XUE BAI

VISIBLE & ***INVISIBLE***

Xue Bai's portfolio
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*Landscape architecture attracts me because it can reflect **invisible** problems.*

In glass, we can see the reflection of objects.
In history, we can see the reflection of rules.
In fellow humans, we can see the reflection of ourselves.

*In Landscape architecture, we can see the **reflection of society**.*

CONTENTS

photos taken in the exhibition *The unspeakable openness of things*

"Elements of nature have the power to mobilize people's emotions."

- Olafur Eliasson

01 Light & Heavy

A Narrative Landscape in Memory of Sandy Hook Elementary School Shooting

Competition, Individual

Date: 09/2017-11/2017

Site: Newtown, Connecticut, United States

"If I die in a school shooting
I'll never go home again.
My room will sit unused,
A capsule frozen in time,
A snapshot of how I was.

If I die in a school shooting
I'll never see my dog again.
She will sit at the front door
Waiting for me and wondering,
Why I never came home..."

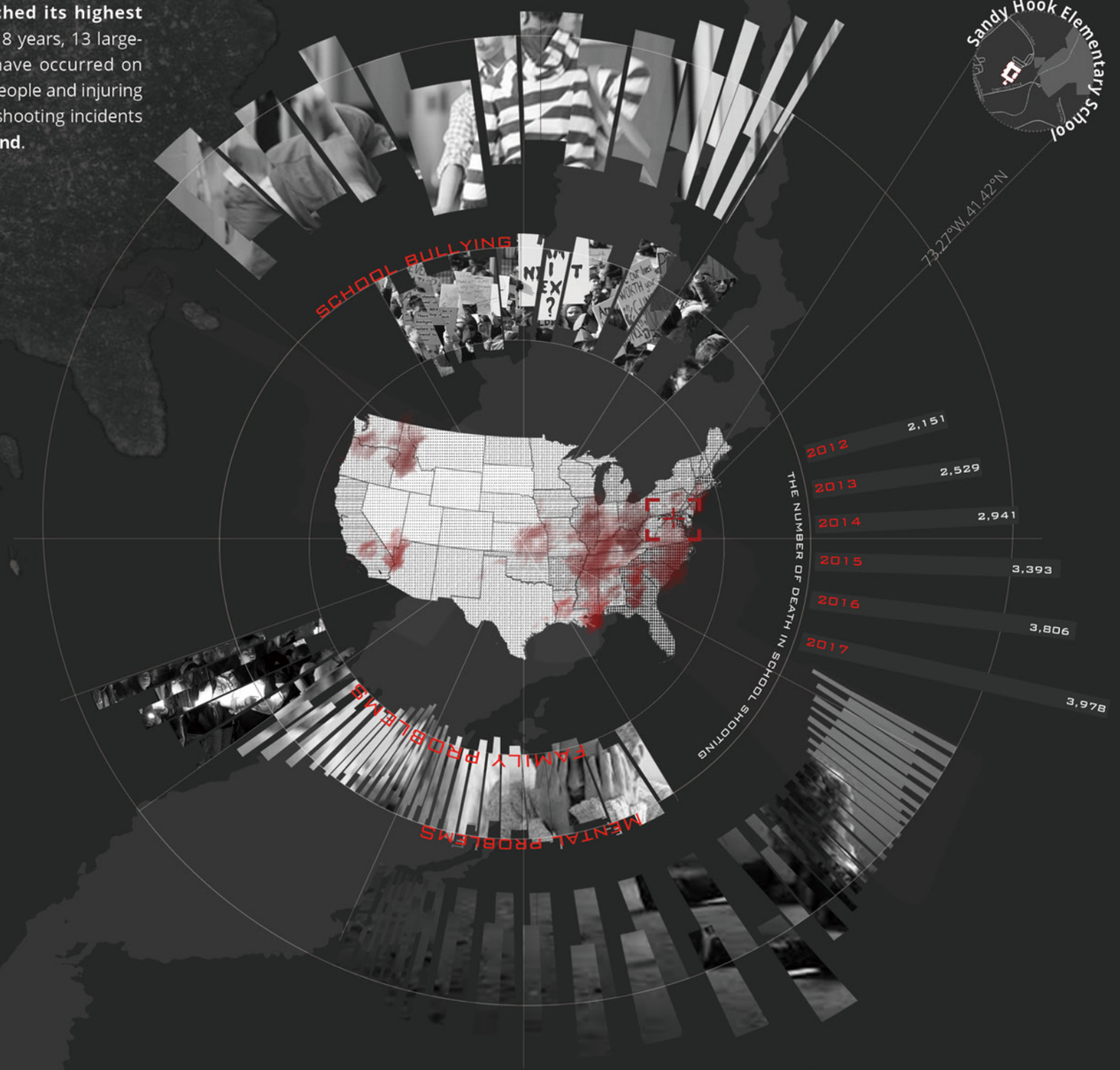
This **poem** was written by a survivor of the shooting at Sandy Hook Elementary School. I read it by chance and was deeply impressed. It came to me that a light bullet could bring immeasurable pain. Freedom and democracy means the risk of blood and violence. Based on the study of the changing process of people's **psychological activities** when the shooting happened, I came up with five different spaces in this memorial park. The combination of **elements of nature and stone materials** made tourists experience emotional ups and downs. To some extent, this project is a carrier of the memory, aiming to arouse people's attention to the school shootings and rethink about how to protect the children's life.

Gun Violence is Getting Worse

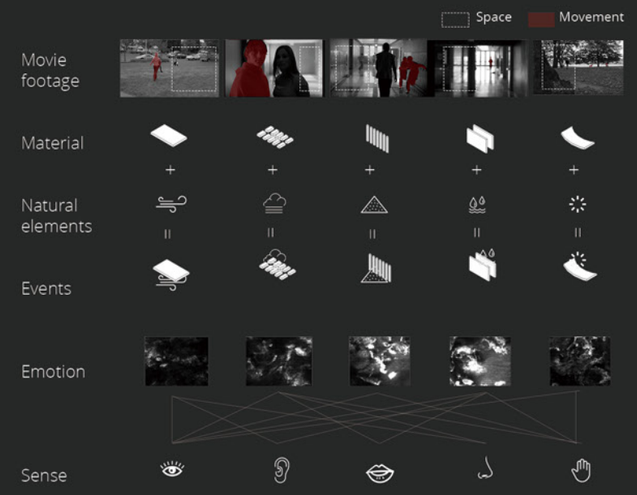
According to a report, the shooting incidents in the United States **reached its highest level in 2018**. In the past 18 years, 13 large-scale shooting incidents have occurred on the US **campus**, killing **66** people and injuring **81** people. The large-scale shooting incidents have shown an **upward trend**.

