Climate Vision 2050 BCG podcast

Episode 2: The Green City in the Sun

[00:00:00] Nick Howard: What you are about to listen to is a work of imagination, but not fantasy, set in the year 2050.

(SFX futuristic alarm clock beeping.)

[00:00:08] Bailey: 2 am. Time to get up!

(Getting out of bed etc. Goes into the kitchen and starts making breakfast - toast into toaster, the beeping of a machine for tea, etc.)

[00:00:11] Bailey: I’ll feel better once I have my seaweed shake.

(Buttons on a futuristic tea machine - the sound of tea pouring, taking a sip, taking a bite of toast.)

[00:00:15] Bailey: I’m going to have to hustle to make it to the senate by 3:00 am...

[00:00:21] [Host] Mutinta Banda: That’s urban planner Bailey Muthoni. She’s allowing us to tap into her digital diary. Today, Bailey’s going to provide us a window into what it’s like to live in a world class city that has made massive strides towards addressing the climate crisis: Nairobi, Kenya.

[00:00:40] [Host] Mutinta Banda: I’m your host Mutinta Banda and you’re listening to Climate Vision 2050.

[00:00:45] News Clip: African countries have contributed very little to the climate crisis, yet in the 2030s have been disproportionately affected by it.

[00:00:53] News Clip: At Eco35 Nairobi startups compete for seed funding. What will be the next big green innovation out of Silicon Savannah?

[00:01:01] News Clip: In 2040, the Kenyan ministry of energy achieved a goal of increasing energy generation capacity by 4000%.

[00:01:08] [Host] Mutinta Banda: Cities have faced massive challenges in recent decades. Climate change has accelerated rural to urban migration and strained municipal resources.

[00:01:19] [Host] Mutinta Banda: In this episode, we’ll be exploring how Nairobi has addressed these challenges through sustainable housing, transportation and agricultural initiatives. While reducing poverty and taking advantage of abundant renewable energy resources.

(SFX Bailey in her apartment, moving around and doing tasks to get ready for her day, perhaps there is a radio on in the background or some music. She opens a patio door here in the beginning, there are heavy rain sounds. Closes the door at “I moved here in 2048”, keeps gathering things in the apartment.)

[00:01:31] Bailey: I’m not looking forward to going out there in the rain, but with the drought this year we desperately need the water. Too much all at once though and flash floods could cause trouble.

[00:01:46] Bailey: A big part of what attracted me to this apartment was the view; Westlands is a mix of modern and older buildings - like One Africa Place - that big round office tower that reflects the light of everything around it. I’m originally from Embu, a county about 100 km north-east of here. My family’s maize farm was there until we shut down 5 years ago; the droughts were so bad that my family and I risked starvation.
John Kidenda: The “why” for the organization is really, creating space for experimentation and rapid iteration. That’s the best way to really help city planners achieve their goals of improving the city and also influence how they think about achieving those goals. So we are a think tank. We put out policy briefs. But we also do stuff out in the city that we think can unlock people’s thoughts or imaginations around what is possible for various neighborhoods in the city.

[00:03:23] John Kidenda: We’re gonna try and transform the entire area around the government buildings in Nairobi into a no-driving zone by painting in park areas and installing flower pots and foldable chairs overnight. And then inviting members of the public to sit and play board games and drink tea. And we’ll see if the city takes us up on making that change permanent.

John Kidenda: I think that governance is always better when it is closer to the people, right? I think if you have to see the people, you have to walk past, you know, and talk to the people who you’re governing on a daily basis, then you just govern better.
News Clip: Flooding in Kenya’s capital displaced thousands from their homes in 2032.

News Clip: In 2042, 10 more African startups converting waste to energy have entered this competitive marketplace.

News Clip: Kenya’s 10th president Njoki Mathaai announced massive upgrades to electric-vehicle charging infrastructure are expected in 2046.

[Host] Mutinta Banda: Back at Bailey’s apartment in Westlands, she continues to rush to get out the door in the early hours of the morning.

(SFX sound of her turning off the radio/tv, closing the door behind her. She goes outside, and we hear some African bird sounds, cityscape sounds outside, etc.)

Bailey: This place was built a decade ago. These walls...

(taps on wall)

Bailey: are garbage. [Laughs a bit]. If you could see the awful pink and green colours you’d think I was referring to that but I assure you I am not. All of the walls and main structure are built from 100% plastic waste - much of it pulled directly out of the Nairobi river during the cleanup project in 2034. We were able to solve one problem - the housing crisis - with another - the pollution of our city.

Bailey: Above us are solar cell panels that tap into Nairobi’s sunny skies to provide energy. There are trees and furniture scattered throughout for resident hang out areas. Our rainwater collector provides us with water to drink and clean - it will be full after this morning.

