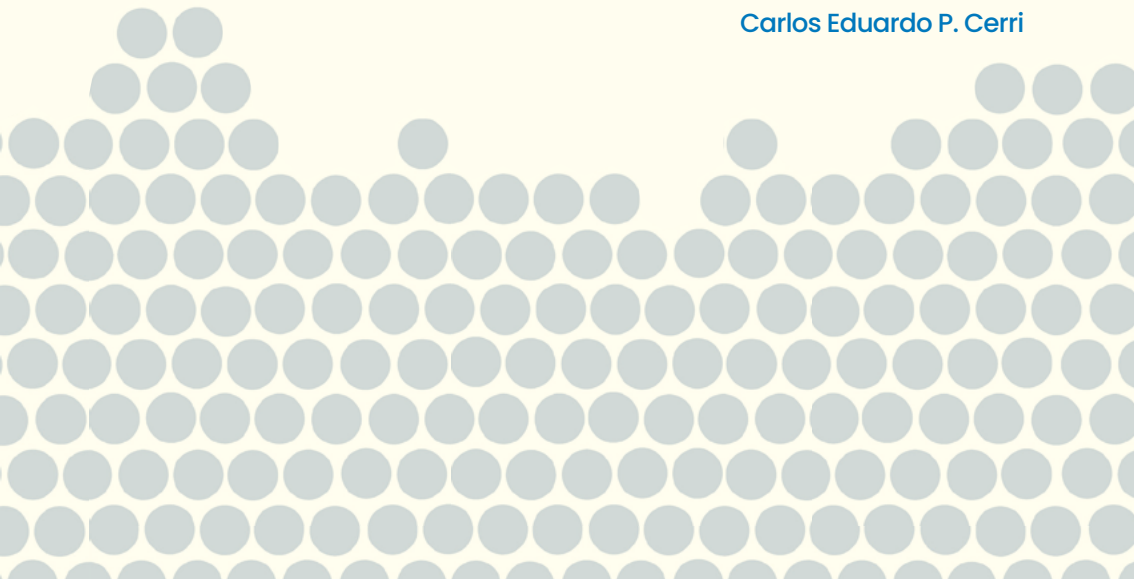
In an enriching encounter with the incredible and unforgettable researcher and soil scientist Professor Carlos Cerri (whom I had the honor of having as a father and personal and professional inspiration), the young woman realizes that we are so involved and hypnotized by the various technologies and technological tools that we forget to take care of the very foundation of life.

With an unwavering desire to make a difference and help nature and, consequently, help humanity, Maya, guided by the admirable Professor Cerri, begins to present possible and efficient solutions to improve life in Dona Aurora's neighborhood and in her city, Vila Verde.

In this pleasant and didactic reading, we can understand that the health of the soil and nature directly impacts the health of a city and the survival of people. More than that, this reading shows us the importance of reconnecting with nature and seeking strategic, often simple, ways to restore and save our planet.

I hope that "The Guardians of Vila Verde" will give you a more harmonious view of nature, I hope that the roots of knowledge left by my father, the unforgettable Professor Cerri, continue to create ramifications through projects, such as Educarbon from CCARBON and so many initiatives that protect our soils and preserve nature. Good reading!

Carlos Eduardo P. Cerri







THE AWAKENING OF THE PROBLEM

Maya, a fourteen-year-old teenager with brown hair, always tied in a ponytail, and curious eyes that didn't miss a detail, was the personification of the new generation in the city of Vila Verde. She spent hours on her tablet, surfing through social media, playing games, and dreaming of technological innovations that would change the world. For her, nature was something distant, a beautiful setting for photos, but without much relevance to real life in the city.

The girl's agile and precise fingers slid familiarly over the smooth surfaces of glass and plastic, but rarely felt the roughness of a tree bark, the moisture of the soil, or the irregular texture of a leaf. Tactile perception was almost an abstract experience for her, replaced by the subtle vibration of a device or the visual feedback of a game. This physical disconnection, the loss of perception through touch and sensory immersion, was a silent characteristic of her generation. Upon accessing the virtual world, she seemed to abandon the richness of more primal sensations and the understanding she could offer about their surrounding environment.

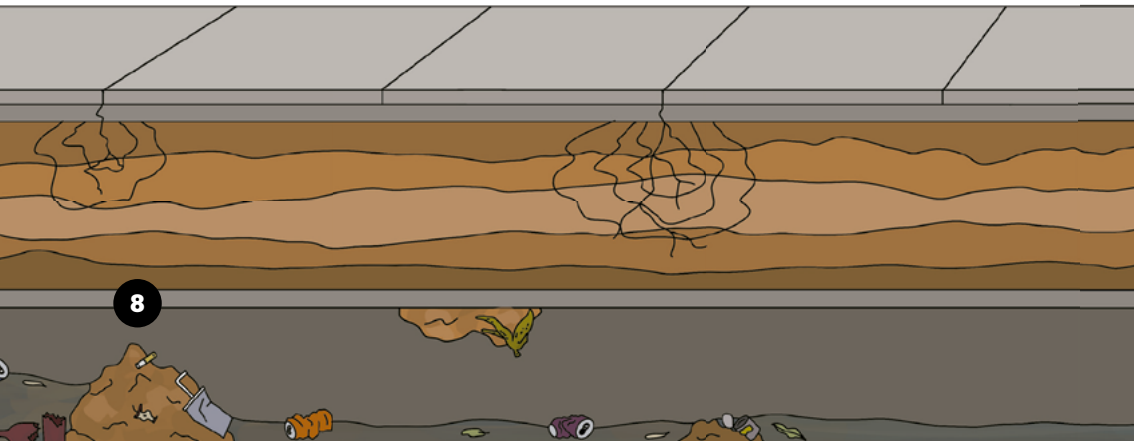


Vila Verde was a city that pulsed with the energy of modernity.