25% SHOOT VICTIM

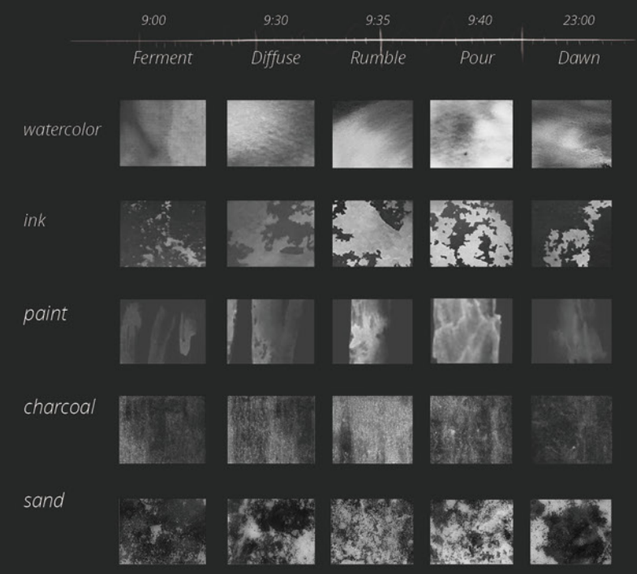
UNDER **17** YEARSOLD

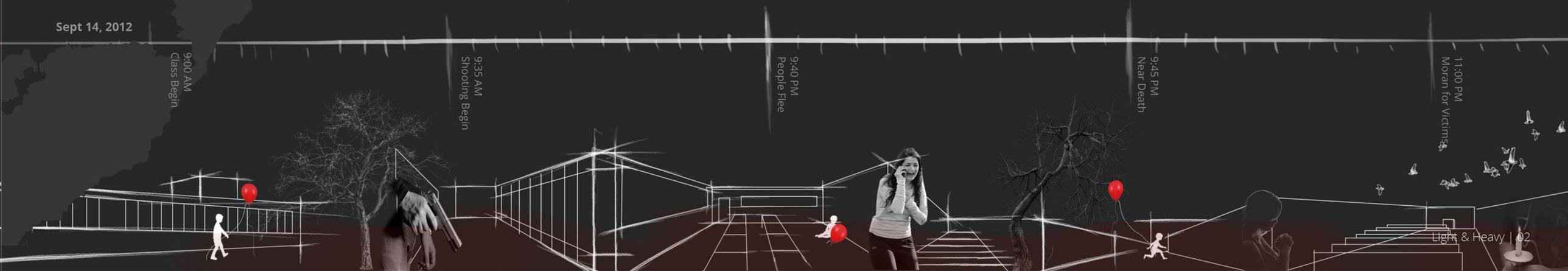


How to Create Emotions in Cinematic Way?

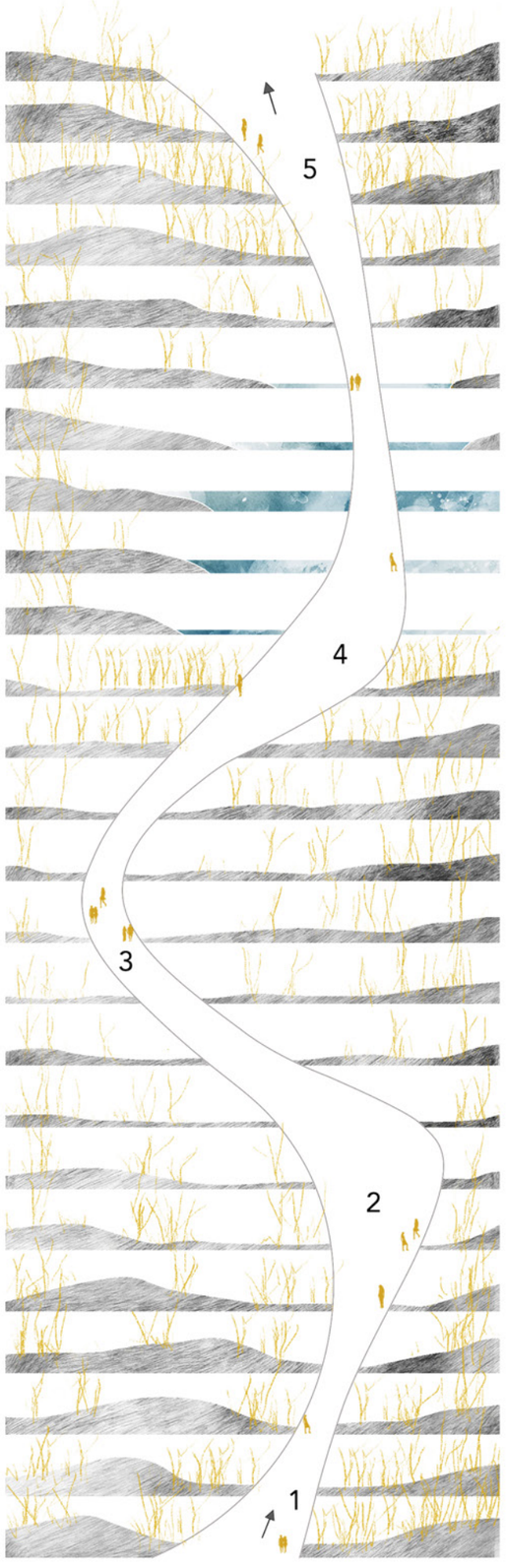


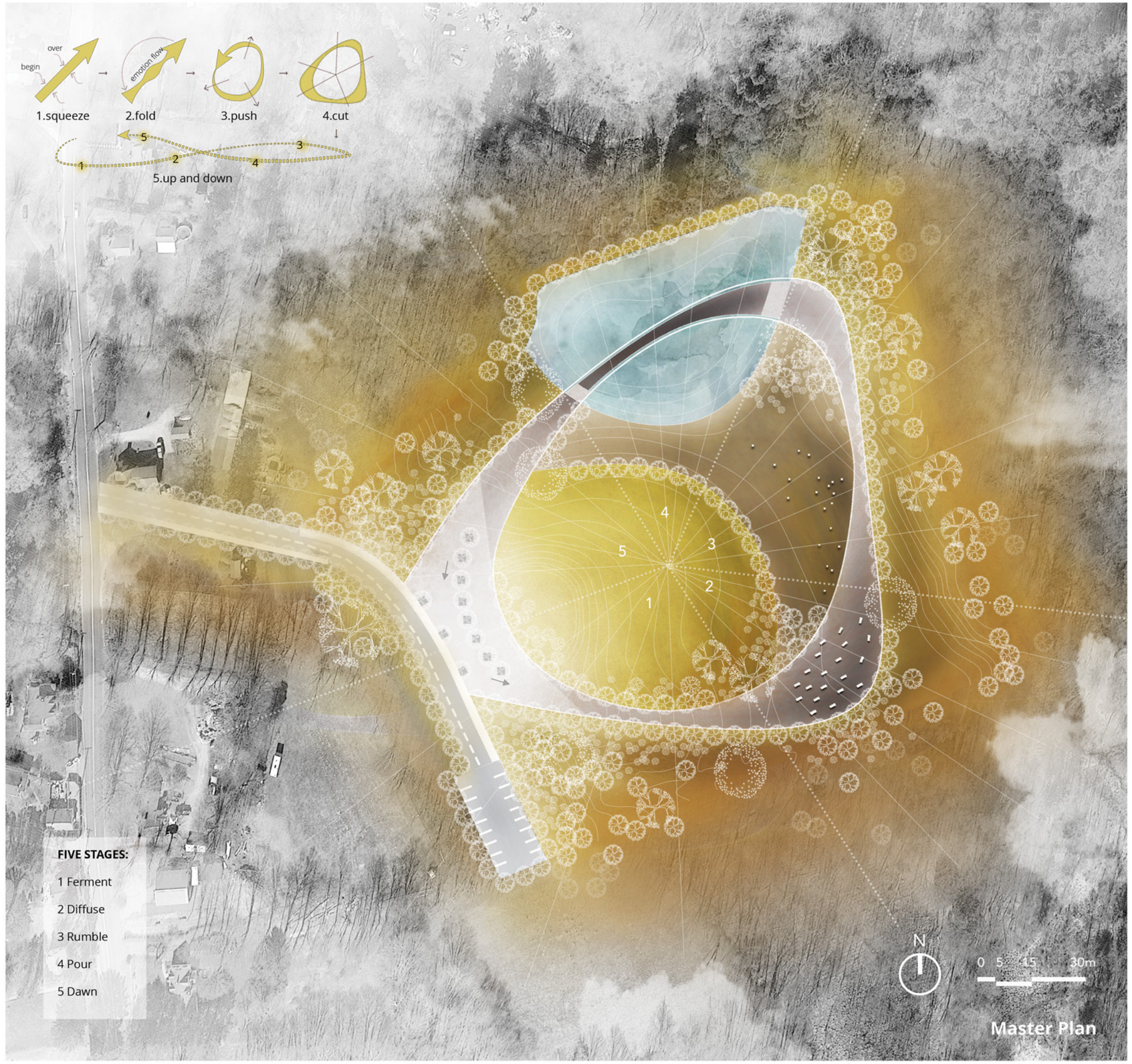
How to Express Emotion in Different Texture?

