

# WARNING

## WORLD ENDING DUE TO CLIMATE CHANGE



FIGURE 1

PREDICTIONS OF CLIMATE CHANGE SHOW THAT THE EARTH WILL BECOME UNINHABITABLE IN SOME LOCATIONS AND PARTS OF COUNTRIES



FIGURE 2

WILL BE UNDERWATER. DISEASES WILL INCREASE AND MUTATE, FOOD SHORTAGES AND AGRICULTURE CHALLENGES WILL BECOME VERY REAL. OCEAN LIFE WILL DIE AND THE AIR WILL BECOME DIRTIER. AS THE POLITICAL, ECONOMICAL, AND SOCIAL CHAOS IS INCREASED, REFUGEES WILL NEED TO FIND

A PLACE TO FLEE TO ONCE THEIR HOMES BECOME UNINHABITABLE. EVEN WITH THESE WARNINGS AND INCREASE OF UNPREDICTABLE ONLY ABOUT FORTY PERCENT OF VOTERS THINK THAT CLIMATE CHANGE IS



FIGURE 3

VERY CONCERNING. MORE THAN HALF OF THE PUBLIC THINK THAT SERIOUSNESS SURROUNDING CLIMATE CHANGE IS BEING EXAGGERATED. NOT ONLY THAT BUT POLITICAL PARTIES CREATE AN EVEN BIGGER DIVIDE BETWEEN PEOPLE WHO BELIEVE IN CLIMATE CHANGE AND THOSE



FIGURE 4

WHO DO NOT BELIEVE IN CLIMATE CHANGE. A MAJORITY OF THIS LACK OF WORRY IS DUE TO THE FACT THAT

CLIMATE CHANGE IS NOT RIGHT IN FRONT OF EVERYONE'S FACE. MOST PEOPLE SENSE SOMETHING IS OFF WHEN A SMELL HITS THEM IN THE FACE OR WHEN DEAD FISH ARE FLOATING THEIR LAKE. SINCE CLIMATE CHANGE IS MORE COLD AND HARSH WINTERS OR HEAT WAVES IS NOT



FIGURE 5

A CONSTANT WORRY IN THE HUMAN MIND. CONTINUOUS INFORMATION IS NEEDED TO KEEP PEOPLE INFORMED ON THE TOPIC. A MAJORITY OF PEOPLE GET THEIR NEWS FROM SOCIAL MEDIA OR THE NEWS STATION. BOTH OF THESE OPTIONS HAVE THE TENDANCY TO BE BIAS. THIS BIAS CAN ADD FUEL TO THE FIRE BY ADDING TO THE DIVIDE BETWEEN THE TWO PARTIES. EVENTUALLY THIS WILL NOT LAST.

# HUMANITY'S FOOTPRINT

TRACING THE DEVASTATING EFFECTS OF CLIMATE  
CHANGE THROUGH TIME

A DESIGN THESIS SUBMITTED TO THE DEPARTMENT OF  
ARCHITECTURE

NORTH DAKOTA STATE UNIVERSITY

BY  
**ELIZABETH PONTO**

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF  
MASTER OF ARCHITECTURE

PRIMARY THESIS ADVISOR/**STEPHEN A. WISCHER**

THESIS COMMITTEE CHAIR/**STEPHEN A. WISCHER**

MAY 2023

# CONTENTS

TABLE OF

## CONTENTS

TABLE OF CONTENTS	4
LIST OF FIGURES	6

## PROPOSAL

THESIS ABSTRACT	10
THESIS NARRATIVE	12
THESIS NARRATIVE	14
THESIS NARRATIVE	16
THESIS NARRATIVE	18
THESIS NARRATIVE	20
THESIS NARRATIVE	22
THESIS NARRATIVE	24
THESIS NARRATIVE	26
PROJECT JUSTIFICATION	28
MAJOR PROJECT ELEMENTS	30
SITE ELEMENTS	32
SITE ELEMENTS	34
LIST OF GOALS	36

## RESEARCH

CASE STUDIES	40
CASE STUDIES	42
CASE STUDIES	44
TOPIC RESEARCH	46
TOPIC RESEARCH	48
TOPIC RESEARCH	50
TOPIC RESEARCH	52

## DESIGN

PROPOSED TIMELINE	56
PROPOSED TIMELINE	58
PROPOSED TIMELINE	60
PROPOSED TIMELINE	62
PROPOSED TIMELINE	64
PROPOSED TIMELINE	66
PROPOSED TIMELINE	68
PROPOSED TIMELINE	70
PROPOSED TIMELINE	72
PROPOSED TIMELINE	74
2100 PROJECTIONS	76
PROPOSED TIMELINE	78
PROPOSED TIMELINE	80
PROPOSED TIMELINE	82
PROPOSED TIMELINE	84
PROPOSED DESIGN	86
CITY CENTER	88
LIVING PODS	90
GARDEN SPACE	92
GARDEN SPACE	94
ARCHIVE SPACE	96
ARCHIVE SPACE	98
CLIMATE CLOCK	100
FINAL BOARDS	102

# TABLES AND FIGURES

FIGURE 1 Tornado pg 1  
 FIGURE 2 Hurricane pg 1  
 FIGURE 3 Forest Fire pg 1  
 FIGURE 4 Drought pg 1  
 FIGURE 5 Snow Piles pg 1  
 FIGURE 6 Earth Poster pg 9  
 FIGURE 7 Climate Change Poster pg 10  
 FIGURE 8 Climate Protest pg 12  
 FIGURE 9 Nature Scene pg 14  
 FIGURE 10 Mushrooms pg 14  
 FIGURE 11 Leaves pg 14  
 FIGURE 12 Forest Trees pg 14  
 FIGURE 13 Fallen Trees pg 16  
 FIGURE 14 Wheat pg 16  
 FIGURE 15 Perception pg 16  
 FIGURE 16 Gaia Painting pg 18  
 FIGURE 17 Human Perception of Nature pg 18  
 FIGURE 18 Human Mind pg 20  
 FIGURE 19 River pg 20  
 FIGURE 20 Human Perception of Nature pg 22  
 FIGURE 21 Human Perception of Nature pg 22  
 FIGURE 22 Climate Change Poster pg 24  
 FIGURE 23 Dear Climate Poster pg 26  
 FIGURE 24 Dear Climate Poster pg 26  
 FIGURE 25 Globe in Plastic pg 28  
 FIGURE 26 Nature Icon pg 30  
 FIGURE 27 Community Icon pg 30  
 FIGURE 28 City Icon pg 31  
 FIGURE 29 Site Map pg 32  
 FIGURE 30 Drina River pg 33  
 FIGURE 31 Illegal Dump pg 33  
 FIGURE 32 Climate Chart pg 34  
 FIGURE 33 Climate Poster pg 39  
 FIGURE 34 Center for Resource Management pg 40  
 FIGURE 35 Center for Resource Management pg 41  
 FIGURE 36 Home Building pg 41  
 FIGURE 37 Home Building pg 41  
 FIGURE 38 The Venus Project Logo pg 41  
 FIGURE 39 Inside Floating Farm pg 42  
 FIGURE 40 Diagram Floating Farm pg 42

FIGURE 41 Floating Farm pg 43  
 FIGURE 42 Floating Farm Logistics pg 43  
 FIGURE 43 Relief Skyscraper Diagram pg 44  
 FIGURE 44 Relief Skyscraper Diagram pg 44  
 FIGURE 45 Tower pg 45  
 FIGURE 46 Tower Section pg 45  
 FIGURE 47 Vernacular Architecture pg 46  
 FIGURE 48 Liquid Crystal Environment pg 47  
 FIGURE 49 Auto-Destructive Art pg 47  
 FIGURE 50 Seed Bank pg 48  
 FIGURE 51 Suburb Photo pg 49  
 FIGURE 52 Deforestation pg 49  
 FIGURE 53 Toxic Site pg 50  
 FIGURE 54 Plant pg 50  
 FIGURE 55 Toxic Site pg 50  
 FIGURE 56 Roden Crater pg 51  
 FIGURE 57 Roden Crater pg 51  
 FIGURE 58 Chapel of Chimes pg 52  
 FIGURE 59 Chapel of Chimes pg 52  
 FIGURE 60 Chapel of Chimes pg 52  
 FIGURE 61 Climate Change Poster pg 55

WHAT IF ITS NOT ENOUGH?

WHAT IF ITS NOT ENOUGH?

# PROPOSAL

PROPOSAL

WHAT IF ITS NOT ENOUGH?



WHAT IF ITS NOT ENOUGH?

FIGURE 6

The climate is changing, there is no doubt about that. Past and present practices are not enough, we need to change now. This excerpt gives an adequate explanation on the dire need for change, "Human experience and memory offer no good analogy for how we should think of those thresholds, but, as with world wars or recurrences of cancer, you don't want to even see one. [talking about the degrees Celsius the earth warms on average] At two degrees, the ice sheets will begin their collapse, 400 million more people will suffer from water scarcity, major cities in the equatorial band of the planet will become unlivable, and even in the northern latitudes heat waves will kill thousands each summer. There will be thirty-two times as many extreme heat waves in India, and each would last five times as long, exposing ninety-three times more people. This is our best-case scenario" (David Wallace-Wells, 2019). The paragraph continues to lay out each degree and the effects it will have and with each degree living on earth gets increasingly more challenging.

These challenges make climate change a topic that a lot of people struggle to make the much needed changes or wrap their heads around the severity. Climate change is many different factors wrapped up into a huge issue, it's also not right in front of our faces. If you come across a large puddle, you make a quick decision, jump over the puddle, walk around or step in the puddle. This is a threat that is right in front of us whereas the changes we see as an effect of climate change are slow moving and do not always pop right in front of our faces.

These challenges will be laid out and addressed through a design project forced to acknowledge the effects of climate change, the ever changing earth, and the people who inhabit the earth.



FIGURE 7

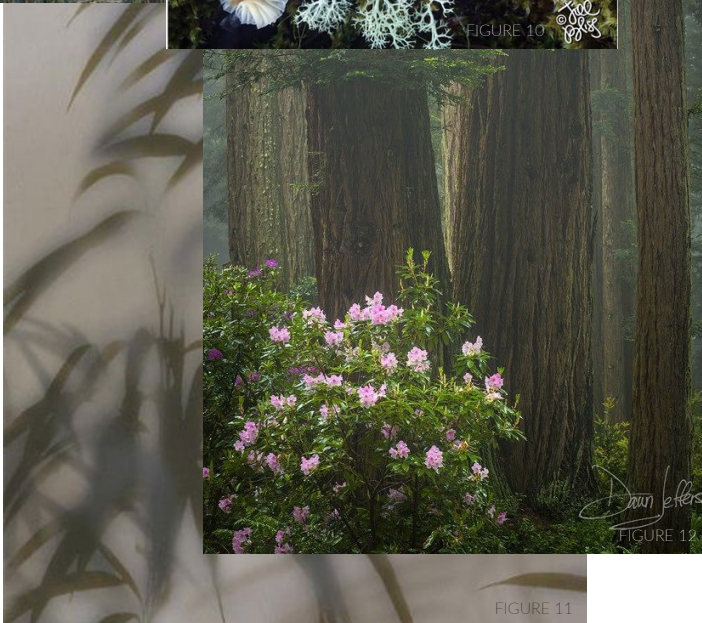
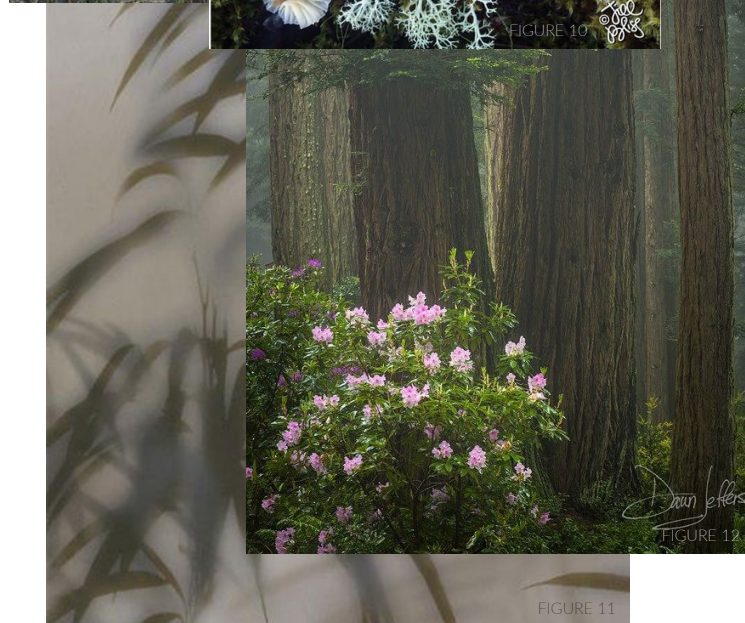
FIGURE 8



Standing here I think about where we could be in one hundred years  
 Standing here I think about the generations that come after us  
 I think about the people who feel the same weight of the world that I feel  
 Standing here I think about the disasters that strike communities every year  
 I think about sitting in my warm apartment, bundled from the cold, with clothes on my body  
 I think about the people who no longer have that luxury  
 Standing here I think about the people who don't believe in climate change  
 I think about the people who ignore the current unpredictable weather patterns happening  
 What if it's not enough  
 What if everything I say is not enough  
 What if everything I do is not enough  
 What if one person is not enough  
 What if we do everything and it's not enough  
 What if we do everything and it is enough  
 What if we can make a change  
 What if it is enough  
 Standing here I think about the future  
 A future where we can exit our house and breath in fresh air from all the trees we have planted  
 A future where we took action to change  
 Where we halved our emissions  
 Where we stopped running off fossil fuels  
 A future where we relied on renewable energy and renewable resources  
 A future where we came together and focused our efforts on making a change  
 Standing here I hope you can understand that we can make a difference

To talk about climate change, the people who inhabit this earth, and the earth itself we must start at the beginning. Today we will start at what the earth was like when it was first created. It started out extremely hot, most likely molten magma. Over the next few billion years, the earth began to cool, and oceans and land masses formed, bacteria formed, plants and animals evolved. The earth went through changes in cooling and heating. Eventually, human life came out of these experiences, beginning our relationship with nature.

But what is nature? What does the word mean? "Nature" is plants and landscapes along with other products of the earth, but I believe that this word has become more complicated throughout the conversations of climate change. The conversation surrounding nature and climate change has become a topic of science, politics, and popular concern. "However, the appealing concept of "nature" has never been really theorized during all this time, and has been used to name more and more diverse things, as well as their opposite, at the risk of becoming another meaningless panchreston (Simberloff, 2014). As scientific knowledge of nature is (and will always remain) incomplete, scientists have to rely on mental representations and theoretical concepts, but these must be identified as such, and clearly defined (Ducarme, 2020)." Many new words have been added to the mix such as ecosystem, biodiversity, biosphere, and Gaia. However, none of them ever replace nature in science.



NARRATIVE

THESIS



When science is relying on mental representations and theoretical concepts this causes science to interpret nature based on the human perception, which is ever changing. "Hence, studying the concept of "nature" itself and its relationship with practical objects and social projects is crucial for conservation sciences and derived policies: many linguists, philosophers, and historians have already shown that its meaning is far from being unified or self-evident (Larrère and Larrère, 2015), but such works have had little popularization in biological sciences so far (Ducarme, 2020)."

This can even be seen with the ways we define the earth warming with words like "climate change", "global warming", "climate crisis", and "environmental destruction." The use of these words has a different impact on the way we think about the earth warming, the choices relate to the amount of concern one might have. The relationship between nature and humans and the words that surround these ideas could greatly impact the way humans view these issues.



FIGURE 13

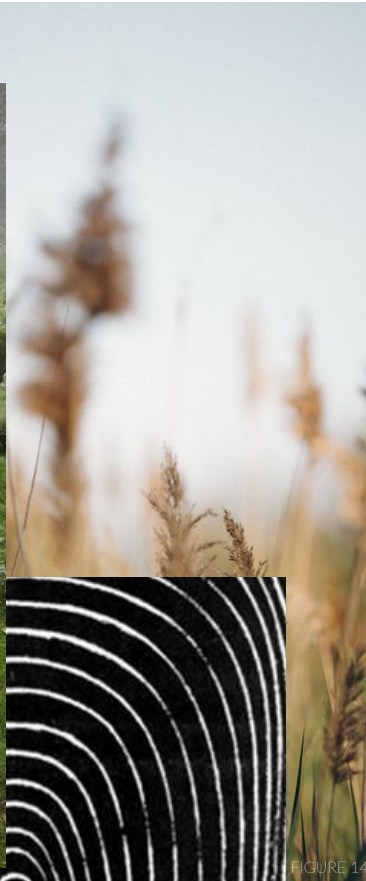


FIGURE 14



FIGURE 15

NARRATIVE

THESIS

Along with that, in Frankfort's "Before Philosophy the Intellectual perception of man" he talks about speculative thought. It refers to thinking about the past or future possibilities. Not only this but it is not just thinking in a sense of experiences, it is more of metaphysical thinking that extends past experiences but never breaks entirely away from experiences. Frankfort puts it into these words: "Speculative thought transcends experience but only because it attempts to explain, to unify, to order experience (Frankfort, 1951)." In this day our speculative thought is limited, we do not let it cloud any reasoning that science would find. Science in our day and age seems to remain objective and study-able. Science has categorized species and given them scientific names, most of these plants being studied under a microscope to understand how they work, objectifying plants and nature which in turn deepens- the disconnection humans feel from the outside world. Instead of becoming one with nature and seeing it as if it were living along with us.

