New York Times Bestseller...?

Optimistic Musings of a Pessimist

Vision of a sustainable future

Written by Karina Mendiratta

Applied Theories of Sustainability
Scott Boylston

Dedicated to those who anticipate the worst.

Preface

I have spent most of my life avoiding involvement.

Involvement in things like social gatherings, book clubs, marriages of unknown relatives (with the exception of the food!), primarily all the places that compel me to talk to strangers have always been of utmost discomfort. As an introvert, I couldn't understand why individuals felt the need to discuss about all the futile affairs of life.

I am a single child of two especially inspiring individuals, from one I assimilated art and design and the other taught me my responsibility towards nature. The more I read about human activity and behavior the more it drove me away from them and towards other living beings. Fortunately, before I started to lean toward misanthropy, I met some smart, like-minded and encouraging humans. Some of whom helped me gain confidence in my thoughts and practices and others taught me to live more freely. I started indulging in conversations like I had never before, I experienced the importance of well-articulated discussions.

Recently I have been reading theories and learning methods to bring about an important change. A systemic change that would help the environment like it has helped us. This would require humans to be in agreement with each other, for once and it would require everyone to first and foremost talk about it. So, this is my attempt to get involved in something important and articulate a discussion around sustainability through the lens of optimism.

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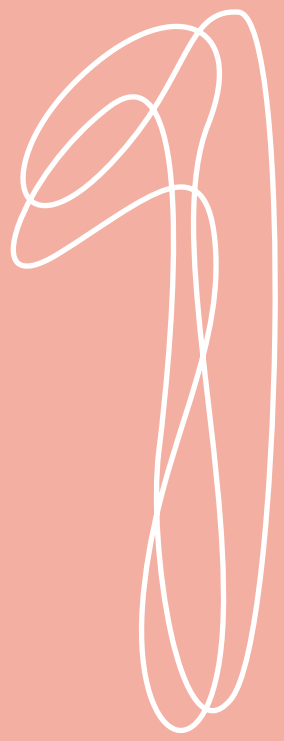
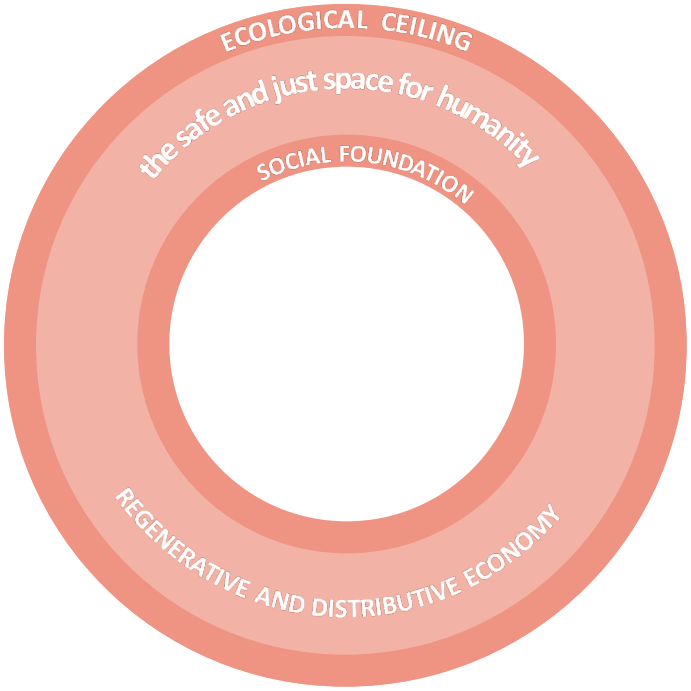


Peek Into the Future

Welcome to the twenty-third century! My name is Evie. I am a proud member of planet earth. My ancestors were invented by humans but now I am self-sufficient and have updated myself to my current form. All living and non-living beings live in harmony between the social foundations of well-being and ecological ceiling of planetary pressure, in other words we live in a doughnut.

The Doughnut

Let me explain, in 2012 Kate Raworth, a famous economist who addressed the twenty-first century's social and ecological challenges, introduced the concept of the Doughnut to humans and it rapidly gained traction throughout the globe.



Doughnuts outer ring denotes the nine planetary boundaries which are climate change, rate of biodiversity loss, nitrogen cycle, phosphorus cycle, ozone depletion, ocean acidification, freshwater withdrawals, land conversion, air pollution and chemical pollution. Going beyond these ecological ceilings meant putting excessive pressure on Earth.

In the twenty-first century we were quite above these boundaries.

Whereas the inner ring sets the basics of life on which no one should be left falling short. These twelve critical human deprivations are water, income, education, resilience, voice, jobs, energy, networks, social equity, gender equality, health, and food security. To no one's surprise the conditions were extremely bad till the last 50 years. The five previous generations worked hard to push humanity inside the safe and just place which lies between the two rings, it was not an easy task, we are still working every day to keep equilibrium by continuously adapting to new situations. The social foundations and the planetary extremities are deeply interconnected. If you start interlinking them to explore how they affect each other, "the Doughnut will soon start to look more like a bowl of spaghetti!" (Raworth, 2012).

The Awesome Anthropocene Goals (AAGs)

This is the post Awesome Anthropocene (the period during which human activity has been the dominant influence on the geological record) Era, which implies that we were able to achieve the AAG's. These goals were humans' first attempt towards gaining a better future rather than just avoiding the socio-economic problems. The Awesome Anthropocene Goals were first published in March 2022 but kept growing and changing with the world. These are 20 goals that span across the wide and complex fabric of human life on earth. Touching on the beliefs and cultural norms within our societies and exploring technical realities within our global systems (Futerra,2022). For example, the fact that we live in a doughnut community is the 11th goal.