Bailey: This complex has a cafe, school, gym, market, playground, and library. Many of my neighbours have come from farming families like me. Others have come from Kibera and Mathare - former slums that are shrinking as more low and mixed income housing projects - such as this one - are built. There are also expats here who have come to take advantage of Nairobi’s green tech & innovation boom - how we get our Silicon Savannah nickname.

Bailey: It isn’t always easy to integrate all of the newcomers like myself with the longtime residents of the city. There are tensions between the old and the new and between those who embrace and those who resist change. Sometimes I still feel like an outsider. But that’s part of the whole reason I wanted to get into urban planning in the first place; to help build a city where everyone feels welcome.

[Host] Mutinta Banda: Cities like Nairobi in low and middle income countries had different housing challenges than cities in affluent ones countries.

Katie Hill: Quite frankly, 30 years ago, we didn’t have a lot of centralized infrastructure when it comes to electricity, water, sewage and transport. While that had lots of issues around equity and quality of life, it also created the opportunity to build the most sort of cutting edge solutions from scratch rather than have to deal with legacy infrastructure and try to kind of transform. And so in many ways what you’ve seen from Nairobi to Lagos, Abidjan - much more distributed models rather than centralized infrastructure for delivering basic services.

[Host] Mutinta Banda: Many older big cities were centralised for economies of scale and standardisation. These cities are built around single or several large facilities that house entire operations in one area; such as a large power plant or waste management facility.

[Host] Mutinta Banda: In newer cutting edge cities like Nairobi, you see more distributed models. These cities build resiliency through creating smaller facilities; such as the solar panels and rainwater harvesting in Bailey’s complex. Water availability has been a persistent issue in Nairobi.

John Kidenda: Nairobi was actually built on a swamp and so, if you build a city on a swamp and you don’t pay very keen attention to drainage, and then couple that with really erratic weather patterns and extreme rainfall followed by drought. Then you have huge water problems. One of the fringe benefits of revitalizing and expanding the green space in Nairobi has been improving the water drainage system in the city, which used to create quite devastating floods, especially in the low income parts of the city, which were not accidentally also located in some of the lower lying areas of the city.
[00:12:16] **[Host] Mutinta Banda:** Water availability has been a persistent issue in Nairobi. Along with accommodating residents moving into Nairobi from elsewhere, a huge priority has been re-housing the city’s poorest residents.

[00:12:28] **Katie Hill:** As a starting point, Nairobi already had more than half of its citizens living in informal settlements. What’s otherwise considered, often called slums. And so when you take that as a starting point and then you go from a city of 5 million to 20 million, really the biggest challenge and one that we are definitely still grappling with is how do you create enough housing stock with dignified accommodations to triple, quadruple the urban population while needing to also help the longtime residents to have a better quality of life.

[00:13:08] **[Host] Mutinta Banda:** We’ve seen accommodation become denser as Nairobi earmarked land exclusively for the building of mixed and low income housing. The actual building materials used are sustainable, as startups figured out creative ways to convert the city’s waste into building materials.

**Katie Hill:** We’ve had a number of alternative building materials being prototyped. In early days it all felt a little gimmicky using plastic waste to create bricks and other composite building materials. But once that is prototyped enough and technologies are refined, you could actually get into mass production of sustainable building materials.

(SFX Nairobi cityscape - the sound of electric buses, motorcycles and bicycles, some sounds of people’s voices)

[00:13:53] **[Host] Mutinta Banda:** Another priority has been transportation; how to move all of these people around the city sustainably and efficiently.

[00:14:06] **[Host] Mutinta Banda:** Outside her apartment building, Bailey gets ready to start her morning commute.

[00:14:10] **Bailey:** Normally, I’m in a coworking space a 6 minute walk from here, but today I’ve got to get to Parliament Road in the CBD - central business district.

(Sound of motorcycle starting.)

[00:14:21] **Bailey:** This here is “kasi”. The Swahili word for speed. She’s a fully electric motorbike.

**[Host] Mutinta Banda:** Bailey starts up Kasi and rides down the street towards the CBD.

(Motorcycle powers up and goes fast and then starts to power down.)

[00:14:27] **Bailey:** Uh oh. Why are you slowing down kasi?
(Bike stops, Bailey gets out and opens the battery compartment.)

[00:14:30] **Bailey:** Ughhhhh. The indicator light isn’t shining on the battery. It must be malfunctioning. I’m going to have to take it in for service.

[00:14:42] **Bailey:** I’ll park kasi here on the street and catch the bus.

(Clicks a few buttons, putting the motorcycle away.)