To further this conversation Frankfort explains that today we look at nature as an "it." This means we look at nature as a study-able object, this act allows us to become detached and passive from nature. It becomes an object that is completely outside of ourselves. Frankfort describes it as "this type of knowledge is therefore direct, unemotional, and inarticulate. Intellectual knowledge on the contrary is emotionally indifferent and articulate (Frankfort, 1951)." Whereas thou describe the more speculative thoughts and views on the way primitive humans viewed nature. Perceiving nature as a "Thou" allows us to relate to nature as authentic beings, without judgment, qualification, and objectification. This relationship is of mutuality and reciprocity.



NARRATIVE

THESIS

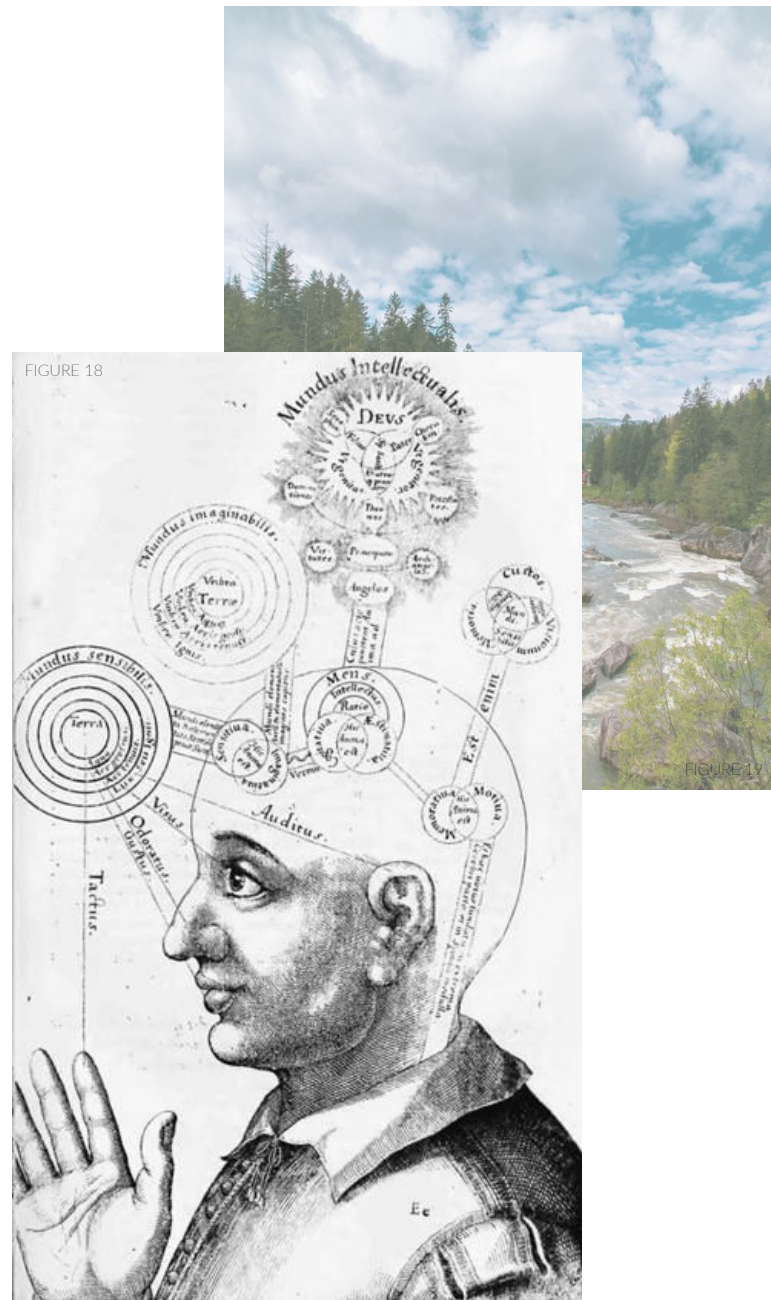
Along with looking at nature as an “it”, as humans’ further technology it deepens the disconnection. The more we use technology the more we use nature as a resource instead of as an admiration. Humans tend to look at nature as another being to control and use as we need to. In “wild beauty” by Rachel McCann she gives an example of this by stating “Devalorization of the Other also permeates our relationship with and treatment of the larger earth (McCann, 2018).”

Martin Heidegger advances this idea in “The Age of the World Picture” and “The Question Concerning Technology,” where he describes the modern appropriation of the natural world as a function of subjectivity and alterity. He contrasts our ancient mode of relationship to the larger world, in which the subject of experience is a world actively revealing itself to receptive human beings, to the modern mode, where the subject of experience is the human being at the center—and in control, and the world is objectified and given peripheral status. This devaluing allows us to “lay hold of” the earth through ever-advancing technology and to turn it into a “standing reserve,” a set of objects and objectified processes to exploit in service of a human agenda. With the larger world, as with other human beings, where we draw the line between self and other mandates what we nurture and what we despoil (Heidegger, 2018).”

Placing humans at the center when thinking about the earth and nature, gives the focus on human needs rather than having a symbiotic relationship.

# NARRATIVE

## THESIS



Rachel McCann then gives a suggestion that I believe would help humans start to see nature in a different light.

“In order to accommodate this irreducible alterity, Irigaray appropriates Descartes’s idea of “wonder (McCann, 2018).” When two subjects approach each other in wonder, each experiences the delight another can give when approached with no sense of opposition or instrumentality. Approaching with a sense of wonder renders one unable to possess, consume, or objectify the other; rather, each subject appreciates the value of the insurmountable difference presented by the other.

As Grosz puts it, “Only then can each give to and take what the other has to offer, “and she contrasts this delight to the “hostility and contempt for women’s alterity in a patriarchal culture (Grosz, 2018).”



NARRATIVE

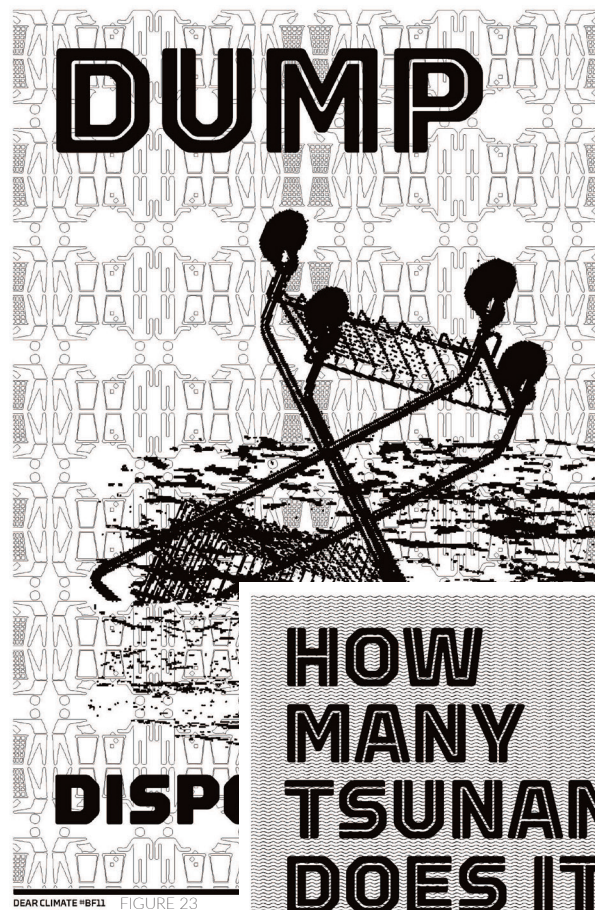
THESIS



In addition, the Spell of the Sensuous touches on the disconnection stemming from the abstract language. David Abram puts it in these words:

“Ecologically considered, it is not primarily our verbal statements that are “true” or “false,” but rather the kind of relations that we sustain with the rest of nature. A human community that lives in a mutually beneficial relation with the surrounding earth is a community, we might say, that lives in truth. The ways of speaking common to that community—the claims and beliefs that enable such reciprocity to perpetuate itself—are, in this important sense, true. They are in accord with a right relation between these people and their world. Statements and beliefs, meanwhile, that foster violence toward the land, ways of speaking that enable the impairment or ruination of the surrounding field of beings, can be described as false ways of speaking—ways that encourage an unsustainable relation with the encompassing earth. A civilization that relentlessly destroys the living land it inhabits is not well acquainted with truth, regardless of how many supported facts it has amassed regarding the calculable properties of its world (Abram, 2017).”

“At the heart of any language, then, is the poetic productivity of expressive speech. A living language is continually being made and remade, woven out of the silence by those who speak.... And this silence is that of our wordless participations, of our perceptual immersion in the depths of an animate, expressive world (Abram, 2017).”



**HOW  
MANY  
TSUNAMIS  
DOES IT  
TAKE TO  
CHANGE  
A  
LIGHT  
BULB?**

DEAR CLIMATE #MS info, downloads + instructions @ dearclimate.net FIGURE 24

Along with humans' disconnection from nature, I searched for ways to connect people to nature and change the conversation around climate change. I looked for something that put into perspective the feelings of hearing about climate change at this age. I ended up finding a project called Dear Climate. To make more sense of this, this is a statement on what they are trying to achieve:

"The Dear Climate project began with a desire to expand the social conversation about climate change by engaging people's imaginations and feelings about the nonhuman world. "Retool your inner climate," one of our early slogans suggested. Moving beyond the fear and guilt that dominates the climate conversation, we wanted — as our name implies — to cultivate a sense of affection for the climate, and to recognize its ancient and complex relationship to human cultures. Our goal was to nudge aside the modern habit of thinking of nature and culture as opposites, which leads us to forget that we are earthlings, one species among many that share this planet. Dear Climate dwells on the deep entanglements of our species with not only animals, but also plants, minerals, organic matter, and the bio-geo-physical systems (including climate) that govern the Earth. Highlighting this aspect of human life could help to mend the broken connections, or restore the lost understandings, which have put us on a collision course with our own home planet. This poster is meant to encourage viewers to consider the following questions: Can you give up some of your separateness? Can you take other forms and merge with other beings? Can you have less distinct edges? Can you embrace your inherent porousness as an earthly organism? (Zurkow, 2012)."

NARRATIVE

THESIS

The steps that we have taken in the past have led to the decline of our environment. Not only including what started it all but by the way we need to constantly consume. We have the world at our fingertips, can order fifty clothes for five dollars each, search anything on the internet and find exactly what we think we need. Our lives are centered around what we consume; tv, food, clothes, objects, etc. Because of all these attributes, climate change has worsened.

We now are experiencing increasingly more unpredictable weather patterns. Rainstorms dump rain in one place and cause areas to flood while other areas experience extreme drought and must find ways to survive. Hurricanes, tornadoes, and forest fires become more frequent. The cities on the coast have to worry about losing their homes due to rising sea levels. While the world stays split on an idea that will kill us all. It does not seem like the human race is worried about climate change, day after day nothing seems to change.

So, with this project, I am designing a future building that incorporates nature and uses the unpredictable weather to its advantage. I am designing this as a warning to the human race that if we don't do something now this future is not that far away. A future consumed by disaster.



FIGURE 25

# JUSTIFICATION

PROJECT



## NATURE

FIGURE 26

Nature is important to interact with because it promotes our physical and mental well-being, fosters a sense of connection and appreciation for the natural world, raises environmental awareness and conservation efforts, inspires creativity and innovation, encourages physical activity and recreation, and promotes sustainable living.

Interacting with nature provides a range of benefits that contribute to a healthier, happier, and more sustainable way of life.



## COMMUNITY

FIGURE 27

Having a community around you is important because it provides support, a sense of belonging, and social interaction.

Communities allow for the sharing of knowledge and resources, enable collective action and empowerment, and enrich our understanding of different cultures. Being part of a community contributes to personal well-being, growth, and the ability to create positive change in society.



## CITY

FIGURE 28

Having amenities in a city is important because they enhance the quality of life for residents, stimulate economic development, foster social interaction and community building, promote health and well-being, support education and lifelong learning, and contribute to cultural enrichment and diversity.

Amenities create vibrant, inclusive, and sustainable cities that cater to the needs and aspirations of their residents, making them desirable places to live, work, and visit.



## VISEGRAD, BOSNIA AND HERZEGOVINA

As living standards rise in Bosnia and Heregovina, the western ideal of consumerism is also on the rise. Then in turn creating more waste.

Due to the lack of adequate waste serivces in Bosnia and lack of eco-consciousness among locals, many residents end up dumping their waste in illegal landfill sites. These sites line the river on the sidelines. When high rainfall and floods occur, the trash ends up in the river and floats to the dam. Not only does this create issues for the dam and the amount of trash that has to be removed, it also causes fires produced from methane off-gassing from the trash.



FIGURE 29

Around 10,000 cubic meters of trash end up at the dam. This then has to be picked out of the river and brought to the local landfill. This landfill is currently always burning trash as it can not handle the amount that is coming in. This not only contributes to air pollution and the health of the overall city, but it is a band-aid fix for the overall waste treatment and trash system.

This quote describes the issues with landfills and illegal dumping sites, "The main problem with landfill, apart from the obvious space and odor issues, is the production of methane – the U.S. Environmental Protection Agency estimates that methane emissions have an effect on global warming up to 86 times higher than CO<sub>2</sub> over a 20-year period. But landfills are cheap to build and modern landfills can now prevent the leakage of harmful gases (Mearns)."



## BOSNIA AND HERZEGOVINA CLIMATE

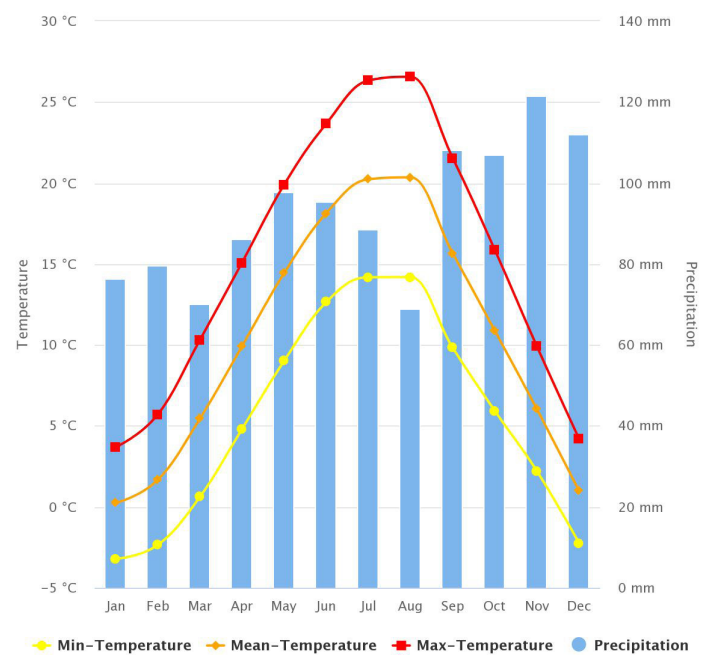
The country's climate varies from a temperate continental climate in the northern Pannonian lowlands along the Sava River and in the foothill zone, to an alpine climate in the mountain regions, and a Mediterranean climate in the coastal and lowland area of the Herzegovina region in the south and southeast.

Visegrad is in the southeast section of the country, meaning it has a Mediterranean climate.

Due to these three different climates, Bosnia and Herzegovina has the one of the richest biodiversity in Europe.

Rainfall in the country is constant throughout the year but the country has seen a rise in unpredictable weather of droughts and floods in the past two decades.

Monthly Climatology of Min-Temperature, Mean-Temperature, Max-Temperature & Precipitation 1991-2020  
Bosnia and Herzegovina



## BOSNIA AND HERZEGOVINA MYTHS AND STORIES

“According to the Bosnian mythology, fairies are born from the dew that falls on the leaves of a large tree that grows on a mysterious, unknown hill. Legends say that they have magical powers that can be used for good and bad purposes as evidenced by a number of events described in the countless poems which describe how fairies became mother, sister or lover to heroes like Alija Djerzelez, Mujo Hrnjica or Halil.

