Embodied Inequalities of the Anthropocene

PODCAST: EMBODIED INEQUALITIES OF THE ANTHROPOCENE

EPISODE 11:
"Anthropocene Subsistence: The Embodied Inequalities of Global Food Systems"

Part 2: Food Sovereignty and Health

00:00:00 Juan Mayorga: Embodied inequalities of the Anthropocene, building capacities in Medical Anthropology, a series that analyses the effects on human and non-human well-being in this geological era of profound transformations.

00:00:17 Gabriela Martínez: Welcome to this second podcast on Food Sovereignty and Native Corn in Mexico and on Global Food Systems in the Anthropocene. In the previous podcast, we gave a brief overview of the current state of Mexican policy regarding the protection of native maize, precautionary measures towards genetically modified maize, and the legal and commercial political controversies that have recently erupted between Mexico, the United States, and Canada within the framework of the USMCA, formerly NAFTA. For now, we invite you to listen to the previous episode to understand these controversies surrounding native corn versus genetically modified corn and the legal, political, and commercial framework in which they are embedded. I am Gabriela Martínez, a guest student at CIESAS Pacífico Sur, and on this occasion, I am sharing this space with my colleague, Dr Paola Sesia.

00:01:19 Paola Sesia: Good morning, everyone. My name is Paola Sesia, and I am a researcher at CIESAS Pacífico Sur. Today we are going to talk about the risks that the introduction of genetically modified corn in Mexico poses to human health, to the health of other species, and also to the health of ecosystems. In an epidemiological scenario that, as we well know, is already critical because it is characterised by high rates of obesity, diabetes, hypertension, cardiovascular problems, cancer, etc., among other chronic conditions, which we know are profoundly and unequally related to environmental pollution, the impoverishment of local diets, and the toxicity to which we are increasingly exposed.

Today we have two distinguished guests. I will begin with Dr. José Luis García, who is a researcher for Mexico's Secretariat of Science, Humanities, Technology and Innovation, or SECIHTI. He is currently commissioned to work at the Ethnobotanical Garden of the INAH, the National Institute of Anthropology and History, in the city of Cuernavaca, in the state of Morelos. In this space, José Luis is developing an ecological restoration model for a marsh wetland using techniques based on production agroecology in chinampas and melgas as part of the process of water phytoremediation. He has an interesting and eclectic professional background. He is an Ecological Engineer, holds a Master's Degree in Science with a specialisation in Toxicology, and a Doctorate in Science with a specialisation in Marine Sciences, focused on Ecotoxicology, environmental diagnosis of industrial pollution, and the restoration of soils and aquatic ecosystems. He has been a collaborator in the

National Computerised Ecosystem of Toxic Agents and Polluting Processes of PRONACES, the National Strategic Projects where he was a professor.

I would also like to introduce Dr Abelardo Ávila, who is a surgeon from the Faculty of Medicine at the National Autonomous University of Mexico (UNAM). He holds a Master's degree in Social Medicine with a specialisation in Epidemiology from the Autonomous University of Mexico (UAM). He studied for a PhD in Social Sciences with a specialisation in Population Studies at COLMEX. He has been a researcher at the Salvador Zubirán National Institute of Medical Sciences and Nutrition for many years, from 1988 to the present. His main areas of interest are research on the nutritional situation in Mexico, child malnutrition and health damage from chronic diseases associated with poor nutrition, as well as the development of epidemiological intelligence computer systems. In 2019, Abelardo received national recognition for his merit in public health with the Gerardo Varela medal from the General Health Council. In 2023, he published the book La construcción Social del sistema de salud de México (The Social Construction of Mexico's Health System). Welcome Abelardo, welcome José Luis.

Let's start with José Luis. Can you explain in simple terms why agrochemicals are used in commercial agricultural production? And what effects do these inputs have on human health, but not only human health, also the health of other species and the health of ecosystems? What would be the main health risks of this use? Over to you, José Luis.

