Jerusha Klemper...: Over a hundred years ago, we started drinking soda. Initially, that was Coca-Cola only, but it grew to include a wide array of competitors to that brand, including longtime rival Pepsi, upstart Dr Pepper, and beyond.

Today, soda's part of a larger category called sugar-sweetened beverages. This includes energy drinks, Dunkin' Frozen Matcha Lattes, giant boba teas, and Starbucks' Strawberry Acai Refreshers. In this episode, we explore why we're so susceptible to sugar and chart how soda companies laid the groundwork for the way we drink today, aggressively marketing their drinks, externalizing costs, and making the consumer responsible for our excess calorie consumption and for the waste created by single-use drink containers.

I'm Jerusha Klemperer, and this is What You're Eating, a project of FoodPrint.org. We aim to help you understand how your food gets to your plate and to see the full impact of the food system on animals, planet, and people. We uncover the problems with the industrial food system and offer examples of more sustainable practices as well as practical advice for how you can help support a better system through the food and drink that you buy and the system changes you push for.

Many sugar-sweetened beverages contain more calories than a meal, but they aren't meal replacements because they have no nutritional value. In recent decades, soda has come to be thought of as one of the main drivers of a public health crisis of obesity and diet-related disease. Our government has responded not by legislating the companies who make and sell sugar-sweetened beverages, but instead by legislating consumption, from caps on serving sizes to SNAP purchasing restrictions, called waivers, to so-called soda taxes.

Lina Ghanem: Berkeley put the first national soda tax. After that, Oakland, San Francisco followed, Philadelphia, Pennsylvania as well. In terms of how the tax works is, at least in the city of Oakland, it's a cent per ounce of soda that you purchase.

I'm Lina Ghanem. I'm the executive director and co-founder of Saba Grocers in Oakland, California. We think of Saba as a conduit for communities to get healthy food. We provide information on nutrition and health and wellbeing as well and facilitate community empowerment. We deliver on this mission by partnering primarily with corner stores located in food apartheid areas and underserved neighborhoods.

One day, around April 2019, I was at a corner store in East Oakland, and by then I had met the store owner and his family. I was part of the crew, and he trusted me. He trusted me to watch the cash register for him to go to the mosque. I ended up with a long line and a lot of disgruntled customers, primarily because they were purchasing soda. And I didn't realize this when he left, but the receipts in Oakland list the soda tax specifically. So it shows that you've bought this soda and this is how much tax is going for the Oakland soda tax, and it was a

conversation starter between the customers. Mostly they would complain about it and not understand what it is and why they're paying this tax.

At the time, I was going through a community organizing training because I was considering that as a pathway. And I talked to the store owner when he came back, and he was even more mad. He was like, "Yes, I don't even understand this. It's really bad. It's just taxing small businesses." And I was like, "I'm not sure that's true, but let me take a look at it." And he was like, "Okay."

So I started researching into the soda tax, and it was around that same time that I was diagnosed with prediabetes. And the soda tax has a really valuable, I would say, intention, a really important thing to keep in mind that one third, one in three children in Oakland are going to have diabetes. That is a bizarre number. That's a number where it makes you think how did we get to this point where it's one in two black and brown children, so it's even higher, how did we get to a point where it's 50% of our children are going to have diabetes? And I talked to the store owners about that. I was like, "Did you know this?" And this is why they put it on. They're like, "No, I didn't know this, but that's good because my child has diabetes."

So Saba was started as a result of a community organizing campaign I ran with my co-founder at the time, on Oakland's soda tax. The soda tax was put on the ballot in 2016, but we ran the campaign in 2019, which was the first year the city was deliberating on how to invest the revenues of the soda tax.

Jerusha Klemperer: And the idea behind the tax is that the extra money that it costs to purchase these drinks will be a disincentive for people to buy it, or is it purely meant as a revenue generation for the city, or is it a combination of both?

Lina Ghanem: Well, it's both. The first one is certainly true, at least in terms of the intent of the tax. The intent of the tax is to curb consumption because now you've raised the cost of the product and people will choose a different product, hopefully a healthier product because they don't have that money. But the issue with that is in the Bay Area, when you're in a metropolis area like us, you can cross into San Leandro, you can cross into nearby cities and buy that product with less tax. And I've seen over the years, Walmart in San Leandro prop up a lot of their soda products at the self-checkout and discount them.

It does end up generating revenues for the city. And that revenue, the intent on the ballot, as it was described on the ballot, is to be invested back into the communities that were harmed by the industry in order to improve health. In Pennsylvania, it's invested in childcare and support for children in different ways. In Oakland, we don't have a commitment from our policymakers as to how to invest the soda tax. It is going to general fund. And when we first started Saba, it was still going to general fund, but there was a lot more political support for initiatives like ours. Obviously, they funded our work.

It's not the case right now. Right now the soda tax is fully absorbed into the general fund in Oakland, and there's limited tracking as to how it's being spent. It is a tax that disproportionately impacts low-income families. The tax was not voted by families that are low income. It's mostly the wealthier voters that voted this. So there's a double sword here too. You're having to pay this tax that you didn't vote for, and it's having a higher proportional impact on you.

So I personally I think the soda tax alone is not sufficient. You can't put a tax on the ballot that impacts low-income families and say that's improving public health or that's in any way going to reduce diabetes in children. It does not. We can be honest with that. What I do think is very impactful is a soda tax combined with local solutions, combined with other initiatives.

Marion Nestle: I'm Marion Nestle. I'm Professor of Nutrition, Food Studies, and Public Health at New York University, Emerita. I retired in 2017, and I wrote a book called Soda Politics: Taking On Big Soda and Winning.

Jerusha Klemperer: You published that book in 2015, which was the height of obesity panic and soda panic colliding.

Marion Nestle: Well, in 2015, that was already way beyond the peak of soda consumption in the United States, but there was increasing recognition that sugar-sweetened beverages have a lot of sugar in them, really a lot of sugar, so much sugar that the body really can't handle drinking that amount at any one time. And there was an increasing amount of research linking high soda consumption to poor health outcome, obesity, type two diabetes, heart disease, everything that you can think of. And the studies were coming out one after another after another.

