

The Great Simplification

Nate Hagens (00:00:02):

You are listening to The Great Simplification with Nate Hagens, that's me. On this show, we try to explore and simplify what's happening with energy, the economy, the environment, and our society. Together with scientists, experts, and leaders, this show is about understanding the bird's eye view of how everything fits together, where we go from here, and what we can do about it as a society and as individuals.

(00:00:33):

50 years after the Limits to Growth Study was published, it is still incredibly relevant to tracking, imagining, and planning for a different energy and material and environmentally constrained future. Today I'm very pleased to have a conversation with Gaya Harrington, who recently released a widely publicized study updating the Limits to Growth projections with current data. Gaya is a Dutch econometrician, a sustainability researcher, and a women's rights activist. Gaya has worked in senior sustainability related positions at KPMG and now at Schneider Electric and holds master's degrees in both econometrics and sustainability studies. Have we learned anything since 1972? Are we even more primed to ignore the reality and implications of these models? What is her take on path forward? This is another great conversation on The Great Simplification. Please welcome Gaya Harrington.

(00:01:43):

Gaya, goedendag!

Gaya Herrington (00:01:43):

Ah, close. Goede morgen.

Nate Hagens (00:02:02):

Did you know that my family on both sides is Dutch, my great grand-

Gaya Herrington (00:02:09):

I did not know that.

Nate Hagens (00:02:09):

My great great grandmother, her mother was in the royal family in Holland and slept with a Spanish gardener and got excommunicated and had to go to America. So the family story goes.

Gaya Herrington (00:02:21):

That's a good story.

Nate Hagens (00:02:23):

But I have on both sides. Yeah. So thank you for joining me today. I have a ton of questions for you. I will get this out of the way right up front. I am very thankful that your parents chose to call you Gaya instead of Madea.

The Great Simplification

Gaya Herrington (00:02:44):

As am I, as am I. But there's a lot of... It's very foreboding, isn't it? I don't know if that's the right word, but it's very well chosen, I think.

Nate Hagens (00:02:58):

Did your name pull you into this work, little by little?

Gaya Herrington (00:03:03):

I think the causation is probably in the opposite direction. They called me Gaya after the book by Lovelock, about The Gaia Hypothesis, meaning everything is connected to the system. We might talk about that more in this podcast. And so they were hippie's I think that probably inspired me more.

Nate Hagens (00:03:26):

Got it. Excellent. So let's get right into it. So the reason that I know of you, other than lots of my podcast listeners requesting that I interview you is I know that you researched and wrote a report updating and explaining the Limits to Growth 1972 study by the Club of Rome. Can you unpack and explain what you learned and what you reported?

Gaya Herrington (00:03:54):

Yeah, and I think a lot of people listening to this are already familiar with that original research. I'll summarize it very briefly, but as you said, it came out in 1972 and it was based on the first system dynamics model of the world called World3. So that was the first way of modeling things where all variables are interconnected when all variables are basically endogenous. I have one degree in econometrics. So that's a very different kind of modeling. A lot of variables are actually exogenous and there's a lot of implicit assumptions of constancy. That was not the case, and that is not a case in general with system dynamics, and it wasn't the case for World3.

(00:04:38):

And so what they did is they ran scenarios based on different kind of assumptions of what society would do. So it was at the global level. This is not to make predictions because these kind of model errors, they don't assume that you can predict the future that accurately anyway, which is also a very different mindset than maybe what you use in the more mainstream econometric models. But they did want to understand better the general dynamics between key variables and in this case that was population, pollution levels, all at a global level, food production, industrial output are ecological footprint and also importantly our welfare levels. Those last two variables were added a little bit later in a new update, but that's the model, that's the version that I did my research on. And so that the first one came out in 1972 and then it was updated, but that was still a couple of decades ago.

(00:05:45):

Now, the outcome of some of the scenarios was a collapse around present time. And I should say that a collapse is not the end of civilization. That's a general misunderstanding about it, but it is a steep collapse from a previous or current top. So still not great to have steep declines in our welfare levels, for

The Great Simplification

example. So I thought, okay, well given that prospect or the possibility of it, let's see how that model has played out because you can now take empirical data for those variables and just plot it against it. That's how we validate models in general. And it turned out not many people had done that except for Graham Turner on the previous version. But for this version, so the latest version, nobody had done an update. So I conducted that. I was a bit surprised about that, but then I thought, okay, I was still curious. So then I thought, well, I guess I'm going to do that then.

(00:06:44):

And my findings were that the scenarios align pretty closely with empirical data. It's most closely aligned with business as usual 2 scenario and a comprehensive technology scenario. And especially in the business as usual 2, there's a market decline from our current top and that shows the general dynamic of where we continue business as usual. And then at a certain point we reach a break point where there's too much pollution and that would be including greenhouse gases. So I would argue that's the scenario of climate change. And then we see a steep decline in welfare population, food production, industrial output, that sort of thing.

Nate Hagens (00:07:44):

So why is this still on people's minds? We have better computers, we have way better science and knowledge about ecology and systems today. Why haven't we had thousands of scientists collaborate to come up with a new improved version of this and we're still looking back 50 years?

Gaya Herrington (00:08:08):

Yeah, that's so interesting. It's a very good question and one that I asked myself too, and I imagine, I don't know, but I know you've had Dennis Meadows on this podcast before. I imagine that maybe at the time that's the kind of ideas that people had. Oh, we are going to show this insight and people are going to take it because it makes sense. Because it makes sense ultimately, right? You cannot have indefinite growth on a finite planet, this is totally logical. And so as you know, as many listeners know, at the time they were very heavily criticized and it was mostly-

Nate Hagens (00:08:45):

And still are.

Gaya Herrington (00:08:46):

Mostly at the certain... Still, yeah, I've had my fair share as well by now. And what I get is by the way, is nothing that Greta Thunberg gets. So there are many people who get way more of that. It's on top of my mind. I don't know if anybody saw the tweet between her and somebody that's not worth mentioning. But that went viral a little bit I think yesterday evening. If not, you can look it up.

(00:09:23):

But there's a lot of misogyny and ageism and all that kind of thing that she already gets as a child. So it's a good question of, well, if you're just basically stating the facts, which is what she does, like many

The Great Simplification

scientists as well, she's basically repeating what scientists say. Why is there so much aggression? I think it's really aggression. Sometimes I think the Limits to Growth people were also attacked personally.

(00:09:53):

And I think it's just because it goes against, if you're asking for limiting growth, I think there are two things that are there because that's obviously what the point is. Business as usual is always, ultimately the ultimate pursuit is continuous growth instead of maybe something else. And if you change that goal, I think first of all, it goes against existing power structures. So some very powerful people are afraid that they might stand to lose things in such a changed society and economy. Which is to some extent, from their perspective, rational. Because the only way that you can keep all that you have while still promising that there's better tomorrow for the majority of people, let's say in America the American dream, you have to have growth. That's the only way that those people can actually have at least a prospect of a better life, if not for them, and then maybe at least for their children through hard work. So there's that, which again, I don't think it's a good reason to not change the system, but it's certainly from some very powerful people is a rational stance.