This belief in abandoned fairy children resulted in one of the most humane practices of care of orphans which saved thousands of abandoned children at an early age from certain death. Bosnian people believed that the children left after birth are actually children of some fairy and they would gladly adopt and raise them as their own. It was believed that these children bring happiness and prosperity to the family, which was under the protection of the fairy. Since there was no orphanage or some other state institutions that would take care of abandoned children in past centuries in BiH, this belief helped in the care of many orphans who were left in the woods or on the street by irresponsible parents (Welker, 2022).”

GOALS

LIST OF

● BE PROACTIVE FOR HUMAN SURVIVAL IN A GLOBAL GEO-POLITICAL SYSTEM THAT IS NOT FULLY COLLABORATING AT THE LEVEL NEEDED TO DETER DETRIMENTAL CLIMATE CHANGE

● ADDRESS THE NEED FOR REFUGE IN AN ENVIRONMENT THAT EXPERIENCES INCREASINGLY COMMON CLIMATE ABNORMALITIES THAT IMPACT THE CAPABILITY FOR DAILY LIVING

● PROVIDE A SPACE FOR LIVING AS FULLY AS POSSIBLE IN RUINED PHYSICAL AND PSYCHOLOGICAL CLIMATE

● REVITALIZE A CONTAMINATED SITE

CLEAN A CONTAMINATED SITE ●

EDUCATE THE COMMUNITY ABOUT CLIMATE CHANGE ●

CAPTURE A COMMUNITIES CULTURE ●

RE-ESTABLISH A CONNECTION TO NATURE ●

WHAT IF ITS NOT ENOUGH?

WHAT IF ITS NOT ENOUGH?

# RESEARCH

RESEARCH

WHAT IF ITS NOT ENOUGH?



WHAT IF ITS NOT ENOUGH?

## THE VENUS PROJECT

A utopian society designed by Jaque Fresco and Roxanne Meadows

The Venus Project is a community created to take action for social change working towards a peaceful and sustainable global civilization. They dedicate themselves to a holistic approach for human and environmental concerns.

They take all types of sustainable technology to create a utopian society that combats the struggles we face today with a very futuristic approach.



Figure 34 Center for Resource Management

**Phase 1:** The two founders completed construction on ten experimental buildings to design as a center to this project.

**Phase 2:** In order to convince the world to live in this society they have created documentaries as a marketing tool.

**Phase 3:** A Center for Resource Management is in development to create a blueprint for other cities to emulate The Venus Project in the future.

**Phase 4:** This phase is constructing the research city. The research city is devoted to working towards the aims and goals of The Venus Project.



Figure 35 Center for Resource Management

The Venus Project has about ten buildings already built in Florida where you are able to visit. They want to change the culture of the human race and the way the human race has designed cities with a resource based economy.

Elements of the dome structures:

- concrete to reduce damage from hurricanes
- uses reinforced concrete- well insulated and soundproof
- dome shape uses the least amount of materials
- dome shape offers maximum strength and stability



Figure 36 Home Building

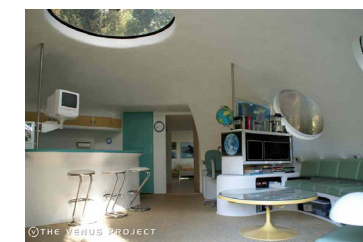


Figure 37 Home Building



THE VENUS PROJECT  
BEYOND POLITICS POVERTY AND WAR

Figure 38 The Venus Project Logo

# FLOATING FARMS

This is a aquaponics farm designed to float on rivers, lakes, and seas. It has three levels that give the ability to harvest various fish, plants and to power itself with solar.

By floating on water it ensures that communities with little land and growing populations have space to produce food. It also avoids all flooding that could cause issues with traditional farming techniques.



Figure 39 Inside Floating Farm

With the Floating Farm architects know it is not meant to solve world hunger or replace traditional farming techniques, but to give another strategy to produce food with a growing population.

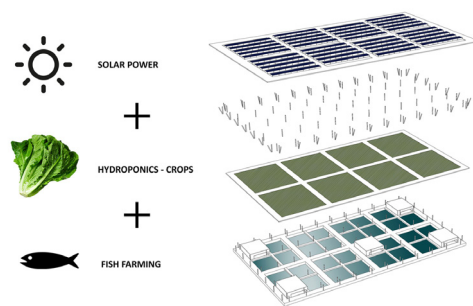


Figure 40 Diagram Floating Farm



Figure 41 Floating Farm

The farms are modular, making them suitable for any community. With the growing population this is a way to use normally unusable space for growing food and raising fish.

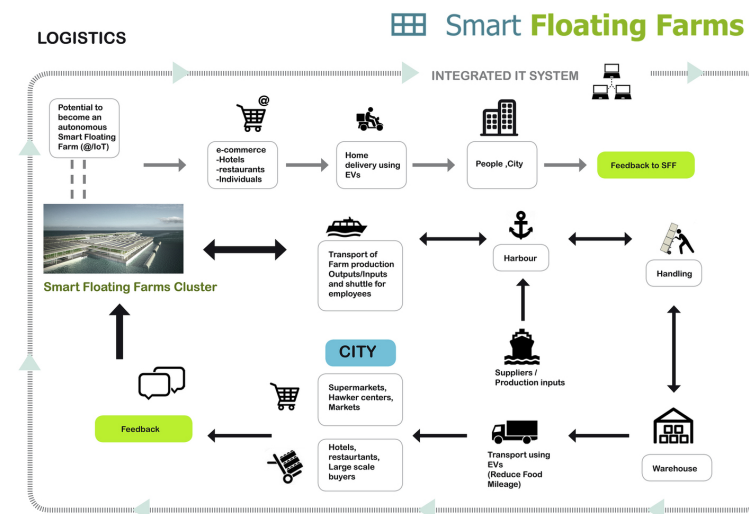


Figure 42 Floating Farm Logistics

## SKYSHELTER.ZIP

Skyscraper for disaster zones from conceptual design competition

This foldable skyscraper is designed to offer relief in remote disaster zones. Meant to fit in a box the size of its base, its flattened and flown in when trucks are not able to access the area.

Once it arrives on site it is anchored and in order to raise the tower a "load-bearing helium balloon" is inserted. Fabric panels are used for the walls allowing the building to unfurl rapidly.



Figure 43 Relief Skyscraper Diagram



Figure 44 Relief Skyscraper Diagram

The structure consists of steel wires that would be pulled up by the balloon. These wires are strong enough to resist wind once the building is in place.

By stacking the floors it takes up less space than tents and provides temporary housing.

## NAKAGIN CAPSULE TOWER



Figure 45

This capsule tower was designed to have interchangeable pods. The idea is that one could be taken out, refurbished, and reinserted while the building is still standing.

On the inside the pod consists of one window, a bed, a microwave, a bathroom with sink, toilet, and shower, and usually a desk. These are like micro apartments that offer a place to use as an office or apartment.

Since these pods came with a high price, companies not private owners would buy them and use them for their employees.

The buildings design came from the 1970's metabolist movement.

Due to asbestos, land use, cost, and little resistance to earthquakes many wanted it torn down. Once the architect, Kisho Kurokawa, passed in 2007 the building was set to be demolished. In 2023, the building is no longer standing.

To preserve the pods, 23 were removed, 14 were refurbished to the original layout and decoration while the other 9 were gutted and left blank for the owners to renovate to their liking.

Tatsuyuki Maeda took on this project and hopes that they will one day be in hotels and used by tourists all around.

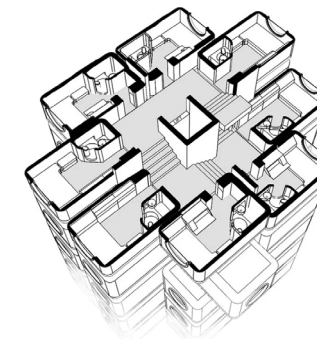


Figure 46

## VERNACULAR ARCHITECTURE

Uses traditional and local resources to build

“Consequently, this architecture is closely related to its context and is aware of the specific geographic features and cultural aspects of its surroundings, being strongly influenced by them. For this reason, they are unique to different places in the world, becoming even a means of reaffirming an identity (Ghisleni, 2020).”

“Especially because of the latter, vernacular architecture has been addressed and revisited in many contemporary architectural practices, playing an important role in today’s society, as these buildings provide great bioclimatic characteristics and prove to be real examples of architectural sustainability (Ghisleni, 2020).”

“This can be seen in an interview with the Angolan architecture office Grupo BANGA, where the architects claim that the use of local, cheap, and accessible materials provides a closer connection to the architectural identity that brings, at the same time, inclusion, identification, and community engagement helping us define vernacular architecture as an architecture that respects and adapts to the physical and technological limitations of its context, raised as the genuine result of its environment, its people and its history (Ghisleni, 2020).”



FIGURE 47

## GUSTAV METZGER

Art Installations

Liquid Crystal Environment

“In 1959, Metzger conceived of what he called ‘auto-destructive art’, whereby works made using machine-manufactured substances would automatically degrade, foregrounding the question of the reliability of these substances and society’s preoccupation with destruction (Watling, 2012)”

Metzger became preoccupied with growth rather than destruction and his works with technology bloomed.



FIGURE 48

Recreation of the First Public Demonstration of Auto-Destructive Art

In this piece Metzger took acid and painted it onto nylon while he stood behind a glass pane, not visible until the acid melted the nylon.

He was making a statement on how mechanically produced objects would ultimately degrade. He thought that society put too much faith into these objects.



FIGURE 49

He wanted to highlight societies' obsession with destruction and damaging effects of machinery on humans.



## SVALBARD GLOBAL SEED VAULT

Norway

In Norway there is a seed vault that holds the globe's seeds in case of disasters where another country or place might need to revitalize their ecosystem.

The vault goes 150 meters into the mountain and holds a lot of seeds. Some versions that are not currently in use, but could be adapted for a warmer temperature or used to help with food insecurity.

The seeds are stored in silver vacuum-packed packets and test tubes. The vault is kept at sub-zero temperatures and the seeds are deep into the mountain, behind many concrete doors and walls.

This is not a one-of-a-kind invention, many countries have a smaller version of this called gene banks. These hold those countries' seeds and act as a back-up for the Svalbard Global Seed Vault.

Although this vault is far north to keep away from most disasters, it recently flooded. No seeds were lost, but due to climate change the permafrost melted and flooded the vault.



FIGURE 50

## ROBERT ADAMS

Photographer

The New West - depicts black and white landscape pictures about the west. Looks very desolate and empty. In the introduction of his book he depicts "Why open our eyes anywhere but in undamaged places like national parks? One reason is, of course, that we do not live in parks, that we need to improve things at home, and to do that we have to see the facts... Paradoxically, however, we also need to see the whole geography, natural and man-made, to experience a peace; all land, no matter what has happened to it, has over it a grace, an absolute persistent beauty."



FIGURE 51

Turning Back - This work focused on deforestation and documenting that. Adams explains that his work is shining light on the effects of deforestation. That sometimes ecosystems or forests do not recover after and it has to do with the effect of global warming. Cutting



FIGURE 52

down all the trees not only disturbs ecosystems but causes the soil to erode and depletes resources. All while the local community turns a blind eye to what is happening around them.

## MEL CHIN

### Revival Field

Used a hazardous waste landfill and planted plants in it. She went to pigd eye lanfill in St. Paul MN, talked to a bunch of researchers on how to take the heavy metals out of the soil. Through her art of plants she also started a scientific experiment.

“Despite soil conditions adverse to metal uptake, a variety of Thlaspi, the test plant with the highest capacity for hyperaccumulation, was found to have significant concentration of cadmium in its leaves and stems (Chin, 1990)”



FIGURE 53



FIGURE 54



FIGURE 55

RESEARCH

TOPIC

## JAMES TURELL

### Roden Crater

A dormant crater that he used to create different spaces showing light, time, and landscape. “Constructed to last for centuries to come, Roden Crater links the physical and the ephemeral, the objective with the subjective, in a transformative sensory experience (Turrell, 2023)”

He uses light to his advantage to create dynamic spaces. He also uses the space the light is reflected in and makes that dynamic and a work of art.

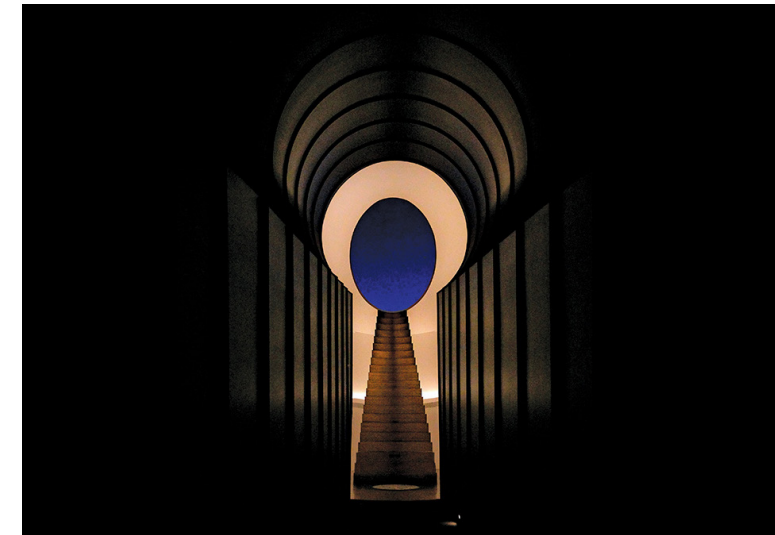


FIGURE 56

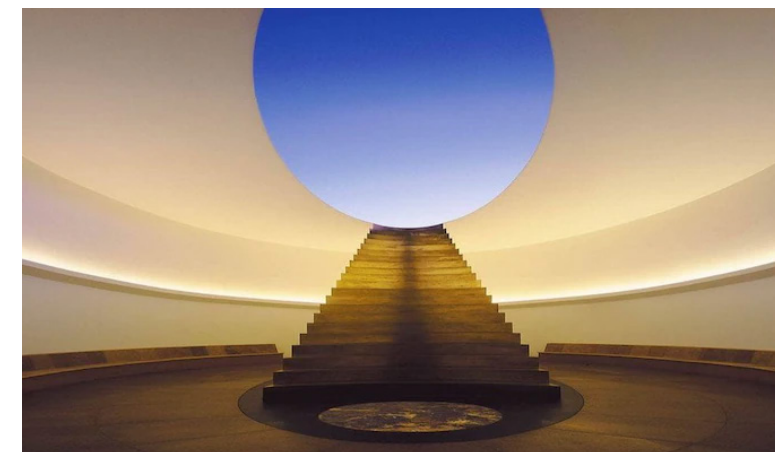


FIGURE 57

## CHAPEL OF CHIMES

Oakland, CA

Chapel of memories Columbarium

This room with glass boxes filled with memories and books. It incorporates lots of natural light and the way it is set up allows space to reminisce on the memories.

The material choice is skylights, stone, and glass which makes the room feel very airy. The straight lines in this room make it feel comfortable, similar to a home library.



FIGURE 58



FIGURE 59



FIGURE 60

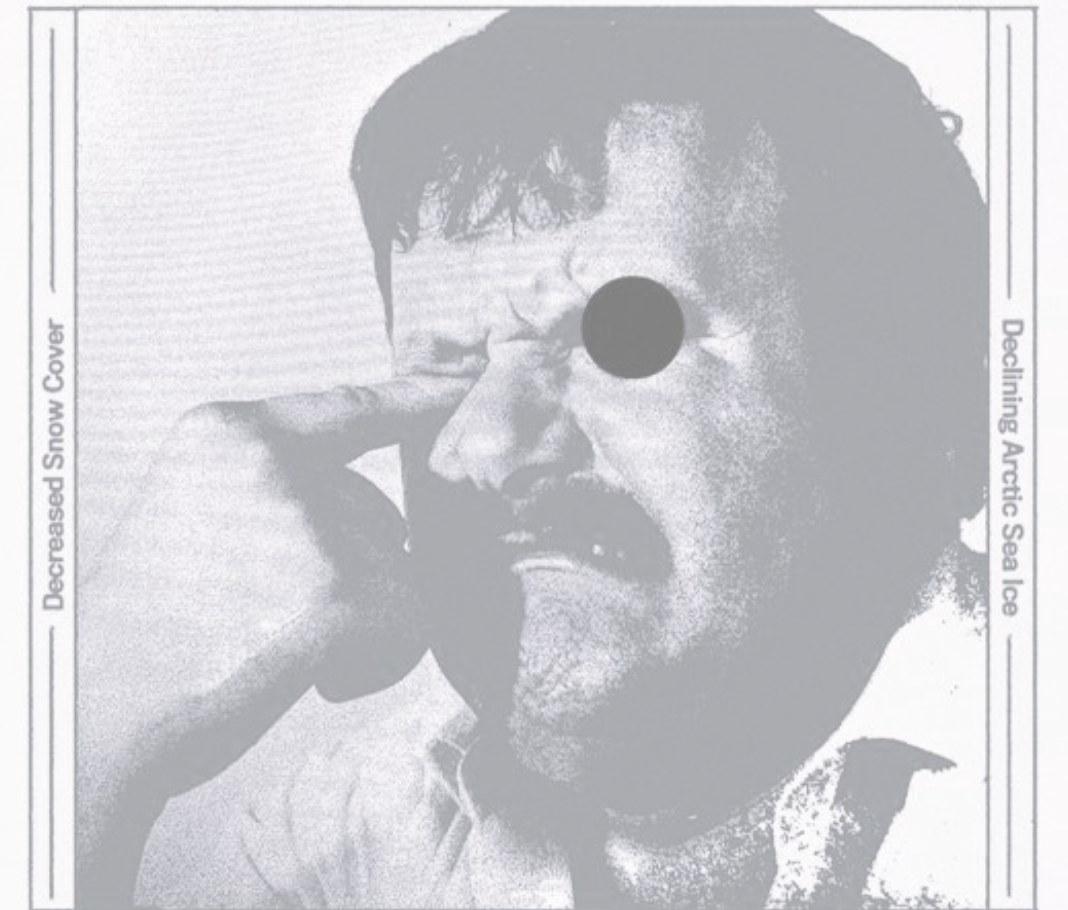
RESEARCH

TOPIC

WHAT IF ITS NOT ENOUGH?