And then right after the book came out, there was this astonishing revelation that the Coca-Cola company had manipulated the research on dietary intake and obesity because they were paying investigators to do research to demonstrate that physical activity was more important than what you eat, which was let's blame physical activity when it's clear that dietary intake is a much more important factor in obesity than... Physical activity is important for health, but if you're trying to lose weight, you have to eat less.

Jerusha Klemperer: Right. And even just the math doesn't math. The calories in, calories out, you'll just run or walk off these extra 1,800 calories. You would never be able to sleep. You'd just be running and walking all day.

Marion Nestle: Right. And that was a big scandal, front page of The New York Times. It went on for a long time. It caused Coca-Cola to change its research practices, embarrassed a lot of people.

Jerusha Klemperer: Cracking the code on our nation's obesity epidemic has turned out to be more complicated than we once thought. So I asked Marion to explain the latest

understanding of how excess sugary drink consumption might be tied to poor health outcomes.

Marion Nestle: It's really difficult to do, and to signal out one food in diets that are enormously complicated is very hard to do. So most of the research that links soda to poor health outcome is what they call observational. You look at populations of people who are eating a lot of soda, you look at their health outcome, you find a correlation, but you cannot prove causation.

For causation, you need controlled clinical trials, very difficult to do them. And so most of the evidence is based on animal studies, and there are always questions about that, or observational research. But there's certainly plenty of evidence that taking in very large amounts of sugar at any one time in liquid form, particularly, is very, very difficult for the body to handle. It gets absorbed very quickly. It causes enormous spikes and hormonal shifts, insulin and blood sugar goes way up. It takes a while to get it down. And the more of that that goes on, the less resilient the metabolic system is to handle that kind of thing.

And again, it's the amounts that really matter because it's basically a teaspoon per ounce. So it's less than that, but it's close. So if you've got an eight-ounce soda, you're drinking seven or eight teaspoons of sugar. If you have a 12-ounce can, then it's 10 teaspoons of sugar, and that's several tablespoons. And pretty soon you're having in the quarter pound range. Not good. And sugar has no nutrients. It's only got calories. It has no redeeming nutritional value, and sodas are a very, very major source of sugars in American diets. And what's interesting about it is the peak year for soda consumption was 2000. It's been going down ever since, but there still are people who drink a lot.

Jerusha Klemper...: Soda started out small, a 6.5 ounce serving. But by the 1980s there was the 7-11 Big Gulp coming in at 32 ounces, followed by the Double Gulp a few years later and similar sizes at other chains. Starbucks offers their ice drinks in a 30-ounce size and Dunkin' recently debuted the Bucket, a whopping 64 ounces of whatever it is you're getting. It's worth pointing out that these size changes were not driven by consumers, though consumers purchased them. They were made by the giant food and beverage companies.

Marion Nestle: Serving size became an issue in the 1980s when food companies were desperate to find ways to sell their products in a food environment in which the number of calories available in the food supply had risen quite dramatically. And larger portions are a bargain. In many cases, they cost less per ounce to buy a large one than a small one. Most of the time, not always. And people like bargains, and food companies started making larger portions.

If I had one piece of information that I'd like to be able to convey, it's that larger portions have more calories. I can't even say it with a straight face, but it's not intuitively obvious. And so I can tell you the story of how we found that out. I

asked Lisa Young, who was teaching my former doctoral student who did her dissertation on increasing portions in the food supply, and I asked her when we were writing the soda book to ask her class how many calories were in an eight-ounce soda and how many calories were in a 64-ounce Double Gulp. And we didn't expect the students necessarily to know how many calories were in an eight ounce, but we sure expected them to multiply by eight. The average multiplier was three.

So I said, "Lisa, go back to your class and ask them why." And she came back and said, "They said 800 calories in a soda is impossible. It's just not possible." They didn't believe it. And one of the rules about consumption is the larger the portion, the more calories consumed. The larger the portion, the more food consumed and the more calories consumed. And the food marketers know this, and so they're eager for you to continue along those lines. It's why sodas are in so many places in supermarkets and the companies pay the supermarkets to place their products in places where they can be seen because the rule is the more products you see, the more you buy. And the more times you see a particular product, the more likely you are to buy it.

Jerusha Klemperer: There's also to whom they are marketing them. Can you talk about marketing to children?

Marion Nestle: It's an enormous problem because kids have no defenses. They can't tell the difference between marketing and content. Most of them haven't been trained to see that they're being marketed to. They're not that hard to train. If you teach them how to recognize it, they catch on pretty quickly. And in most places, having sodas in the house is normal for a vast number of households.

And from a marketing standpoint, having kids being marketed to is essential. They can't stop. I mean, I've had food company marketers tell me that they wish they could stop marketing to kids. They don't think it's right, but their stockholders won't let them stop.

Michael Moss: I'm Michael Moss. I'm a journalist. I wrote a book called Salt Sugar Fat: How the Food Giants Hooked Us. And then a later one called Hooked, which was looking at this question of whether some of these products are so powerful that we should consider them to be addictive like cigarettes and alcohol.

There's a great research lab in Philadelphia called the Monell Center of Chemical Senses, and they've studied how the brain and the mouth and our whole body responds to different stimulized additives in foods, especially. And they've looked really closely at things like salt and fat and sugar. And spending time with them, I realized that sugar is the most powerful of those three additives certainly, in terms of its ability to shape our eating habits because unlike salt, and maybe fats, and mouthfeel is on the edge, but sugar, we're born loving sugar. They've done tests on little babies to look at their smiley expressions, and

they always light up like crazy, even at a really young age, when they're giving something sweet to eat. And so from a very early age we respond to the sweet taste in foods.

And so the companies I write about have spent enormous amounts of efforts creating what they describe as the bliss point for sweetness, adding sugar to products at the precise amount that would send us over the moon and their product's flying off the shelf.

I spent time with a wizard legend in the industry named Howard Moskowitz, trained in high math and experimental psychology at Harvard. And he walked me through his recent creation of a new flavor for Dr Pepper, the soda in which he started with no less than 60 different versions of a new sweet flavor, each one just slightly different than the next. Subjected that to 3,000 or 4,000 consumer taste tests around the country and took the data and threw it in his computer and did his high math regression analysis thing and out came these bell-shaped curves where at the top of the curve, like how kids are graded in school, but at the top of the curve isn't the dreaded middle C, it's the perfect amount of sweetness. The bliss point, as Howard called it.