(00:11:25):

And then I think the other side is that most people also fear. There's this sense of, well, but we need growth to alleviate poverty and keep my rent going and all those things. And I think that to some extent is also rational because we know that in recession there is suffering and the people at the bottoms are suffering the most. Those are the ones that are typically losing their jobs in this country. Also, their healthcare and need to start living in their car, all those things.

(00:12:01):

And to that I would say that is also... So the fear for not being able to meet your physical needs is of course very rational and very understandable, and it's important. I also think it's only true in a system that is based on growth. So it's true if you have this need in the society that we have to have continuous growth, then if we don't have growth, yes, you're going to have social unrest. I think that's a legitimate fear. But of course the Limits to Growth message was, and my messages is as well, that if we have a system that doesn't revolve around growth necessarily anymore, but it has a new goal, say meeting human needs within planetary boundaries, that would be a very different thing.

Nate Hagens (00:12:55):

So in some ways then, this is the first time I've actually thought about this, it's not that we have better technology and better ecological systems, dynamics, computers and more educated professors able to do a Limits to Growth study now, it's that the power structure that existed and grew over the last 50 years. In the early seventies, it was hippies and Woodstock and there was a new opening of our minds and sexual freedom, and what is the future going to be like? And so it was an actual path that could be possibly discussed and shared, even though it was also difficult back then, but nowhere near as difficult as it is now because of all the sunk costs and power structures. So now if there would be Stanford or Harvard would come out with some major Limits to Growth update that showed we're on the standard run or the business as usual case, and there's a collapse coming, I don't know that they could publicly come out with such a study.

The Great Simplification

Gaya Herrington (00:14:15):

Yes, yes, yes and no I would say. So first of all, it's very true that when the Limits to Growth came out, let's say early seventies, and indeed there was at the time also this push this ask, sort of a societal readiness for it, I would say. And at that point we were still below our planetary boundaries, our global ecological footprint was still below the earth carrying capacity. So at that point, we theoretically could have had a smooth, say an S-Curve transition towards that carrying capacity without a necessarily a-

Nate Hagens (00:15:04):

What's an S-Curve transition?

Gaya Herrington (00:15:09):

In collapsed pattern. Oh, yes.

Nate Hagens (00:15:09):

What's an S-curve transition?

Gaya Herrington (00:15:10):

So an S-Curve transition, in ecology, there's two kind of growth patterns. Growth of course, to be abundantly clear, growth in and of itself is not bad. It's making it the ultimate goal to always pursue growth at the expense of everything else that's wrong. Growth in and of itself is fine. That's what it is. My one-year-old daughter grows, that's fine. At a certain point if you still keep growing while you're a baby when you're already an adult, that could potentially be bad. So it really depends on the situation.

Nate Hagens (00:15:47):

I am actually still growing and that's not a good thing.

Gaya Herrington (00:15:52):

Well, as we all know in nature, and I'm not talking about you Nate, but in general, anything that grows indefinitely is we know that intuitively is dangerous. It's either an explosion or it's cancer and it cannot last. So we know this. And so again, it's all very logical. And in that sense, I was almost surprised when my research went viral because someone was like, "Well, didn't we already know this?" We have the IPCC reports that every year go, hey. We have the analysis of Rockstrom and his team who were like, "Oh, we've already broken a couple of planetary boundaries there." We have Wackernagel's ecological footprint, of course. So we know this, the overshoot day comes earlier every single year. That's still the case except for during the pandemic. But even then it was delayed with only one or two days. It was really, it wasn't even a dent. So we knew this already. So in that sense I was a bit surprised. But back to the growth patterns-

Nate Hagens (00:16:56):

The Great Simplification

You and I knew this, but I would say most people in my network that don't listen to this podcast don't know that they don't know that they don't hear it on the news, they don't see a documentary about it. It's still not widely known. I don't think.

Gaya Herrington (00:17:12):

You're right. Unfortunately, yes. That's why for example, Johan Rockstrom made this Netflix documentary *Breaking Boundaries*. And I think that's so important, those kind of things. That's said, I think for true change, you don't need necessarily the majority, and I don't mean that in an authoritative way, but it's very important that like-minded people connect. And this new kind of emergence comes more from networks sometimes than the majority of the population. We're talking here about environmental tipping points, right? Climate tipping points, but they're also social tipping points in that sense, as a side note.

(00:17:56):

But yeah, so you'd have two very prevalent growth patterns in nature. And one of them is the logistic growth. It's an S-Curve. So let's say you start at very low, I'm going to do it like this, and let's say here's your carrying capacity a little bit. And in the beginning you grow very fast because you've got so much resources and you're still tiny, so it doesn't make a dent. But at a certain point, population starts to grow and you're like, okay, resource is getting a tiny bit more scarce. And once you approach the carrying capacity, the population growth slows down and then you just naturally stay at this level here and that's the S shape. So that happens all the time. And we could have done that, but at this point we are past that. And unfortunately an equally naturally occurring phenomenon is the overshoot and collapse. So you have the carry capacity, again, you have the same exponential growth, but this time you don't slow down when you're approaching the carrying capacity. So you go over it, but that cannot last. And then you plunge back below the carrying capacity.

Nate Hagens (00:19:05):

And simultaneously the caring capacity isn't staying static, it is probably declining as well, because of our impact on-

Gaya Herrington (00:19:13):

Very good points.

Nate Hagens (00:19:13):

The ecosystems and livable temperatures globally and other things.

Gaya Herrington (00:19:19):

It's a very good point because of course, I would say probably the biggest criticism that Limits to Growth got was, "Well, you don't take into account innovation. Human ingenuity is actually limitless." And so the argument was that this carrying capacity through technology is always going to keep increasing. So it's true that humanity has done that to certain extent. But first of all, this sort of

The Great Simplification

expansion or maybe the heightening of the carrying capacity, they came with a lot of externalities, which in my world don't exist. I call them the consequences that we didn't think of and don't want to be held accountable for now. But there were unintended consequences of that and those might very well be lowering that carrying capacity in the near future. Yeah...

Nate Hagens (00:20:21):

You're very clear on this. Let me ask-

Gaya Herrington (00:20:26):

...Yeah, sorry, I always find it very interesting that criticism personally where I'm like, so for the background, these people were scientists at MIT at the time. So that's kind of a strong statement to tell a bunch of MIT scientists, "Well, did you think of technological innovation?" I think they thought of it and they knew it. And they also knew that innovation is not instantaneous. It takes a long time and it's a limited, you don't have boundless innovation. We do have it, but given that we also live in the constraint of time that it takes from the first time you have a breakthrough, what we recently had, the fusion breakthrough, but that's not anywhere near commercial. It typically takes about 10 years, that cycle, to really complete. Yeah.

Nate Hagens (00:21:27):

And that actually wasn't really to do with electricity, it had to do with nuclear weapons, the research. But that's a separate topic. Let me ask you this, Gaya, Donella Meadows famously said that a model... And you have a Master's in econometrics or a PhD, do you have a PhD?