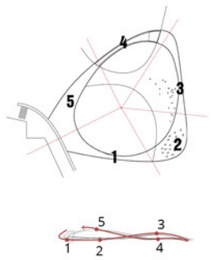




Experience During the Tour



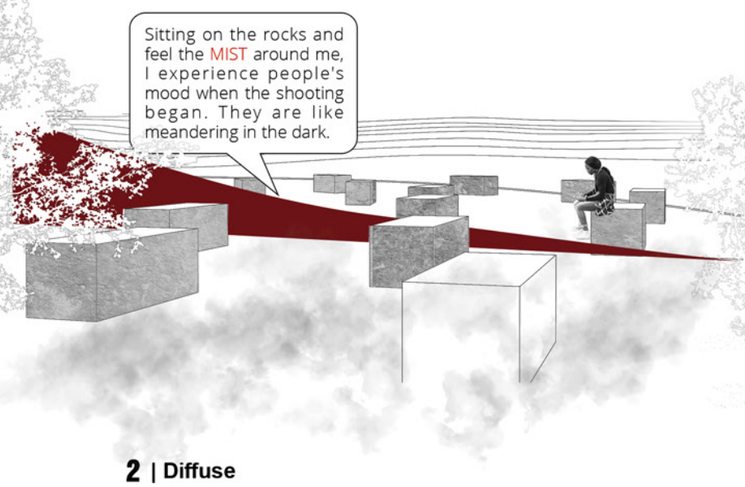




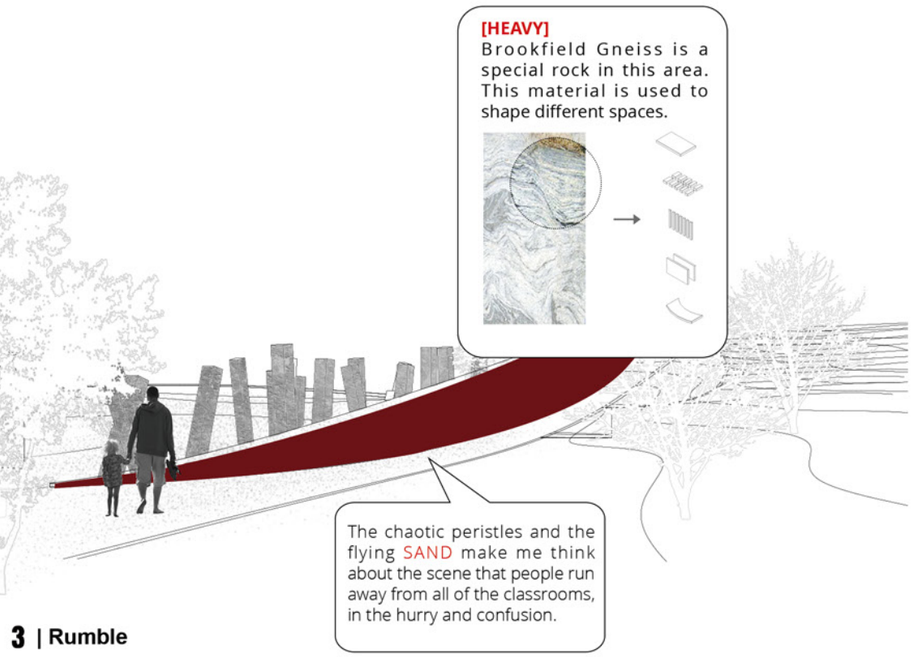
Different Spaces, Flowing Emotions

By studying hundreds of school shootings, I concluded that people's emotions in a shooting process can be divided into five stages: **calm, confusion, panic, despair, hope**. This experience is just like a rainstrom. So five stages of a rainstrom can represent the five emotions. The idea of the project is to choose a special **local** stone material to create five different spaces and each of them combined with a natural element to create the atmosphere. The strong **contrast** between light and heavy creates the emotional changes for tourists in the process of visiting, realizing the cruelty and horror of the shooting. **Narrative** landscape brings profound emotional experience to people, so as to promote people's attention and reflection on this social problem.

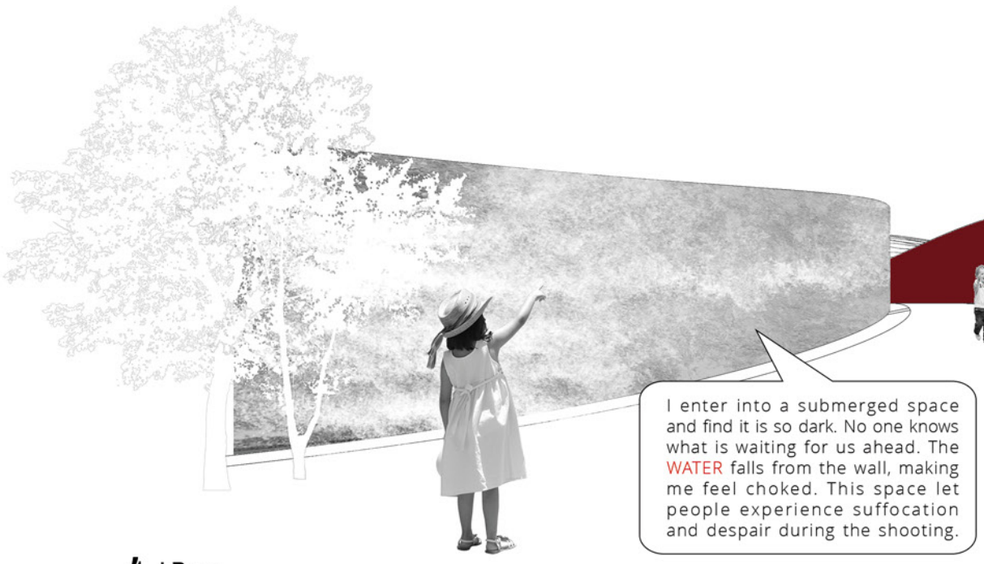
1 | **Ferment**



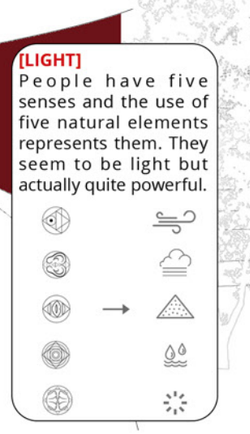
2 | **Diffuse**

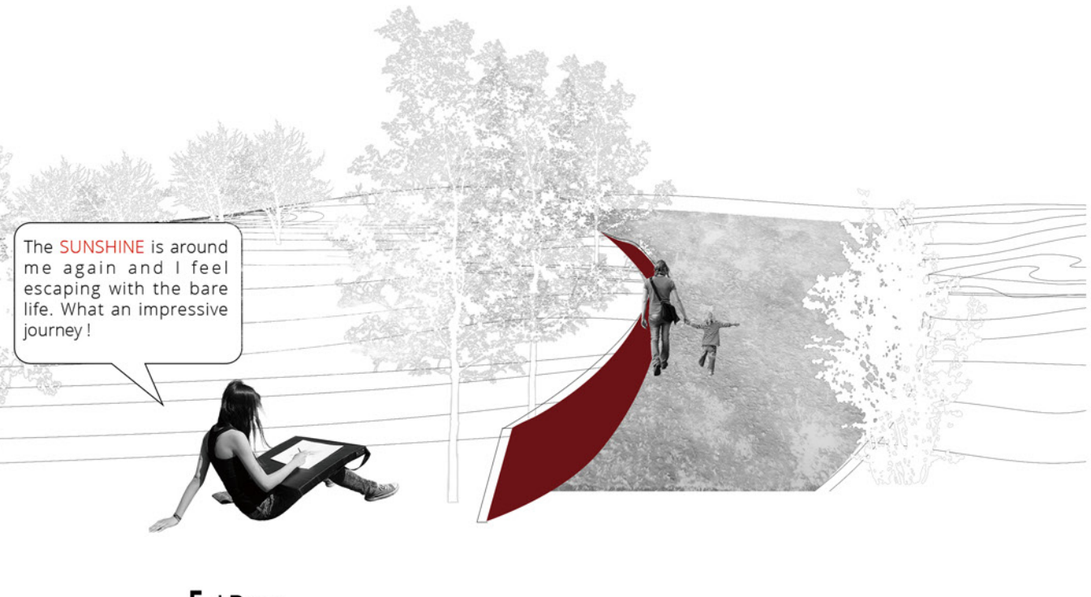


3 | **Rumble**



4 | **Pour**



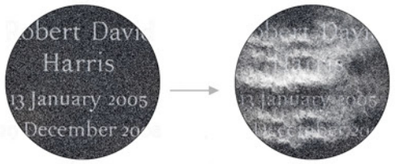


5 | **Dawn**

[Ferment]