Mirrored skyscrapers marked the horizon, electric cars drifted along wide avenues, and technology was on every corner. The locals, young and connected, were proud to live in the future. However, behind the face of progress, the city held a dark secret, a problem that grew silently beneath its feet: the soil.

The summer heat was unbearable, turning the sidewalks into hot plates and the air into a heavy, polluted haze.

Fresh food, once abundant, became increasingly expensive and scarce, coming from far away and losing its flavor. The problems of Vila Verde, however, were undeniable. The rains, once welcome, had become nightmares.







The first place hit by the rains was Dona Aurora's neighborhood, a charismatic lady, known and loved by all. Her neighborhood was one of the oldest and least glamorous areas of the city, and it was visibly neglected.

In her youth, Dona Aurora didn't know the screen of a cell phone or the complexity of electronic circuits. Her world was the ground beneath her feet, often barefoot, feeling the earth damp from the rain or the gentle warmth of the afternoon sun.

The streets of her neighborhood weren't paved but made of packed earth, a setting for games that nobody plays anymore. She and her friends spent hours playing simple but lively games: hopscotch drawn in the dust, hide-and-seek among the leafy trees, barefoot races that ended with laughter and scraped knees.



The air, free from the heavy haze of pollution, was a constant invitation to take a deep breath and feel the breeze, a sensation that had become a rare luxury today.

Nature was not just a backdrop for Dona Aurora; it was an intrinsic part of her existence. The trees, which today struggle to survive amidst the concrete, were her playmates, her hiding places, and her sources of inspiration.

She learned from the cycle of the plants, observed the small animals that inhabited the backyards and squares, and intuitively understood the importance of each element for the balance of life.

This deep connection with the natural environment shaped her practical wisdom and resilience, characteristics that would accompany her throughout her life.



Now, all those memories were part of Dona Aurora's past, and her neighborhood was covered in mud and debris from the city.

The rain that once cleaned now floods her house.

And it was during one of these floods that Maya's life began to change.

The news showed desolate images of Dona Aurora's neighborhood, with water up to her knees, trying to save what remained of her house. The expression on her face was marked by a difficult life, but the glimmer of resistance was still present in her eyes.

The frustration and suffering of that situation touched Maya in a way that no app or game had ever managed to. She felt a discomfort and a glimpse of responsibility, even without yet understanding why. Intrigued, Maya began to research more about the floods and possible solutions for Vila Verde.







That was how Maya first learned about Professor Carlos Cerri. He was very well known among the residents of Vila Verde for being a soil scientist. The “wise gentleman” who lived on the outskirts of the city, surrounded by nature in a house that seemed to have come out of a fairy tale.

People said he could even be frightening, because he talked to plants and understood the secrets of the soil like no one else. He had even appeared on newspaper covers for predicting the tragic future of Vila Verde if certain measures were not taken.

With a mixture of skepticism, curiosity, and hope, Maya decided to look for him.

Cerri, with his white hair and gentle smile, welcomed Maya with the enthusiasm of a teacher who recognizes a student committed to a cause. His eyes reflected ancient wisdom.

– So, young Maya has come in search of answers?– he asked in a hoarse but welcoming voice
– “The answers, my dear, are not always on bright screens. They may be right here, beneath our feet.”

Attentive to every word the professor said, Maya followed his steps as they explored that true oasis teeming with life, which made the girl’s eyes light up with wonder.



The Professor's house was a striking contrast to the modernity of Vila Verde. Its roof was covered with plants, which stretched over the walls in vines and exuberant flowers of all colors and sizes. They perfumed the air, provided thermal comfort, and attracted insects and birds that lived there or came to visit.

In the background, in the lowest and central part of the land, a lake could be seen.

All the water from the wooded slopes, with permeable soil, flowed slowly, filling that lake with water so clean and crystalline that it was possible to see it clearly reflecting the infinity and beauty of the sky.

Near the house, there were flowerbeds where food and medicinal plants coexisted in abundance. Lettuce, tomato, and carrot planted side by side with mint, rosemary, and lemon balm. The diversity indicated not only abundance, but also a way of life that united nutrition, health, and respect for the environment. This was only possible thanks to the healthy soil, which nourishes each species and maintains the necessary balance for life to flourish in harmony.

All of this made Maya perceive a world that was not visible in the place where she lived. Such a variety of natural spaces was not observed in Vila Verde. She had never been able to notice the richness that such an environment could offer.