Gaya Herrington (00:21:51):

Nope. No, it's a Masters, I have two Masters.

Nate Hagens (00:21:53):

Masters, two Masters. She said that a model often is a black box that spits out an answer, but systems dynamics models aren't really trying to spit out an answer. They're trying to illustrate like you just did with your hands and your words of the concept of an S-curve. A systems dynamics model is supposed to help the brain understand what's going on in this system that you're interested in. And so I think a lot of people look at models as if they're spitting out answers when really the purpose should be to help us as individual agents trying to help the future understand what's going on better. What do you think about that?

Gaya Herrington (00:22:45):

Oh god, it's going to be a very short answer, because I a hundred percent agree with you. I think that's so very true. And as an Econometrician I have definitely... I've worked in finance actually through the financial crisis and I saw just a blind reliance. I was a model builder, and so the blind reliance that people placed in the output of my models and I was like, well, listen, I made a lot of assumptions, so I don't know if that is true. And it's almost like they didn't hear it and they were like... I'm assuming a lot

The Great Simplification

of constancy here, so we assume these mortgages are... I was actually assessing the securitizations, those things that kind of cost it. But I would say, "Well, listen, we are assuming that these aren't correlated at all. If they're the same street they might be." And they were just like, "No, but the model says it's low risk, it's fine, it's great." It's very interesting to watch.

Nate Hagens (00:23:37):

So maybe like you said earlier, that growth isn't necessarily bad, it's just the singular focus on growth is bad that maybe this last 50 years of our culture has been so transactional that that period itself makes us look at models and just want answers. What do we do, buy or sell? What's the answer here? Rather than if we were optimizing welfare or wellbeing or planetary boundaries where our education from young humans up would want to understand the system that we're a part of and there would be a curiosity and a wisdom and a reflection rather than a black box answer.

Gaya Herrington (00:24:18):

And now you're alluding to what I go more into in my book because my research, originally it was published in the Journal of Industrial Ecology, and as you know academic journals, you can't even use 'I', which I personally always find a bit odd. I'm like, it's a person who wrote is. But I really could only say what my research might indicate, those kind of things. And then I was asked to write a book and originally I said, "No, that sounds like a lot of work to preach to the choir." Because anybody was going to read this book is already converted. It's like, you read my book, but you didn't need convincing.

(00:25:00):

But what I did in my book then... I said no, and they came back and I said, "Well, we will make it freely available and then you can write as personable as you want to maybe reach a wider audience." So that's how they convince me to actually write it, and that's what I've did. So it's hopefully it's a lot more, it's still rigorous in research wise, but you can, if you want to, there's enough data in there and enough referencing for you to replicate the empirical data update, but you don't have to. And I interpret it and I kind of put it in the bigger more value descriptive setting. And so I go into these things that you talk about now all the way down to our mindsets and our views of ourselves.

(00:25:50):

So one of the things that I go into is also indeed, as you say, this idea that we are these rational people that are only consumers and producers. So I go into that kind of neoclassical economic model that postulates that we are all homo economists and I showed that we're not like that at all, that we're actually much more caring for example. And then using that kind of economic modeling that's not going to serve our needs well, which I think is quite obvious at this point.

(00:26:25):

But it also goes down to our mindsets about who we are in the sense of what our role is in the world and what kind of world do we want to see. Because it is truly, and that's one of really the key conclusions of my research, it's this is a historic moment in time. What we do in the upcoming decade will determine what our society looks like, will determine our welfare levels for the rest of this century. And that hasn't always been the case.

The Great Simplification

(00:27:00):

And so ultimately that comes down to, I even call it a battle of the souls. Do we love life more than growth? That's what it comes down to. And I think we do. I also think that we've almost been, this is maybe not the best way to put it, but kind of beaten into submission almost by these stories. We don't really want better because we're selfish and those kind of things. But if you look at people once their physical needs are met, that's a very important key point. If you're not housed and if you're hungry, you're only going to think short term and of yourself, maybe your direct family members. But once your physical needs are met, our social needs tend to be very much about feeling that you add to your community have a sense of purpose that what you do really adds value to others.

(00:28:01):

So we are actually very much longing for purpose, and I think that's the kind of thing that we stand to gain. Going back to what I said previously, let's say the winners in this system, which arguably is everyone on this podcast, honestly, if you have the mental capacity and you don't spend any time worrying about paying your rent, arguably probably, and getting your food, if you have toilets, you are already kind of on a winning side, then there's something to win for a lot of those people as well. Because what you see is in more equal societies where resources are shared more equally, basically there's less income inequality. Typically there's also less social inequality. Everyone is happier, including the very rich. This is very important because we're all human beings and we need this connection.

Nate Hagens (00:29:02):

So let's get into your book. What you're referring to is your new book, Five Insights for Avoiding Global Collapse. I thought it was really refreshing and clear, and I didn't know someone was writing such a book, so thank you for sending it to me. But in your book you talk about wealth and equality like you were just mentioning. So how does wealth and equality interact with the planetary limits we face and our ability to develop responses, and how do we overcome that? And what are some primary challenges you see with eventually implementing those type of solutions?

Gaya Herrington (00:29:43):

There's been a lot of research about in income inequality, some excellent research. So we know [inaudible 00:29:50] but we have so many people at the World Bank and OCD and everyone looking into this and it's just always the same conclusion. What you see with empirical data updates, for example, is that this idea of trickle down economics, it's hard to find in the data. There's not really empirical evidence for it.

(00:30:13):

And what you do see is that there are actually a lot of negative consequences from it. So there's a lot of reduced trust between citizens from citizens in their government and their institutions. And there's also environmental impacts, which is very interesting. Because there's more income inequality, people have a way stronger drive to display a certain kind of lifestyle because you can fall so deeply on the social ladder. And so the environmental impacts, there's a lot more conspicuous consumption, I think Thomas Veblen an economist, coined that. So if anybody, I'm sure you're familiar with these drops in

The Great Simplification

these long lines around stores and you always wonder who stands in line for shoes for five hours and that's that kind of thing, the status, because it's rare. And so you go there to impress other people, even though they're just shoes that are ridiculously expensive or handbags or any kind of stuff really, T-shirts...

(00:31:22):

So what you see is that income inequality, first of all, you see a relation with, like I said, there's reduced trust. There's also a worsening of social inequality. So you also see propensity for more racism, sexist behavior, that sort of things. But you also see that because of that reduced social capital so to say, people can come together much, much less easily to demand these changes that they want to see. The majority of the population wants the government to act on climate change. And the fact that it doesn't happen also is in that sense related to income and wealth inequality.

Nate Hagens (00:32:05):

Except if they really knew what true action on climate would entail, which is less material consumption around the world, then maybe fewer people might advocate for doing something about it. Open question.

Gaya Herrington (00:32:22):

I don't know if that's true. So first of all, I think on a global scale, yes, much less consumption, very obvious. I would say that most of the consumption, say the luxury consumption lies in the west. So in the rich world, so in developing countries, new economies, but which is basically most of the world, growth makes sense also in material use. Their carbon footprints per capita can increase because it goes towards meeting their basic needs. I think it's a very different story for the richer economies. But again, I don't know if that is such a loss.