# CLIMATE CHANGE

Global Temperature Rise — Warming Oceans — Shrinking Ice Sheets



Extreme Events — Ocean Acidification — Glacial Retreat

# IS REAL VERY REAL

FIGURE 61

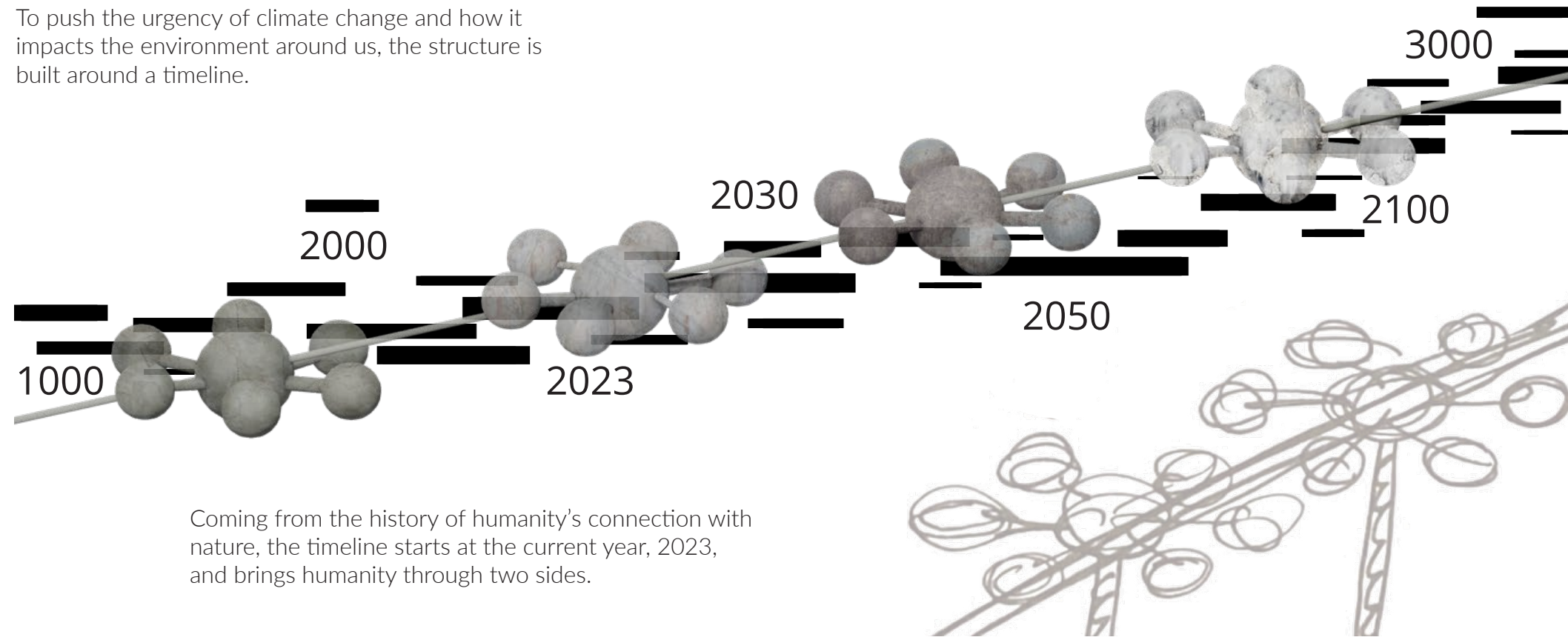
WHAT IF ITS NOT ENOUGH?

WHAT IF ITS NOT ENOUGH?

# DESIGN

WHAT IF ITS NOT ENOUGH?

To push the urgency of climate change and how it impacts the environment around us, the structure is built around a timeline.



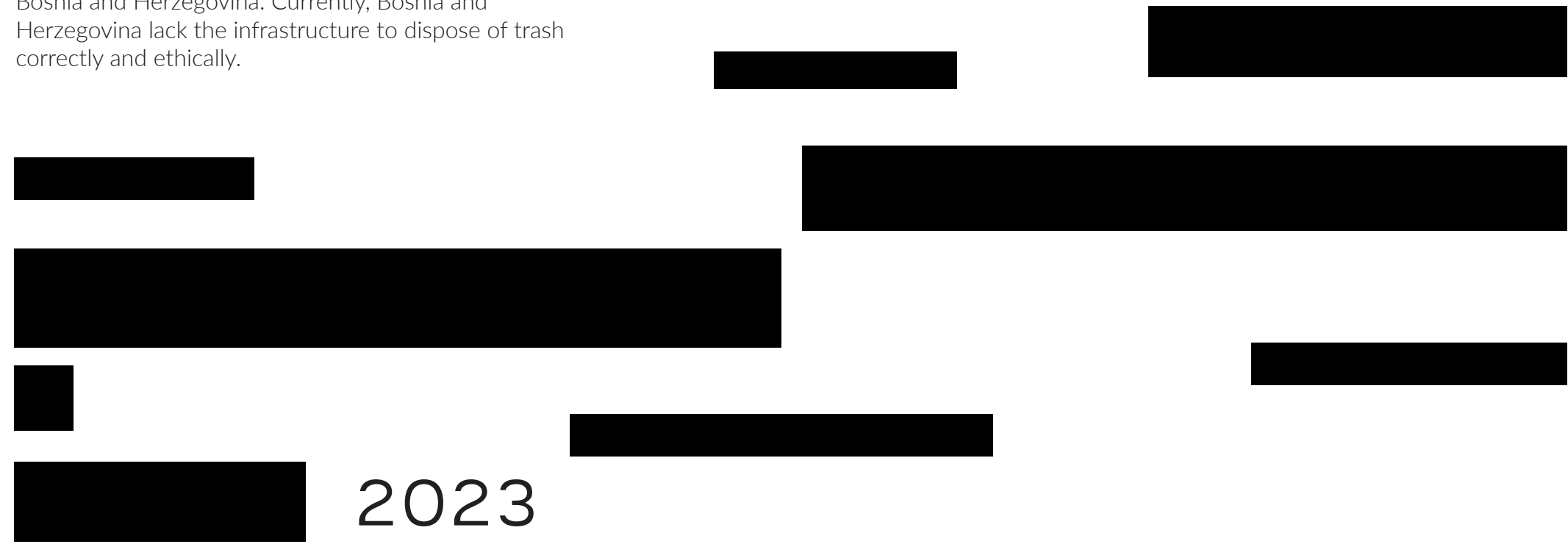
Coming from the history of humanity's connection with nature, the timeline starts at the current year, 2023, and brings humanity through two sides.

One side allows us to coexist with nature. The other, less optimistic side, shows what happens when humanity lives life as we are now, not changing any habits to curb greenhouse gas emissions.

TIMELINE

PROPOSED

Starting with our current year, 2023,  
focusing in on the current site situated in Visegrad,  
Bosnia and Herzegovina. Currently, Bosnia and  
Herzegovina lack the infrastructure to dispose of trash  
correctly and ethically.

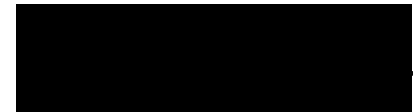
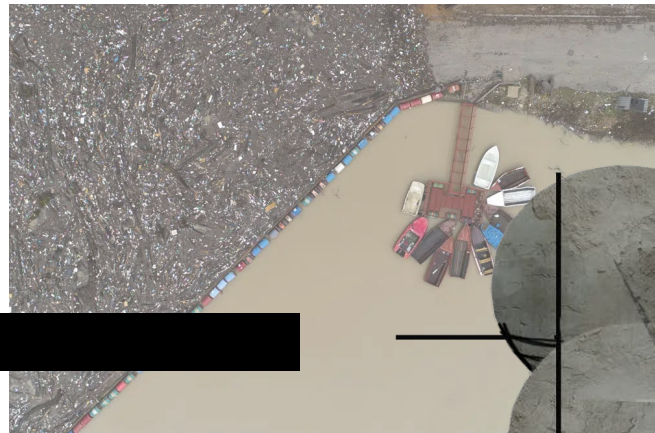


TIMELINE

PROPOSED

The surrounding community uses the current site shown as an illegal dumping ground. This then funnels into the river causing not only the river to become polluted but the dam downstream to become clogged.

The illegal site becomes hazardous as when dumps are not properly monitored, they release excess methane which can start fires or even explosions.



2023



TIMELINE

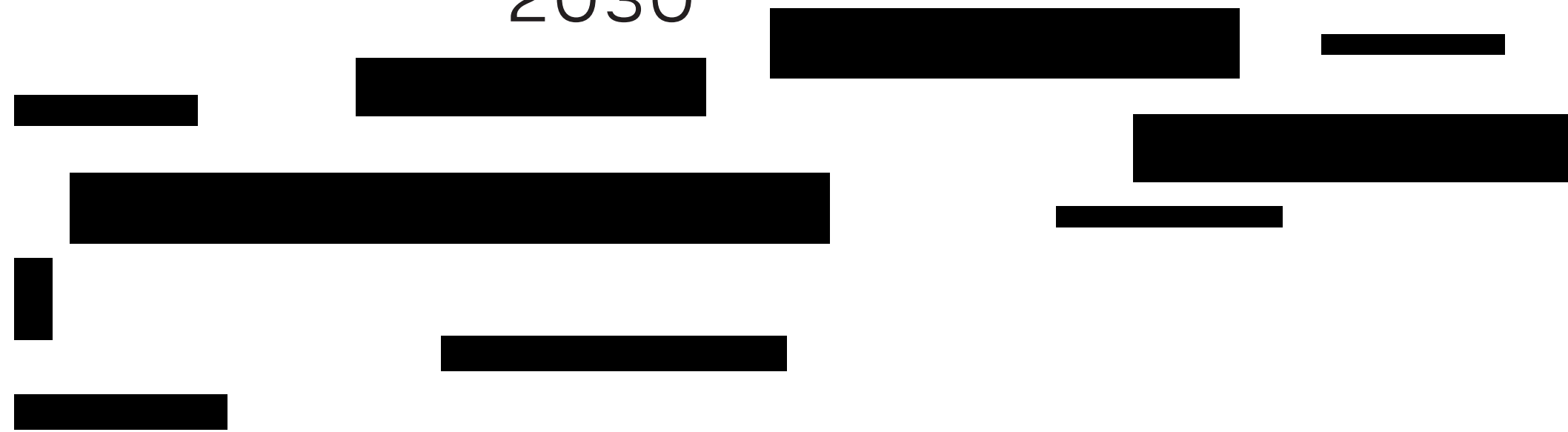
PROPOSED

This marks the year that the current site will be cleaned of its trash, partially used as a material on the proposed building and partially used as energy to fuel the building.

The proposed structure starts construction as an awareness is raised upon the survival of the human race, as the next coming years become increasing challenging.

Another key year in the future is 2030 when the Paris Agreement set goals for the globe to reach.

2030

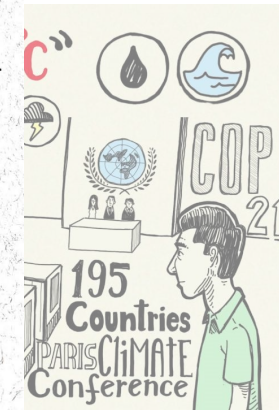
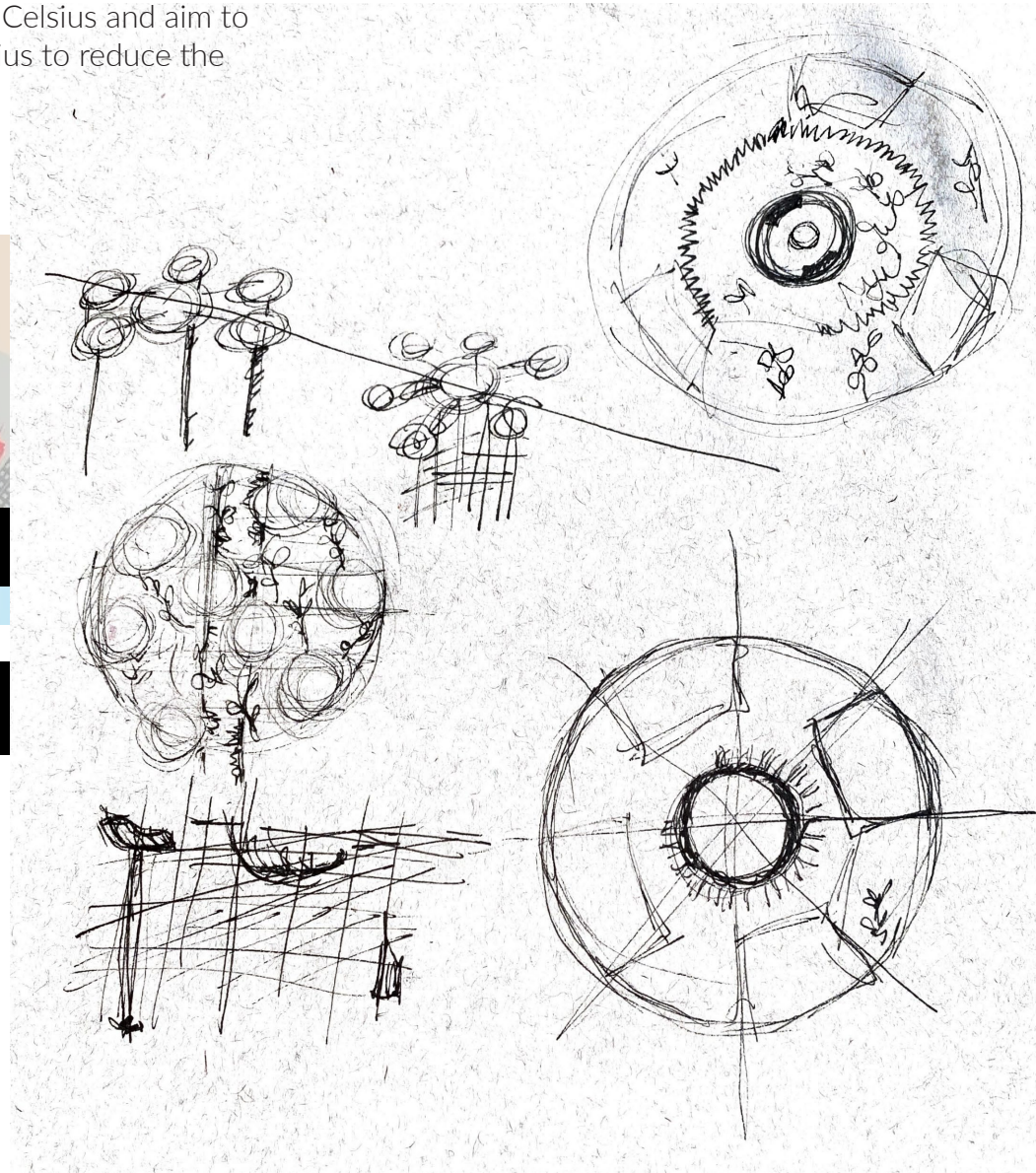
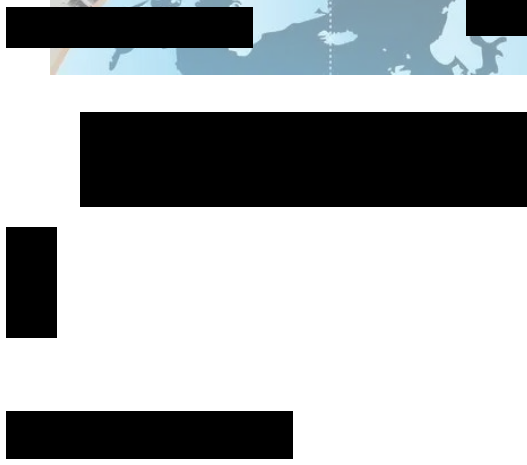


TIMELINE

PROPOSED



The main goal is to keep the increase in global average temperature to well below 2 degrees Celsius and aim to limit the increase to 1.5 degrees Celsius to reduce the risks and impacts of climate change.