Professor Cerri knelt down, picked up a handful of dark, moist soil, and explained to the girl that soil wasn't just "dirty earth," as many thought. That in just one teaspoon of soil, it could contain millions and even billions of living organisms, such as mites, fungi, bacteria, and other invertebrates essential to the health of the soil.

– So you're saying that floods, heat, pollution... all of that directly impacts the soil's illness? – asked Maya.

– Yes, my young friend. And do you know why? When we cover the soil with concrete, it can no longer breathe, absorb water, or nourish life. Therefore, when the soil gets sick, the city gets sick too. But nature has its own solutions, and they are powerful.



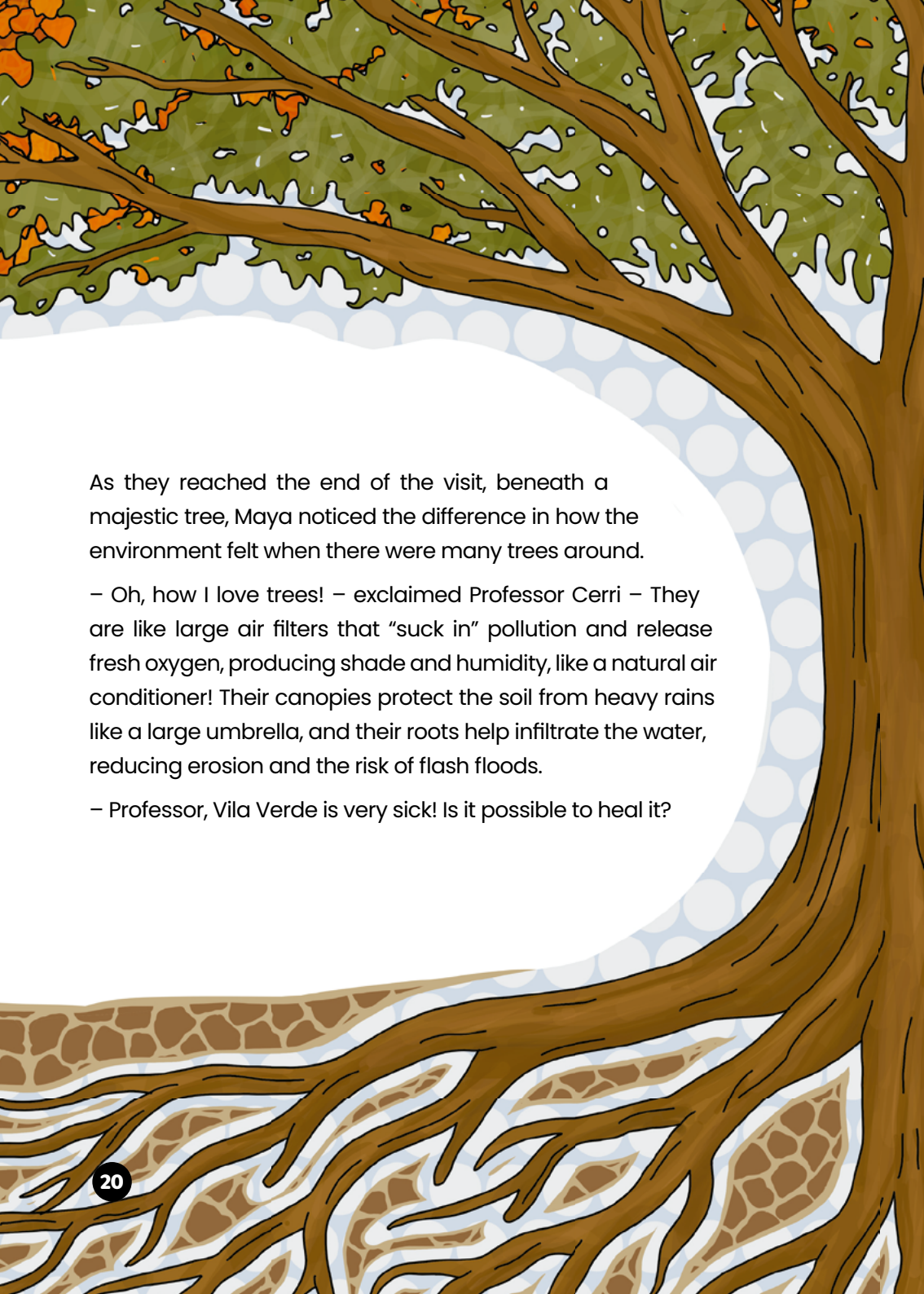
And he continued:

– Imagine that nature is like a superhero who has incredible powers to help us solve problems. “Nature-Based Solutions” are ideas and projects that use the “superpowers of nature” to make our cities and the planet better and safer places for everyone! It’s as if, whenever we face a problem, we ask ourselves: “Hey, nature, how would you solve this?” And then, it would answer us by showing smart, beautiful, and healthy ways!

– That’s incredible, professor! Now I’m wondering: how come something like this never crossed my mind? Especially me, who spends so much time connected to the internet, surrounded by information.