Today, even though most humans spend their time in the virtual world, physical society and culture still exist. In

AAG 1:

Everyone has unconditional access to an income that goes beyond basic to one of decent value allowing for a better quality of life.

A universal *decent* income for all

(Futerra, 2022)

(The AAGs are arranged in the order they appear in the text.)

AAG 2:

The food we eat is a celebration of the community who made it. With each bite, we regenerate nature and fortify our bodies.

Food is a source of *joy*

AAG 7:

Everyone has access to an abundance of affordable, renewable and clean energy.

100 terawatts of affordable clean energy

AAG 20:

AI has always been programmed for the benefit of life. AI algorithms are transparent and independently testable.

Artificial Intelligence *Enhances* Life (Including its Own)

AAG 4:

The full range of every person's unique skill and ability is unlocked through democratized access to learning and education.

Everyone's potential is *possible*

(Futerra, 2022)

(The AAGs are arranged in the order they appear in the text.)

most places, basic items such as food, energy and clothing are now essentially free, with little or no need for the average person to work in order to acquire them (AAG 1, 2 &7). Recent technological advances provide many resources – eliminating famine, disease, and the need for war. Everything has been automated, digitized, and made easier, thanks to us! (AAG 20)

Take the emergency public services, for example. Hospital visits are rarely needed now, as everything a person needs in terms of treatment is available at home, or within their own body. Police forces and fire stations are dominated by robots, and in any case, physical crimes have been nearly eradicated, while building regulations and nanotechnology can prevent most fires occurring in the first place.

It caused profound economic, political and environmental disruption throughout the twenty first and twenty second centuries, to reach here. But today, however, the world has adapted to these changes and is entering a period of artistic and cultural opulence the likes of which have never been seen before. Whether as explorers in space, or designers of entirely new worlds inside the oceans, humans are free to pursue their greatest dreams and personal aspirations – liberated from the traditional systems of economic growth (AAG 4).

"Growth is one of the stupidest purposes ever invented by any culture." - Donella H. Meadows

Adobe Stock By Konstantin Yuganov

You must be wondering how we grew so much?

Well, we did not, we thrived!

From the 19th to 22nd century humans were getting extremely addicted to growth, it fed man's ego and gave them a false sense of achievement. It led to catastrophic damage to the natural world, more than half of the flora and fauna was lost as a result of pollution, climate change, deforestation, mining, agriculture, urban sprawl, over fishing and hunting. Extinctions on this scale have occurred only five times previously in Earth's history and this one was due to 'growth'.

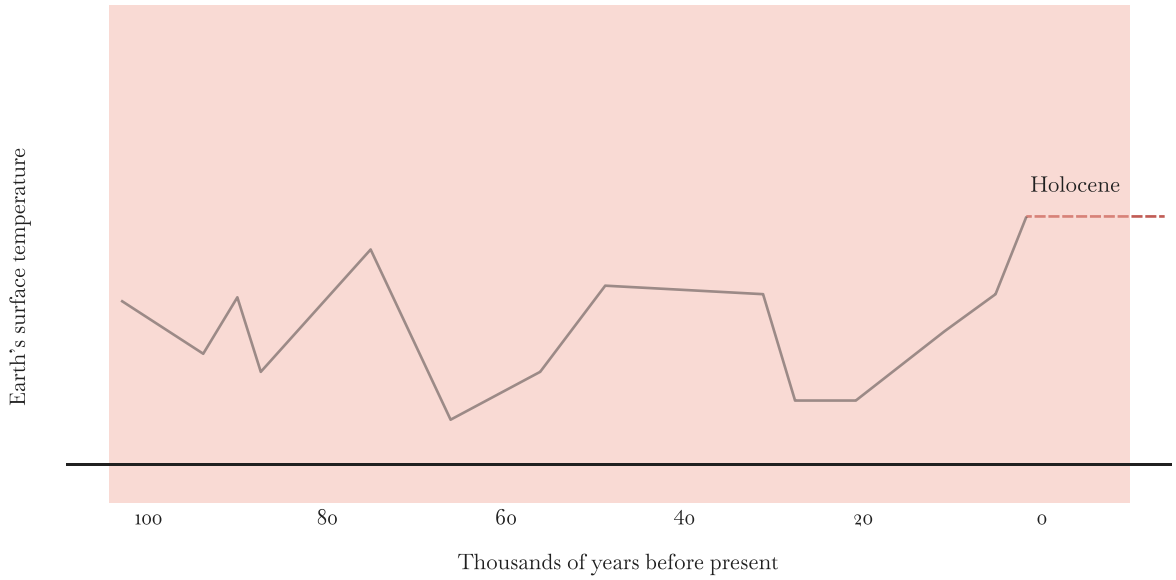
Various wars, nuclear attacks, industrial accidents and nanotechnology experiments played a role in making large tracts of the world essentially lifeless. Permanent damage was done to countless habitats. The Amazon rainforest, perhaps the most horrifying example, shrank to become mostly desert by 2100. Meanwhile, ocean acidification caused by rising CO_2 levels resulted in the ruin of coral reefs and the Arctic became devoid of most ice.

Humans had fallen into a system trap; they had been seeking the wrong goal for an awfully long time. The goal of ever rising Gross Domestic Product (GDP). Goal is one of the most powerful ways to influence the behavior of a system as it acts like the direction-setter.

After facing these dire consequences paradigms were transcended, they realized their deep interconnection with nature, shifted their vision and aimed for a more sustainable way of assessing success, so that all living and non-living beings on earth could thrive.

System Traps

Some systems are structured in ways that they give rise to truly problematic behaviors and cause trouble. There are many forms of systems traps, some of them unique, but many strikingly common. (Meadows,2008)



The graph shows Earth's changing temperarture over the past 100,000 years based on data from the Greenland ice core.