00:05:22 José Luis García: Hello, how are you? Good morning, thank you very much for the invitation. First of all, I will try to use language that is as accessible as possible. Sometimes it is so simple, but if any of the words I use are a bit complicated, please feel free to ask me about them. Well, we must first understand that the use of agrochemicals, which includes both nutrition through synthetic chemical fertilisers and pesticides, which are also synthetic substances used to control pests and diseases, are associated, in a way, let's say almost from birth, with the use of improved seeds, particularly hybrid seeds. In other words, both the nutrition package and the pest and disease control package are specifically geared towards a seed that has also been selected and improved to meet certain market requirements, particularly those of industry in the case of maize, which has different applications, from direct human consumption to animal feed, some processed foods, syrups, for example, and even biofuels.

So, each of these seed selections comes with its own technological package to achieve maximum yield. High yields are required, mainly to meet the needs of industry and the market. The industry obviously requires large volumes of raw materials to make its own activity profitable, and in this sense, agricultural activity is incorporated into industrial activity. This is known as agribusiness, which is an extension of the industrial process in field production. In this sense, there is an incentive to achieve a fairly high level of production in order to meet these demands in industrial processes. This means that production requires a significant investment, even on the part of farmers, who have to invest in the purchase of

seeds and the technological package. This is done so that they will buy from them. In other words, the farmer could choose any other seed, but it would not have a market, especially in the agribusiness market.

In this sense, I am talking mainly about medium-sized producers, some small producers and large producers. Having to make this expenditure, they have to achieve very high yields in order to have a profit margin. And this is compensated for a little, because these substances ensure that production is very high and that there is a certain profit margin. Unfortunately, producers do not always achieve this, particularly here in Mexico, but if they do not use them use them, they would not even be able to recoup their investment. And if they do not use the seed, it is difficult to find a market for the product.

Now, what do these chemicals do? These chemicals guide the plant to maximum yield. In biomass production, not in the case of maize, this means having a very high grain yield, and for this, the plant needs to focus exclusively on grain production. The plant, like any living being, invests its energy not only in growth, but also needs energy to maintain its homeostasis, to defend itself from environmental challenges, including biological challenges such as pests and diseases. The aim of these substances is to prevent the plant from being distracted by this, all the nutrition is brought to the plant so that it does not have to invest energy in searching for these nutrients and recruiting microorganisms to metabolise the soil. All challenges are removed, water is brought to the plant, nutrients are brought to the plant, all organisms that feed on it, the phytophagous organisms, are controlled, and diseases caused by bacteria and fungi are controlled. And in this concert, what the plant does is focus solely on seed production.

This over-nutrition given to the plant actually makes it vulnerable to damage caused by these diseases or pests, which is why substances, especially toxic ones, have to be applied. Pesticides often have to be applied preventively, that is, even when the pest is not necessarily present or the damage is not considerable. However, they continue to be applied. And well, I think that when we talk about substances that are designed to destroy life, in this case, the life of insects or other competing plants or microorganisms, they can obviously cause harm to humans. This is not necessary, I think I am stating the obvious, but any pesticide is harmful to humans, not only insecticides, but also herbicides. And the problem here is that the abuse of these substances can leave, and in fact does leave, some substance, some residue of the substance in the product. And well, I would just like to point out that corn in particular, like other crops such as sugar cane, which are crops of economic and even geopolitical importance are particularly crops that have a very high, very high capacity to respond to these substances. That is why they are used so much in these crops. They are plants that are technically known as C4 plants, plants that, if you give them all the resources, can have a truly extraordinary yield, and this is what makes them very profitable commercially and, unfortunately, has led to the abuse of these substances, particularly in these crops, which have become widespread precisely because of their economic importance.

00:11:44 Paola Sesia: Thank you very much, José Luis, for this explanation, which finally emphasises the agrochemicals that accompany the production process, including in the case of genetically modified maize, even if this is not necessarily the case in our country, but which does give us an idea of why there are health risks associated with this use. I will now move on to Abelardo with the next question.

Abelardo, it is essential that you explain this to our audience. What is the Precautionary Principle? What is the Precautionary Principle in environmental, food and health matters, and what implications does this principle have for public health? And also, as another related question, I would like to ask you if there are differences in how this Precautionary Principle is handled in the United States and Mexico, and if so, how do those differences impact political and trade relations between the two countries?