Maya felt a spark of interest. It was as if an app had been installed in her mind, revealing a new world of possibilities.

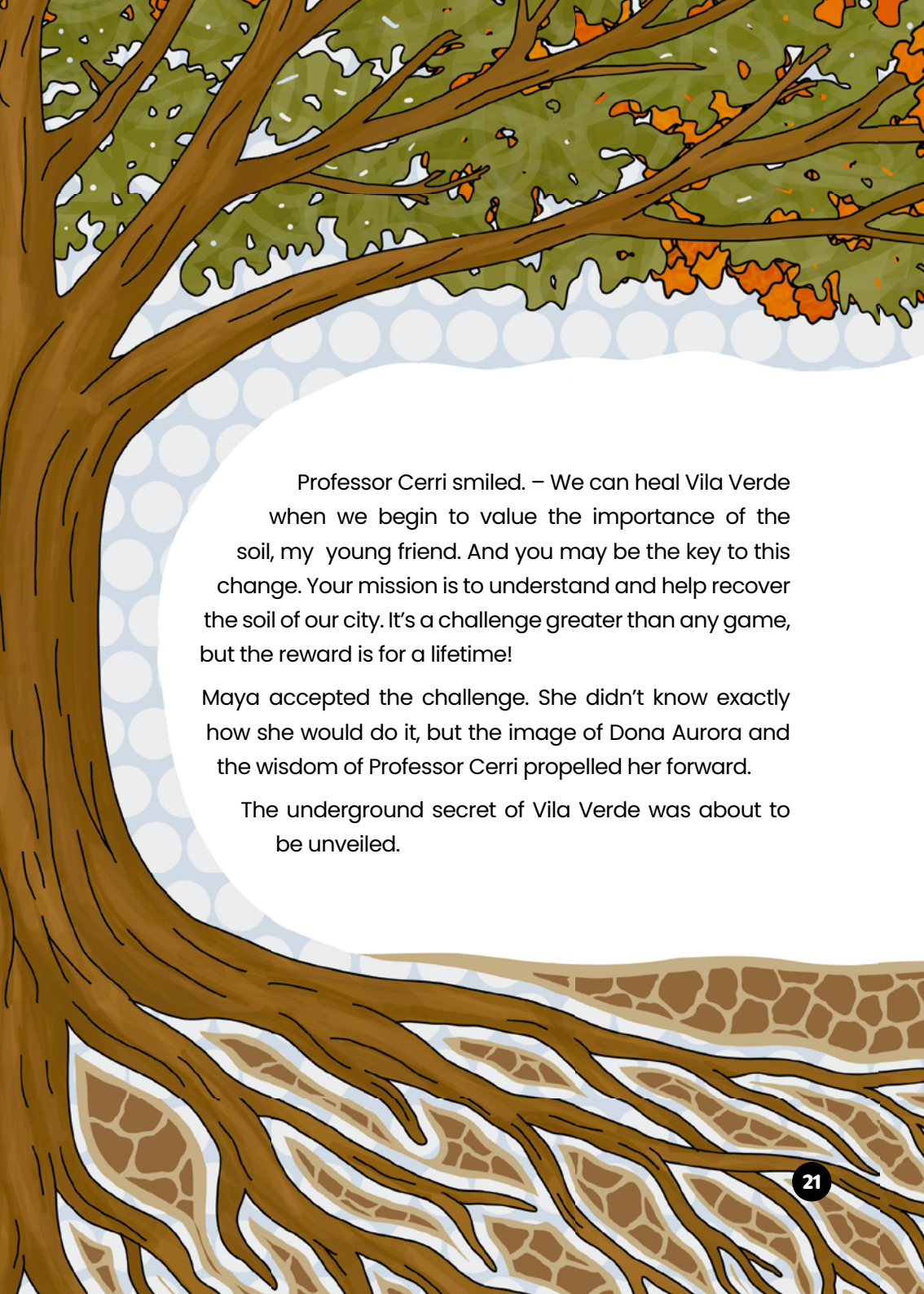




As they reached the end of the visit, beneath a majestic tree, Maya noticed the difference in how the environment felt when there were many trees around.

– Oh, how I love trees! – exclaimed Professor Cerri – They are like large air filters that “suck in” pollution and release fresh oxygen, producing shade and humidity, like a natural air conditioner! Their canopies protect the soil from heavy rains like a large umbrella, and their roots help infiltrate the water, reducing erosion and the risk of flash floods.

– Professor, Vila Verde is very sick! Is it possible to heal it?

A large, stylized tree with a thick brown trunk and branches. The leaves are green with some orange and yellow, suggesting autumn. The background features a light blue and white polka-dot pattern. The tree's roots are visible at the bottom, spreading out in a brown, textured ground.

Professor Cerri smiled. – We can heal Vila Verde when we begin to value the importance of the soil, my young friend. And you may be the key to this change. Your mission is to understand and help recover the soil of our city. It's a challenge greater than any game, but the reward is for a lifetime!

Maya accepted the challenge. She didn't know exactly how she would do it, but the image of Dona Aurora and the wisdom of Professor Cerri propelled her forward.

The underground secret of Vila Verde was about to be unveiled.