And the problem is, when you talk to nutritionists, isn't that these companies have engineered bliss points for things like soda and cookies and ice cream. They've marched around the store adding sugar to things that didn't used to be sweet before creating thereby this expectancy in us that everything we eat should be sweet.

Jerusha Klemperer: And what a revelation to read that some of the greatest minds being trained in things like mathematics, that this is the application for those brains and that study is to figure out how to make the most perfect tasting new Dr Pepper.

Michael Moss: These companies don't describe what they do as cooking or even invention. They describe it as engineering. And I think that's a really useful way of looking at these highly processed food products in the grocery store, including soda.

Jerusha Klemperer: When Coke was invented, it was like the late 1800s, and this kind of food engineering and food science did not exist. Presumably, they might not have even known that sugar was so bad for us.

Michael Moss: I mean, I think one really big moment, as it relates to sugar, was back in the late 1970s when the head of an organization called the Center for Science in the Public Interest, Mike Jacobson, a really smart guy, latched onto the health hazard in sugar, which at the time the best he could prove was teeth decay. And so I remember he staged a stunt, if you will, where he brought a box of decayed teeth and dumped them on the steps of, I think this was the Federal Trade Commission at the time because he was pushing the Federal Trade Commission

to get at the root cause by restricting the advertising that companies do to kids on Saturday morning cartoons. And the FTC staff was totally into it.

And then, lo and behold, 1980 came, the government changed hands. Ronald Reagan came in with his less government is better for you. And that entire effort to get the federal government to put some restraints on the food industry's marketing of sugary products fell by the wayside. That was one really big moment.

Another moment for me was this secret 1999 meeting of the heads of the biggest food companies, which I opened Salt Sugar Fat with, because it's so extraordinary glimpse at this powerful set of companies. They got together brought together by none other than a cabal of insiders within these companies who were growing alarmed about their culpability, responsibility, not just for the growing obesity numbers, but things like type two diabetes and even gout and studies that were linking their products to several types of cancer. And these insiders were urging these CEOs to do something to lessen their own dependency on salt and sugar, especially, and fat, in order to help us, the consumer.

And up stands in the room — again, this was a pivotal moment — up stands in the room, one of the most powerful officials at the time, he was the head of General Mills, and he was visibly upset by this notion. He goes, "Look, if our customers want a product that has less sugar, we make that and put it on the shelf and they can find it and buy that. But there is no way we are going to mess around with the company jewels," as he referred to salt, sugar and fat, "if that's going to diminish the attractiveness of our products because we are beholden not just to consumer health, but to Wall Street and investors. And I think that is just huge in terms of considering how we move forward and get out of our dependency on these products."

These are companies that do what most companies want to do, which is to make as much money as possible by selling as much product as possible and by making that product as attractive as possible.

And I personally think there's just no way we're going to get them to do anything but that without considering the framework that they're working in.

Jerusha Klemperer: You really see too how they're all part of a cohort, right?

Michael Moss: Coming out of that '99 meeting, the organizers that were from Kraft, the largest company at the time, basically said, okay, if we can't get everybody to join in, let's at least try to do this ourselves. And they did extraordinary things on behalf of consumer health. This is back in 2002, 2003. They cut back on their advertising to kids of sugary stuff during Saturday morning cartoons. They put the total number of calories in a whole package on the front of the package

knowing that a third or more of people eating that package will be eating the whole thing, even though it has five servings in it.

And then they said to their food engineers, thou shalt no longer add as much sugar, salt, fat as you want to. We're going to put limits on how much you can add. And that reform lasted about three seconds until Kraft's competitors realized what they were doing and they swooped into especially the sugar cookie aisle and came out with monstrous versions of double sweetness in order to quash Kraft's sales, and Kraft gave up and went back to it's tried and true.

I mean, I wasn't even going to write about Coke and Pepsi until I met a guy named Jeffrey Dunn who was, for a time, president of Coca-Cola for North America, South America, one of their fiercest warriors. But Jeffrey Dunn was one of these people I ran across who came to have deep misgivings about his life work. For him, it was this revelatory moment. He was in Brazil and his people there were giving him a tour of the emerging middle-class market there where they were selling people a smaller sized can of Coca-Cola that would fit easier into their small refrigerators. And Jeffrey says that he heard this voice from out of the blue heaven, if you will, that said, "These people need a lot of things, but it's probably not another Coca-Cola." And he tries to nudge the company to selling more bottled water, and that only goes so far, and then he quits.

But Jeffrey walked me through the stunning things that Coca-Cola did in order to build its consumer loyalty starting at a very, very early age. One of them was to create fountain situations in restaurants where you could drink as much soda, Coca-Cola, as you could for the same price. And one of the revealing things about that is that the actual ingredients that go into Coke are really not very expensive. And so you could have two giant cups of that for almost the same price of the ingredients as one. But that was one of the first forays into scientifically and psychologically getting us to drink, consume more than we really wanted to.

And I used to say that, or sometimes say that I didn't see this industry as this evil empire that intentionally set out to make us sick on their food products. Again, these are companies and what good companies do, until I looked at the situation of their efforts to sell us a diet product, which is starting in the '80s and '90s, people thinking that it was our problem and our fault began latching onto all kinds of diet schemes. And seeing that happen and seeing people diet for a while and then inevitably fail on those diet plans, none other than these food companies that ran around buying up some of the biggest dieting programs, plans in the country, including Weight Watchers, which Heinz bought up. Jenny Craig and South Beach Diet, all these things became owned by the processed food industry, which also created new diet versions of their products.

And so if you're feeling strong in the soda aisle and say to yourself, "Well, maybe I can make do with a diet soda," the soda companies have that there for you

selling that to you just like they'll sell the regular sugar version the next week when maybe you're not feeling strong. And that, to me, changed the equation because there we have an industry that's so devious and so cunning that they're even working to curb our efforts to regain control of our eating habits, which is very devilish.

There's something common in these big industries that sell products that are problematic for us or the environment, Big Oil, Big Painkiller, Big Tobacco, Big Food. And one of the commonalities they have is this playbook in which they try to get us to think it's our fault. They shift the blame to us. And part of what big food did was to sell us on the notion that if we just have a little bit more willpower and combine their diet version of their full-sugar product, then everything will be okay. Or if we could just exercise a little more, then it'll be okay. And I think that's a real common thread you see in these industries is, hey, it's really not us. You can't single out our individual products, like a soda. It's you guys for eating too much, and you really should try to do something different to lessen your own culpability here.