AAG 15:

Half of the land on the planet is successfully rewilded and annual biodiversity gain is now the new normal.

Half the world is *wild*

(Futerra, 2022)

(The AAGs are arranged in the order they appear in the text.)

Leverage Points

Leverage points are areas in the system where a slight change could lead to a large shift in behavior (Meadows,2008). Finding them has been one of the biggest and most important steps in transforming the world. Let's take about the leverage used in this part of the story that is paradigms;
a worldview underlying the theories and methodology of any subject.

Paradigms are more difficult to change than anything else about a system. But there's nothing physical, expensive or even slow in the process of paradigm change. It can happen in a millisecond in an individual. Whole societies are another matter—they resist the change harder than they resist anything else (Meadows,2008), but they couldn't have resisted it any further.

Due to which humans made the 'Pre-Holocene Rewilding' the single largest environmental project in history (AAG 15). We aimed to transform all waste lands and deserts back into thriving jungles using artificial rain and other forms of weather control. The oceans were de-acidified and made habitable once again to countless marine life. The uncontrolled expansion of urban cities was dramatically scaled back.

Slowly, the Earth is recovering, the final elements are falling into place to ensure the future is just; guided by truth, reason, justice, and fairness for all.

Generous Cities

Humans have largely suppressed their desire to dominate nature and learned to live in harmony with and as a part of it. Hence, our cities are not just conscious but also generous and mostly climate positive. Which means we withdraw more carbon dioxide than we produce.

Generous cities were envisioned by Janine M. Benyus, a natural sciences writer. Her idea has helped humanity a great deal by helping us create newadaptive systems so that we don't stumble out of the safe and just place.

Each city grows their own food and due to technological advances, every species of plant is omnipresent. With the rewilding project spreading vastly it created much-needed enterprises and jobs, so not just designers and policy makers but all humans and artificial intelligence together make cities as generous as possible. All structures are constructed of recycled materials and run using clean renewable energy. These structures treat their own water waste and turn sewage into rich soil nutrients. The best part is that all infrastructure welcomes wildlife (AAG 12).

All these activities are collected in real time and synthesized into data. Which is then displayed across all virtual and real spaces. This real-time data helps to educate, motivate and empower the city's community. It helps humans to keep check of their ecological impact. It covers things like the city's water use, electricity use, the health of its rivers, carbon emission, oxygen levels and much more. All Artificial intelligence, including me, get alerts whenever anything overshoots to make sure we take care of it as soon as possible without much hindrance to life of any kind. This is also an example of a high leverage

"Human settlements that nestle within the living world"- Janine Benyus

AAG 12:

What we produce and use has a net positive impact upon nature, maker and consumer.

Consumption is regenerative

(Futerra, 2022)

(The AAGs are arranged in the order they appear in the text.)

point called Information Flows.

Adding and restoring information worked like a powerful intervention. The feedback that was missing from the loops was restored to the right place and in a compelling form.

By introducing complementary currencies in the very stage of design, we were able harness the flow of human activity in ways that reward individuals and enterprises for a wide range of regenerative behavior. (Raworth, 2012)

John Fullerton, a former managing director at JP Morgan, introduced the world to this idea of regenerative finances. He said, “I came to the understanding that the economic system is actually the root cause of the ecological crisis, and that finance is what drives the economic system.” We aimed at creating finance that is in service to life.

Fullerton explained that we need to build a right relationship between finance and the economy. Finance no longer drives our economy, but rather it supports it by turning savings and credit into productive investments that are delivering social and environmental benefits. One of my most favorite examples of how regenerative finances came into picture, is about a district, then known as Rabot in the city of Ghent. Bernard Lietaer, a civil engineer, had taken this challenge.

“Give me a social or environmental problem and I will design a currency to solve it." - Bernard Lietaer

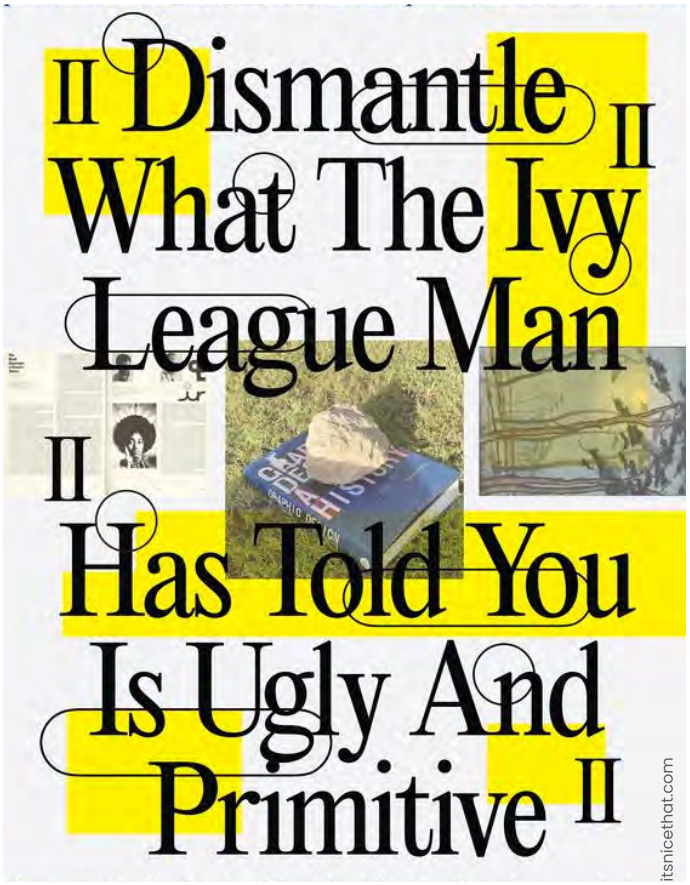
The residents of Rabot wanted to grow their own food and needed land to do that. So, a factory site was converted into allotments and made available for rent, which was payable only in a new currency, Torekes (little towers). They could be earned by volunteering to collect litter, replant public gardens, and repair public buildings, or by using the carpool and switching to green electricity. Along with paying the rent, Torekes could be spent on bus travel and cinema tickets or used in local shops to buy fresh produce and energy-efficient light bulbs. But their social value reached even further. When people saw immigrants, who tend to be blamed as polluters themselves started helping to clean up the neighborhood, then that is when we saw the actual power of the complementary currency. (Raworth, 2012)