(00:33:12):

I don't know about you. I think a lot of people on this podcast, and I think in general they just do these things because they happen. But I wouldn't mind giving back my boxes to Amazon if they would just recycle them. It's not a big deal for me to put it out. I think a lot of the things when you look at these circular economy, it's just the new ways of doing things that really aren't that hard. And I think there's some really interesting research in how to do these social needs that we have met, that today what we're doing we are reading our social needs through quite resource intensive ways. And you can do them differently. And what it would take is way more labor intensity in exchange. And I think that's a win-win-

Nate Hagens (00:34:06):

Like food for one example.

Gaya Herrington (00:34:06):

Because we're already craving that. Sorry?

The Great Simplification

Nate Hagens (00:34:10):

Food for one example. We could grow good, healthy, nutritious food without a lot of fossil inputs, but we're going to need a lot more hours and percentage of population working on regenerative agriculture, spending time in the garden and the fields rather than on the internet or whatever else they're doing.

Gaya Herrington (00:34:31):

Local, locally produced, that's an excellent example. There's even a gender angle. I spoke to a couple of people at the UN who were looking into that and ask especially lower income men because income inequality is affecting men and women differently. So the income inequality, it's about, basically you're eroding the middle. And so for women it's about 50/50. So women end up in the upper class about 50% of the time, and the other 50% is getting poorer. For men it's 30/70. So it's lower-

Nate Hagens (00:35:10):

70 being what?

Gaya Herrington (00:35:12):

That's going to the lower class. Yeah. So the impact inequality is impacting them more. But the UN was thinking, well, no, I shouldn't say the UN. Some experts at the UN said that they were looking into, well what if they do this growing food locally? Because that's something that is very valuable. You can distribute that. It's something that you can produce, you can do that with your hands. Not everybody likes sitting behind a computer all day. So there's even a gender angle there that could be very interesting.

Nate Hagens (00:35:53):

Well, this gets back to your Thorstein Veblen comment about conspicuous consumption and status is right now you don't get status from being a farmer in the United States, a local regenerative farmer. You get status from being a computer programmer or a developer of shopping centers or whatever else. And that ultimately has to change. I think before we're going to have a big cultural change.

(00:36:22):

So building on that, in your book, your recent book, you talk about seeing planetary limits as something sacred. So this concept of sacred returns again and again on this podcast, what is the word sacred or the concept sacred mean to you, and how does it relate to the planetary boundaries that are inherent to our earth?

Gaya Herrington (00:36:50):

Yeah, I love that question and thank you for correcting me, by the way. Yes, that's right. It wasn't Thomas Veblen, it was Thorstein Veblen. Thank you.

Nate Hagens (00:36:58):

The Great Simplification

Well, just on that, I mean you're Dutch. This is your second language. That's another aspect of this that I've come to realize. I showed off one of the three words I know to you in Dutch and you speak many languages, there's this assumption that everyone has to understand English. And then here I correct you about some 19th century dismal economist, it's no big deal at all, Gaya. Trust me, you're doing this podcast in my language, this is easy and great, but go on sacred.

Gaya Herrington (00:37:29):

Thank you. Thank you for your grace. So yes, I love that question because I really do think that we're talking about systems, we're talking about global systems, so it can feel very overwhelming and if everything is connected, you're never really done. So working in systems is very overwhelming. And at the same time, it's such a personal journey. It starts with yourself, and not only that, it has to start with yourself. And I think that's a very important point to make. And for me, these big global planetary boundaries, to respect those, is to respect your own boundaries. I feel like there's a connection there.

(00:38:15):

And so it's the same with I think what I mean with sacredness, for me, something that sacred debt is just something that you cannot put a price on, basically. And we all have this sense. I don't know if you have a daughter, but if you imagine that you have, if necessary, and someone asks you, "How much for your daughter?" You wouldn't just correct him and say, "Oh, no, no, no, we're not selling her." You would want to punch him in the throat. And that's because you cannot put a price on a human being and especially not of course your own child. So we all have this sense of what it would mean to just... I sense that you want to say something.

Nate Hagens (00:39:08):

Well, I always want to say something, but I have frankly coming up in two weeks and it's going to be titled Not For Sale, which is the slogan of the Great Lakes don't want to sell their water to the Southwest, but it's a microcosm of the entire planet. As we face what you've researched and Dennis Meadows and Limits to Growth, as we face that what is going to be not for sale? And the answer is those things that we find sacred. Because without finding them sacred, increasingly lots of things will be for sale in our culture.

Gaya Herrington (00:39:45):

Yes, and they have been. And we all know these kind of things. We know what feels sacred for us or not. And I think again, there was this story of well, we're all optimizers, so everything has a prize. I think it just hasn't been really serving as well. And I think that's ultimately what is those things that we find sacred typically relates somehow to life, I think. What we see is life giving or is living. And for me, I think one of the key things that is very important in that sense is that we distinguish between what is life or life giving and what is not. And that's of course why I keep talking about stories in my book and I'm not the only one, I'm obviously not the first person to point out that we're storytelling animals, but I do think it's very important that this... Buddhism is one of those more religious doctrines that says that as well. If your story is not really working for you anymore, I think it's time to revisit it.

The Great Simplification

Nate Hagens (00:41:03):

Do you think that you've arrived at this place because you have a master's in econometrics and that you kind of had to see the chasm between monetary goals and models versus sacredness and life that can't be found in those formulas? Did you have to go into the belly of the beast and see the flaw in the machinery that's pulling our system forward?

Gaya Herrington (00:41:33):

Yeah, I feel like it's come very much full circle, yes. I think so because I have been trained with this whole homo-economicus things, all that stuff, and I have seen how people were so certain of themselves and how the most disastrous decisions that led up to the global financial crisis in 2008 were made in consensus. And so I think it very cleared as our models at the time and just our perception of the world that they were missing something. And since then, I guess to a certain extent, I have been searching for that. And I guess ultimately what I arrived, all the answers I found after that, in a decade after that, that's culminated in my book.

Nate Hagens (00:42:26):

So let's talk more about your book. So many people have made the observation, including myself, I don't know if you've read my Superorganism paper, that our system has been kicking cans heading towards this contraction, or I refer to it as a great simplification and we keep saving it using financial manipulations and technology. So have we as a society, as a global culture, got into a place where we're prioritizing the markets and the financial industry above all else? And what are the implications of this, and how does this relate to the too big to fail mentality? And after you answer that, how do we shift the finance system from value extraction back to value creation, and like you say, not value in a monetary sense, but an inherent, intangible, sacred sense?

Gaya Herrington (00:43:23):

Yes, I think clearly there's been an enormous financialization of things, I think that's obvious. It hasn't always been like this, the financial sector in my opinion is too big. But I would say from my perspective that ultimately we're not really prioritizing finance per se, above everything else. We're prioritizing growth because that's what we do. And finance is excellent at that. And so that's why.