Jerusha Klemperer: The beverage industry has a history, not just of marketing to children, but specifically marketing to kids of color. The Rudd Center for Food Policy and Health has spent years documenting how Black and Hispanic youth are exposed to more food and drink advertising than their white peers. And it's for the least healthy stuff, fast food, sugary drinks, et cetera. Couple that with low availability of affordable healthy alternatives and the obesity and diet-related disease statistics start to make sense.

Lina Ghanem: Food apartheid, as a term, indicates neighborhoods where there is no healthy food available, and many times there's just no food available. And a lot of times there are neighborhoods that are ubiquitously filled with fast food, liquor stores, smoke shops, and other toxins. The food apartheid term came about as a critique of food desert term, and the food desert term implies that there's an organic process that has created the conditions that people are living under in terms of food access. That this was just natural and exonerates, in one way or another exonerates public policy, government, corporate strategies, as we mentioned earlier, in their responsibility of creating these conditions. And I use the term food apartheid because I do believe it is a result of corporate strategies, it's a result of public policy. And the lack of public policy that we have, the inequities of food access right now across neighborhoods, I think food apartheid describes that better.

Anupama Joshi: My name is Anupama Joshi. I'm the vice president of programs at the Center for Science in the Public Interest, or CSPI, which is a public policy and consumer advocacy organization that works on a lot of different issues, but particularly nutrition, food, safety, and health. And sodas, or sugary sweetened beverages, are a critical part of what we are dealing with here in terms of our public health crisis.

CSPI has been around for more than 50 years, and the way I would describe our work is that we have a set of tools in our toolbox, and they range from legislative advocacy, to congressional advocacy at the federal level, at the state level, and at the local level as well.

Jerusha Klemperer: I spoke to Michael Moss a couple of days ago, and of course, he mentioned Michael Jacobson and CSPI. I think anytime people are talking about advocacy and lobbying around core nutrition issues, and especially around soda, they will talk about CSPI.

Anupama Joshi: Mike Jacobson, the founding executive director of CSPI, back in 1998, released a report called "Liquid Candy".

Jerusha Klemperer: That report, "Liquid Candy", not only lays out the health problems with soda, but it also highlights something that is impossible to separate with soda, which is the incredibly aggressive marketing tactics of the major producers of these beverages. And then also makes recommendations for anti-soda action on all levels, from personal to community, to municipal, legislative, medical, all of that stuff. There are also a whole bunch of soda taxes at this point. Can you talk about them and why CSPI strongly suggests them as a way to address the harms of soda?

Anupama Joshi: Our efforts on taxing these products are really focused on all sweetened beverages. So that includes sodas, energy drinks, sweetened coffee drinks, sports drinks. And yes, you're right. Taxes on sweetened beverages have been passed in over 70 countries and territories. And in the U.S., they've been passed in 10 locations, including a Navajo nation. And these kind of taxes vary in design and delivery, but there's very clear evidence that these taxes have positive effects on dietary behaviors and health. So as an example, in Philadelphia, the sweet and beverage tax resulted in a reduction of sugary drink sales by 38% and generated about 74 million annually, which was used to fund pre-K education and improve public spaces.

Jerusha Klemperer: These taxes apply to purchases made at the store on sweetened beverages, but then also at places like Dunkin', Starbucks. Is that right?

Anupama Joshi: Yeah. So it's an excise tax, essentially, and not a sales tax, and there's a difference here. Let me explain that. So an excise tax is essentially a more visible tax. So large food and beverage companies can pay for the tax themselves, but they don't. And so they pass it on to distributors, and then those distributors will pass on the cost to consumers. So when a consumer is picking up a product, they'll see the price tag, essentially, and make a decision on whether they're wanting to buy it or not. Unlike a sales tax, which was essentially added at the checkout where the consumer's already made the purchasing decision to, I need this thing, and I'm going to buy it.

Jerusha Klemperer: Another regulatory lever is the SNAP waiver, legislation that restricts what people can spend their Supplemental Nutrition Assistance dollars on. There are currently 22 states with these waivers that restrict the purchase of things like sodas, energy drinks, candy, and prepared dessert. There was a proposal to include this on a federal level in the Farm Bill, but it didn't make it into the final version, so it remains a state-by-state situation.

Anupama Joshi: The primary purpose of SNAP, or Supplemental Nutrition Assistance Program, it is to reduce food insecurity, not to serve as chronic disease intervention. And they don't demonstrate any actual or sustained health outcomes in SNAP participants. And so in contrast to restrictions implemented alone, there's a lot more robust evaluation and evidence that is supportive of fruit and vegetable incentive programs that increase access to fruits and vegetables and healthier products, nutrition education paired with incentives, as well as other strategies that make healthier choices easier without removing choice.

Lina Ghanem: Our customers will, every time we talk to them, they do want their freedom of choice. If this government was genuinely intending to improve health for SNAP recipients, they would regulate the industry. You can take the product off the line. You can figure it out in the law in a way that it's not on the shelf for anybody, really not just SNAP recipients because you believe soda has a negative impact.

Anupama Joshi: We must also consider the political climate. We must consider the political and economic context of these waivers and these pilots because they are hitting at the same time that states are also trying to implement SNAP cuts that were approved in HR1. CSPI launched a public awareness campaign, a public pressure campaign called Flatten Big Soda a couple of months back. That is essentially asking for the three soda giants, Coke, Pepsi, and Keurig Dr pepper, who've spent about $11 billion combined in 2024 on ads to reduce or get rid of their marketing dollars for unhealthy products and put that towards healthy products.

Jerusha Klemperer: The message is loud and clear. We will market these drinks to you, offer them in increasingly large sizes, target them to the exact sweetness your body craves but doesn't need and the public health costs are externalized. They're not soda's problem or Dunkin's or Starbucks. The beverage industry, starting with soda companies, has operated this way for a long time and not just when it comes to public health.

Bart Elmore: I had grown up in the land of Coca-Cola, Atlanta, Georgia, where it was founded in 1886. And I was surrounded by Coke from a very young age. I drank it probably more than water. That might be an exaggeration, but not much. I went to a school that essentially Robert Woodruff, who was considered the boss of Coca-Cola, who made it this international brand, where he went to, in part because it was a place where misfits went.