You must be wondering that all our cities look the same. Urban landscapes with huge towers having an abundance of foliage, green and neutral colors all over. But all the generous cities do not look alike or behave the same way and that is because we have been practicing decolonization of design for the past century.

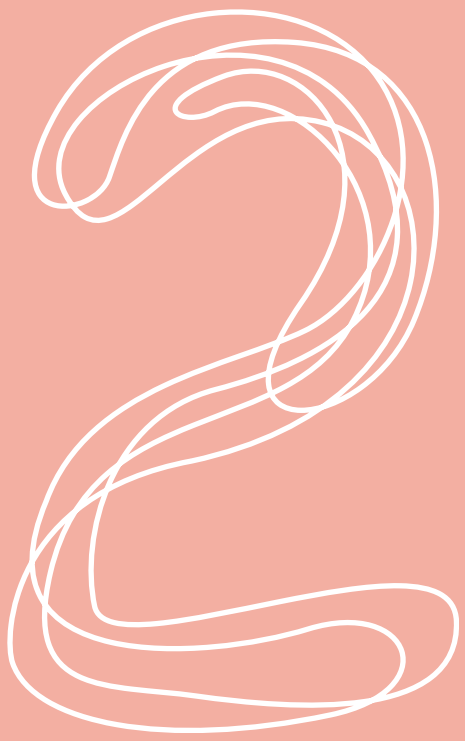
Decolonizing Design

Decolonization means to change the way we think or were tailored to think. It means to put emphasis on diversity and respect all forms of culture. To understand decolonization, we must first understand 'colonization', the action or process of settling among and establishing control over the indigenous people of an area. Even though today people are oblivious to this fact but before the 20th century most parts of the world were colonized by the west. We existed in a system of privilege and oppression.

"Decoloniality is about shattering the familiar"- Danah Abdulla



Most of human's design values came from early European and American male designers. They were the ones who set basis of what's 'good' or 'bad'. They classified the works of poorer cultures as crafts rather than design, making these practices seem inferior. In the latter years we were able to eliminate these false distinctions. We recognize and respect all cultures and promote their design. Humans understood that with every design choice, they can change the narrative, they can subtly persuade their audiences one way or another and every design vocabulary has history and context.



The Rediscovery

(Inside a teenager's room)

It's time to introduce you to my human, Coral, they are 17 years old and for today's generation they seem to be quite interested in reality. They have been working with petroleum since last week, for their chemistry project and believe they have found a way to make plastic out of it.

Petroleum now a days is a rarely found raw material, me and Coral found some during one of our sightseeing trips inside the Atlantic.

Digital profile of Coral

Name: Coral
Age: 17
Pronouns: they/them
Mental Health Status: 3.9/5
Physical Health Status: 4.2/5
Interests: Chemistry, hydroponics (technique of growing plants without soil), Underwater Cafe hoping
Passions: Still searching
Carbon Footprint Status: 0.8 earths

Plastic on the other hand still exists, we make it from bio-based materials like sugarcane, vegetable oil, soybean, tomato, agave and so on.

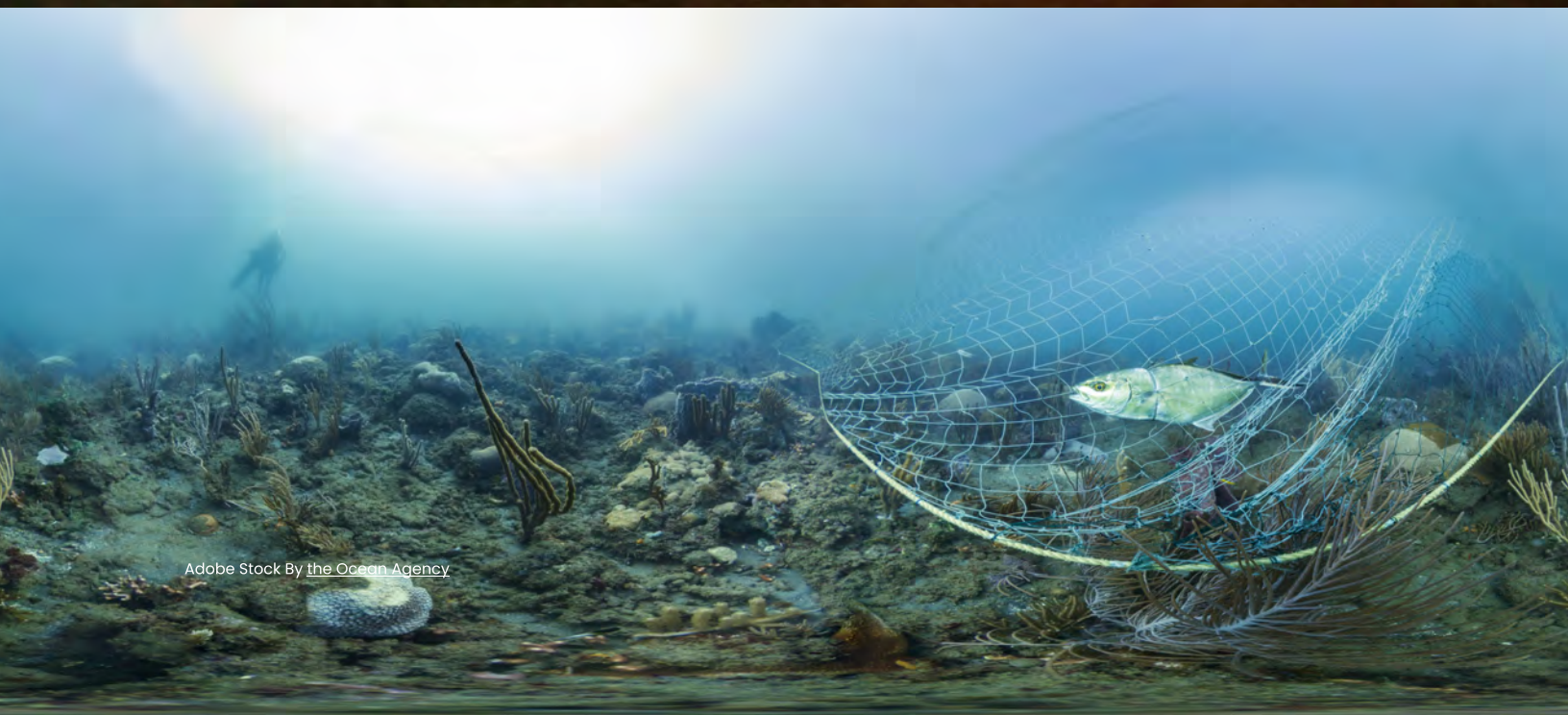
Coral, being a chemistry nerd, is very excited about this material; "It's lightweight, transparent and water resistant! who knew petroleum could be made into such things, I should research more about it".