Nate Hagens (00:43:58):

Well, finance is the tool that we use to optimize growth.

Gaya Herrington (00:44:01):

Right. And it's a better tool than almost anything else. It's very good at being efficient. And so that's why it's-

Nate Hagens (00:44:07):

The Great Simplification

Let me ask you this, Gaya, I didn't plan on asking you this, but isn't finance, as a human tool, doesn't that make the down slope of the curves and limited growth steeper?

Gaya Herrington (00:44:25):

I mean nobody knows, but I have some expertise here of course because I've also worked in financial sector and I would say yes, absolutely. I think we've come a long way from when the financial sector was just kind of the blood of the economy, which in my opinion it's supposed to be. I think finance is a useful tool kept in its place. And this idea, it started where people have surplus money. We all know this story, a lot of people still think that banking works like that. So you have people who have savings and oh, well you can invest it in other people who need something and they're going to start their little business and then everybody's happier. That is not what the financial sector does at all anymore. It's just a money multiplier.

(00:45:15):

So most of what now the money that circulates through the economy is made by commercial banks, commercial entities. So it's done in the private sector, it's not the Fed that sets that, but what they do is a minority of the money supply. And so there's a lot of inflation, money creation that's made in the financial sector, in that sense, it's a little bit out of control.

Nate Hagens (00:45:48):

To simplify with some econometric phrases, if you think finance is a money multiplier, as we multiply money, it is a claim on ecosystems and energy and planetary limits.

Gaya Herrington (00:46:06):

Yeah, that's because there are those who say, "Yeah, and that's because natural..." All these things, they have so much value also to the economy and it's not priced accurately. And I think that is part of it. Externalities are not priced in accurately. So there are also even within this current economic paradigm, enormous, disastrous market failures. I'll be very honest with you personally, I haven't fully resolved this idea that we need to value nature more also financially with the fact that I feel like it's sacred like we just discussed. Maybe it's-

Nate Hagens (00:46:54):

I'm with you a hundred percent. You can't put a price on it-

Gaya Herrington (00:46:54):

But at the same time, we-

Nate Hagens (00:46:54):

But you could put a price on non-renewable inputs like water or copper or oil.

Gaya Herrington (00:47:03):

The Great Simplification

Yeah, I don't know. So there's this one guy who talks a lot about valuing natural capital, well there are many people talking about it. But this one person that I spoke to, and I actually said this too, he's IMF director and he's very active in this. Ralph Chami, and he said, "Yes, I hear you and I agree, It's inherent value, it's priceless. It's value is inherent, it exists for its own reason. At the same time, the truth is you say you can't put a price on it, but it already has a price and the price is zero. That's why it's dying."

Nate Hagens (00:47:39):

Yeah. That's a really good point.

Gaya Herrington (00:47:40):

Which is also a good argument. Yeah.

Nate Hagens (00:47:41):

It is. It is.

Gaya Herrington (00:47:45):

And I've had the same discussion for example, with someone at UN women who was very active with domestic violence shelters and getting people chaperones on train so women feel safe. And I'm like, "But why are we doing all these things for women, we should teach our men to not harass women. What are we going to do? We're going to keep women separate from men throughout societies?" He said, "Yeah, we need to do that too. But that's just a long term something. That's not going to fix the violence and the dangers that women are facing right now, this week." So maybe it's a longer term versus shorter term thing.

Nate Hagens (00:48:24):

That's what the conclusion I've come to, Gaya, is we face two central questions in all this, is, What is some more sustainable, desirable future that includes a respect of what is sacred and planetary boundiess and our welfare and wellbeing, map that out, what's possible? And then how do we get from here to there in this business as usual standard run where we have a decline back to or under carrying capacity on the horizon? Those are two separate questions in my mind.

Gaya Herrington (00:49:01):

At the same time as one of my findings also in my research is, again, that we are fast running out of time to make this mindset change. So arguably our biggest constraint right now is actually time. Because that's the thing with technology, it's absolutely true that humanity can and has innovated itself out of some restraints, but then you bump into a new one. It is an often missed, a thing of the Limits to Growth, the plural, the S after limit.

(00:49:36):

And that's kind of the thing, we had business as usual and you had in the seventies, you had this resource scare where they were like, "Well, we're running out of resources." And then that did also,

The Great Simplification

partially through technology got alleviated a bit because we did get more efficient and we were able to get technologies that dug deeper into more dispersed fossil resources. But was that a good thing? Because then we had a new limit from pollution including from greenhouse gases and all the other stuff.

(00:50:06):

So I think that that will always happen sooner or later. So we absolutely need to change our mindset. We need to change the goal of the economy. And the only way to do that really as with the speed at which it is required, is to really fundamentally go to our mindset and say, what is our role in this world, and what do we want that world to look like?

Nate Hagens (00:50:31):

I agree. I have some questions for you regarding your prescriptions and advice in your book, but here's one thing that you wrote in your book. You had a strange little paragraph where you said, "We should all feel comfortable with being hypocrites." Rather unusual advice, what do you mean by that?

Gaya Herrington (00:50:54):

Yes, yes. Thank you for the question. I end my book with some personal advice because I do recognize that there's a lot of tension that comes from working in this in between system. If you want to be part of the change, you still have to work in this current system to change it into something that you think is better. There's a lot of personal tension that comes with that. And you will face opposition because like I said, you're going against power structure. And you talked about so sunk costs and there are real sunk costs, but do not underestimate the emotional costs that people have made. This is a very strong psychological phenomenon that if you have feel like you sacrificed a lot, you have to feel like it was worth it and that there is nothing better because otherwise you suffered for nothing. And people are actually quite good at suffering if it's for a purpose. But if it was for nothing, that is mental anguish. So there's a very strong tendency there too, that you would have to be prepared for.

(00:52:03):

And so what those people might say is that you're a hypocrite because, "Okay, you say you want more environmentally friendly stuff, but do you still eat meat? Do you go on long vacations?" I personally think you probably should not by the way, but we all do things right. I know many people who were very strong advocates, but they also take planes a lot. They speak all around the world. So you can limit it. I do think you should make an effort, but it also will be impossible in this current system to meet your needs and have any impact without causing some damage. And so as long as you try your best to do that, I say don't let them bully you into not being able to speak up because nobody is perfect and that's how they keep you from using your voice.

Nate Hagens (00:53:07):

I'll send you a chapter from our book where DJ White and I write that, "The time now is to maximize your impact, not minimize your impact. Because if you are a vegetarian and you live in a tiny shack and you never consume or buy or anything, you are a smaller one 8 billionth part of the problem, but you're

The Great Simplification

also not much of a part of the solution at all." So in different words, I'm saying the exact same thing that you just said. So cool.

(00:53:40):

Okay. Back to your book and your work. I know that you have done some ongoing work with the Club of Rome, which still exists 50 years later, developing frameworks for the responses to the limits that we will face. And in many ways the Limits to Growth isn't in the future, it is happening now, it's just not evenly distributed. So can you discuss what categories you see as the most important for response and unpack what some of these mean?