[Diffuse]

[Pour]



dry

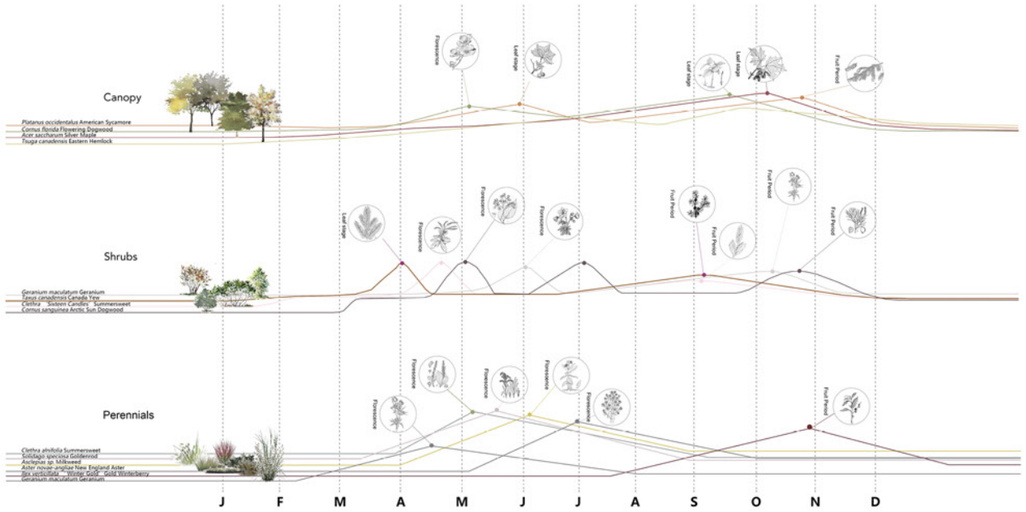
wet

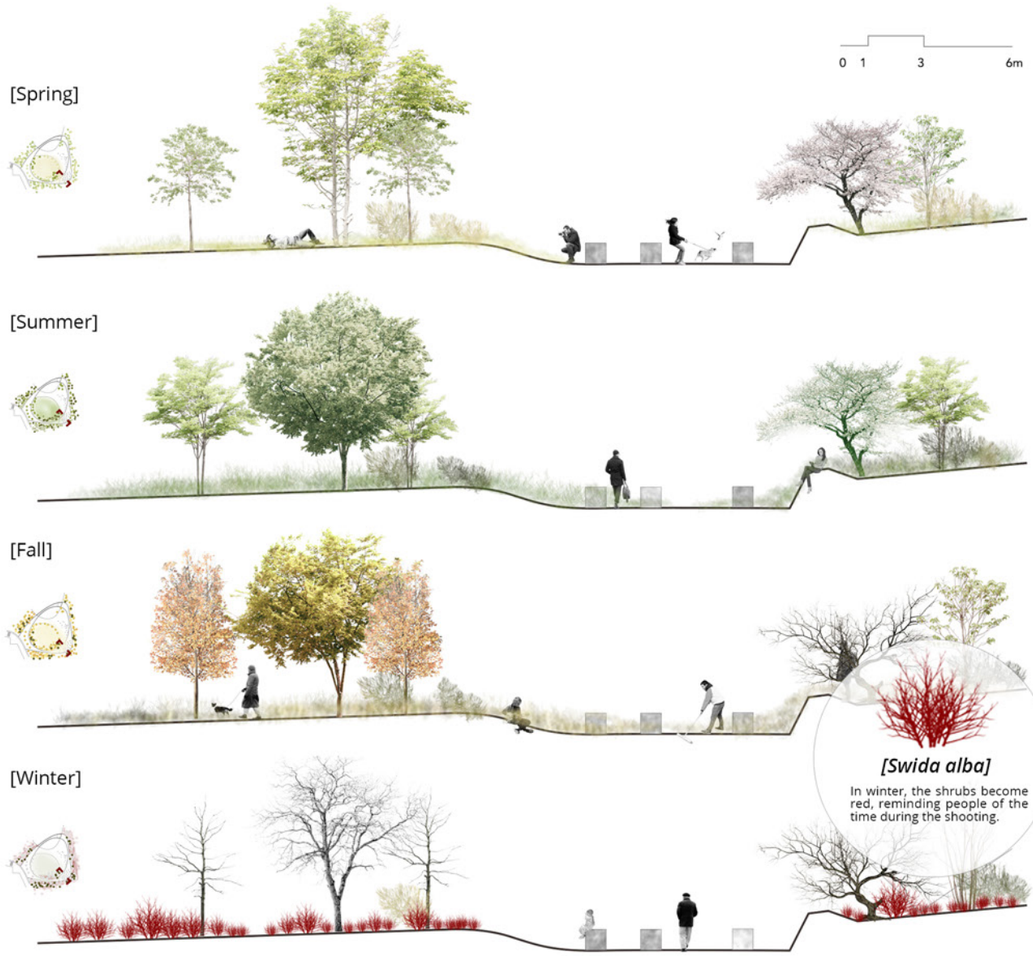
Elements of Nature Can Be Powerful

It is said in Mexico that the real death is that no one in the world remembers you. The project aims to soothe people's wounds but at the same time, it wants people to **remember** it. The victim's name was carved on the stone wall of the sinking corridor and washed by water. People could walk over to touch them and feel the wetness. Maybe people **cannot see** the names clearly, but people **know they are there**, in another world.