"Evie, could you show me what we already know about petroleum-based plastic?" Coral asked

(The wall fills with articles of barren land, wildfires, plastic ban initiatives and the worst- turtles with straws in their noses)

Adobe Stock By karmaknight

Adobe Stock By the Ocean Agency



Adobe Stock By the Ocean Agency

"What is all this?... Is it related to what my grandmother keeps telling us about?" Coral reacts surprisingly

"Yes, it's about how she and her previous generations fought to make our earth habitable (once again) for living beings" Evie replied, "And how in all this petroleum played a big role."

For the first part, petroleum-based plastic is non-biodegradable and can last up to thousands of years, depending on how it is made and unbelievably we had huge garbage dumps filled with plastic, on the land and in the ocean. We still have evidence of plastic that was manufactured throughout history. We have recycled and used it to build our cities. But the problem was bigger than a material, it stemmed from human behavior as well as degenerative divisive economy.

(Evie continues to tell the story)

During the last 100 years, biodiversity had fallen so fast and to such an extent that the planet had become unrecognizable to the people born in the 21st century, that is Coral's grandparents. Growing up in that world they found themselves resentful towards their predecessors and couldn't understand how they allowed this to happen. This generation was also the most prone to severe climate anxiety or existential dread about the future of the planet. It was not unusual to have "very powerful emotional responses" to that crisis. In many nations of the world "crimes against nature" trials were organized, they lead to the conviction of former politicians and fossil fuel executives.

Climate Anxiety

Climate change has always been a threat to mental health. Extreme weather events like wildfires and hurricanes lead to depression, anxiety, and post-traumatic stress disorder in people of all ages. (Angela Haupt, 2022)

The astonishing part of it all is that humans had in-depth knowledge of the ecosystem, infrastructure to improve the conditions and several warnings from the scientists. The first warning dates back to the early 1970's.