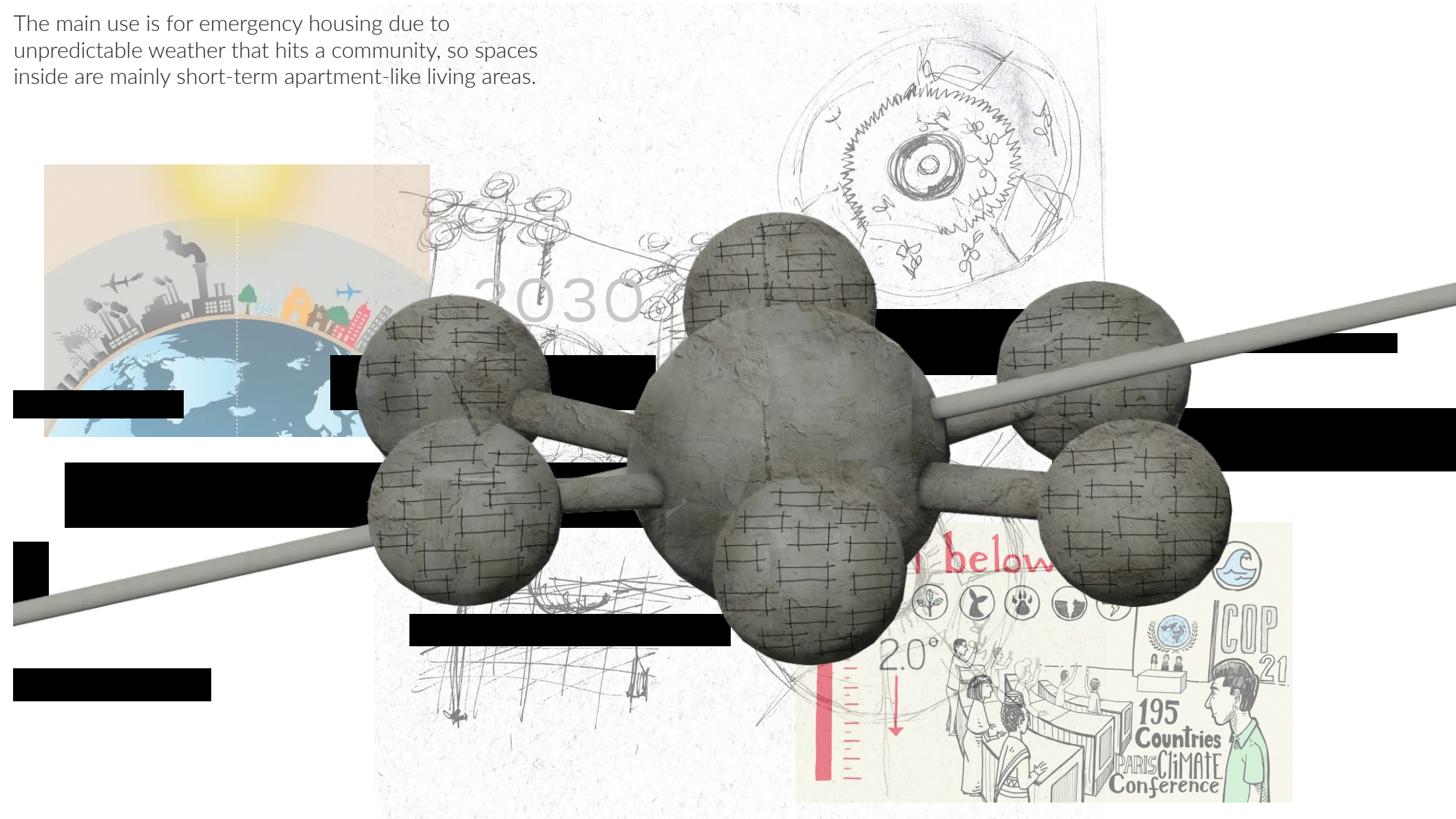
To stay on track, greenhouse gas emissions must peak by 2025 and decline by 43% by 2030.

TIMELINE

PROPOSED

The proposed structure is set to finish construction on its first pod.

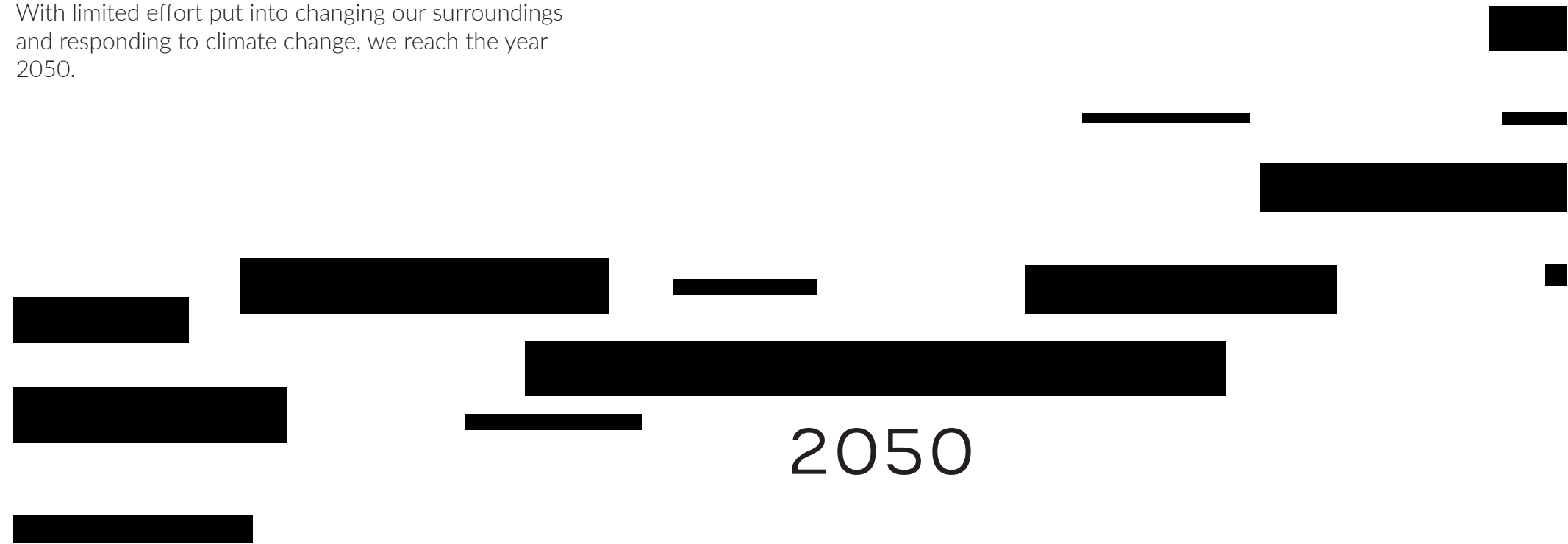
The main use is for emergency housing due to unpredictable weather that hits a community, so spaces inside are mainly short-term apartment-like living areas.



TIMELINE

PROPOSED

With limited effort put into changing our surroundings and responding to climate change, we reach the year 2050.

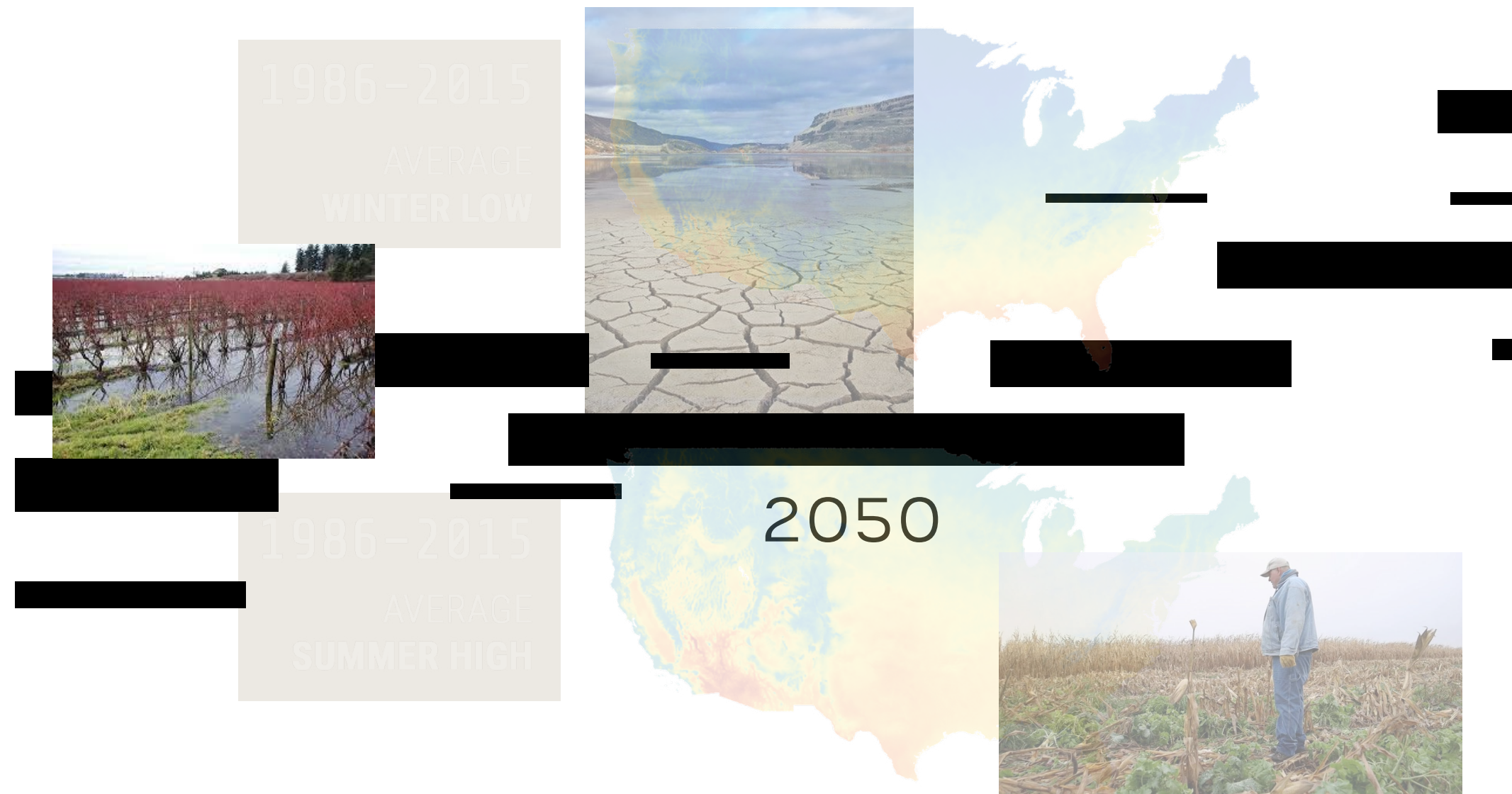


2050

TIMELINE

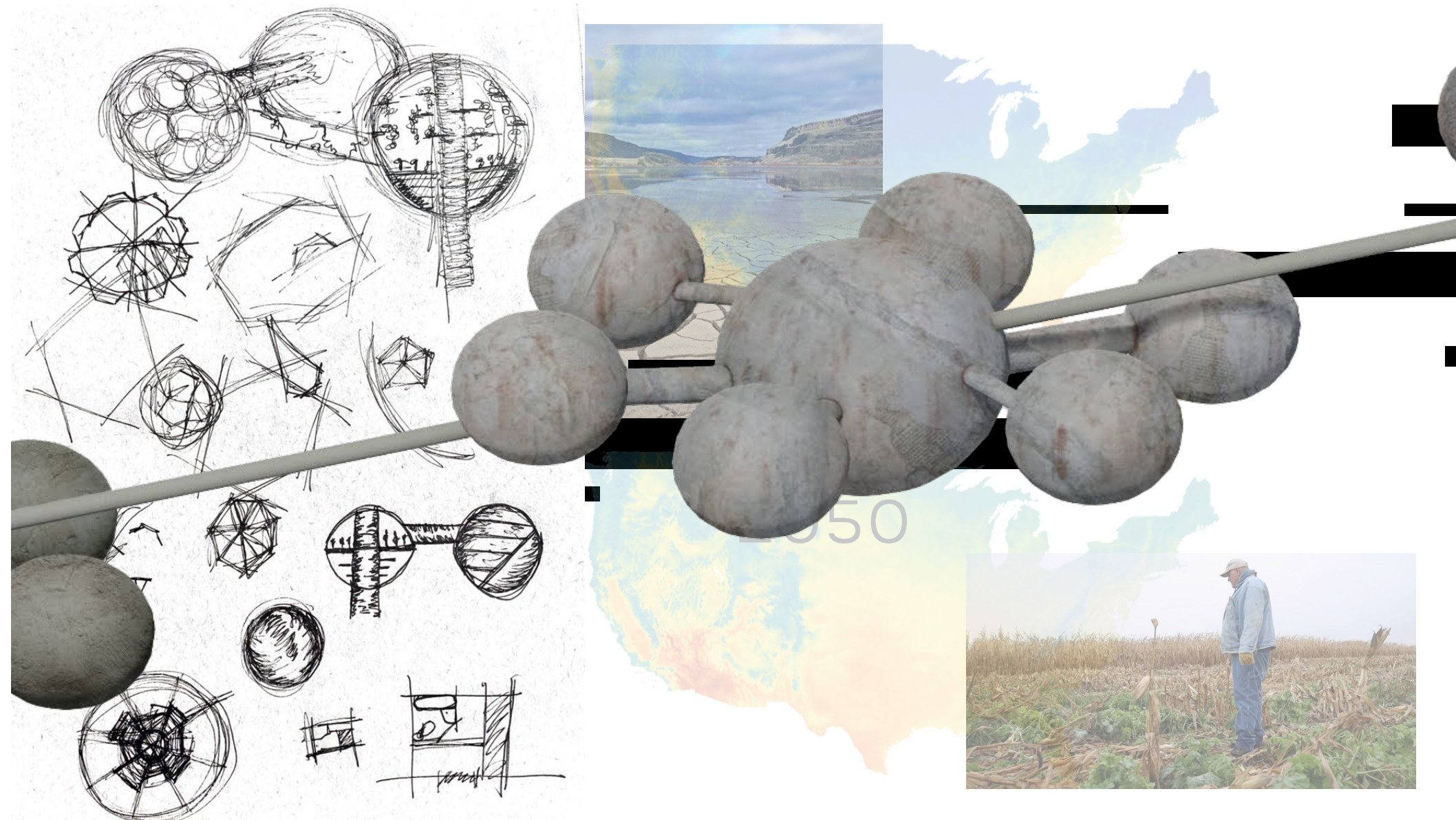
PROPOSED

In this year, every season in every city has shifted, whether that be subtly or drastically, as average temperatures rise.



Although you may think that increasing a few degrees to summer and winter does not seem that bad, what comes with warming comes more extreme weather events - droughts, heat waves, rainstorms but much more dangerous and damaging than the few degrees warmer.

By this year humanity has realized the need for the pods and have started construction on the second set, finishing by the end of the year. This time they continue construction on the rest of the structure predicting that the climate will only progressively get worse.



The spaces have begun to develop more on the inside to prepare for the orbs to become a semi-permanent residence. For some cities, it has become increasingly more challenging to rebound from the natural disasters that have occurred, making the demand for the pods higher.