THE DISCOVERY AND THE ACTION

Maya returned home with her head buzzing with ideas. The world, once so predictable on her screens, had expanded to include the complexity and relevance of soil health.

She wanted to save Vila Verde, but she knew it was impossible to do it alone.





That's why she called on one of her friends, Leo – a boy passionate about robotics. They shared the same vision – they lived oblivious to the complex web of life that existed beneath the asphalt. Leo had a logical mind and was good at turning ideas into reality.

With a little insistence, and the promise that there would be many urban engineering challenges involved, Maya managed to convince him to join her mission.

– “Healthy soils for healthy cities” sounds like a cool slogan for a campaign! – said Leo. His eyes showed genuine curiosity as Maya explained everything she had learned from Professor Cerri.

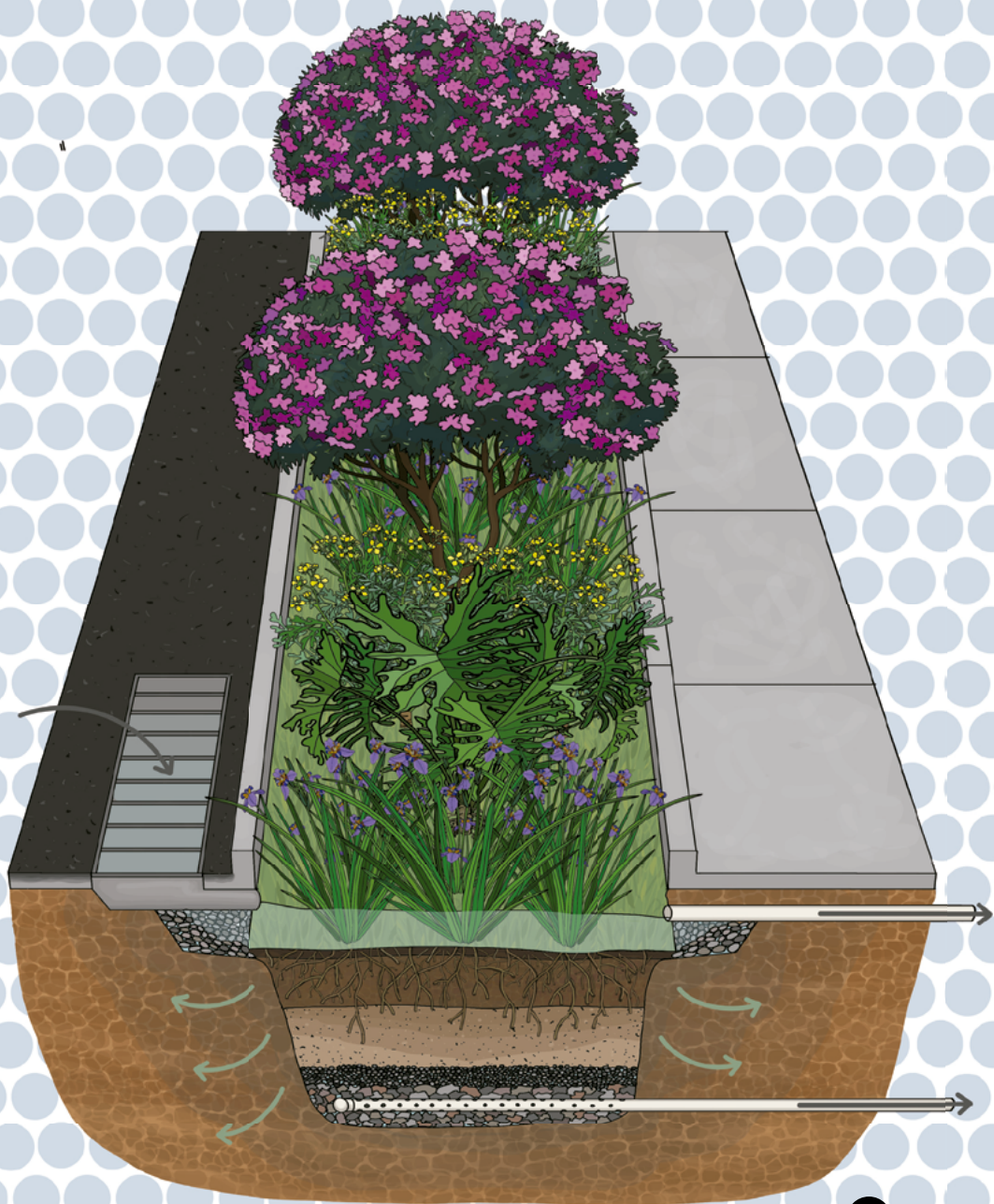
Now, instead of games, the teenagers found themselves using technologies and tools to access information, scientific knowledge, and examples of urban projects to solve problems in their own reality.

– Okay, so let's think a little more. Here in the city, the buildings get very hot in the sun and we waste a lot of energy on air conditioning. When it rains, the water runs off quickly, causing floods, destroying houses, leaving the community homeless...

– Good one, Leo! I saw in a research study that there are places where plants are placed on the roofs and walls of buildings. They help in several ways: they keep the buildings cooler, save energy, absorb water, reduce flooding in the streets... it's as if the plants act as giant sponges!