I'm Bart Elmore. I'm an environmental historian at Ohio State University in Columbus, Ohio. And I wrote a book on Coca-Cola called Citizen Coke: The Making of Coca-Cola Capitalism.

I was surrounded by this company, but I was also someone really deeply interested in the environmental impact of big business. I'd gone off to grad school to study the ecological footprint of large multinational firms. And so Coke felt like a really useful lens on our economy, and to think about all the different connections it has to everything from cocoa leaves from Peru to kola nut in West Africa to the caffeine that is one of the stimulants in the drink. And so I wanted to unpack those stories of the impacts those ingredients had on people, on our planet, on ecosystems across the globe.

I think of Coca-Cola capitalism as Coke's secret formula, what made it great. And the trick really was trying to make money without really vertically integrating, that is to say owning and operating much of the infrastructure that made all the stuff that made Coke the material thing that is Coca-Cola. Coke didn't really own sugar plantations in the Caribbean or in South America that could produce its sugar for its beverages, even though it was the single largest consumer of sugar on the planet by the 19 teens, which is pretty remarkable. It didn't own decaffeination plants to produce the caffeine that became the one of the largest consumers in the world of processed caffeine, and instead it relied on companies like Monsanto to produce the caffeine for it.

And over time, as I wrote these chapters about the ingredients, I started realizing that this was by design. That Coke really could grow and become the kind of global brand recognized around the world because it had this lean corporate strategy of outsourcing. Even the word outsourcing, as we think about businesses strategy, would become something we'd see later in the 20th century, but Coke was really doing it very early on. I'd argue because it had to. It didn't have a lot of capital in the early years. It was the Reconstruction era South after the American Civil War. So it was looking to find ways to make money, but savvily by tapping into the infrastructure that other businesses, even the public municipalities were investing in. And so even though Coke we think today as this big corporate giant, it really got big by this outsourcing strategy.

The problem with that strategy, of course, is that it had big impacts on our planet and on labor markets around the world. My approach was to think about the back of a Coke can as a map and to think about traveling around the world to figure out where all this stuff came from.

Water seemed like one of the most important things to begin researching with because if you think about the product, it's 80% water. And that story, I think, is really linked to municipalities because this was the key to Coke's growth in those early years was not actually shipping this water-dense good to every state across

the country and ultimately internationally. Rather, their system was all about selling the syrup, a concentrate.

If you ship the finished product from Atlanta, first of all, you're extracting a lot of water from my hometown. So the system could only work if you found ways to get the natural resources at the point of sale. And so Coke's distribution system, from the very beginning, was based on selling that concentrate, that syrup, and then adding water wherever it went.

Coke's invented in 1886, and that's right at the moment that cities are realizing, oh my gosh, we need to invest millions of dollars in this new public water infrastructure, in part because wells and cisterns were just being inundated with pollution. And so cities were paying a lot of money to do this. And Coke piggybacked on that public infrastructure, really benefiting from these huge public investments that made all that water possible for their drink.

Jerusha Klemperer: Coke decided to move past the United States and expand into other countries, especially the developing world. And you mentioned the head of Coke described it as making Coke in arm's reach from desire in all of these different countries, but they continued to use these precious natural resources wherever they went.

Bart Elmore: Yeah, what a line, right?

Jerusha Klemperer: Yeah.

Bart Elmore: I mean, Robert Woodruff, that's the one who said it. The guy, again, that went to my school. He said, "We want this drink to be within arm's reach of desire." And I remember I once talked to the former chief sustainability officer of Coca-Cola, and I was talking a lot about, "Did anyone ever question that line?" Because at the end of the day, you think about places like India and places that I traveled for this story, it's like, aren't you good? You're in every single country in the world. You sell 2.2 billion servings of your product every day. When is enough, enough?

But I remember getting laughed at like, of course not. No, that is still the mission, to make sure that we can be in every single nook and cranny you could possibly imagine, including in India where I traveled to Kerala and then Plachimada, the small town that actually rose up against Coca-Cola. It was one of the only places in the world that I saw this happen where the community said, look, you're extracting tens of millions of liters of water from our local groundwater sources, and we'd rather have our water than your local bottling plant here in our town. And it was shut down somewhere around 2004, 2005 due to activism from the community that said, give us our water. We don't want your Coke.

It was pretty bold. I remember thinking at the time I really need to go to this place to understand this because by that point I'd understood that the system of

how Coke works. It's extracting these natural resources from these little communities, like Plachimada, which by the way, was one of those places that you're traveling through really dense vegetation to get to. It felt like Coke's reach was really, that arm's reach of desire was into some of these small communities that seemed so far distant from our homes, and I was mesmerized by how far Coke had gotten. But I was also heartened by communities that were saying, look, we'd rather have our water instead of having this sugary beverage.

The last thing I'll say about this is a lot of the times they would highlight in their sustainability reports that they were becoming more efficient at producing their beverages. So whereas maybe decades ago it took X amount of liters to produce one liter of Coca-Cola, they would say, "Well, we've gotten much better. I think we're using," I don't know what it currently is, but at one point it was like two liters of water for every liter of product they produce.

And on the face of it, that sounds great, but there's a thing in history called Jevons paradox, which I think is something to think about for the food industry at large. Which is the ways that we measure a company getting better are often shown through metrics of efficiency, like we're using less sugar or we're using less plastic or we're using less meat. The problem with that when we turn to this Jevons paradox is that sometimes by becoming more efficient, you actually use more of the resource than less because you've just actually, from an economic standpoint, made it more profitable to use that resource.

Jerusha Klemperer: When you talked about water, you said because people need it. And I thought, oh yeah, conversely their other product, soda, it's like nobody needs this. And this idea of just producing more and more and more and reaching it out to further and further reaches of the planet for this product that nobody needs is really wild.

Bart Elmore: Yeah, it's really wild. And I think it's so important to think about another ingredient, which is sugar in that case. I mean, today we now know sugar is a really problematic ingredient in our food system. You think about a product like Coke where I think the original formula called for five pounds of sugar per gallon of syrup. So if you can imagine like a milk jug filled with five pounds of sugar. I mean, it's remarkable how much sugar was in this. And that's partially because sugar was so cheap. If you think about the late 19th century when Coke was being created, we had the Spanish-American War, which gave us a certain degree of control over Cuba and the Caribbean. We had just copious quantities of sugar where that made it possible to turn that much sugar into a five-cent drink.