TIMELINE

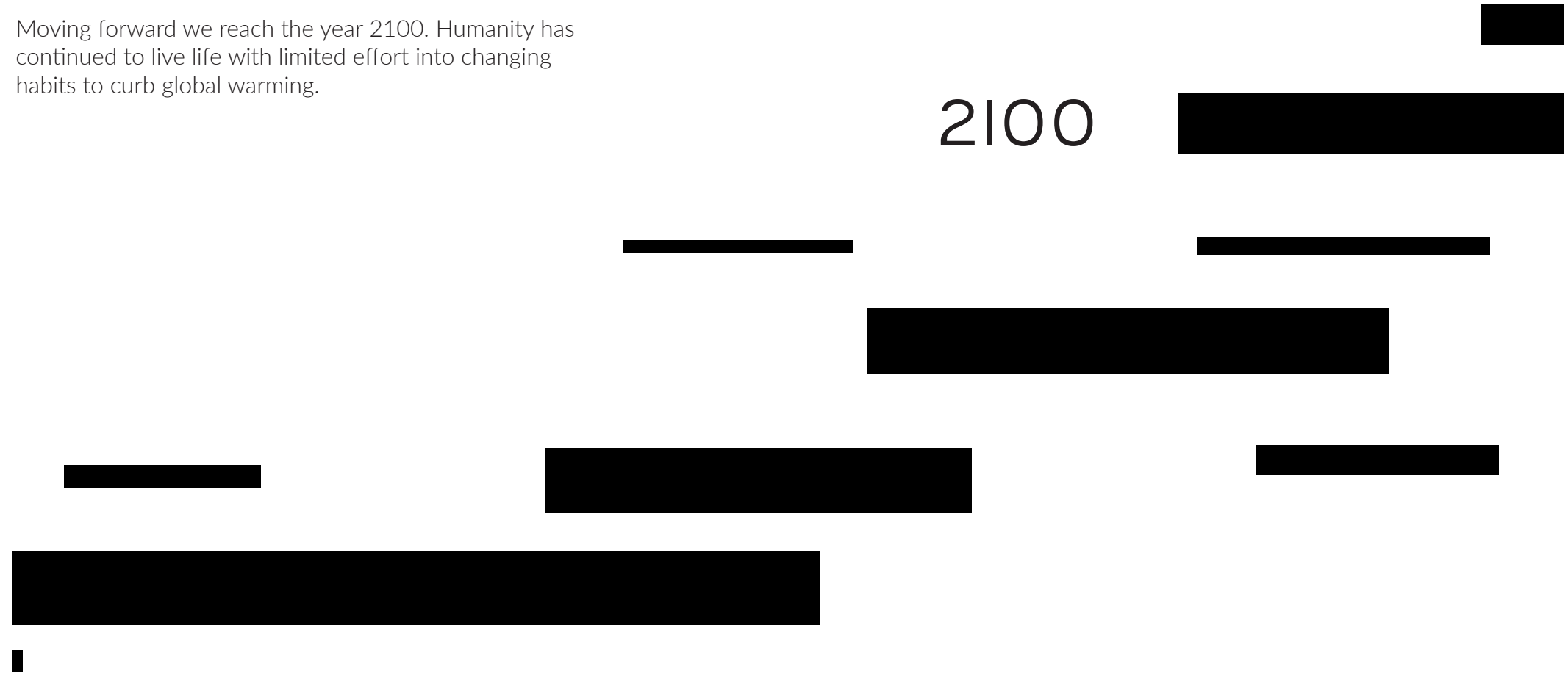
PROPOSED

Moving forward we reach the year 2100. Humanity has continued to live life with limited effort into changing habits to curb global warming.

2100

TIMELINE

PROPOSED



Here is an excerpt from “The Uninhabitable Earth” that explains the severity of living life as normal.

“In reading about warming you will often come across analogies in the planetary record: the last time the planet was this much warmer, the logic runs, sea levels were here. These conditions are not coincidences. The sea level was there largely because the planet was that much warmer, and the geologic record is the best model we have for understanding the very complicated climate system and gauging just how much damage will come from turning up the temperature by two or four or six degrees. Which is why it is especially concerning that recent research into the deep history of the planet suggest that our current climate models may be underestimating the amount of warming we are due for in 2100 by as much as half.

In other words, temperatures could rise, ultimately, by as much as double what the IPCC predicts. Hit our Paris emissions targets and we may still get four degrees of warming, meaning a green Sahara and the planet’s tropical forests transformed into fire-dominated savanna. The authors of one recent paper suggested the warming could be more dramatic still—slashing our emissions could still bring us to four or five degrees Celsius, a scenario they said would pose severe risks to the habitability of the entire planet. “Hothouse Earth,” they called it.

Because these numbers are so small, we tend to trivialize the differences between them—one, two, four, five. Human experience and memory offer no good analogy for how we should think of those thresholds, but, as with world wars or recurrences of cancer, you don’t want to see even one. At two degrees, the ice sheets will begin their collapse, 400 million more people will suffer from water scarcity, major cities in the equatorial band of the planet will become unlivable, and even in the northern latitudes heat waves will kill thousands each summer. There would be thirty-two times as many extreme heat waves in India, and each would last five times as long, exposing ninety-three times more people. This is our best-case scenario.

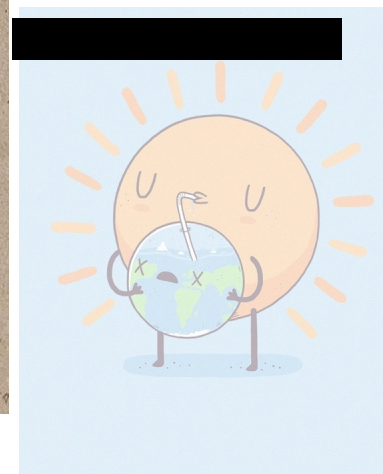
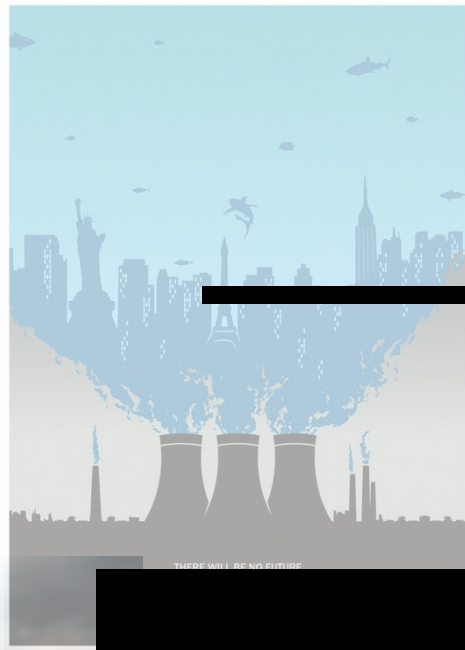
At three degrees, southern Europe would be in permanent drought, and the average drought in Central America would last nineteen months longer and in the Caribbean twenty-one months longer. In northern Africa, the figure is sixty months longer—five years. The areas burned each year by wildfires would double in the Mediterranean and sextuple, or more, in the United States.

At four degrees, there would be eight million more cases of dengue fever each year in Latin America alone and close to an annual global food crisis. There could be 9 percent more heat-related deaths. Damages from river flooding would grow thirtyfold in Bangladesh, twentyfold in India, and as much as sixtyfold in the United Kingdom. In certain places, six climate-driven natural disasters could strike simultaneously, and, globally, damages could pass \$600 trillion—more than twice the wealth as exists in the world today. Conflict and warfare could double.

Even if we pull the planet up short of two degrees by 2100, we will be left with an atmosphere that contains 500 parts per million of carbon—perhaps more. The last time that was the case, sixteen million years ago, the planet was not two degrees warmer; it was somewhere between five and eight, giving the planet about 130 feet of sea-level rise, enough to draw a new American coastline as far west as I-95. Some of these processes take thousands of years to unfold, but they are also irreversible, and therefore, effectively permanent. You might hope to simply reverse climate change; you can’t. It will outrun all of us (Wallace-Wells, 2023).”

TIMELINE

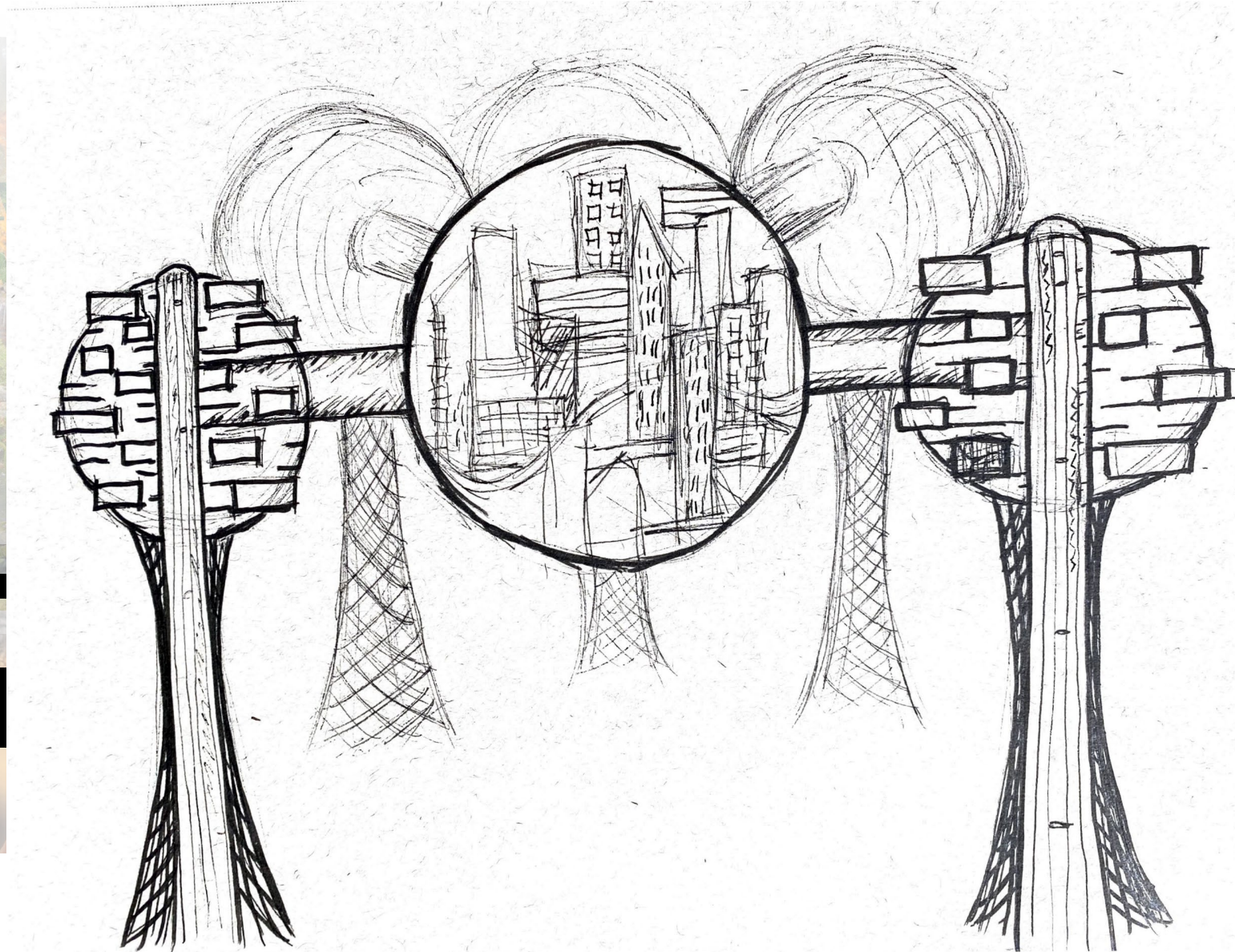
PROPOSED



2100



Due to the environment becoming uninhabitable, the structure develops into a completely closed off space. The pods are now a permanent residence where a majority of the surrounding community sleeps, eats, works and takes on their daily tasks.



The center orb becomes the community's city with the necessities and amenities of a typical city today, while the outside orbs are where the residents have a small apartment-like space, a garden space and an archive.

TIMELINE

PROPOSED

After living in the habitat for one thousand years, completely closed off to the surrounding environment, we reach the year 3000.

Only after millions died and humans were forced to stay sheltered, nature began to heal. Untouched by humans, rivers flowed, and wildlife prospered.

TIMELINE

PROPOSED



After seeing that our actions on this earth matter, humanity realized the importance of respecting nature.



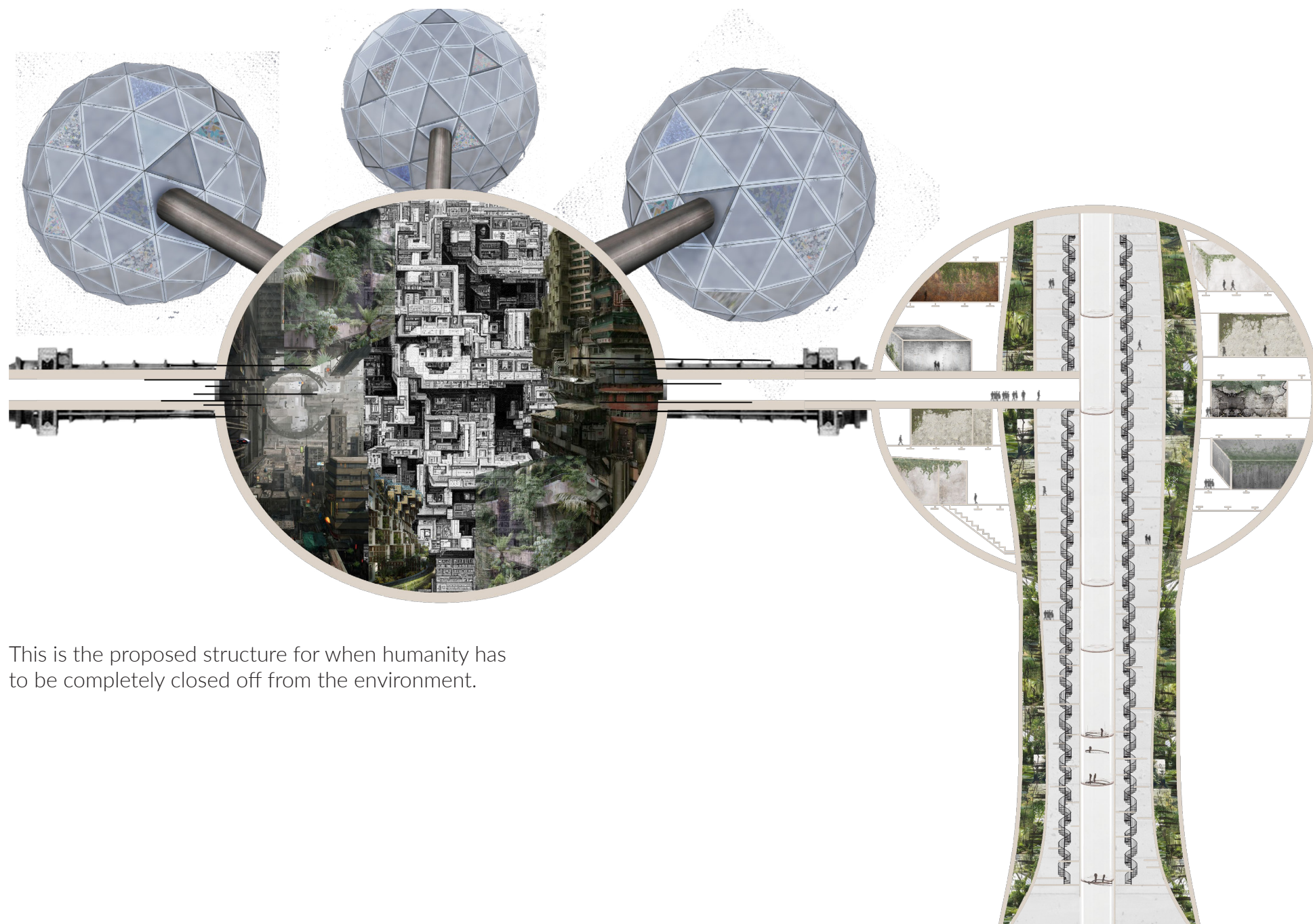
3000

Due to the pods having a closed economy where everything is produced and bought locally, there was no need for cars or planes. This system allowed life to continue on in a completely closed off structure.

After all these years the structure responds and adapts to the environment by opening up.

TIMELINE

PROPOSED



This is the proposed structure for when humanity has to be completely closed off from the environment.