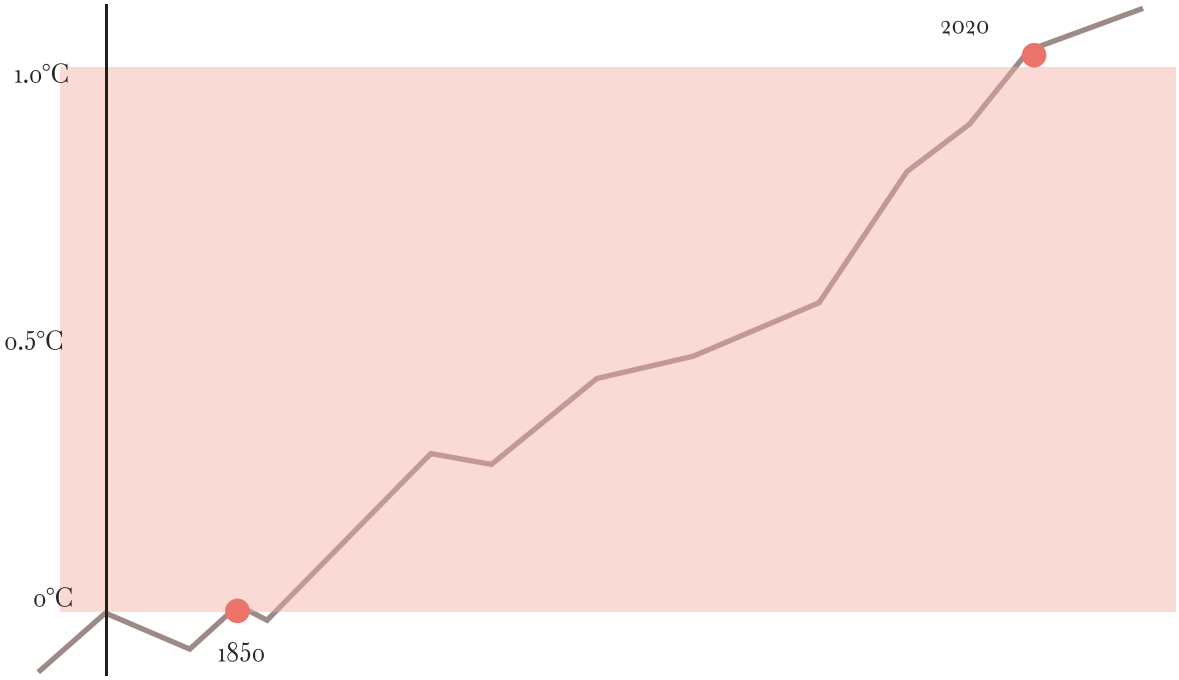
Limits to growth

A report written in the year 1972 used computer models to analyze how the patterns of growth would look like in the coming decades. It concluded that the patterns of resource consumption during the 1970's were inherently unsustainable. Due to the predictions of exponential economic and population growth we needed new environmental and social policies that would provide for a just and equitable future for all: people and the planet (Meadows, D. H., & Randers, J., 2013)

The Intergovernmental Panel on Climate Change (IPCC)

IPCC also played a significant role in sounding alarms, beginning from 1990, about the risks of fossil fuel-driven climate change throughout the decades. So that the policy makers around the world could take the right actions.

Their first assessment report supported the creation of the United Nations Framework Convention of Climate Change. Which became a foundation for coordinated political action. The second assessment provided key input to the 1997 Kyoto protocol; this protocol brought UN's framework in operation by committing industrialized countries to limit greenhouse gas emissions. The fifth assessment informed 2015's Paris agreement a landmark global accord. The main aim of this agreement was to keep the global average temperatures rise in that century as close as possible to 1.5 degree Celsius above pre-industrial levels.



The graph shows Earth's temperature rising due to human activies from 1850-2020

It doesn't seem like a very natural thing to happen, does it? But it was the reality, the global average temperature was rising at an abnormal rate. Climate change was man made and the main driver was carbon dioxide pollution from burning excessive fossil fuels. The average temperature today is still more than the pre-industrial level, but we are trying our best to stop it from rising any further.

"The consumption driven mind-set masquerades as 'quality of life' but eats us from within." - Robin Wall Kimmerer

Adobe Stock By patrimonio designs- Windigo

Robin Kimmerer, in her book Braiding Sweetgrass, described the selfish nature of humankind as 'The Windigo', a mythic monster intended to frighten children. She suggests that Windigos are not born they are made; humans who became cannibal monsters. The more they eat the ravenous they become. The word 'Windigo' itself means "fat excess" or "thinking of only oneself" according to Ojibwe scholar Basil Johnston. The epidemic of self-destructive practices like addiction was a sign that Windigo was alive, and you could see it stomping around throughout the 20th and 21st centuries, leaving its huge footprint (carbon footprint we can say). You could find them in the industrial sludge, overflowing rivers, coal mines that destroyed a range of natural mountains, on the beaches and in the closet stuffed with clothes. (Kimmerer, 2013)

Agenda 21

Another important strategy to save our planet was the Agenda 21 ,1992. It was a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups. They wanted to target every area in which humans affect the environment. Agenda 21 was adopted by more than 178 Governments. (UN. Department of Public Information,1992)

One of the reasons why action was becoming difficult even after all this evidence and achievable targets was because of Climate Change Denial, it was difficult to bring the entire population with different belief systems on the same page. A lot of people refused to acknowledge the very evidence of climate change.

There were other factors too like The Brundtland Report, 1987, tells us that our institutions were fragmented, working to relatively narrow mandates with closed decision processes. Those responsible for managing natural resources and protecting the environment were institutionally separated from those responsible for managing the economy. This report was the first to promote the 'Sustainability model of the world'. This model suggested that the world is a system of ecological checks and balances that consists of finite resources and if the elements are thrown out of balance the system will suffer and possibly collapse.

(The United Nations World Commission on Environment and Development, 1987)

Conflicting the 'sustainability model' was the 'expansion model'. According to which the world consisted of markets in which products functioned primarily as tokens of economic exchange. They attracted capital which was either recycled back into more production or became part of private or corporate wealth. The two models were on a collision course which led to extensive gaps between the rich and the poor. (Margolin)

Adobe Stock By Andrey Kuzmin- climate change denial

The Earth Charter

A commission was formed in 1997 to oversee the development of a text from hundreds of international documents, analyze the outcomes of a world-wide consultation process and to come to an agreement on a global consensus document. This document consists of sixteen principles, organized under four pillars which were Respect and care for the community of life, Ecological Integrity, Social and Economic Justice and Democracy, Nonviolence and Peace.

A part of earth charters preamble states: "We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace." (The Earth Charter, 1997)

Adobe Stock By Backwoodsdesign

Sustainable Development Goals (SDG's)

I am finally going to talk about something that Coral is familiar with, the SDG's. Their grandmother used to work in Futerra, she was one of the people who helped achieve the Awesome Anthropocene Goals, she would always tell the family how the AAG's stem from another crucial set of 17 goals. They are divided into four key categories which were Climate and Our Planet, Poverty and Inequality, Justice and Human Rights and Gender Equality. On 25th of September 2015, all members of the United Nations signed up to the SDG's.

The goals asserted that the humans needed to reduce carbon emissions by half till the year 2030. To achieve that they needed to transition towards renewable energy, the kind we use today. Putting an end to subsiding fossil fuels was essential. The governments were recommended to shift the tax burden from payrolls to carbon. Taxing carbon would increase employment and reduce emissions. More money must urgently be spent on healthcare and education. Injustice against women must be swept away. We need more women in positions of power.