And yet what's interesting, if you look at the history of this from a food angle, is the way that Coke used that in the 1940s during World War II to argue that that was actually a good thing. That what soldiers needed on the front lines was like this IV of calories that sugar could provide, and Coke could be that source. Not

only would it remind people of home, but sugar was actually this net good that would energize our soldiers overseas.

And that argument actually won the day where Coke was able to get this kind of exemption to have sugar in its corporate system that other confectionary companies could not have because the idea was we need to save the sugar, make sure that the military has what they need, but Coke got an exemption because it was part of those military rations. And Pepsi, of course, was livid about this. It's one of the reasons why Coke, of course, became so dominant globally and Pepsi was behind was because they got these great, sweet government deals back to the government that gave them access to the military under this argument that sugar was actually a net good.

Another ingredient that makes Coke possible, the can, the plastic itself. And so I spent a whole chapter thinking about that as an ingredient. And I didn't know where it would go, but I did know by this point that Coke's system was really based on trying to figure out ways of not internalizing the costs of making the things that it makes or dealing with the waste on the backend.

And so Coke initially had this returnable bottle system when it first started bottling Coke in the 1890s, and that was in part because glass was expensive. You had all these local bottlers who wanted to have profit margins, and one way to do that was to reuse material, not throw it away. And the way they made that work was, of course, putting a two-cent deposit on a five-cent drink. And if you returned your glass bottle, you got that two cents back.

But yes, Coke got really interested in canning in the 1950s and '60s. Part of that was to save on costs. Of course, there was a shift in consumer interest. There was a lot of this is now the automobile age by the 1950s and '60s, so people wanted a certain convenience packaging. But the industry also benefited because they didn't necessarily have to think about extended producer responsibility for their packaging. Once it was sold, it ended up not being their problem.

It's also worth noting that post-World War II, you think about the technologies that were advanced during those times. Metals that were very expensive during the war become less expensive, so you've got the opportunity to have this cheap canning industry really take off. And Coke shifted into it really getting into the aluminum cans by the 1960s.

But of course, by that point, people were very concerned about the litter that was increasingly surrounding them. Nobody was returning containers anymore. There were no real deposits. That is putting a price on the packaging itself, it was being removed. And so Coke and a lot of other beverage companies created this organization called Keep America Beautiful, which sounds like a hippie outfit that was all about saving the planet, but really was an industry-led initiative to

try and deflect blame that producers, businesses were to blame for all this packaging waste.

VO old commercial: Some people have a deep, abiding respect for the natural beauty that was once this country, and some people don't. People start pollution. People can stop it.

Bart Elmore: And this was at a time, as we move into the 1970s, where the, this is true, where the House of Representatives, I think it was 25 members of the House, maybe 22, proposed a bill that would've banned non-deposit, non-returnable containers. Imagine that world, if that had gone through in 1970, a world in which there was no throwaway containers allowed in the United States. That was a legitimate law that was being proposed.

And Keep America Beautiful and Coke really ramped up their campaigning during that phase. They did not want to go back to a system that would've had their corporate system internalize costs of dealing with this packaging. And ultimately, they were successful in campaigning at the federal level for recycling. The argument being that if we can invest in municipal recycling systems, we can deal with all this waste.

But of course, the useful thing, from Coke's perspective, is that would be paid for by you and me and taxpayers. And so Coke was one of the, it's very clear from the congressional records, one of the loudest voices in those spaces pushing for the kind of curbside recycling system that we have today.

And by that point, Coke was shifting to plastics. It really started using plastic bottles in its system in the 1970s and became today one of the largest plastic polluters in the world because we know that that recycling system really never worked. In part because it's really difficult to recycle plastics, partially because of contamination issues. But it's also because there's no deposit system in most states in the United States where you can return a bottle and get some money back for returning that package. They don't think of it as having value, and it ends up in our rivers, streams, and our oceans, and ultimately as microplastics that are now in our bodies.

So I think we can see in history here a way out, which is that we had a system that worked. It was a reusable system. And in fact, it was a privately run reusable system. Coke's not going to go there willingly because it means that they have to internalize costs that we've talked about from the beginning they don't like internalizing.

Jerusha Klemperer: Instead, we are now accustomed to empty plastic drink containers filling our trash cans and spilling over, soda bottles, water bottles, iced coffee cups, boba teas with their plastic film covers and giant straws.

Mike Belliveau: My name is Mike Belliveau, and I'm the director and founder of a nonprofit called Bend the Curve, which I started two years ago to help transform the petrochemical plastics industry so that it no longer harms people and the planet. And for a few decades now, I've been actively campaigning to reduce toxic chemical hazards and prevent industrial pollution around the United States, mainly through state and federal policy change, but increasingly focusing on corporate decision makers and persuading them to do better by us and the planet.

We're proud members of Break Free From Plastic, which is an international network of grassroots activists that are seeking to eliminate unnecessary uses of plastic and reduces harm to people in the environment. Break Free From Plastic has organized six, what they call, brand audits between 2018 and 2023. And each time several hundred organizations in more than 40 countries have gathered hundreds of thousands of pieces of plastic litter on the land and on the beaches and carefully sorted it out to look for brand names on the scrap plastic and to tally it all up.

The most recent one collected over a half a million pieces of plastic, and Pepsi and Coca-Cola and Nestlé were the top three companies whose names were visible on those pieces of plastic. And Coca-Cola has the dubious reputation of being the number one plastic polluter across all six of those brand audits that have been conducted globally since 2018.

Unlike for the oil and chemical companies, the brand name is priceless to consumer brand companies. It's their most valuable asset. So 10 years ago, we began to see awareness about plastic pollution visibly threatening wildlife washing up on beaches and so forth. It was this diffuse, ugly problem. Now brand names are attached to that problem. So it's actually radically raised awareness not only amongst the public, but amongst the corporate sector that they face serious liability and risk to their brand value by literally having their products just dumped all over the land and water.