– This article shows that rain gardens are sunken flowerbeds with green areas designed to collect and absorb water, helping to reduce the risk of floods and inundations in urban areas. If this technology existed in Dona Aurora's neighborhood, the poor woman wouldn't be living in a flooded environment! – said Maya in a tone of indignation.

With each new discovery, Maya and Leo's excitement grew. They were fascinated by urban agriculture, which transformed vacant lots into community gardens, producing fresh food and strengthening community ties. The benefits and opportunities generated were endless. Knowledge increased, as the desire to act.



After the research, the second step was to visit Dona Aurora's neighborhood, which was still recovering from the last flood. Surprised by the young people's visit, she listened attentively to Maya and Leo's ideas. Her eyes, previously tired, filled with hope. – Rain gardens? Green roofs? – she repeated, a smile beginning to form on her lips – It sounds like something out of a movie! But if it can help my neighborhood, I'm in!

A quick conversation with the community was enough to identify a small abandoned square in the heart of the neighborhood, called "Smile Square". It always flooded when it rained, making it the ideal place to start the change.

Leo, with his talent for engineering, developed the technical project, while Maya, using her communication skills, mobilized the community through social media, with the help of Dona Aurora's influence.



Their experience with the digital world was a great ally in reaching people who shared the principles of collaboration and care for the environment and in facilitating the organization of the community work day.

The first few days were difficult. The soil of the “Smile Square” was compacted and lifeless, full of debris and mud. With the supervision and technical support of Professor Cerri, the volunteers prepared the land. With each plant they planted, they felt a deeper connection with the soil and with the community itself. Dona Aurora, tireless as ever, prepared snacks and juices for the team, and her energy was contagious.

Their action attracted attention on social media, and a large part of the neighborhood’s population was already committed to helping. Together, they obtained seedlings of native plants, tools, and the necessary materials.



Months of exhausting work went by. There were many skeptical comments saying: "This won't solve anything", "It's just another trend", "There's no viability in these solutions." Despite this, they didn't give up.

The first test came the following year with the rain. Everyone was apprehensive. The water began to fall, strong and steady. But, instead of accumulating, it was absorbed by the rain garden, which seemed to swallow every drop. The water drained slowly, filtered by the plants and the soil.



It was a small miracle, visible proof that nature was helping them.

The success of the rain garden opened doors. More residents became interested in helping. A green roof was installed on the community center, transforming a gray and hot space into a cool and flower-filled place.

The local media began to cover their actions, calling them “The Guardians of Vila Verde”. Skepticism gave way to curiosity, and curiosity to admiration.



The initiative sparked the interest of the city's mayor. Ana Lúcia had followed the repercussions of the success of the "Smile Square" and saw in it an opportunity to implement a public policy of great impact for Vila Verde. The city already had a program of sustainable solutions and adaptation to climate change, and that is why the "The Guardians of Vila Verde" were welcomed in the city hall's office.

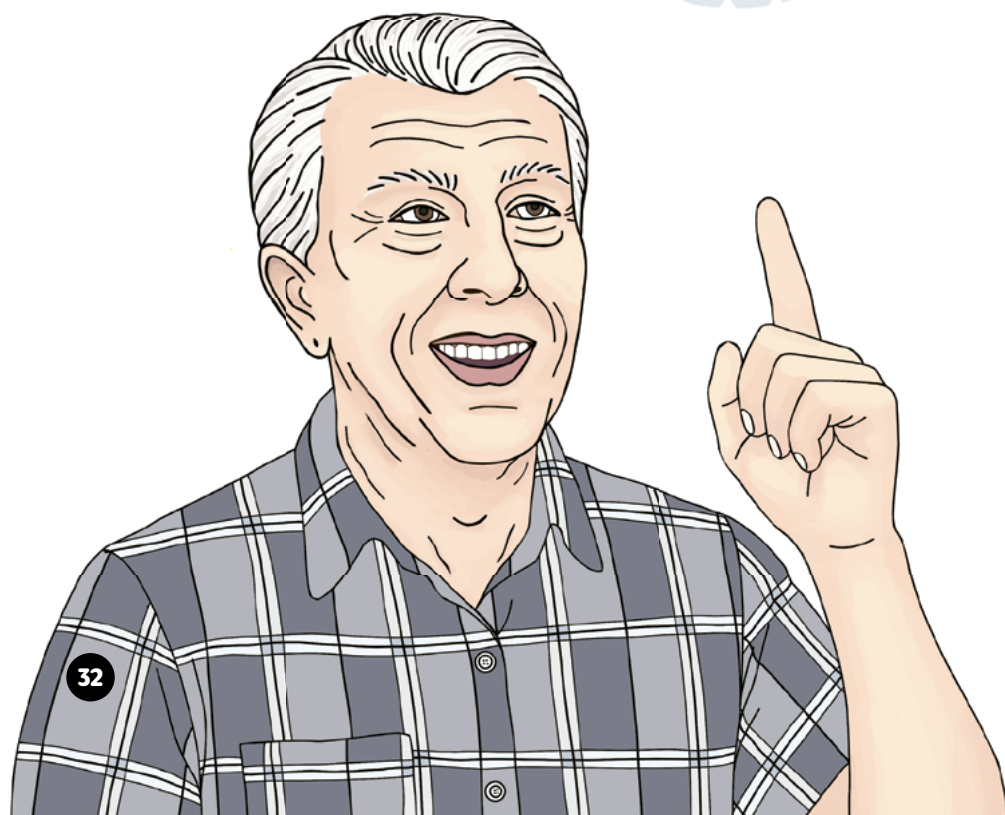
– It's a pleasure to welcome you here! My administration is committed to sustainability and