Gaya Herrington (00:54:15):

Exactly, yeah, because as you mentioned, the 1972 report Limits to Growth was commissioned by the Club of Rome, which is a club of 100 thinkers from around the world, basically. To be quite clear, I'm an advisor, I'm not a member. They did not ask me. But after my research they did say, "Hey, do you want to be in our transformational economics committee?" Which was an absolute delight by the way to work on. And so I did contribute a little bit to that book, which is called Earth For All. And that was released on the 50 year anniversary of the Limits to Growth reports, so earlier this year. And that basically says, "Well, okay, so..." They didn't say that, but if I put it very bluntly, they were like, "Okay, so you didn't listen the last time. This is what we think we can do now, now that we have run out of time, basically."

(00:55:12):

And so they had a new model, it's called The Earth For All Model, which is a different model. One of the things they have in there now, as you mentioned, is inequality. So they're different world regions and they look way more... Also about distributional effects, which was not in World3 because it was a global model. And it also has a social tension index because it assumes that social tensions will rise when inequalities rise, which is something that we can observe every day. But we don't really notice that in the US we don't have that problem.

(00:55:50):

And so what came out of that model was that there are five, what I call leverage points in the global system. And leverage points are parts in the system where if you press on those, you have a disproportional effect in the rest of the system. So given that we're almost out of time, that's what you want to work in. There are five that they identified, three of them are social and two of them are environmental.

(00:56:18):

I will start with the environmental ones because they will not surprise you. They are energy and agriculture. So you already mentioned that obviously we have to feed the world. We're not going to be able to keep doing that because the population is growing and our ability... Decertification is growing too. Our ability to grow food is starting to get less. And hunger rates on a global scale have started to inch up again over the past few years. The energy thing, I think we need to shift to renewable energy and electrify everything. I think that's obvious everybody... Yeah, I don't think I need to explain that to anybody on this podcast.

The Great Simplification

(00:56:54):

But there are also three other leverage points and they're all social, which is very interesting. And that is reducing inequalities, so income and wealth inequality, and we're talking about that within a country. We're also talking about alleviating poverty, so that's more about inequalities between countries. The difference between average wealth levels between countries is even bigger than within certain and equal countries, it's really quite stark and it needs to change.

(00:57:29):

And then the last one is gender equality or female empowerment, not everybody likes that term. But really reducing empowerment of women because that's actually such a leverage point as well. And I allude to that I think in my book as well, where I talk about mindsets and I say, "Well, historians have actually found that they're very broadly speaking on both sides of, say the mindset spectrum about how to organize ourselves within societies. We have two opposing forms and one is the domination one, and one is the partnership one."

(00:58:09):

And what's striking about that is that the biggest difference I should say is between the equality between men and women. So in a domination way of organizing there is order is maintained through very strict hierarchies. They're very stark. It's men above woman, men above men, classes, racism, religion above religion. So there's a lot of hierarchies that can only stay in place also through a lot of violence. These are also typically unsustainable. So the only way that they can keep providing for everyone is to expand their territory. And of course I have linked that to the growth, this also the growth pursuit.

(00:58:54):

But then there is another way, and it's actually more prevalent in history, which is the partnership model where there's a lot more equality. There's gender equality, there is some hierarchy, but only in a, I would say a more practical sense. So just democratic forms of organization that just ease the decision making process, so empowering form of hierarchies. And there's not a lot of violence because it's not necessary to maintain the structures and these are sustainable. So in that sense, there really is, humanity is not doomed to end in collapse because we actually have it in us to just adopt more of a partnership model. And we see that in history, sometimes, we have in fact done that.

Nate Hagens (00:59:44):

Boy, I have a lot of questions to ask you on that, but I still have other questions. Let me just ask you one, again, I didn't anticipate asking this. Other than Danella Meadows who is unfortunately no longer with us, she died too early, 20 years ago, and I don't know a lot of women in the Limits to Growth systems dynamics collapse conversation. Why is that? It's mostly old men that have been working on this stuff for a long time. I'm young relative to a lot of my peers in this group. What do you think? I mean it's not too hard to understand, is it just unattractive, or BS? Tell me your thoughts.

Gaya Herrington (01:00:37):

The Great Simplification

Oh, I have never thought of that. Now that you mention it, maybe that's true. I never thought of that to be honest. I have spoken to many people. I mean obviously you, but Jorgen Randers is the only person in the original Limits to Growth team that's still very active. He's obviously part of the Earth For All teams as well, and a Club of Rome member. Yeah, I guess I think you're right, now that you mention it. It has never occurred to me because we all work as such peers. Yeah, I don't know why that... I will say that it, in my experience, it's not the atmosphere. So I think it might just be a coincidence, because I do know a lot of female leaders in sustainability in general.

Nate Hagens (01:01:30):

Absolutely, I do too. And many of them are my close friends. However, I think if we are going to have a partnership model like you suggest, we need to have an understanding of this Limits to Growth scenario that you and I are familiar with for more people because a lot of the men and women in the sustainability world don't see the energy and ecology and money pieces the same way that you and I might. So It's just a observation for me that I would like everyone to be on the same page looking at these scenarios and then being creative and having diverse voices to come up with the responses. But it sure doesn't seem to me that there's a lot of women in this conversation, the one that you and I are having.

Gaya Herrington (01:02:19):

Yep. Yeah, yeah. I will say, I think you're right, I didn't see many of them in the modeling group. But if you look at my book for example, I have several elements that I think should be part of this newer society where let's say a wellbeing economy or something like that. And then I definitely pulled a lot from female thinkers. So for example, this new economics, the donut economics, which I think many people are familiar with, of course, from Kate Raworth.

Nate Hagens (01:02:55):

Yeah, Kate is a wonderful, wonderful person.

Gaya Herrington (01:02:56):

Yes. And also Club of Rome member, Mayana Matsukato has done a lot of work on this as well. She wrote, if you talk about value creation, she wrote a entire book about mission economics and how we can go to that form where, as you say, where finance is again creating value instead of extracting profits. And so the one that identified those opposing mindset models is also a systems thinker and historian Rihanna Eisler. So yeah, I personally find it actually very well diversified in into gender sense.

Nate Hagens (01:03:42):

Good though those last two names that you just mentioned, I don't know. So maybe it's just my own bias in who I'm seeing in the field. Okay so getting-

Gaya Herrington (01:03:52):

The Great Simplification

No, it's good that you look at it though, that's important. I know, I'll tell you a personal anecdote that I don't think I've ever said to anyone before. But on my second or third date with my now husband, I asked him, "So how do you promote gender equality in your job?" Because he was kind of telling me that he has this important job and I'm like, "Okay, how do you use that to promote gender equality?" And he gave a good answer because he's now my husband. But well, he did other things right too. But I do think it's very important, and the reason I thought of this is because he recently said, "Recently I looked around in a meeting room and I was exactly 50/50 men and women." And I think it's important, actually, Nate, what you just did, that you make up this thing and say, "Wait a minute, is there any balance here? Because we've all know these old male panels." And I'm like, was there really no one that looks around and went, oh no, we can't do this. So it's good that you bring it up.