There's always opportunity to improve waste management and waste collection, but for perhaps a quarter of the world's population, there is no waste management system. There is no collection. We have waste pickers that, at risk to their own health, pick through trash looking for material to recycle. It's a very primitive system. And even in developed countries like the United States, you look at a plastic bottle, the most recyclable plastic item on the planet, only 30% are collected. A third of that gets wasted during the recycling process. Only a third of it gets turned back into bottles. So it's a very poor collection system even in the most developed country. So the impact of the brand audits has been to place the responsibility where it belongs, on the brand owners who are the corporate consumers that are driving plastic pollution.

The oil and chemical industry likes to say that they're just responding to consumer demand, but you and I don't ask to be overwhelmed with plastic in our lives, let alone have it be littered all over the environment. And it's the downstream companies that are consuming these materials.

For example, in a given year, about 580 billion plastic bottles are produced and consumed. Coca-Cola alone is responsible for more than 125 billion bottles per year. That's extreme excessive overproduction and oversupply. So the solution is that the brand owners need to invest in alternative systems for reuse, for refill, for redemption to incentivize people to collect these materials and other means of providing goods and services that don't require single-use disposable plastic packaging.

Jerusha Klemperer: I went to Coca-Cola's sustainability page, or pages, on their website and was looking at what they had, and one of the things said, "See what we are doing about ocean plastic." And I clicked on it, and I got a 404 error page. So I was like, all right, that maybe tells me everything I need to know right there. But in terms of those changes, moving towards reusables, moving towards redemption, refillables, all of that, are you seeing movement with Coke and other beverage companies towards these better solutions?

Mike Belliveau: The beverage companies seem particularly resistant to changing their system. We are seeing significant positive movement in other sectors of the consumer economy. One of my favorite food brands just announced that they had eliminated 50% of the plastic in their packaging almost overnight by innovation. It's not solving the entire problem, but it's a significant step forward.

So we're seeing less plastic, thinner plastic. We are seeing more innovative approaches to packaging alternatives. We're starting to see models for reuse spring up, redemption deposit systems, the bottle bill works. We need a national bottle bill in the United States. We only have 10 states that have bottle bills, but in those states we get 70, 80, 90% collection, and so it works. So there are solutions out there. We have raised awareness. We have put the brand owners on notice, but Coca-Cola and other big beverage brands have been backsliding.

Coca-Cola has reusable bottles in Latin America and glass bottles with redemption in Mexico. So we know these systems are feasible, but they've backslid on their soft commitments so far. I think it's largely the corporate ethic of avoiding extra costs at all cost. But to revert back to a system of reuse incurs a transition cost. All of a sudden you need infrastructure for collecting and washing containers. You need to hire more people. And for a lot of corporations, their interest is in shedding jobs rather than creating jobs. So it would cost more to convert to a system, and they don't want to pay, and that's one of the barriers.

It's further complicated in the beverage sector because Coca-Cola, and the other big beverage brands, they own the brand, and they own the recipe, but they don't bottle their own product. Coca-Cola has 20 bottling companies in the United States alone. So there's an intermediary, a corporate layer, that would have to absorb the infrastructure of collection, washing, and sanitizing containers for reuse. They don't want to bear the cost either. And so without formal mandate, it's hard to get them to do that even though the bottling company that represents the Coca-Cola brand in Texas is the same bottling company that uses reusable containers in Latin America. So they know how to do it, and it's resisting the cost.

There is a Break Free From Plastic Pollution Act that's been introduced in the last several Congresses, but this Congress is not interested in environmental protection or this administration, so we can't look to federal policymaking in the near term as an area of solution.

At the state level, there's a little bit of an irrational exuberance around this policy called Extended Producer Responsibility, EPR. The concept makes sense. The concept is for a product, or in this case packaging, at the end of its useful life, the company that made it, or sold it, ought to be financially and physically responsible for managing it.

But the way that these EPR laws are being rolled out now in about six states is that it's starting to look like simply a financing mechanism to collect money to relieve the costs on municipalities for waste management and to collect money to improve collection and recycling. We need to improve collection recycling, but we can't recycle our way out of plastic pollution. We need strategies that actually, like what we've been talking about, reuse, refill and strategies for some packages that are completely unnecessary that need to be phased out and eliminated or safely substituted with more sustainable materials.

So the EPR laws have real limits, but because they're taking up a lot of the policy bandwidth at the state level, other initiatives to actually phase out problematic plastics in packaging are being stymied, and we're not seeing the resources going into scaling up reuse and refill systems like we should as well. So it's a bit of a dilemma.

Jerusha Klemperer: You mentioned early on about how we're basically microdosing plastic when we drink.

Mike Belliveau: Yeah, the presence of microplastics and even smaller nanoplastics is alarming. They're showing up in every human tissue, in every place on the environment, in the deepest ocean, the tallest mountain. They're pervasive. And the awareness is just rising about the pervasiveness of these very tiny plastic particles. And the very small ones are so small they can easily be absorbed into the body and pass

through cell walls and have been found in every tissue in every organ of human bodies.

We don't fully know what the health consequences of those tiny plastic particles are, but there's a number of areas and early studies that have raised health concerns, and clearly a lot more research is needed. Even before the recent rising concern about microplastics, we've known that other plastic-related chemicals are having devastating health effects.

Decades ago, moms raised the alarm bell about bisphenol A, BPA, which is a chemical that migrated out of epoxy resin can linings and polycarbonate plastic sippy cups and baby bottles. It's still an issue in food contact.

We're hearing a lot about phthalates. There was just another study that showed millions of preterm births associated with exposure by pregnant women to phthalates, which are additives in one type of plastic PVC to make flexible vinyl.

The real solution though is that we need to reduce the production of plastics. That's the primary solution. We've seen exponential growth in plastics where the amount produced has increased 200-fold since 1950 and is doubling every few decades and could double again between 2040 and 2050 unless we change course.

And so in the global plastic tree negotiation, the big issue is we need policy to reduce the production and toxicity of plastics. And a majority of countries around the world support that. And it's been vetoed so far, at least blocked by the United States and Russia and the Gulf Arab states who are wedded to this petroleum petrochemical plastic future that we know is not good for people or the planet.

For example, for chemical additives, we mentioned phthalates and BPA, there are many others that are known to be hazardous, those can be safely substituted with less hazardous chemicals. So we can detoxify the final recipe. But also going further upstream, I mean, certain plastics are so problematic with respect to chemical hazards that we simply need to phase them down and out.