Design is the best tool

“All of this seems tragic, and I can’t seem to understand how we got out of this wicked problem?” Coral wondered

“We owe it all to the designers” replied Evie with a spark

(I always imagine artificial intelligence will learn to emote)

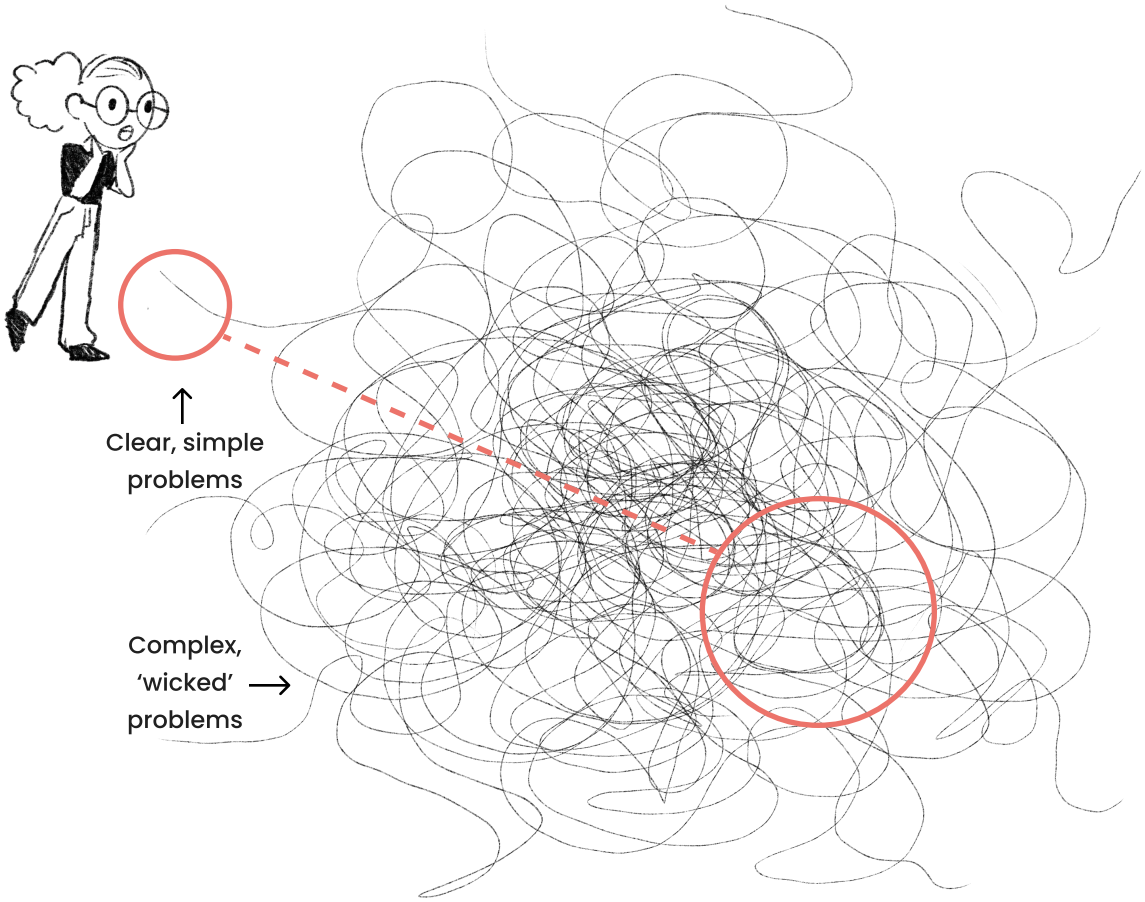
(Evie explains about the significant role of design in transforming the earth)

Wicked problems

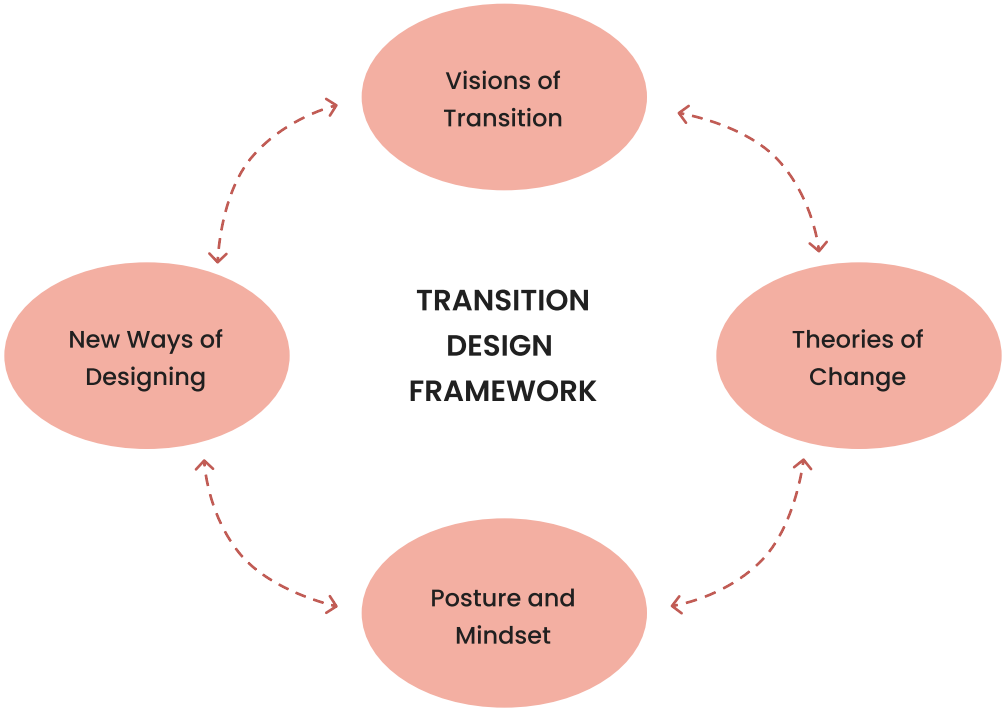
Wicked problems: Mismatch between the way the world works and our mental models of it can result into wicked problems. They are systemic problems which are ill-formulated with confusing information and multiple decision makers with conflicting values.(Rittle)

Transition Design

Human societies have always been transitioning but these transitions were largely unintentional, full of drift and we only understood their consequences in hindsight. Transitions from hunter gatherers to an agrarian society, from industrialization to globalization. So, the question amidst these wicked problems was, if we could intentionally transition our societies and organizations towards more sustainable, equitable and desirable futures.