Nate Hagens (01:05:00):

And I think Scandinavian countries in Europe in general are much more progressive and advanced on that. I mean, look at the government of Finland. All the major cabinet members are all women. So I just want to give this conversation and this space a larger representation.

(01:05:20):

So let's get back to your book, *Gaya*, in your book at the end, your main conclusions, you list five key insights or recommendations that are relevant to better than the default futures. Can you briefly list these and give a brief description of each of the five?

Gaya Herrington (01:05:41):

Yeah, and before I do that, I maybe should say, what I said in my research is that there was also another scenario which is called stabilized world. And in that scenario, a collapse is avoided. And the difference between that scenario and the others is that humanity consciously, let's go of its growth pursuit and very deliberately shifts resources away from industrial output. So create materials producing stuff basically, and shifted towards human services, which in the model stands for things like education and health. So, I interpreted that as-

Nate Hagens (01:06:23):

Just to interject that in your research or in the model in your own mind right now, could that happen at the level of an individual nation or does it have to be global?

Gaya Herrington (01:06:38):

Oh, that's a good question. I do think government is indispensable and I think at a national level, I think that's where it probably needs to start. I think from there it will trickle down in a different way than trickle down economics to the local levels. And I think then it would still have to spread to other countries as well. I think we will always have front runners, we already have that. We have the wheel governments that are... You mentioned that New Zealand Jacinda Arden for example, outside of this conversation you mentioned her. So we have a few governments who are trying to govern by these wellbeing principles. Bhutan is not part of them, but they could be. I think they just weren't too

The Great Simplification

interested, but they could totally could join. So there are already a few governments that are front running in this and I personally believe that it will spread.

Nate Hagens (01:07:38):

Okay. So the sustainable scenario, what are the five insights? You label them insight one through five.

Gaya Herrington (01:07:50):

Yes, and those were the insights from my research and at the time they called it by the way, the stabilized world because sustainability, I think in 1972 wasn't really a word yet, but that's basically what they, it's the same thing-

Nate Hagens (01:08:06):

I don't like that word sustainable because for us to truly be sustainable would be draconian versus today. So I prefer saying more sustainable than we are now, but go on.

Gaya Herrington (01:08:20):

Yeah, I don't like sustainability necessarily. Maybe for slightly different reasons or maybe they're the same, but I always feel like it's such a bare minimum because sustainable basically means it's sort of the... I work in a corporate sector, which is called net zero. So I'm like, okay, to your point, okay, so you have zero impact. But I think most of us actually have a drive to leave the world a little bit better than we found it. That's what ultimately makes us happy. So that would mean go way beyond sustainable. And of course we have these conversations now with restoration and regenerative practices.

Nate Hagens (01:08:58):

I don't know that I have a hope to leave the world better than I found it because I found it 56 years ago and I've been part of a metabolic energy and ecosystem eating superorganism. I dearly want to leave the world better than the default scenario that's coming if we do nothing. So that's maybe a slight difference, but conceptually very aligned. Sorry to keep interrupting your five insights.

Gaya Herrington (01:09:27):

No, no, please. So I think we covered all my insights, but just to summarize sort of five insights in my book. We're currently not on a sustainable path. Unfortunately, that's just what my empirical data they found. And that's partly because growth is not a good goal. Everything is interconnected, which sounds like a hippie cliché, but I mean we have acted like-

Nate Hagens (01:09:57):

It's also a Buddhist cliché.

Gaya Herrington (01:10:03):

The Great Simplification

Yes. But the truth is that we haven't lived like that even though it's pretty obvious. It's a cliché because it's true and it's obvious. So everything is interconnected and because we haven't been living accordingly or we haven't been organizing ourselves in society accordingly, we're now possibly on the brink of collapse. So in order to avoid that, we have to change our pursuit of growth at all costs. We're running out of time to do that, but we can still do that if we really redefine our goal in society. And the end of the growth pursuit is not the end of prosperity at this point. It's quite the opposite. It's a society that it has gone from never enough to enough for each. That's what it comes down to.

Nate Hagens (01:10:59):

And are you finding traction in your professional work at Schneider Electric and beyond on people at senior high levels, recognizing what you just said and thinking about it and developing well blueprints or break glass in case of emergency plans or ways to navigate this?

Gaya Herrington (01:11:23):

Yep, yep. Yes, we are. I believe that things are changing. I should say also that Schneider Electric has also a large footprint in Europe. And like I said, this is not going to happen just through markets. There is that part, but governments have to take a very active role in reshaping the system because it is not easy. And that's, for me, one of the reasons to work in a corporate sector. How do you put that into practice? This is not straightforward to operate like that within a system that still very much is growth based. This is a challenge. And so to do that is possible and with success, because that's one of the reasons, let's say we have this whole ESG discussion and some people say it's not going fast enough. Obviously I agree with that. At the same time, there is a reason that we even have these ESG things because investors see that it does make a difference.

(01:12:29):

So if you're a more sustainable, as you said, you typically as a company are just perform better, definitely in the long run, but often even in the short term. And that's partially because also these things are changing. The system is changing, we're bumping into limits. And also governments, there is more pressure from citizens. There's significant delays in this system, but there is more pressure from citizens on governments to do stuff. So what we have right now, especially in Europe, we have this very much these disregulation that's moving towards circularity, and those are some quite stringent, a lot of taxes on resources increased and that sort of thing. And there's a lot going on there. So I do believe that that things are starting to pivot.

Nate Hagens (01:13:25):

Thank you. I'm sure you've watched some of my podcasts. I think you did the one with Dennis. So you know I have some questions at the end of the interview that are on the personal side. Hope you're okay if I ask you a few more questions.

Gaya Herrington (01:13:40):

Of course.

The Great Simplification

Nate Hagens (01:13:41):

So given your work on these issues, Gaya, and given your name Gaya, do you have any personal advice to the listeners of The Great Simplification who are aware of this systems dynamics potential collapse, the anxiety about the future? Do you have any personal advice?

Gaya Herrington (01:14:04):

Yeah, I do. I have that at the end of my book, actually. I have three points of advice and one of them you already mentioned, "Don't let yourself be bullied into being called a hypocrite." That's the first thing. As long as you are trying... Because, so right now I think everybody is trying, the ones that are really trying to leave the world say a little bit better or avoid collapse, you're balancing in this between space, this tensions between two systems, that is going to be... The stakes are quite high, so there's going to be a lot of tension from that.

(01:14:43):

And so I think first of all, don't let others put you down on that. Also, don't put yourself down on that because that's probably your most people's biggest critic is they're inner voice. And so be kind to yourself sometimes and also really give yourself a break sometimes. I advise that to people because if you're working in systems means you're never done, but it also means you're never working alone. And so sometimes you can just take a step back and I would say once you start to feel yourself getting a little bit bitter, it's time to just unplug and let the system carry you for a while. Those are the three things that I would advise.