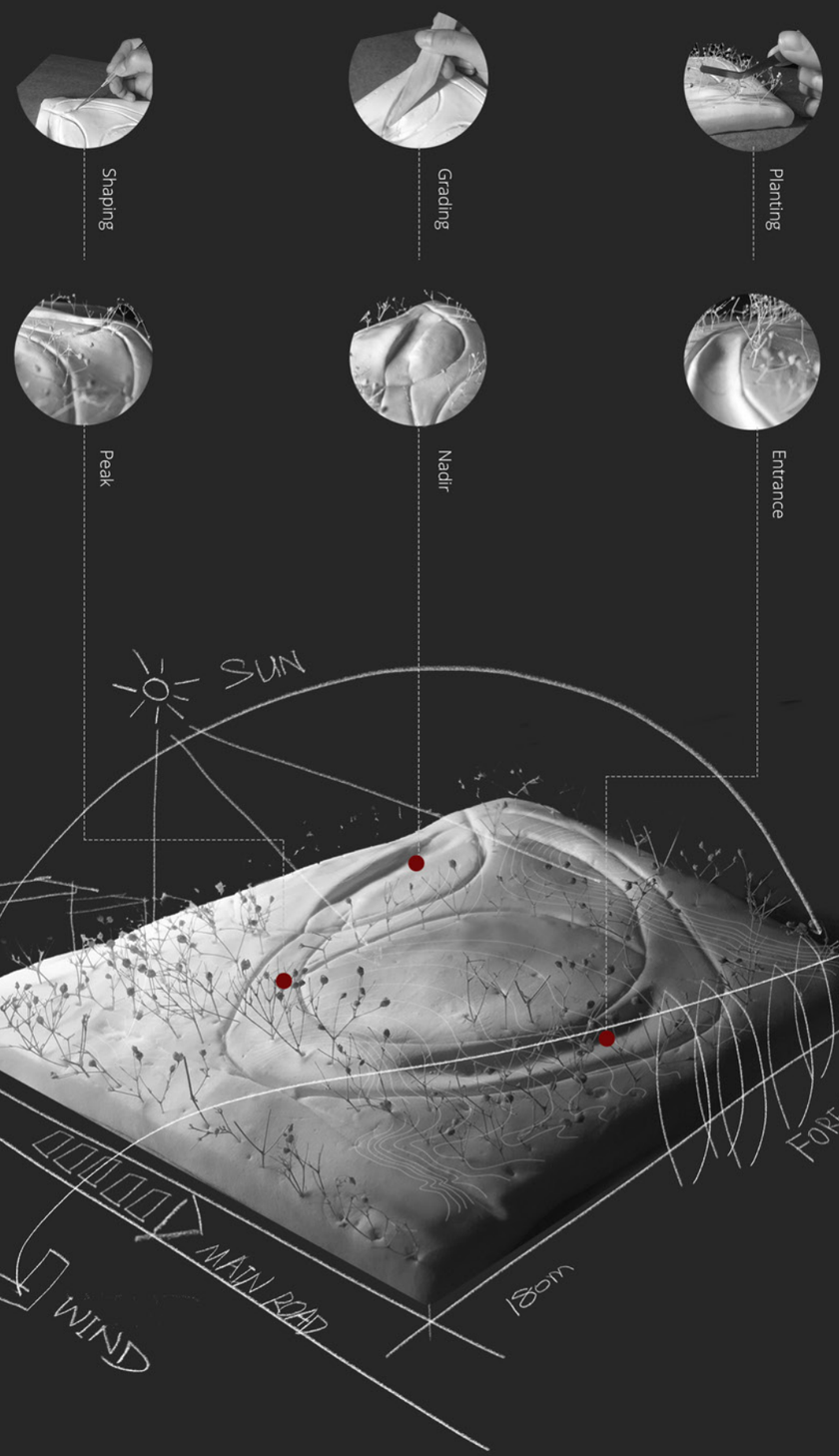
· Credit to movie *Coco*

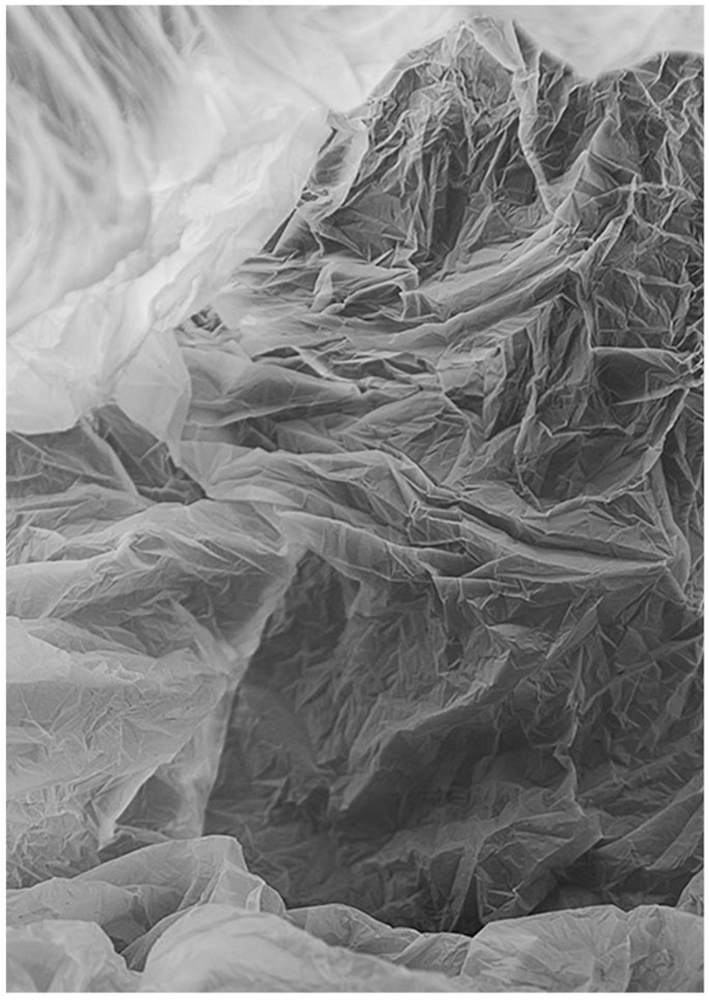
Colors Reflect Emotions





Study Model in Clay





A different perspective of the plastic bag

02 From Trash to Fish

A Framework of Eco-friendly Industry Solving Marine Debris Problems

Studio Work, Individual

Date: 10/2018-12/2018

Site: Madagas-car, Africa

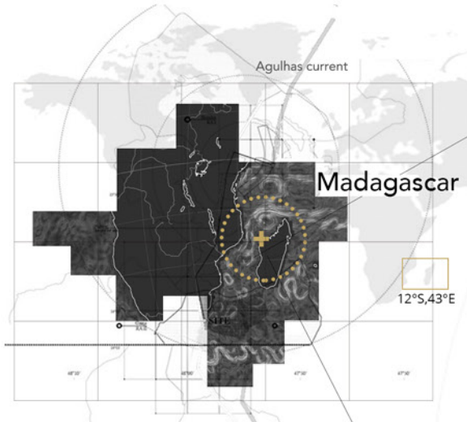
In recent years, with the depletion of land resources and the development of science and technology, people have gradually turned their attention to the **ocean**. Various technologies for developing marine energy sources have emerged one after another. However, people may not realize that the ocean has become the world's **largest garbage** dump. Every year, millions of tons of garbage are poured into the sea. With the convergence of **ocean currents,** five garbage belts have been formed, and area of the largest garbage belt has exceeded the area of Europe.

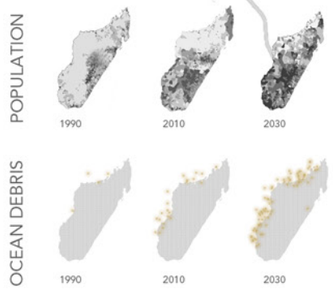
Due to the influence of the Mozambican ocean currents, marine debris in the Indian Ocean gradually gathered on the west side of the island of Madagascar, seriously affecting the **local ecological environment, fishery and tourism,** which undoubtedly impacted the development of the African country which was lagging behind.

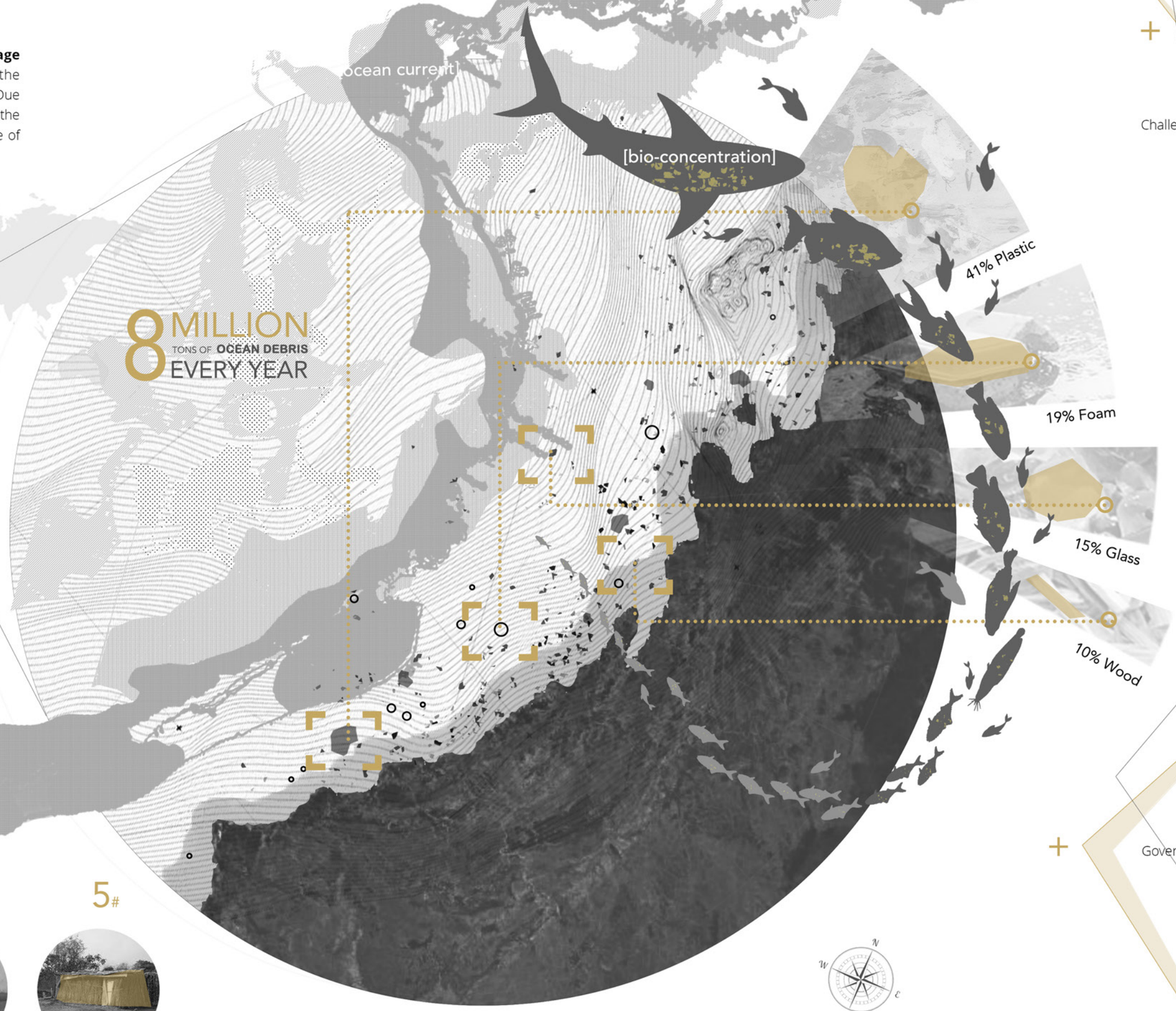
This project aims to find a **simple but powerful** way which can be sustainable and also help local people alleviate poverty. Available raw materials are very convenient for locals and the decentralized recycling process provides local infrastructure for the construction industry. When the marine environment is gradually purified, this original device can be used to build marine fisheries, providing a **sustainable** strategy for the local economy.