00:12:53 Abelardo Ávila: Yes, thank you. The Precautionary Principle was developed as part of the protection of human rights, in the sense that many industrial processes or the use of medicines, food, fertilisers, environmental damage, industrial processes that began to intensify on a global scale in the post-war period approximately 80 years ago, and that evidence began to emerge that they could cause very significant damage to health. In fact, there were different situations in which, as there was no clear evidence that such damage was occurring, the damage itself was denied or it was said that there was not enough evidence, scientific evidence. For example, it was said that tobacco had not been proven to cause cancer. The use of certain fertilisers and certain medicines was said to be harmless, there is no scientific proof, these are just beliefs, and the same industrial strategies established a policy of denial, of denying that they could cause any damage to health, and the benefits of these industrial processes or the introduction of these substances or the production of food preservatives, for example, flavourings, colourings, preservatives, etc., were prioritised.

It was said that they were not harmful to health, that it had not been proven that they were harmful to health, despite the emerging scientific evidence, which was just beginning to study the harmful effects of all these processes. As certain negative effects began to appear, a very complex strategy of denial was developed. Now that some files from legal proceedings or industrial research have been declassified, it has become clear that there was very clear evidence that these processes were harmful, and it was established that what was expected was scientific proof in the conventional terms of the dominant groups. In other words, they said, well, for me, this is what science is, and until it is fully proven, we are not going to stop using it.

This has been fought against for a number of years now, meaning we cannot wait because the industry also resorts to many tricks to hide information, to pay for information, supposedly scientific research that hid this evidence as part of the movement. Child protection also raised the issue that many of these substances, which have a progressive cumulative effect on the child population, were particularly serious, both because of the

biological nature of children's bodies and because of the length of exposure. If someone starts smoking at the age of 90, they will not develop the damage that would lead to lung cancer. But if children are exposed from the earliest stages of life, they will begin to develop damage from these diseases very early on, and therefore, protection from exposure to these substances had to be directed specifically at children. The Precautionary Principle was established in the sense that, although the evidence, even if it was not absolutely conclusive, but in the face of the slightest substantiated evidence of possible damage to health, the vulnerable population, women of reproductive age, pregnant women, breastfeeding women and, above all, children at all stages of growth, had to be protected from exposure to any of these substances that were or could potentially be harmful. In other words, conclusive evidence was not required; rather, if there was evidence, the Precautionary Principle could be established, and to that end, a series of mechanisms were established by all international organisations such as the FAO, but above all by the World Health Organisation.

To establish the Precautionary Principle and mechanisms for the protection of children, since the World Summit for Children, this mechanism has been established in Mexican legislation. Furthermore, since the best interests of children became recognised in the Political Constitution of the Republic and in the specific law on the comprehensive protection of the rights of children and adolescents, the Precautionary Principle has been clearly established in national legislation. So there is an international legal framework, there is a national legal framework that protects children, and in the case of Mexico, it is quite solid in terms of the legal framework, but quite lax in terms of actual enforcement.

But in international trade, when international treaties are signed, in the neoliberal era, when Mexico submits to free trade arbitration, first the GATT, which was an international tariff agreement, then the World Trade Organisation that replaced it, the precautionary principle was not included in the criteria of the economic dispute panels. This is an important point of conflict that, theoretically, under international law, should be resolved in the best interests of children and not in the interests of trade. However, sometimes with the complicity of national governments or national officials educated in the educational centres of highly industrialised countries, basically the United States, the Precautionary Principle became subordinate to economic decisions. We see this, for example, in the use of GMOs, in the disputes that have arisen in trying to ban GM crops in Mexico, specifically corn, due to health risks.

So right now, we still have a dispute over the validity of a higher principle of protecting the health of humanity, and especially children, which would be the Precautionary Principle, and the decisions of trade dispute panels that bypass these principles. For example, in US legislation, the Precautionary Principle does not exist as a fundamental norm, whereas in Mexican legislation it does exist in international disputes when a panel decides that the Mexican claim is not valid, as one is subject to those jurisdictions that deny protection of the health of the population.