DESIGN

PROPOSED

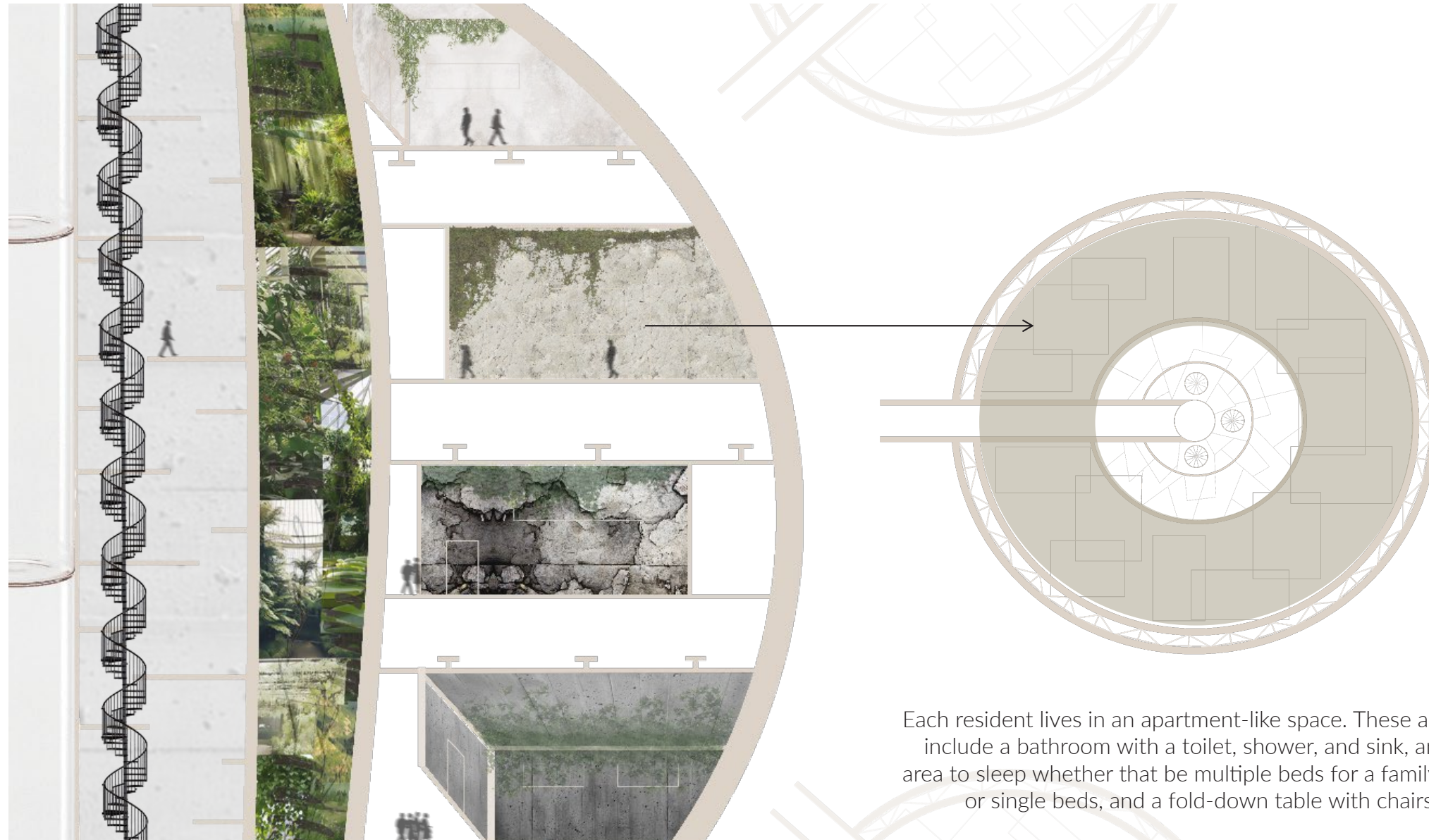


Zooming in on the center of the pods, we reach the city. One question that was brought while designing this, was how is everyone going to live in an enclosed space and not want to leave immediately? The solution

was to create a center orb that is designed similar to a dense city such as Minneapolis or even Brussels. The center includes the amenities that one might want, stores, places to work, entertainment etc.

# CENTER CITY

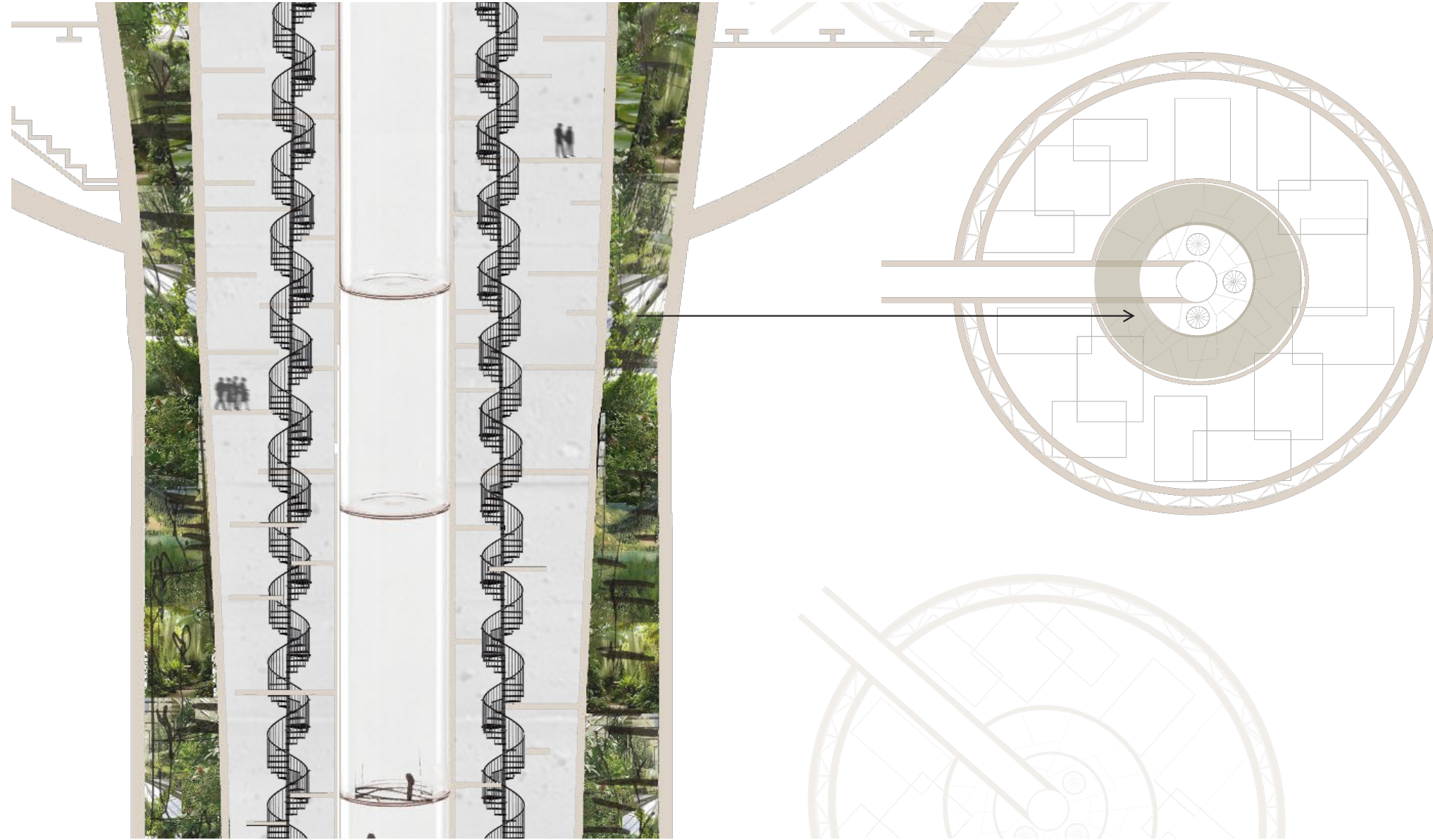
The main focus of this design is the living pods. Six living pods surround one center city orb.



Each resident lives in an apartment-like space. These all include a bathroom with a toilet, shower, and sink, an area to sleep whether that be multiple beds for a family or single beds, and a fold-down table with chairs.

LIVING PODS

Through learning what makes a city happy and to re-establish a connection with nature, one important factor to include was many spaces with vegetation.

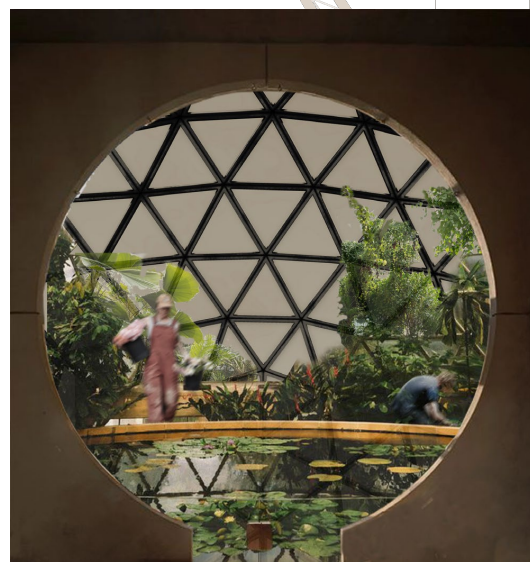


# SPACE

## GARDEN

# SPACE

## GARDEN

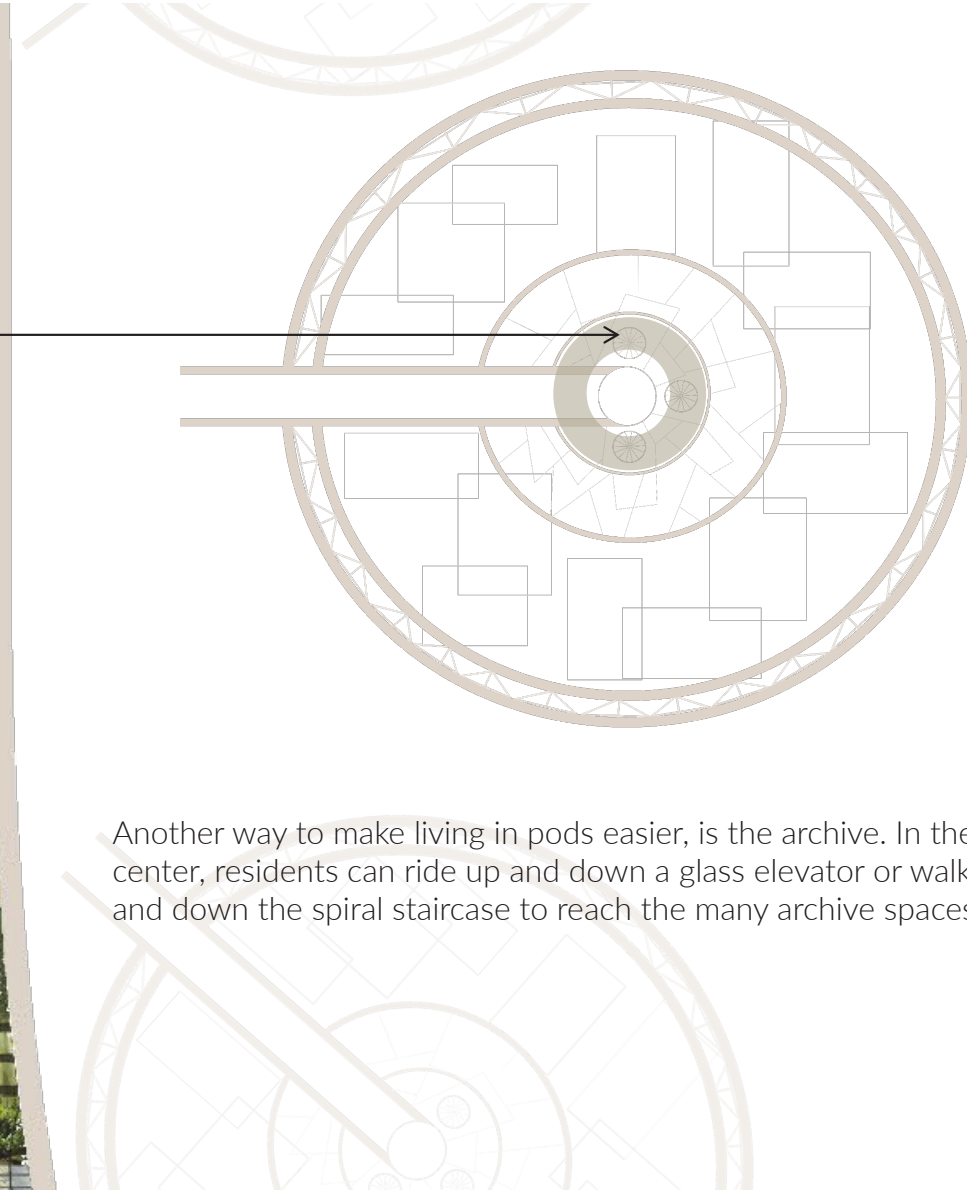
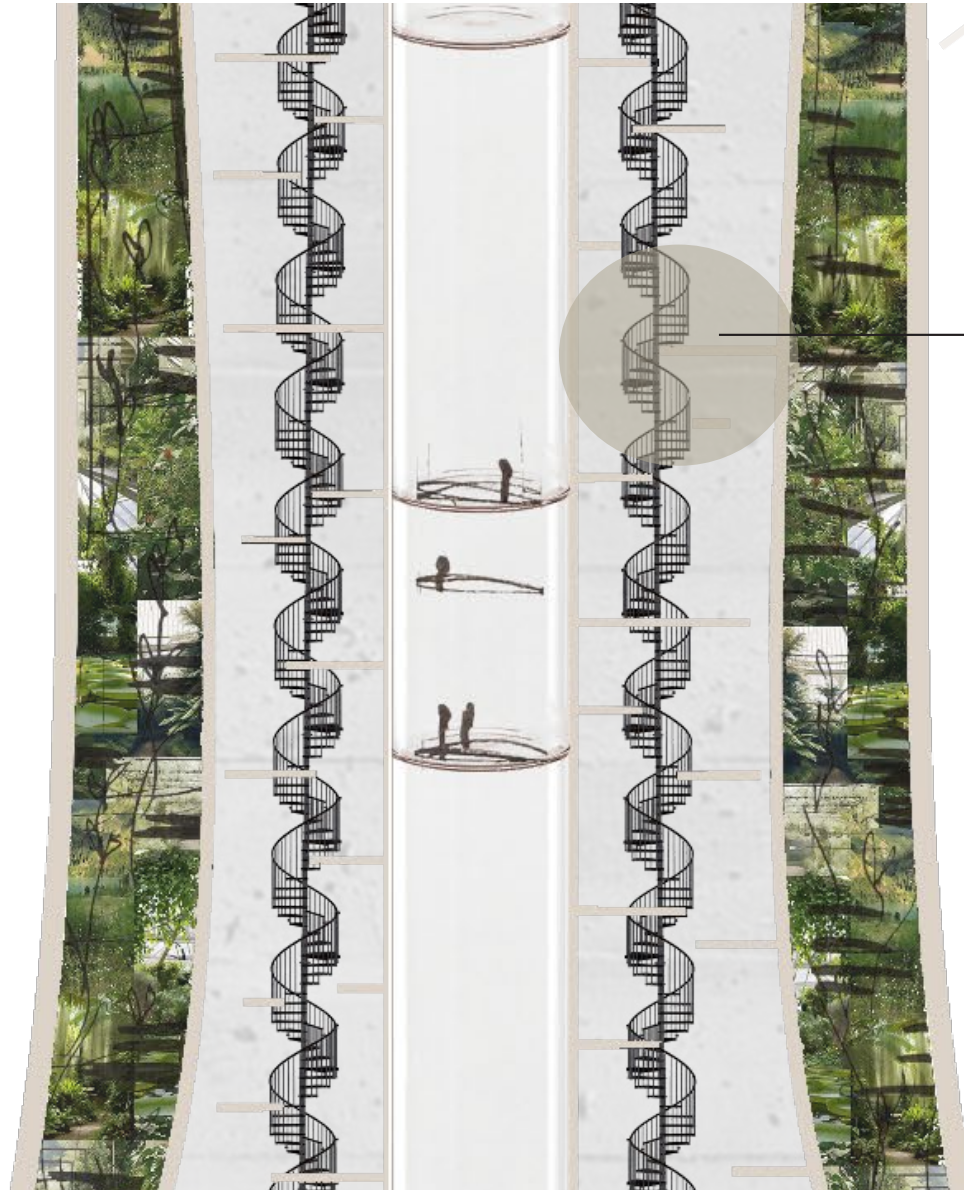


This lead to a garden space that has multiple openings, making sure residents have that close connection to nature on a daily basis. This garden space allows residents to not only grow food, but allows them to develop a close connection to nature and understand where their food comes from.



# SPACE

## ARCHIVE



Another way to make living in pods easier, is the archive. In the center, residents can ride up and down a glass elevator or walk up and down the spiral staircase to reach the many archive spaces.

For the community to preserve the culture that may have been lost during an extreme weather event, the archive spaces were designed. They consist of a screen



that allows the user to pull up stories, artefacts, and any piece they decide belongs in the archive. So although their home or belongings may have been lost in lets say a hurricane or flood, they still have a piece of their culture or family at any time.

# SPACE

## ARCHIVE



“In 2018, the Intergovernmental Panel on Climate Change published a Special Report - the first attempt by climate scientists to quantify a remaining global carbon budget that could feasibly keep global warming below 1.5°C. In summer 2021, the IPCC published a report on the physical science basis of climate change, which included updated carbon budget estimates for limiting global warming to 1.5°C. In this report, IPCC researchers estimated that, beginning in 2020, humans could release an additional 400Gt of carbon into the atmosphere and still have a 67% chance of limiting warming to 1.5°C (see here, table SMP.2).

The Climate Clock deadline shows how long we have left until this carbon budget runs out, given the amount of carbon we continue to emit globally.