So there's various ways to detoxify the production process and the final recipe for plastics to significantly reduce the use of chemicals of high concern. And that is what the majority of the world's negotiators on the Global Plastics Treaty are calling for.

Jerusha Klemperer: And given what you said that companies like Coca-Cola are the largest procurers of plastic, largest consumers of plastic, is it conceivable that they could be pressuring the plastic companies to be making these kinds of changes?

Mike Belliveau: They should be. We've met with Coca-Cola and Pepsi and asked them to specify, for example, the use of a non-toxic catalyst in the making of PET for bottles. The dominant method uses a metal, called antimony, which causes lung cancer amongst the miners and smelters of the metal and leaches out of the plastic. Again, we're microdosing with antimony, which is a systemic organ toxicant and probably an endocrine disruptor, every time we suck on a plastic bottle beverage. And the industry is somewhat interested, but again, there's a lack of regulation. They haven't moved yet.

Bart Elmore: I feel like the worst response to this book when I wrote it was like somebody would be like, "Oh, I don't drink Coke," as if it was some kind of solution to the problem. And I actually do think that we can choose with our dollars to support the businesses that we believe in. I don't want to demean that as a move that one makes to try and deal with the problems we're dealing with, but I don't think that's really the message. The message is that Pepsi was doing a very similar strategy. And if I were to look at other beverage and food industries, we see this effort to try and externalize these costs onto the public. So this is really not a book about Coke. This is about really rethinking how our food system and beverage system works.

When I was getting into the lobbying material for the beverage industry, I was able to, sneak is not the right word because I just was creative about how I got in there, but I was able to get into the K Street lobbying arm of the beverage industry to see their lobbying documents. And what you saw was they may be good rivals on the outside, Pepsi versus Coke, but internally they're working together to try and get legislation passed and other things that ultimately benefit the industry at large. So I don't think we'll solve any problem just by solely choosing not to support a particular company. I think we have to go further to think about the rules and regulations that make this system possible for other companies and perpetuate the problems of the past.

Jerusha Klemperer: When I started prepping this episode, I had in mind the stats that I had seen from about a year or two ago that said that soda consumption was actually plateauing or decreasing. And I was like, wow, this is a real public health win. All of those anti-soda efforts worked. They made a difference. And then, come to find out when I started doing my research, that actually soda consumption is ticking back up again. And not only that, but we have a whole new wave of sugar-sweetened beverages, the Starbucksification of them moving beyond coffee really and just into these drinks that are basically just sugar vehicles and are absolutely ginormous, or Dunkin' Donuts. Speaking of RFK Jr., he came after Starbucks and Dunkin' recently for their sugary drinks.

Recording of RFK Jr.: We're going to ask Dunkin' Donuts and Starbucks to show us the safety data that show that it's okay for a teenage girl to drink an iced coffee with 115 grams of sugar in it. I don't think they're going to be able to do it.

Jerusha Klemperer: He didn't go after Coke and Pepsi, right, because the grams of sugar in these drinks are multiples larger than with soda. So I just wondered if you had anything to say about this next gen of drinking pattern and of these drinks that, especially it seems like tweens and teens are really leaning into.

Michael Moss: I feel like we've lost a little ground in the last 10 years and that younger people, especially not wanting to be preached to about the health implications of what they're eating, just not being able... I mean, look, one of the issues here that works in the favor of the processed food industry is that the consequences of drinking soda and/or eating highly processed foods is something that happens over time down the road. You'll be sitting in your doctor's office 10 years from now, and he's going to be asking you, "What have you been eating?" He's not going to be asking you that the next week or the next month. And so that plays to the advantage of the food companies in knowing that as our attention spans get even shorter and shorter, the idea that we could expect a 16-year-old to walk into a Starbucks and decide what to buy based on the long-term health consequences to them is shrinking and shrinking and shrinking. And so you see this resurgence in sugary drinks, this instant gratification, low attention span, focused on here and now instant joy aspect of life.

When doctors stick a little baby for a sample of blood, you know what they give them before that, right? A little dab of sugar or a little lollipop, knowing that sugar delivers an anesthesia to the pain, and I think there's probably something to that. By consuming sugary things, we're anesthetizing ourselves to the tremendous amount of pain going on in the world right now.

Jerusha Klemperer: Like you deserve a little treat basically to self-soothe for all of the very terrifying things happening. My takeaways, reading your books, was that we cannot and should not rely on companies to regulate themselves. And we cannot rely on individuals, especially because these foods are addictive and for certain people saying no is near impossible. Where does that leave us?

Michael Moss: Bloomberg did try something. He especially was trying to ban these gigantic-sized sodas that the city was actually selling at public venues, or were available at public venues, thinking he could at least have some control over what he was responsible for. And the pushback from the very powerful soda industry was ginormous. And that's where you got the phrase, "the nanny state", popping up from the Republican side of the aisle more than anybody.

And you saw that with Michelle Obama too. I mean, hats off to her. And she was talking about many of these things years ago during the Obama administration and got huge pushback from conservatives, from Republicans on the notion that these food choices should be ours as individuals. And the problem with that, that I've seen through my reporting on the industry, is that it's not a level playing field. If you take the government out of the equation, you're not left with a free choice and free will. You're left with these companies, through their incredible

marketing power and food engineering, basically doing everything they can to kill off free will in you so that you'll buy their products.

Jerusha Klemperer: Things have changed a lot since the days of Michelle Obama and Michael Bloomberg being decried as nanny staters by Republicans. The cohort of people fighting sugar and trying to control what people eat and drink through mechanisms like SNAP waivers or soda taxes has become more diverse and confusing. One thing that doesn't seem to be changing, likely because it's hard coded into our biology, is our love for sugary drinks and our comfort with throwing out their containers without a thought. Whose fault is that? We're still fighting it out.

Coke ad, music: I'd like to buy the world a home and furnish it with love.

Grow apple trees and honeybees and snow-white turtle-doves.

I'd like to teach the world to sing.

Sing with me.

A perfect harmony.

A perfect harmony.

I'd like to buy the world a Coke and keep it company.

That's the real thing.

I'd like to teach the world to sing.

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Coke ad, music: What the world wants today.

Coca-Cola.

Is the real thing.