00:21:02 Paola Sesia: Thank you very much, Abelardo, for that explanation, which will certainly help us understand what we are talking about in the context of this dispute between genetically modified corn and native corn.

The next question is for you, José Luis. At the discussion we held in Oaxaca last June, you argued that there is no need to adopt genetically modified maize in Mexico. We would very much like to know if you can explain where this argument of yours comes from, this conviction you affirmed, and also ask you what characteristics of native corn, local agricultural production models, this milpa system, and Mexican food patterns make this type of crop unnecessary, in your opinion?

00:21:59 José Luis García: Well, first of all, it should be mentioned that genetically modified maize only responds to challenges related to the use of agrochemicals. One of the GMOs, Roundup Ready, known as Rr, is resistant to the herbicide glyphosate, and another GMO, Bt or Bacillus thuringiensis, has a toxin derived from a bacterium that responds to attacks from a caterpillar larva of the lepidopteran, the corn earworm. In other words, all this technology of inserting foreign genes into the plant is solely to respond to these two challenges, when in reality the maize plant is a polyploid plant, meaning that its genetic resources are immense, and not all genetic resources of the plant itself have been fully explored, and what GMOs do is not even increase yield, resist drought, or greatly improve the survival of the poor. It is solely related to challenges associated with the use of agrochemicals.

Now, personally, I do think that these technologies will be short-lived. In that sense, let's say that one of my arguments for saying that we don't need to adopt them is because these technologies are already becoming obsolete. What happens when you have Rr maize, a type of maize that is resistant to glyphosate? It allows you to use glyphosate confidently on your crops because it won't destroy them. You will destroy all the weeds, but not the crops you want to grow. Without that transgene, you cannot use glyphosate once the plant reaches a certain level of development, because you would also kill it. So what the transgene does is metabolise this substance and prevent the plant from being damaged by the use of glyphosate, But this is what is causing, or rather, not what will cause, but what is already causing in countries that use it extensively, such as Argentina, Brazil, and the United States itself, is that weeds have already developed resistance to glyphosate, meaning it is already becoming obsolete.

The countries where this technology was widely used knew this beforehand. The abuse of any chemical substance to control any pest population, whether plant or animal, tends to generate resistance in those populations. Why? Because we are artificially selecting and eliminating those that are vulnerable and susceptible to the substance, and little by little, those that manage to resist or tolerate this substance in some way remain. Over the course of generations and certain years, this means that only those individuals that manage to

tolerate this substance and coexist with it remain, and eventually, we are left with only them.

What happens? Well, you have to change herbicides, which is done traditionally in crops, in responsible agronomic management, let's say, within all the safeguards that the use of toxic substances has, you rotate pesticides, that is, you use maybe two cycles of glyphosate, but in the next two cycles you switch to another herbicide precisely to avoid the development of resistance in weeds.

In the case of GMOs, you cannot do this because they are only resistant to that agrochemical, which means you have even more pressure to select resistance in the populations you want to eliminate, and you render the use of that substance obsolete even more quickly. In other words, we do not need these technologies, not only in Mexico, but anywhere on the planet, for the reasons I have just mentioned. In the case of BT, it's the same thing. Eventually, we're going to have corn borers that are resistant to the Bt toxin, and not just corn borers, but eventually other pests as well. And what's going to happen? Well, it's going to quickly become obsolete.

This technology is very expensive; producing GMOs is not cheap, but I believe that the pressure to extend its use as quickly as possible across the planet is in order to reap the greatest economic benefit from this technology before it becomes obsolete, but it is already becoming obsolete, isn't it? So, well, that's the first argument to dismiss, I would say, from the outset, the use of this technology is not a technology that guarantees food security in any way, it is a technology that is seeking greater returns for the industries associated with seed and agrochemical production.