climate resilience. We have a municipal program for expanding green areas and managing stormwater, but we need practical examples and people who understand the reality of our city. That's why – continued the Mayor – we would like to invest in this initiative together with the community.

Surprised and moved, Maya, Léo, Professor Cerri and Dona Aurora accepted the partnership, proud of the positive impact they had made.





As a result, the “The Guardians of Vila Verde” began to dream bigger. The river that crossed the city had been channeled and transformed into a concrete canal decades ago, a gray scar in the heart of the city. Professor Cerri mentioned Bishan-Ang Mo Kio Park in Singapore, where a similar river had been naturalized, transforming into a vibrant and multifunctional park.

– Imagine, Maya – he said – if we could transform this canal into a linear park, with natural water and soil treatment areas, walking trails, and spaces for urban agriculture. It would connect all the neighborhoods, bring life back to the river, and heal the soil of the entire city.

– And we don’t need to go that far! – said Maya – The same thing happened at Orla Piratininga Park in Niterói, Rio de Janeiro, with the largest Nature-Based Solutions project in Brazil.

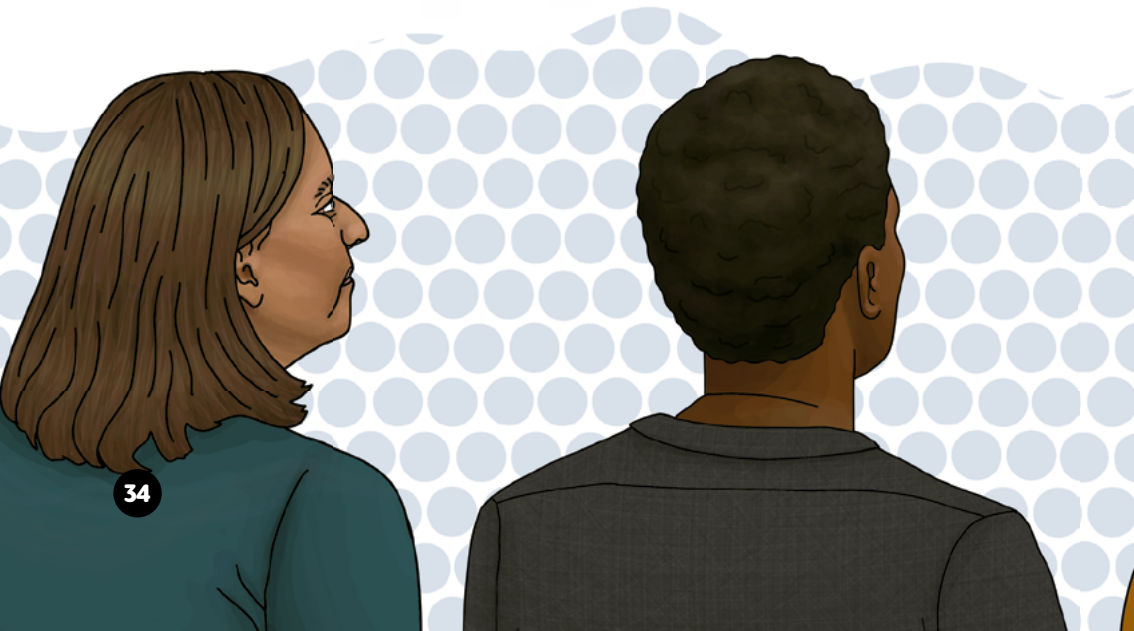
The idea was bold, but Maya, now more confident and with the experience of small successes, felt a flame ignite within her. She knew that the “The Guardians of Vila Verde” could make a difference.

THE TRANSFORMATION AND THE FUTURE

The following years were marked by changes and challenges for Vila Verde. The proposal to transform the concrete canal into a linear park was received with a mixture of enthusiasm and skepticism by the new municipal authorities. Many saw the idea as too ambitious, too expensive, and unnecessary. “We’ve always done it this way,” was the most common argument.

Maya, now with sharp oratory skills and the passion of someone who had seen the transformation happen, was not intimidated. Joining forces, the community presented the “Hope River Recovery Project.”

They showed before-and-after photos of the Dona Aurora neighborhood, data on the reduction of flooding, as well as the improvement in air and water quality. They insisted again on the example of Bishan-Ang Mo Kyo Park in Singapore, as a cheaper and more effective option in the long term. And also the example of the Piratininga Waterfront Park, recognized worldwide with sustainability awards.