Marine Debris Is Submerging Us

The ocean is becoming the world's **largest garbage dump** and there are five huge garbage belts on the planet, the largest exceeding the **European area.** Due to the influence of ocean **currents**, marine debris in the Indian Ocean will gradually **gather** on the west side of **Madagascar.**

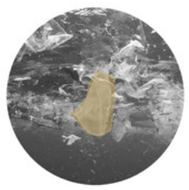






PROBLEMS

16%



Debris

Marine debris around Madagascar **grows** at a rate of 16% per year.

2$

Poverty

90% of residents have an average daily **income** of less than $2.

5#

Indusrty

Less than five kinds of **industrial** raw materials can be utilized.

Challenge & Opportunity

Financial crisis

Tourism

Political crisis

Government bankruptcy

Fishing industry

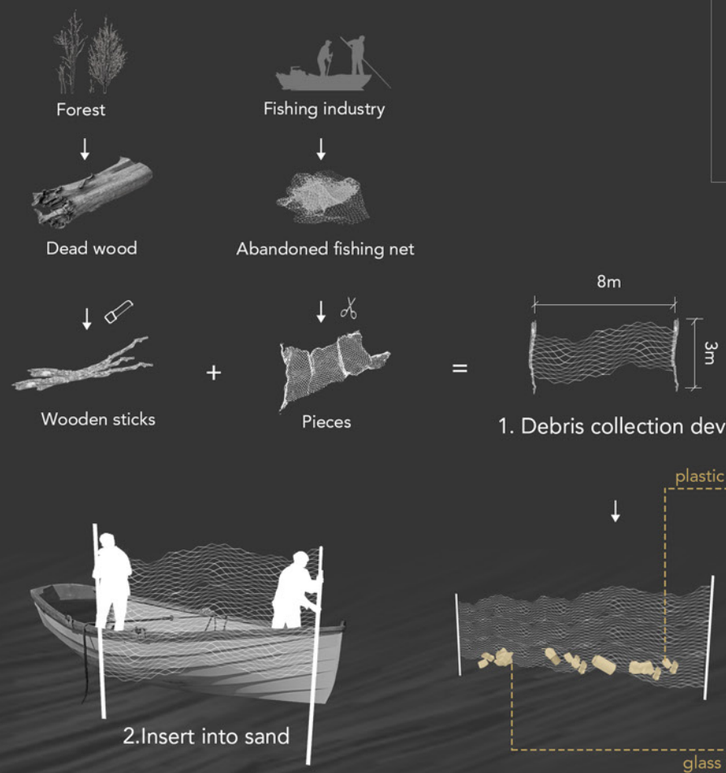
Plantation

2020
2008
1995
1991
1982
1921
1883

economy
political power

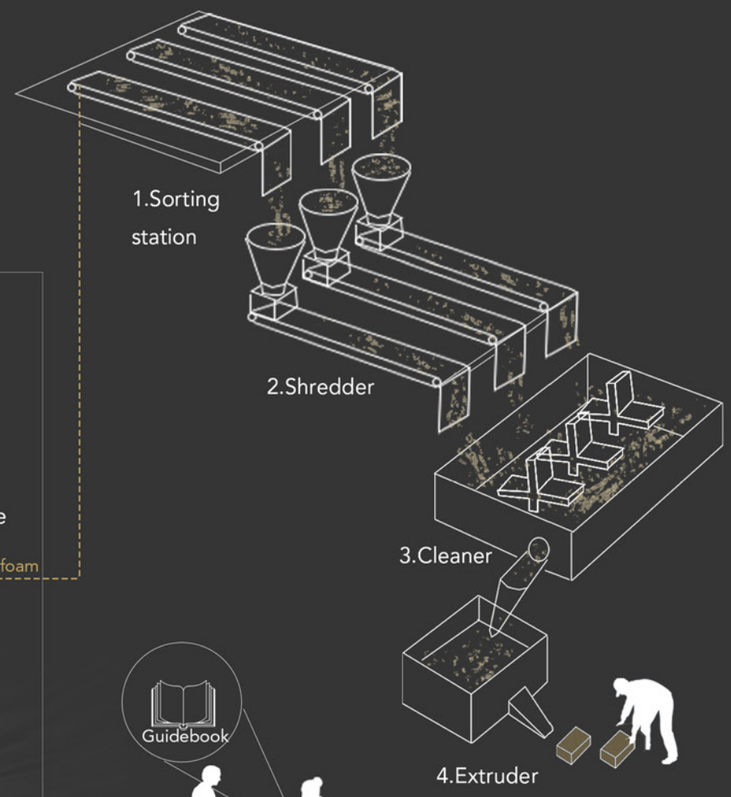
How to Deal With it?

STRATEGY 1
Collection in Local Way



[Ecology] Collect **800kg** debris every month

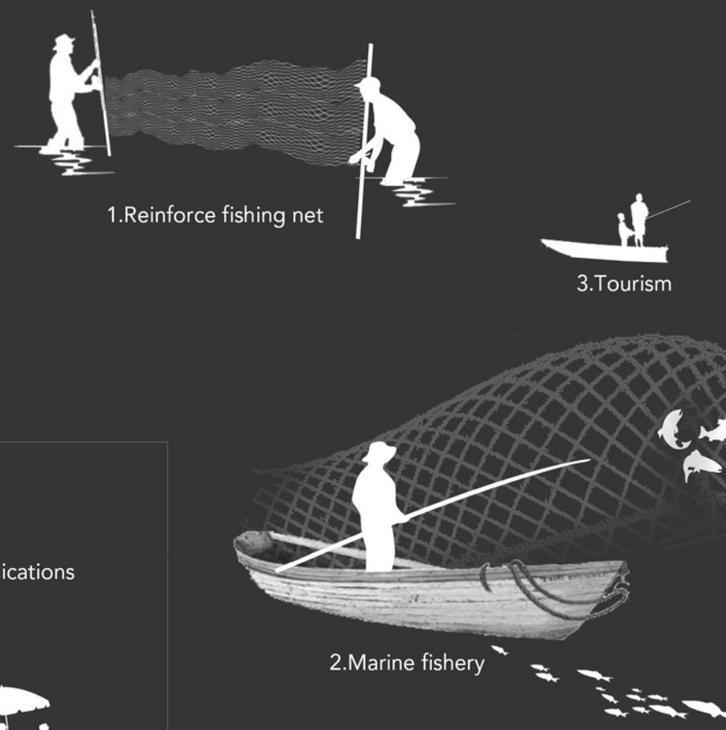
STRATEGY 2
Decentralized Recycling




5.Industrial applications

[Industry] Provide **15,000** jobs for locals

STRATEGY 3
A Sustainable Fishery



[Economy] Increase **25%** of the revenue

STRATEGY 1
Collection in Local Way

Based on the local rich **wood resources** and abandoned **fishing net**, locals can make and install simple garbage collection devices within several simple steps.