Now, thinking specifically about Mexico, we have very diverse environmental conditions compared to the large maize-growing regions of, I'm going to focus only on the American continent, which is particularly the United States, Brazil and Argentina, which have very large and very homogeneous maize-growing areas, This contrasts with Mexico, where very few states have such homogeneous areas, perhaps a little in Sinaloa, a little in Sonora, and Baja California. This makes the use of hybrids difficult. It is well known by national farmers that selecting a hybrid in Mexico is complicated because the soil is very heterogeneous, and the environmental conditions are heterogeneous. Our own climatic conditions are not as homogeneous as they are in the countries I mentioned, and this means that hybrids do not perform as well as they are advertised on the label. In this sense, genetically modified organisms, regardless of the fact that they are not even guaranteed to perform better because they are not designed for that purpose, offer no advantage in terms of environmental adaptation, because it is too homogeneous a seed for the highly variable conditions of the national territory. These same diverse environmental conditions also mean that the pressure from weeds and pests is not the same everywhere, not even within a single state.

So, if you are going to invest in such an expensive technology, it is because the benefit you will obtain will be worth it, right? But often this pressure on yield from weeds or corn borers in Mexico, according to the farmers themselves, is not a pressure that punishes your yield to the extent that you do not make a profit. Yes in the United States, yes in Brazil, yes in Argentina, why? Because there are hundreds of thousands of hectares planted with the same seed in a monoculture that is obviously going to generate a population dynamic, a pest in the ecological sense.

In Mexico, we have a mosaic of maize here, sorghum there, wheat beyond that, pastures; we do not have the homogeneity of monocultures that would lead to such high pest population pressure and make it truly worthwhile to have genetically modified seeds. Now, what I just said leads us to conclude that we need to explore more of the genetic resources of the breeds we have in Mexico, simply to get an idea. Globally, only four breeds, three or four breeds, have been used to produce all the hybrids that circulate around the planet. In Mexico, we have more than 50 breeds, that is, three or four breeds compared to the 50 we have here. We cannot compare the great genetic wealth we have here in Mexico to respond to all environmental conditions and all the challenges posed by pests that may affect hybrids, which are very well selected and very well developed, but mainly focus on yield, high-density planting, homogeneous seeds and mainly the usefulness of the industry, not so much on adaptation to the environment, because as I just said in my previous intervention, as a producer you have to cover all the needs of the crop. Here in Mexico, with native seeds, with all the varieties we have, we have plants that are adapted even to poor soils, even to adverse climates, to slopes, to certain pests. In other words, I believe that in Mexico what we need to promote is more research into the genetic resources we already have in the varieties that are here, and that we are often letting slip away. Many varieties have been displaced by hybrids that are not even yielding what they promise to producers, and native seeds are now reduced to a few small plots here and there for personal consumption or self-sufficiency, rather than commercial production. In this sense, the breeds we have scattered throughout the country already have many specific adaptations to that area, which are the ones that need to be researched further and promoted. This is in terms of genetic resources.

In addition, there is a whole epigenetic regulation, that is, how the environment modulates the expression of the genes that each of these breeds has, as this is a whole field that has also been neglected, how to manage the crop so that epigenetically we achieve better plant performance in the conditions where it has been generated. I believe that, from my perspective, this leaves the attempt at competition that a transgenic plant might have in the dust, not to mention hybrids, right?

00:31:55 Paola Sesia: Thank you very much, José Luis. I would also like to take this opportunity to invite our listeners who want to learn more to check out the recordings we

made of the two events at the end of May and in June, when we were discussing these issues and the controversy and dispute between native corn and genetically modified corn over food sovereignty. You can find all of this on the CIESAS, Pacífico Sur YouTube page and also on the Embodied Anthropocene project website, which we run in conjunction with University College London and the Universidade Federal do Grande do Sul in Brazil, where we also explain that these differences between native maize, hybrid maize and transgenic maize are not the same. And during those conferences, you enlightened us so that we could clarify these differences.

I will now move on to the last questions. Abelardo, you have argued that the controversy surrounding genetically modified corn must actually be viewed within the broader context of market-dominated food systems. In the case of Mexico, how are agribusiness, pharmaceutical industries and large corporations that produce ultra-processed foods to the dispute over genetically modified corn and how they relate to health damage in our country?