[00:14:49] **Bailey:** There’s a stop nearby but I’m going to have to hurry to make it on time. Nothing I can do now but run!

(Sound of running away.)

[00:14:58] **[Host] Mutinta Banda:** Nairobi used to have a huge pollution problem, mostly caused by fossil fuels as John Kidenda explains.

[00:15:08] **John Kidenda:** In the 2010s Kenya was simultaneously selected as the country with the best air quality in the world, while at the same time having Nairobi as a city with some of the worst air quality in the world. And you know, thankfully there’s been a lot of equalization between the air quality out in the country in Kenya and the air quality in the city, primarily driven by the electrification of transportation, which was a major source of pollutants.

**[Host] Mutinta Banda:** The electrification of buses and four wheeler transport was one piece of the puzzle, but arguably an even bigger one for Nairobi was the rise of the electric motorcycle industry.

[00:15:55] **John Kidenda:** Some of the first electric motorcycle companies in Africa and in a lot of ways across the world, were based in Nairobi. The city has really doubled down on e-scooters and e-bikes as a mode of transportation that has really slotted into the niche that was being served by what we call boda bodas, which are urban motorcycles that are used for both commercial transportation of goods as well as people. So all of those bikes are now electric and are available to rent just like you would rent an Uber or a Lyft.

[00:16:30] **[Host] Mutinta Banda:** Nairobi also needed better public transportation and walking options if it wanted to improve congestion. Decades ago the traffic was so bad in Nairobi that you could sometimes be stranded in your car for up to 5 hours, or even overnight.
[00:16:47] [Host] Mutinta Banda: The city’s bus rapid transit system helped streamline bus routes and decrease overall commuting time. But there was more to do. City planners also needed to increase walkability.

John Kidenda: The other policy that the city put in place and adopted from Paris was this concept of building a 15 minute city. That seeks to reorient city development resources away from a focus on transportation. Getting places, people from where they live to wherever else in the city they work or consume health services or go to school and towards proximity and access.

(Cityscape sounds, taking folding chairs out, pouring tea, playing board games, chattering, some sounds of electric motorcycles & buses in the background.)

[00:17:42] [Host] Mutinta Banda: Bailey arrives in front of the gated entrance of the large administrative buildings on Parliament Road. 50 or so people from Nairobi Tactical are already there redirecting traffic, painting in park areas and setting up folding chairs.

[00:17:56] Bailey: The sun’s starting to rise and we’re almost finished setting up.

(motorcycle horn honks - indistinct yelling in the distance.)

[00:18:01] Bailey: Some are not in favour of Nairobi Tactical. Our intervention is causing traffic bottlenecks. It will all be worth it though if our change...[gasps] Oh no... it can’t be. No. No. No. No. No.

(Bailey walks away to go hide)

[00:18:17] Bailey: It’s Njoki Mathaai, the 10th president of Kenya along with her security detail! She’s walking over to John. We’re screwed. My career is over. My life is over. Wait, what?

(Distant laughter)

[00:18:30] Bailey: They’re shaking hands?!? Njoki Mathaai is sitting down at one of the tables we’ve set up?!?

(whistle blows)

[00:18:38] Bailey: The security team is helping us to redirect traffic.

[00:18:41] Bailey: President Mathaai must think our no-traffic zone is a good idea. Yeah! Maybe they’ll even decide to make this a permanent public space, right in front of all of these government buildings! That would be incredible.

[00:18:55] Bailey: [Gasp] That practically gave me a heart attack. Now if that isn’t the thing that kills me today... it might be getting stood up by Mercy... I haven’t spotted her yet, but then again it’s hard to tell what someone looks like from their hologram.

(Pressing some buttons.)

[00:19:13] Bailey: Are you here, Mercy?

[00:19:14] Bailey: Mercy is a software developer at the electric motorbike company that kasi is from. We met through a dating app and hit it off chatting...

(Beep comes through on phone)

[00:19:24] Bailey: I’m wearing a red shirt. Hmm.

(Sound of walking through the crowd, atmosphere changing slightly)

[00:19:27] Bailey: [Little gasp] I think I see her next to that blue flower pot. Hmmm... she’s cute.


[00:20:13] [Host] Mutinta Banda: In recent decades, Nairobi has become an attractive location for tech and green manufacturing startups. These types of jobs now represent a huge proportion of the employment for the city’s residents. Nairobi’s ample access to renewable energy helped spark this boom, as Jon Kidenda explains.