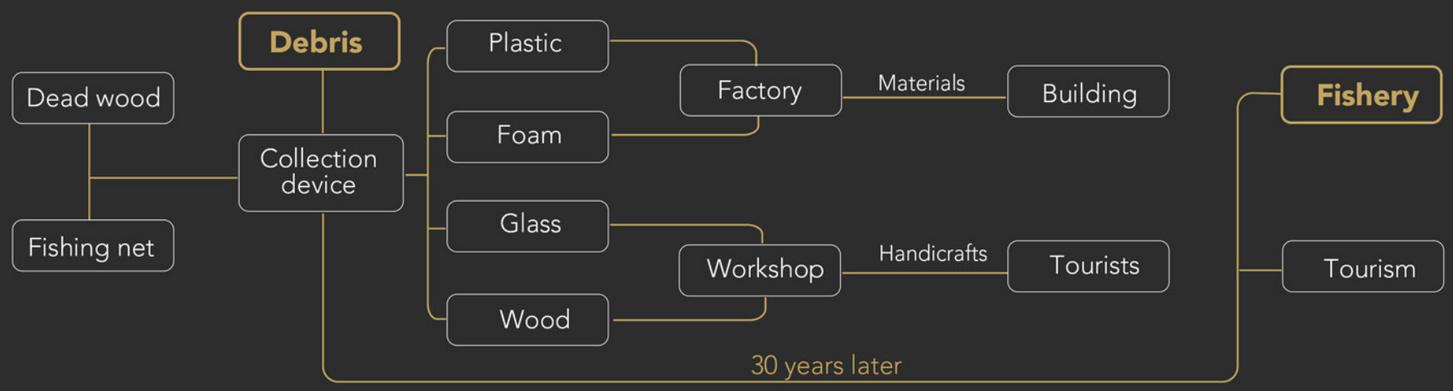
STRATEGY 2
Decentralized Recycling

The simple recycling system provides more **job opportunities** for local residents. It can also be recycled as fundamental **building** materials and **souvenirs** to increase tourism revenue.

STRATEGY 3
A Sustainable Fishery

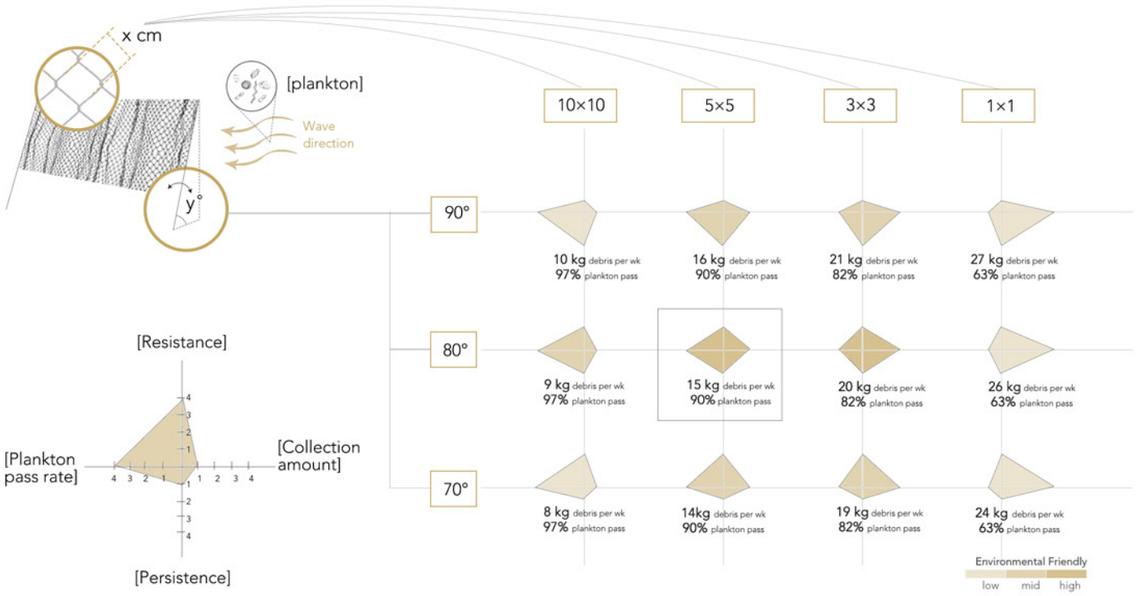
As time goes by, the environment is gradually purified, marine debris is becoming less and less. The device for collecting garbage can **changed in to a marine fishery**.

FRAMEWORK

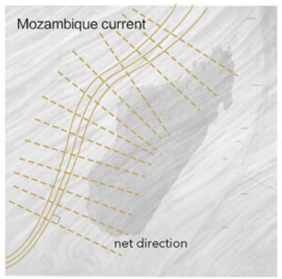


Strategy 1 - How to Choose the Collecting Device?

Fishing nets with small gaps can collect more marine **debris** but prevent **plankton** from passing through and affect the marine ecological chain. Devices with large tilt angles are able to **withstand stronger winds** but have a **short life span**. How to balance their relationships and choose a better solution?



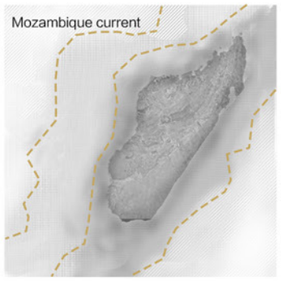
Strategy 2 - How to Decentralize the Recycling?



Current Direction

general main

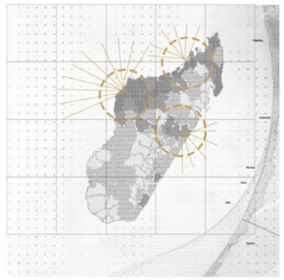
fishing net direction



Current Velocity

0.5~1m/s 1~2m/s 2~3m/s

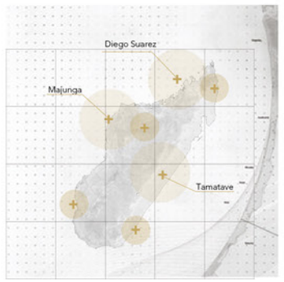
dividing line



Poverty Density

>5$/day 3~5$/day 1~3$/day

<1$/day key construction point

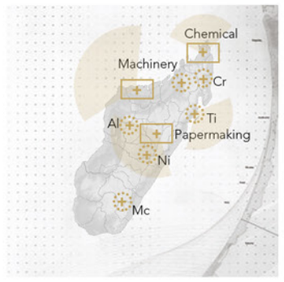


Tourism

popular destination general attraction

Accessbility

train airplane main road



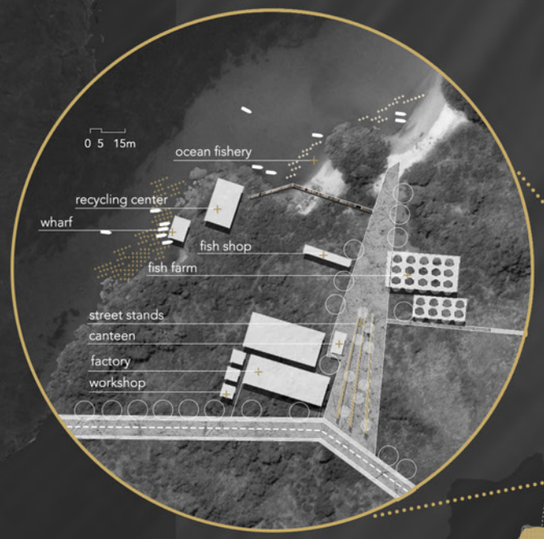
Industrial Distribution

light industry light industry

Sphere of influence

Dynamic Challenges, Dynamic Landscape

As time goes by, coastal planning will bring great benefits to the **entire island** and the recycling of marine debris and the establishment of marine fisheries will promopt the **development** of the entire country.