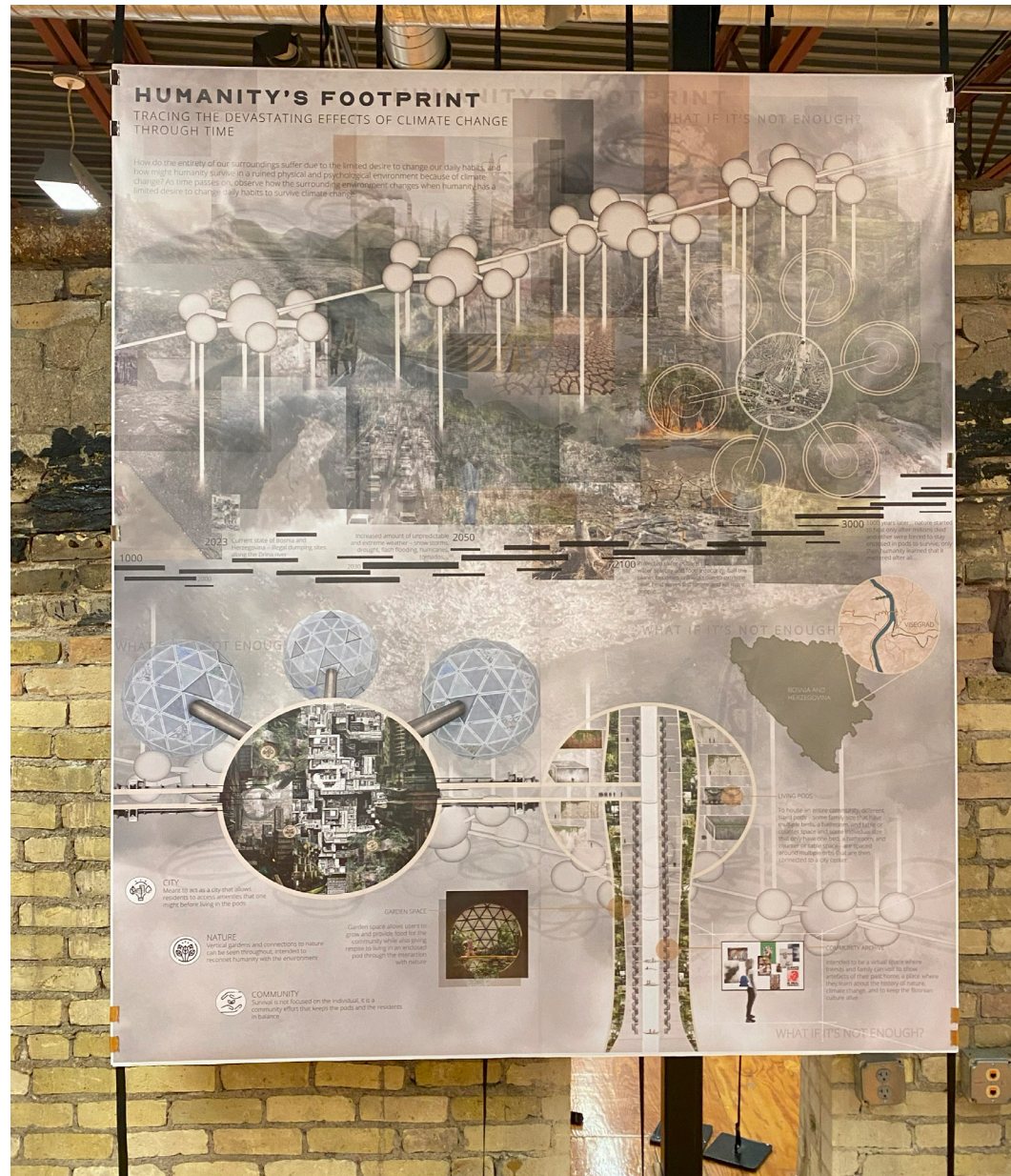
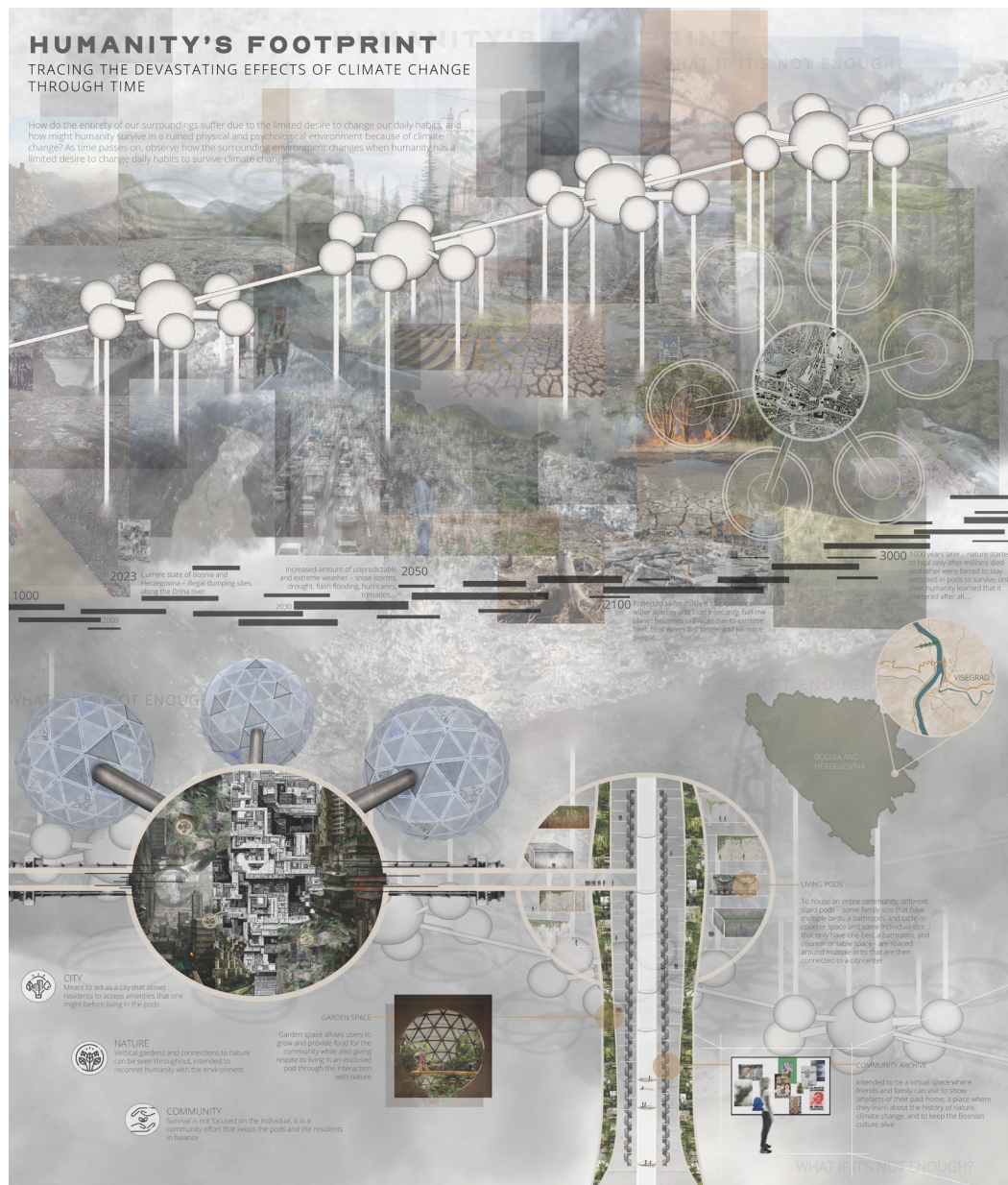
The clock will continue to run down until it hits zero, at which time our carbon budget would be depleted and the likelihood of devastating global climate impacts

would be very high. We must take action to reduce global greenhouse gas emissions toward zero as quickly as possible within this critical time window for action.

Data for the deadline is sourced from the Mercator Research Institute on Global Commons and Climate Change. The MCC's carbon clock assumes an average annual rate of 42.2 Gt of carbon emissions in order to calculate the time remaining on the clock. However, if rates of global emissions continue to rise, our carbon budget will run out even faster. If we cut the rate of global carbon emissions, time on the clock would hypothetically begin to increase (Climate, 2023).”

CLOCK

CLIMATE



BOARDS

FINAL

- Abram, D. (2017). *The spell of the sensuous: Perception and language in a more-than-human world*. Vintage.
- Climate change impacts. National Oceanic and Atmospheric Administration. (n.d.). Retrieved October 16, 2022, from <https://www.noaa.gov/education/resource-collections/climate/climate-change-impacts>
- DeMunno, L. (n.d.). 9 natural disasters that took the lives of hundreds of thousands. Business Insider. Retrieved October 16, 2022, from <https://www.businessinsider.com/worst-natural-disasters-2018-7>
- Fresco, J. (2020, January 21). The venus project. The Venus Project. Retrieved October 16, 2022, from <https://www.thevenusproject.com/>
- India Block |18 April 2018 Leave a comment. (2019, May 13). Collapsible skyscraper for disaster zones wins conceptual design contest. Dezeen. Retrieved October 16, 2022, from <https://www.dezeen.com/2018/04/18/collapsible-conceptual-skyscraper-architecture-evolo-competition/>
- Lynch, P. (2015, September 25). These floating farms could be key to feeding future populations. ArchDaily. Retrieved October 16, 2022, from [https://www.archdaily.com/773962/are-floating-farms-the-solution-to-our-agricultural-needs?ad\\_medium=gallery](https://www.archdaily.com/773962/are-floating-farms-the-solution-to-our-agricultural-needs?ad_medium=gallery)
- McCann, R. (2011). A sensuous ethics of difference. *Hypatia*, 26(3), 497–517. <https://doi.org/10.1111/j.1527-2001.2011.01207.x>  
Sunnydale Community Center. LMSA. (n.d.). Retrieved October 16, 2022, from <https://www.lmsarch.com/projects/sunnydale-community-center>
- AnOther. (2016, April 27). Robert Adams: The new west. AnOther. <https://www.anothermag.com/art-photography/8618/robert-adams-the-new-west>
- Associated Press. (2023, January 21). Sections of Balkan River become floating garbage dump. AP NEWS. <https://apnews.com/article/weather-yugoslavia-allergies-bosnia-and-herzegovina-europe-1f40635991a1f223c9dadb58c8a2c6c1>
- Chapel of the chimes. Oakland, CA. (n.d.). <https://www.visitoakland.com/listing/chapel-of-the-chimes/745/>
- Ducarme, F., & Couvet, D. (2020, January 31). What does “nature” mean? Nature News. <https://www.nature.com/articles/s41599-020-0390-y#citeas>
- Eo4society - EO science for society. (n.d.-a). [https://eo4society.esa.int/wp-content/uploads/2020/10/EOC0002\\_WOR\\_v03.pdf](https://eo4society.esa.int/wp-content/uploads/2020/10/EOC0002_WOR_v03.pdf)
- Europe. (Municipality, Serbia) - Population Statistics, Charts, Map and Location. (n.d.). [https://www.citypopulation.de/en/serbia/admin/zlatibor/M06392\\_\\_prijboj/](https://www.citypopulation.de/en/serbia/admin/zlatibor/M06392__prijboj/)
- Examining the institutions that regulate waste management and their ... (n.d.-b). [https://libstore.ugent.be/fulltxt/RUG01/002/305/222/RUG01-002305222\\_2016\\_0001\\_AC.pdf](https://libstore.ugent.be/fulltxt/RUG01/002/305/222/RUG01-002305222_2016_0001_AC.pdf)
- Ghisleni, C. (2020, November 25). What is vernacular architecture?. ArchDaily. <https://www.archdaily.com/951667/what-is-vernacular-architecture>
- GOMEZ, J. (2021, February 22). Illegal landfill sites along rivers in the Balkans are causing an ecology disaster. euronews. <https://www.euronews.com/my-europe/2021/02/19/illegal-landfill-sites-along-rivers-in-the-balkans-are-causing-an-ecology-disaster>
- Guardian News and Media. (2023, January 6). Legacy of Japan's Nakagin Capsule Tower lives on in restored pods. The Guardian. <https://www.theguardian.com/world/2023/jan/06/legacy-japan-nagakin-capsule-tower-lives-on-restored-pods>
- Irfan, U., Barclay, E., & Sukumar, K. (2019, July 19). America is warming fast. see how your city's weather will be different by 2050. Vox.com. <https://www.vox.com/a/weather-climate-change-us-cities-global-warming>
- Long, M. (2021, May 10). Illustrators unite behind fundraiser to Save World's rainforests. Design Week. <https://www.designweek.co.uk/issues/21-27-october-2019/fundraiser-save-rainforest>
- Magazine, S. (2021, May 1). An exclusive look at James Turrell's visionary artwork in the Arizona Desert. Smithsonian.com. <https://www.smithsonianmag.com/arts-culture/james-turrell-visionary-artwork-arizona-desert-180977452/>
- Majaski, C. (2022, October 29). What is a closed economy and why are there none today?. Investopedia. <https://www.investopedia.com/terms/c/closed-economy.asp>

- McKibben, B., *Falter: Has the Human Game Begun to Play Itself Out?*, & 350.org. (2019, September 12). How the world would look in 2050 if we solved climate change. Time. <https://time.com/5669022/climate-change-2050/>
- Revival field – Mel Chin. (n.d.). <https://melchin.org/oeuvre/revival-field/>  
 “Revival field.” Art21. (n.d.-a). <https://art21.org/read/mel-chin-revival-field/>
- Roden Crater. (n.d.). <https://rodencrater.com/about/>
- Science. Climate Clock. (n.d.). <https://climateclock.world/science#deadline>
- Studies debunk “nature is healing” narrative from 2020 Lockdowns. Mongabay Environmental News. (2023, February 4). <https://news.mongabay.com/2021/09/studies-debunk-nature-is-healing-narrative-from-2020-lockdowns/>
- Tate. (1999, January 1). “Tate Thames dig”, Mark Dion, 1999. Tate. <https://www.tate.org.uk/art/artworks/dion-tate-thames-dig-t07669#:~:text=During%20the%20summer%20of%201999,Tate%20Modern%20the%20following%20year.>
- Tate. (n.d.-a). “liquid crystal environment”, Gustav Metzger, 1965, remade 2005. Tate. <https://www.tate.org.uk/art/artworks/metzger-liquid-crystal-environment-t12160>
- Tate. (n.d.-b). “recreation of first public demonstration of auto-destructive art”, Gustav Metzger. Tate. <https://www.tate.org.uk/art/artworks/metzger-recreation-of-first-public-demonstration-of-auto-destructive-art-t12156>
- Tchoubar, P. (2021, January 14). Serbia’s garbage-filled lake: “we aren’t taught enough about the environment.” The Observers - France 24. <https://observers.france24.com/en/europe/20210114-serbia-potpec-garbage-lake-landfill-environment>
- Technology in Mel Chin’s revival field - journal of art criticism. Technology in Mel Chin’s Revival Field - Journal of Art Criticism. (n.d.). <https://journalofartcriticism.cargo.site/Technology-in-Mel-Chin-s-Revival-Field>
- Theesotericnashvillian. (2018, October 11). What will be left?. The Esoteric Nashvillian. <https://theesotericnashvillian.com/2018/10/11/what-will-be-left/>
- Time. (n.d.). Norway: “doomsday” vault where world’s seeds are kept safe. Time. <https://time.com/doomsday-vault/>
- “Turning back.” Art21. (n.d.-b). <https://art21.org/read/robert-adams-turning-back/>
- Welker, G. (2022, September 27). Mythologies of bosnia and Herzegovina. Indigenous Peoples Literature. <https://indigenoupeoplenet.wordpress.com/2022/09/27/mythologies-of-bosnia-and-herzegovina/>
- Where does our waste go?. Trash or Treasure. (n.d.-a). <https://stories.cgneurope.tv/wheredoesourwastego/index.html>
- World Bank Climate Change Knowledge Portal. Climatology | Climate Change Knowledge Portal. (n.d.). <https://climateknowledgeportal.worldbank.org/country/bosnia-and-herzegovina/climate-data-historical#:~:text=The%20country's%20climate%20varies%20from,in%20the%20south%20and%20southeast.>
- World Wildlife Fund. (n.d.). Our planet is warming. here’s what’s at stake if we don’t act now. WWF. <https://www.worldwildlife.org/stories/our-planet-is-warming-here-s-what-s-at-stake-if-we-don-t-act-now>
- Zgut, E., Zbytniewska, K., Hosnedlová, P., & Szalai, P. (2018, June 7). Waste in the visegrad Four: Poland leading the way. [www.euractiv.com. https://www.euractiv.com/section/circular-economy/news/waste-in-the-visegrad-four-poland-leading-the-way/](https://www.euractiv.com/section/circular-economy/news/waste-in-the-visegrad-four-poland-leading-the-way/)