John Kidenda: On the energy front Nairobi started with a bit of a head start relative to other global cities. Kenya even as far back as 2020 was a global leader in the geothermal energy space. Couple that with the hydropower, that sort of formed the base power infrastructure of the city going back quite a ways. And then in the 2010s, there was a lot of deployment of wind farms and solar farms. Even as far back as 2020, Kenya already got upwards of 80% of its power from renewable sources. In 2050, that’s a hundred percent.

[00:20:38] [Host] Mutinta Banda: Nairobi acquired the nickname Silicon Savannah. The abundance of renewable energy made it an attractive place for tech innovation and green manufacturing opportunities.

[00:20:48] Katie Hill: So you have a global community of technologists, software engineers, product designers and product managers who are developing businesses that serve Kenyan and broader pan-African consumers. So, that’s a big part of the employment base at this point.
[00:21:06] [Host] Mutinta Banda: Back at parliament, Bailey and the others at Nairobi Tactical gather up the tables, chairs, and games they used for the intervention. Traffic resumes on Parliament Road, but John informs the team that he’s had word the intervention is likely to be implemented. Bailey and Mercy part ways and Bailey catches the bus rapid transit system to make her way back to Westlands.

(Cityscape sounds, sounds of putting folding chairs away, gathering tea cups and board games, chatter, some sounds of cars & buses in the background - sound of getting on the bus again. This scene is on the electric bus.)

[00:21:32] Bailey: The intervention was a success, but I totally blew it with Mercy. [sigh]

(phone beeps)

[00:21:37] Bailey: [gasp & then happy laughter] No way.

[00:21:39] Bailey: She wants to meet up at Scabiosa Cafe in Upper Hill tonight.

[00:21:44] Bailey: First things first - I need a nap. I’m exhausted. I’ll pick kasi up and then go straight to bed - maybe Mercy can offer some advice on how to fix kasi’s battery!

Act III: Looking Forward & Looking Back

[00:21:54] [Host] Mutinta Banda: The fabric of today’s cities has changed dramatically as urbanization and climate challenges collide. Along the way we’ve learnt important lessons about how to adapt.

[00:22:07] News Clip: More atmospheric water generators are being installed in 2027 to regions most deprived of clean drinking water.

[00:22:14] News Clip: Nairobi has been named the #1 place for green manufacturing opportunities in 2036 as companies relocate to take advantage of abundant renewable energy.

[00:22:23] News Clip: 30 new coworking spaces are opening in Nairobi next year in 2042, to accommodate African techpreneurs looking to set up shop close to home.

[00:22:33] [Host] Mutinta Banda: Nairobi Tactical’s John Kidenda shares three transformative steps that Nairobi has taken to make it the city it is today.

[00:22:40] John Kidenda: I think one was the densification and mixed income/mixed use housing, massively expanding access to affordable housing for Nairobi’s residents. Two is adopting and really committing to the 15 minute city concept and reorienting city resources away from building more, and larger highways towards making it less necessary for people to cross the city. And then third, was a real focus on creating quality public spaces. And that’s everything from the cleaning up of the river and the revitalization of the parks. I think those three things have really had a huge impact on the quality of life of the city and are really responsible for the character of the city as it stands today.

[00:23:36] [Host] Mutinta Banda: They say our challenges only make us stronger. In Nairobi’s case, the strength of this city shines on. The heart of this vibrant city is shaped by the everyday actions of its people. Here’s BCG’s Katie Hill on what makes the residents of this city so special.

[00:23:58] Katie Hill: The personality, the determination of Nairobi residents, Nairobians, and just the ingenuity of Nairobians to not wait for solutions to be handed to them, but to build their own future. I’m just struck time and again by just the hustle and creativity, and real grit of so many people I meet in this city and I think it’s actually that spirit that has led to so many other things.

(music outro)

Nick Howard: You’ve been listening to Climate Vision 2050, a podcast from BCG that explores how the world radically reduced carbon emissions and saved itself from climate catastrophe. Our narrator, Mutinta Banda [Moo-tin-tah Bahn-dah] is played by Atibo Onen [Ah-tee-bow Oh-nen]. Nairobi Tactical urban planner Bailey Muthoni [Moo-Tone-E] is played by J.D. Mann. You heard from our experts John Kidenda [KID DEN DAH], chief of utility operations at PowerGen Renewable Energy, imagining himself as the founder of the Nairobi Tactical startup. Katie Hill is an expert leader in climate and energy technology and BCG partner.

[00:25:11] Nick Howard: This podcast is produced in collaboration with Lower Street; a full-service podcast production agency that creates amazing shows for brands that want great not good.

[00:25:21] Nick Howard: BCG is a global consulting firm committed to climate and sustainability action. We understand there are many possible futures, and we hope you enjoy our journey through some of them in this series. Learn more about our work on climate and sustainability at BCG dot com slash climate