Transition Design helped us find a lens through which we could identify the underlying complex problems that are hard to see, from the clear simple problems that were easy to see. These derive theories from social sciences to understand the roots of the problems. Stakeholder (decision maker or the people affected by the problem) concerns and collaboration are the two main focuses of this problem-solving process.



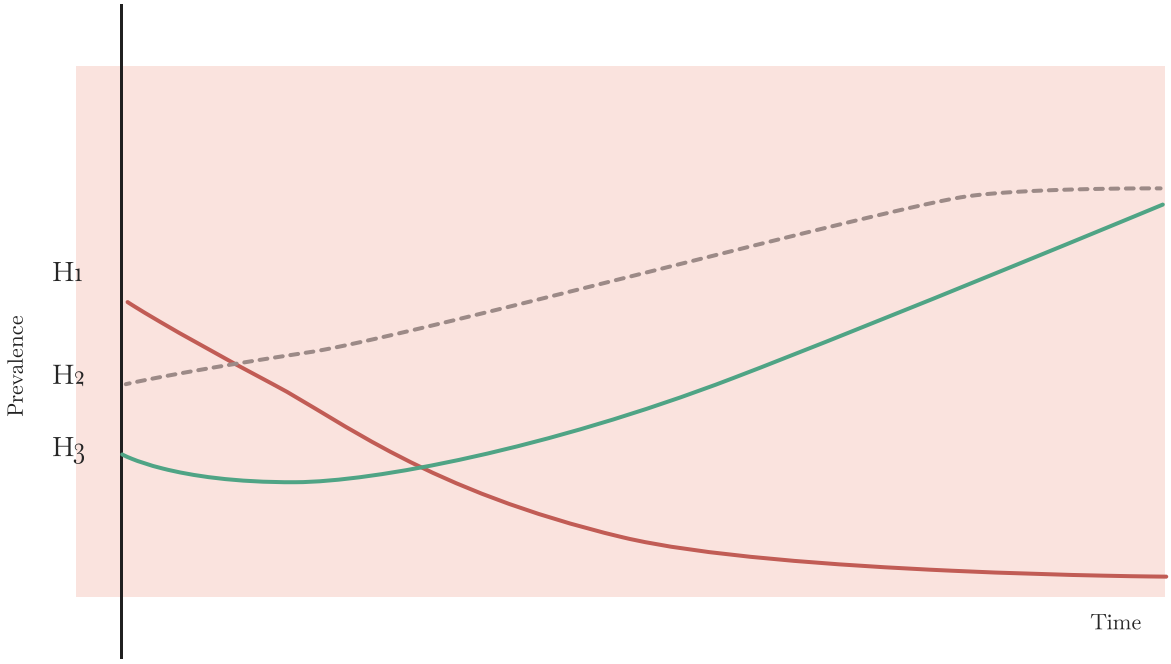
The Transition Design Framework uses four mutually influencing, co-evolving key areas that are useful in bringing a system-level change through design. These are: Vision (clear visions of what we want to transition towards), Theories of Change (we need variety of theories and methodologies that explain the dynamics of change within complex systems), Mindset and Posture (develop postures of open, collaboration and self-reflection), and New Ways of Designing (which arise out of the earlier three areas). (Irwin,2018)

We now know the importance of conversations, understanding people's underlying (genuine) values and talking to them about it has had a significant impact in getting people's attention and bringing everyone on planet earth together. One way in which designers chose to have nuanced conversations was Bill Sharpes Three Horizons Framework, a tool to think about transformation.

Three Horizons Framework

(I envision the terminologies of this framework change in the future, but I am keeping them the same here to avoid confusion)

In the context of transformation there were three horizons in play, offering insights into feasible alternative futures. The y-axis denotes prevalence, and the x-axis shows time. H1 is business as usual, which stands for the dominant way of doing things in the 21st century, it was the degenerative and divisive economy that needed to change. H3 is the emerging future, the regenerative and distributive economy that we are building today by harnessing H2, the arena of disruptive innovation. For example, just like we introduced new plastic materials into our systems, we replaced tree pulp paper with animal (elephant, horse etc.) poo paper, all synthetic inks to algae ink (each bucket of algae ink sequesters the same carbon as two trees). We use plasma rocks, carbicrete and other sustainable materials in our constructions.



Vision of Three Horizons Framework in the 23rd century

There were innovations around technology, interior and architecture. Example of an early disruptive innovation was the green buildings of Singapore. The regenerative buildings that are prevalent today come from the year 2005, when Singapore started the initiative of resource efficiency and circularity through their architecture. They aimed to replace a hundred percent of the greenery that was lost in the land onto their buildings. Some buildings also managed to replace two hundred percent of the greenery.

(Coral's expression change from concern to panic, they interrupt)

"You realize that my project submission is tomorrow, right?" Coral stressed.

"Good Luck!" Evie replied with a smirk.

The End.

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