Nate Hagens (01:15:31):

I say very similar things to people and we've never really spoken before. We've emailed and I love how aligned and convergent our stories and our worldviews are. And when you were just saying those three things, which are things that I tell people to do, I felt better when you were telling them to me because I'm guilty of those three things as well. So cool, we're aligned there.

Gaya Herrington (01:15:55):

Yeah, I'm glad.

Nate Hagens (01:15:59):

What specific recommendations do you have for young humans who become aware of Limits to Growth and the environmental constraints, planetary boundaries, or even the collapse story? What advice do you have for younger people?

Gaya Herrington (01:16:16):

Yeah, I always get a bit sad when I ask that question because I think young people in general are very acutely aware and they have the least power. And I think there's a lot of, I think it's anguish and anxiety. I think there's a lot of very unfair blaming. I was never so aware much of ageism, but what I see how people respond to Greta Thunberg and blame young people in general, for me, I think it's quite

The Great Simplification

cruel. And I was lucky enough to grow up in a stable household and I always looked up to adults. I trusted them, I thought they would take care of me. And being very young and then realizing that they haven't been doing that I think is very well, deeply disconcerting for people and I can only imagine what they must be going through.

(01:17:24):

So I guess first of all, my empathy, and I would say that... Because it's not fair. I hear a lot of people say, "Yes, but I think the change is going to come from this younger generation." And I believe that too. And at the same time, this was never their job. This was not their job, and I think our generation just did not do well. So in that sense.

(01:17:49):

And the previous too, with all due respect to my parents, I think, like I said, this came out in 1972, so that was also before I was born. I think the baby boomers could have done a better job as well, in general. Nothing against any individual in that generation. So I guess first of all, my empathies, and second of all, there's a strong power that comes from connecting and it doesn't need to be the majority of people. If you just connect to like-minded people, those kind of networks, there's an emergence that comes from them that will still have a lot of power and I think reach out to people who think like you, first of all it will make you feel less alone, but also secondly, some really cool stuff can arise from that.

Nate Hagens (01:18:42):

Again, fully agree, just talking with another person who understands this and cares about it, even if you don't have a solution, reduces your cortisol and stress levels and it's a human thing. So thank you for that. Gaya, what do you care most about in the world?

Gaya Herrington (01:19:04):

What do I care most about in the world? Oh god, this sounds a bit crushing. I really actually am very strongly motivated by what I would call this love for life. I care about the entire planet, so no pressure. I mean, I'm like any other human being. This love focuses primarily on my direct family members, my daughter and my husband, my parents who are back in the Netherlands. But that's just how that typically expresses itself for a number of reasons. But ultimately what I care about most is like you said, I would like the world to be okay.

Nate Hagens (01:19:55):

So of all the issues we've talked about or any other issue, is there one thing in particular that you worry about specifically in the next 10 years? What are you most concerned about?

Gaya Herrington (01:20:08):

Oh yeah. I think that flows quite naturally from my research. I do strongly believe that we can avoid a collapse if we act now. And I am not convinced at all that we are incapable of doing that. There are quite a few people are like, "Well, humans are just selfish and we will never do that." I do not believe that's true, and I see a lot of things happening. There's a lot of social unrest and there are movements

The Great Simplification

on both sides. It's just not certain. At one side, certainly there is more concentration of power than in a very long time, but it also means there are a lot of people who have the little left to lose. And so what comes out of that, I think nobody really knows. I do not know that we will make that change.

(01:20:59):

I do know that we can, and I also strongly believe that we are longing for it. I know from people in really the richer side economies like the Netherlands and the US, where I've lived, people are just gasping for purpose and connection and belonging. And of course the suffering on in the poorer countries is obvious. So I think there's a lot of people that want change. We also see this from surveys, by the way, it's not just my personal observation. We see this from surveys, all across the world the majority of people want deep systemic changes. But I'm not sure that we will do that.

(01:21:41):

And so of course, my biggest fear is ecosystem collapses, which means a loss of a large part of life that I love and also a lot of human suffering, and that everybody... Climate change happens to all of us, but richer peoples will be able to protect themselves against it. But a lot of people, most of whom are not responsible for the climate change, will be suffering. And if that were to happen, I would not enjoy having to watch that.

Nate Hagens (01:22:22):

If you were benevolent dictator and there was no personal recourse to your decision, what is one thing that you would do or implement to improve human and planetary futures?

Gaya Herrington (01:22:36):

Yeah, I have quite a good idea of what I would do because that's also what comes out of the Earth For All analysis. That's where all these five levers points, they interconnect, so they amplify one another. But if you want to start anywhere, you want to start with reducing income and wealth inequality. So I would significantly raise income taxes on, let's say people will make multiple millions a year. Even more on wealth because wealth inequality is even worse. And you don't even get that from working. That's just sitting on your money. So I don't see a reason to not tax that very highly. And then of course, tax loopholes, closing all the tax loopholes, those kind of things that you would want to do internationally.

(01:23:36):

In my ideal world, there would not be billionaires. And that's not communist or socialist. Certainly, I think hard work should be rewarded. I think we can still have billionaires, even multimillionaires, did I say billionaires? I meant millionaires, even multimillionaires. I don't think the world needs any billionaires.

Nate Hagens (01:24:01):

So it's really a product of a huge energy surplus, time, and the power law without any regulations or restrictions. So someone listening to this might counter by saying, "Well, that sort of incentive, that uncapped incentive is why we develop new technologies and great things and outer space, et cetera." What would be your response to that?

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Gaya Herrington (01:24:33):

Yeah, there's no evidence that this is true, and it comes from, again, this quite an unflattering image of why humans innovate. We are naturally curious, why did I write this book? It's free. It's free for download. I'm not making any money, but why did I do that research? Because I was like, oh, that's interesting. People are curious. They want to find out all kinds of things, the best kind of innovations they stem from people... The idea that you go to a laboratory of every day motivated by one day that you will make a big discovery, it's ridiculous. That's not at all how humans innovate and discover things. It's just playfulness and curiosity and that if anything there will be a lot more of opportunity for people to explore that once a large part of the population isn't just struggling to just make ends meet.

Nate Hagens (01:25:41):

Yeah, I don't disagree with that. So listen, this has been great and this has really the longest, well, one of the only times we've ever spoken and we've covered a lot, we're quite aligned and we speak the same language. I would love to have you back, now that we've covered the basics of your background and your new book, and if you come back next year in 2023, is there something that's burning in your mind, one topic that we could take a deep dive on? Do you have any suggestions or initial thoughts on that?

Gaya Herrington (01:26:20):

I have initial thoughts. It's not crystallized yet, but I do know, so I have two conferences lined up and they're both on valuing natural capital. I see that in the corporate sector, in the financial sector picking up a lot. And given that we just had this thing that we left open, sort of like, huh, how do I feel about this, maybe that's a good follow up for next time where I have some rolling insights.

Nate Hagens (01:26:44):

Excellent. Thank you for your time today, and thank you so much for your important work, and thank you for your curiosity and trying to understand Limits to Growth and sharing that with the world.

Gaya Herrington (01:26:57):

Thank you, Nate. It was an absolute pleasure.

Nate Hagens (01:27:00):

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