00:33:36 Abelardo Ávila: There is a huge trap in what the industry's objectives would be. We have to treat diseases with medicines, there is no doubt about that, and we have to eat enough every day so that we do not go hungry. Food itself has to be packaged, distributed, prepared and processed, and all of that is true and we take it for granted as something that happens naturally, but when we analyse agricultural production systems, health systems, the food system as such, food processing, distribution, marketing, and the induction of consumption through advertising to the population, we find that the objectives are not those of satisfying fundamental human needs in terms of health, food, and well-being, but rather follow a rather perverse logic and deny, in fact, in reality, and in results, the supposed objectives for which they are intended. In other words, neither the pharmaceutical industry provides us with health, nor does the food industry provide us with healthy food, nor does agricultural production guarantee us enough food for everyone. These are processes that deny themselves.

I remember many years ago when we began to document the terrible emergency of the obesity epidemic and chronic diseases, diabetes, we conducted some surveys more than 30 years ago, where we began to detect that there was enormous metabolic damage in the Mexican population, there was an obesity emergency, especially obesity among the poor. Childhood obesity, which was unknown until the end of the last century, was emerging and began to grow at an alarming rate. And the emergence of diseases that were rare or had a low prevalence and suddenly began to increase, not dramatically, some types of malignant tumours that research showed were clearly associated with lifestyles, diets, the presence of substances in the environment, many of them associated with industrial processes and many also associated with food production, food processing, and that poor diet itself is the replacement of natural foods with ultra-processed foods because of everything they contained that processing in terms of substances that were causing metabolic damage that

was very clearly recognised in the research, and none of these things seemed to stop this kind of madness.

I call it the worst of all possible worlds, where they were causing Mexico to simultaneously have a population still suffering from hunger, children continuing to die from malnutrition, very serious problems associated with poverty, and at the same time, sometimes in the same families and sometimes even in the same individuals, the damage caused by overeating was already appearing. In other words, it used to be very rare for obesity and malnutrition to coexist in the same family. Now it is more common, and before it was very difficult for a malnourished child to become obese in a short period of time. Then we began to see this more frequently until it became an enormous avalanche, seeing our children get into a very serious health problem.

We also discovered that children who suffered from malnutrition in the early stages of life were much more vulnerable to developing severe metabolic damage when they entered obesogenic processes. Furthermore, the urgency of food production, which seemed to be aimed at solving famines, was not aimed at solving famines, but rather at commercialisation. Sometimes the logic of food production was more about packaging, advertising, transport, and accessories to the nature of the food itself, rather than the food itself. In other words, the quality of the nutrients necessary to satisfy the needs for a healthy diet did not matter; what mattered was irrational consumption with high energy expenditure and high ecological damage. It was also suggested that the development of the pharmaceutical industry and expensive medical processes, elite medicine, more sophisticated diagnostics, and much more expensive medicines were not producing health either.

Preventing diabetes and treating people who are already suffering from metabolic damage due to obesity or an unbalanced diet does not have to be expensive. In fact, it should not be expensive at all; it should mean huge savings. But instead, we got caught up in a kind of madness in which agricultural production, agribusiness, the food industry, the pharmaceutical industry, and the health system, along with very important mechanisms of privatisation and the withdrawal of state intervention to generate processes aimed at promoting human well-being.

And what was happening was that government action, permissive action to free industry from any control, from any regulation, including financial schemes to subsidise industry, which were not made clear to the population, no, the food industry, for example, the junk food industry, has received impressive tax benefits. We are talking about billions of pounds so far this century, which are not transparent to society. We know that through many fiscal mechanisms and also many international trade mechanisms, enormous profits are being made, an enormous transfer of public wealth to these private sectors. And they achieve this through many mechanisms, especially public-private partnerships, including the imposition of certain laws, regulations, or the development of public officials, always at the service of

the interests of this irrational world, which is translating into damage to the collective health of both human beings and the planet.

So, the EAT-Lancet Commission sounded the alarm about this process, which it calls a syndemic, where all the mechanisms of ecological damage, personal damage, damage to health, damage to the emotional integrity of societies, and also the risk of pandemics such as Covid-19, which threaten not only health but also the very viability of the planet, are articulated. So we have to see the problem, not as a problem of food shortages or lack of medicines or the need to develop new medicines, but rather in the complexity of a system designed to generate an enormous concentration of wealth, plundering the health and well-being of humanity.