After weeks of heated debates, public hearings, and much persuasion, the project was finally approved. Vila Verde would embark on its greatest transformation.

The implementation of the river project was a gigantic undertaking. Heavy machinery worked to remove the concrete that “suffocated” the river, finally revealing its original riverbed. Engineers, agronomists, architects, biologists, and volunteers of different ages worked side by side. Maya and Leo, now recognized young leaders, coordinated the teams, planting native trees, creating wetlands, and talking about the importance of building ecological trails in the city.

Dona Aurora, with her practical wisdom, organized the community to maintain the new green areas and implement community gardens. The initiative would bring new life perspectives to urban farmers, men and women who lived in conditions of social vulnerability. In addition, they could guarantee quality food for many daycare centers in the city.

Gradually, Vila Verde began to be reborn. The Hope River, once a gray and lifeless canal, began to meander once again with clean water, bringing fish, birds, pleasant scents, and colors.

The linear park became the new heart of the city, a place where people could walk, ride a bike, have picnics and reconnect with nature. The floods became a distant memory, the air was cleaner and fresher, and the city breathed lightly.

Over time, Vila Verde became a local example of resilience and sustainability. Its skyscrapers still had its place, but now surrounded by green roofs and living walls. The streets were lined with trees that offered shade and fresh air.

Urban agriculture flourished in many neighborhoods, and local markets overflowed with fresh and affordable products, grown in the city itself. The soil, once sick and forgotten, was healthy, vibrant, and full of life, serving as the solid foundation upon which the new Vila Verde was built.

Maya, now an adult, was an inspiration to many. She had graduated and become a renowned expert in “Nature-Based Solutions,” traveling the world to share the success story of Vila Verde.

Year after year, she continues to advocate for sustainability, educate new generations about the importance of soil, and remind everyone that true modernity lies not in dominating nature, but in living in harmony with it. Her initiatives convey a message of hope and empowerment, showing that, with knowledge and action, it is possible to reverse soil degradation and build a more sustainable future.





Vila Verde was celebrating its 300th anniversary, and Maya was on the main stage of the celebration. The square, which had been rebuilt years ago, was packed, and the mayor – with a proud smile – presented her with an award recognizing her tireless dedication to transforming the city. Maya looked at the crowd, her curious teenage eyes now filled with mature wisdom. The bust with the image of her beloved Professor Cerri was in the background. He was no longer there to see it, but his legacy lived on in every tree planted, in every piece of soil recovered, and, above all, in Maya’s heart.

She began her speech.

– Today, Vila Verde celebrates not only another year of its existence, but proof that change is possible when we listen to the voice of nature and unite to hear it. I remember the words of my dear mentor, Professor Cerri: “the answers, my dear, are not always on bright screens, but under our feet.” He was right. It was by looking at the soil, understanding its importance, and working with it, that we found the solutions to our greatest challenges. May we continue to be “The Guardians of Vila Verde”, so that future generations may harvest the fruits of a healthy and vibrant planet.

And don’t forget: To have healthy cities, you need healthy soils! Therefore, when you are in conflict with nature, remember to look at it and ask: “Hey, nature, how would you solve this problem?” Be sure that it will answer us by showing intelligent, beautiful, and healthy paths!



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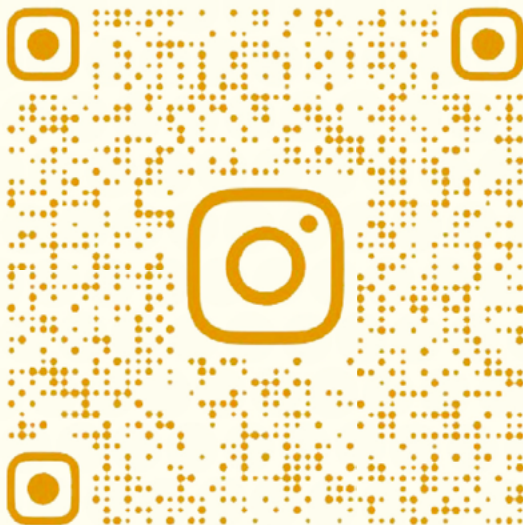


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Scientific Illustrator

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THE GUARDIANS OF VILA VERDE

A powerful and inspiring narrative that follows the challenging journey of a new generation, led by the determined young Maya, in the modern metropolis of Vila Verde.

The story reveals how Maya and her friends uncover an essential truth: innovation and a sustainable future are not born solely from digital algorithms, but primarily from the reconnection between humanity and nature, a link often forgotten due to the excess of virtual connections.

Under the guidance of Professor Carlos Cerri, a soil scientist, Maya embarks on a mission to rewrite the destiny of her city, which is sickening beneath the concrete.

Will this young woman and her allies be able to reverse decades of environmental neglect? Can they convince a metropolis obsessed with technology to look at the soil and discover the secret hidden beneath the asphalt?

Prepare for an incredible adventure where the most significant battle for the future is not fought on screens, but under our feet.

This book is a call to action, highlighting that soil health is the foundation for the health of the entire city and the population that lives in it.

The union between the new generation and the wisdom of the land is the key to a resilient future.



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