00:46:34 Paola Sesia: Thank you, Abelardo. I think you are hitting the nail on the head with this madness, as you mentioned, which is the madness of the market, the madness of profits prevailing over collective well-being. And now, perhaps a little more briefly, because we are running out of time, I would like you to answer one last question that has to do with the specific problem of high fructose in Mexico. We have a very serious problem with metabolic syndrome, as you just explained, with diabetes, obesity, syndemic and fatty liver, which is clearly influenced by the indiscriminate and widespread use of high fructose in ultra-processed food products that are increasingly consumed.

Could you briefly explain to our audience the link between high fructose, genetically modified corn and the food industry? And could you also emphasise which sectors of the population are most affected and most vulnerable to this type of substance?

00:43:23 Abelardo Ávila: High fructose basically comes from the cultivation of genetically modified corn, those agro-industrial packages and these mechanisms for generating an industry that is saturating food with sugar. In fact, the design of sugary drinks is very simple: it's water with a large amount of sugar, and the mechanism to prevent that large amount of sugar from making us sick is to dilute it, which is why they are drinks. If we were to take them in spoonfuls, after three spoonfuls we would already be sick.

In the case of a soft drink, in a matter of seconds, a child can consume twelve spoonfuls of sugar without any problem and can do so several times a day. The metabolic damage it causes is terrible, but this is precisely associated with consumption, with the transgenic production of corn. It is the production of corn, the conversion of corn starch through hydrolysis into high fructose, into sweeteners, which, in order to be consumed, must be targeted at children and the entire population must be accustomed to them, and despite the existence of actions, legislation and reports on the damage to health, it continues to be consumed. And that every action that society has taken, such as taxes, warning labels, advertising regulations, bans on sales in schools, etc.

Despite this, consumption continues to increase and this enormous production continues to be sustained, and this causes the main damage to health that we have in the country. No, it's really unfortunate, we're not aware of it, nobody says, hey, I've had enough high fructose, so I'm not going to have any more. So, unconsciously, we keep consuming, consuming, consuming, without realising that we are contributing to all these processes. And if you follow the trail, even what some would call the blood trail, that is, how this is also linked to the arms industry, as the same people who invest in large food industries and these types of beverages also have a hand in alcohol and alcohol consumption.

There is also a connection, as all of this also connects to the global arms industry, because it is creating the tragedy we are experiencing, the wars, the military actions, that supposed irrationality, the madness of human destruction that we are experiencing these days, which seems to come from total irrationality, but no, it has the logic of this world system that is fully interconnected and that does resort to intense mechanisms of power and political control in order to exercise itself.

00:46:34 Paola Sesia: Thank you, Abelardo. I will now hand over to my colleague Gabriela, and thank you both very much.

00:46:42 Gabriela Martínez: Thank you, Paola. Once again, I would like to thank José Luis García and Abelardo Ávila for joining us for this session, this second podcast session, and above all, for clarifying our understanding as novices who need to know and understand how this conglomerate of companies or multinationals works, which, in a vertical manner, and also with some governments, obviously affect populations and, in this case, as you mentioned, the most vulnerable populations. And how, through these syndemics, as Abelardo mentioned, they affect health and generate these public health problems and also greatly affect non-human ecosystems.

And well, we would also like to thank our listeners and invite them once again to listen to the first episode and continue reflecting on these different challenges that, of course, the Anthropocene poses in this case, with its inequalities embodied through food systems and the impact on human and non-human health. So, for our part, we say goodbye and thank you all.

00:48:08 Juan Mayorga: This episode was recorded virtually between the cities of Oaxaca, Cuernavaca, and Mexico City. Paola Sesia and Gabriela Martínez were in charge of hosting and interviewing. The production was carried out by Gabriela Martínez and the audio editing and post-production was done by Juan Mayorga.

This podcast is an international collaboration between University College London in London, United Kingdom, the Federal University of Rio Grande do Sul in Porto Alegre, Brazil, and the Centre for Research and Higher Studies in Social Anthropology in Oaxaca, Mexico.