100%

COLLECTION

2028

[Collection System Finsihed]

50% COLLECTION

50% FISHERY

2038

[Rise of the Fishery]

100%

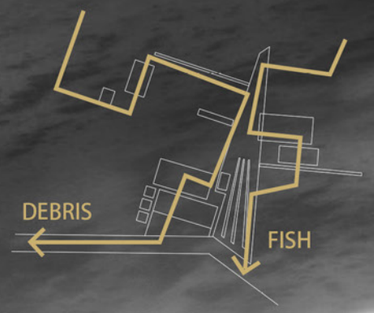
FISHERY

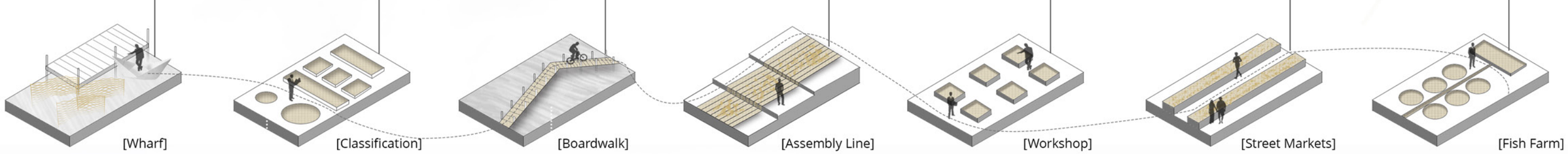
2048

[Mature of the Fishery]

MASTER PLAN

Strategy 3 - A Sustainable Fishery





[DEBRIS]

The **appearance** of marine debris and it did not have a great impact on the environment.

2008

[POLLUTION]

The **increasing** number of marine litter is a serious **threat** to local ecological system.

2018

[COLLECTION]

Collecting marine debris through the device to **purify** the marine environment.

2028

[FISHERY]

After the environment is restored, use the old device to build a **marine fishery** to raise fry.

2038

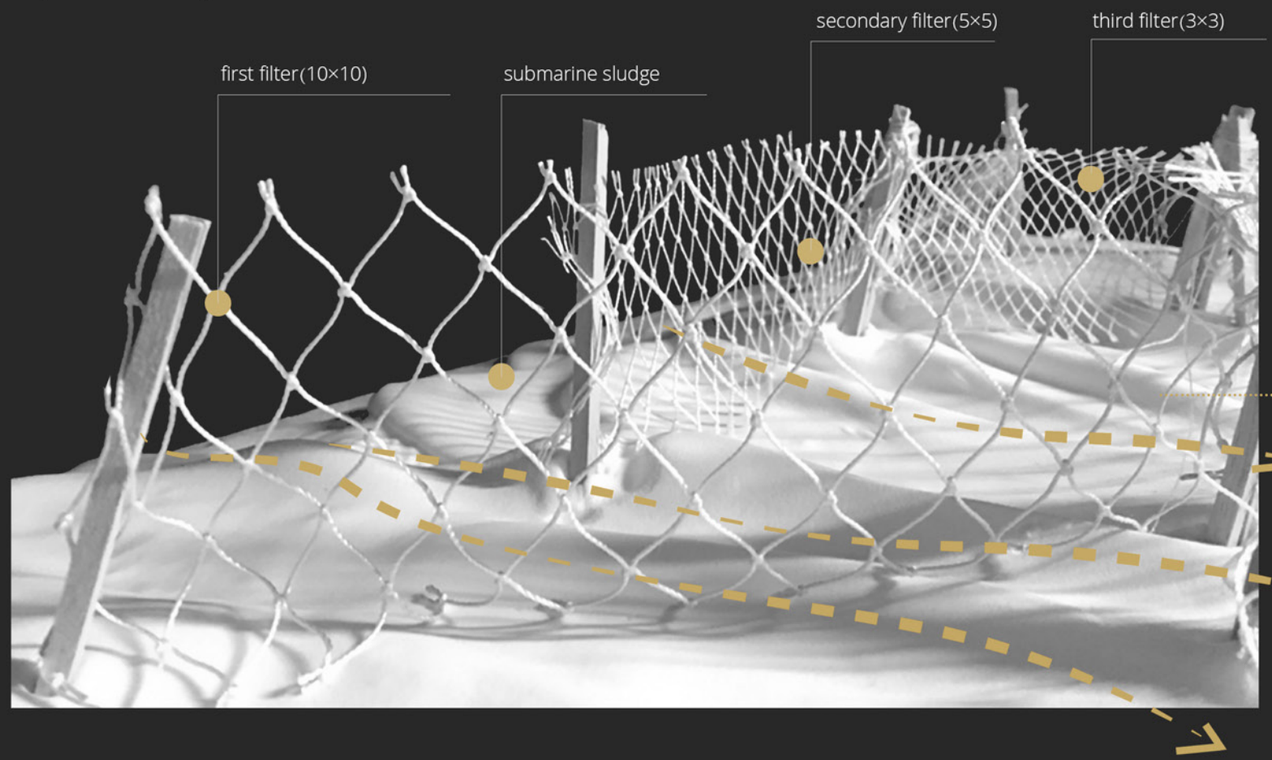
[COMMUNITY]

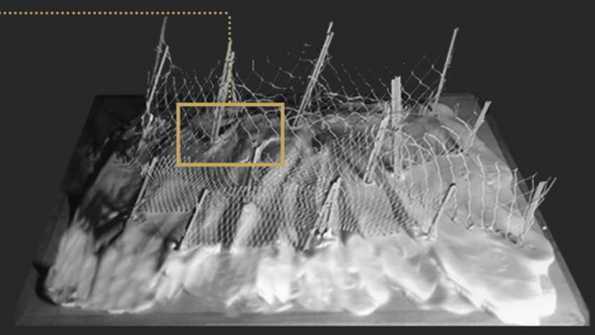
The fishery provides a lot of **jobs** and helps the local community to **develop** in the long run.

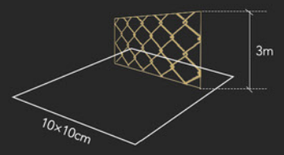
2048

Debris Collection Experiments

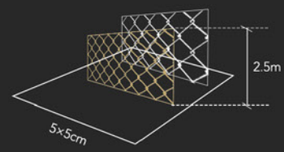
I used **sand** to simulate water flow, **pushpins** and **hemp ropes** to simulate marine debris. The video recorded the effectiveness test of the debris collection device system, which are composed of **three layers** of filters.



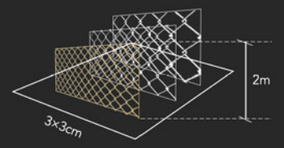




[Primary Filtration]

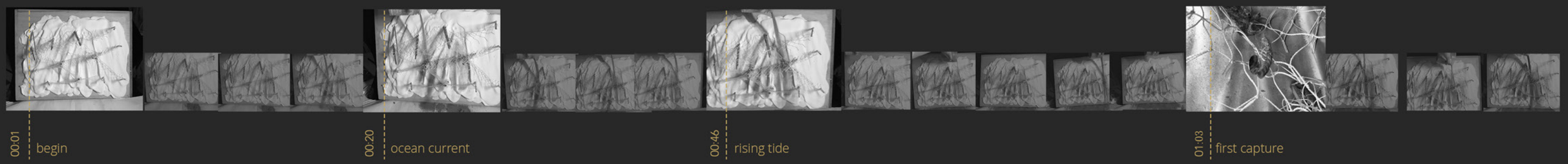


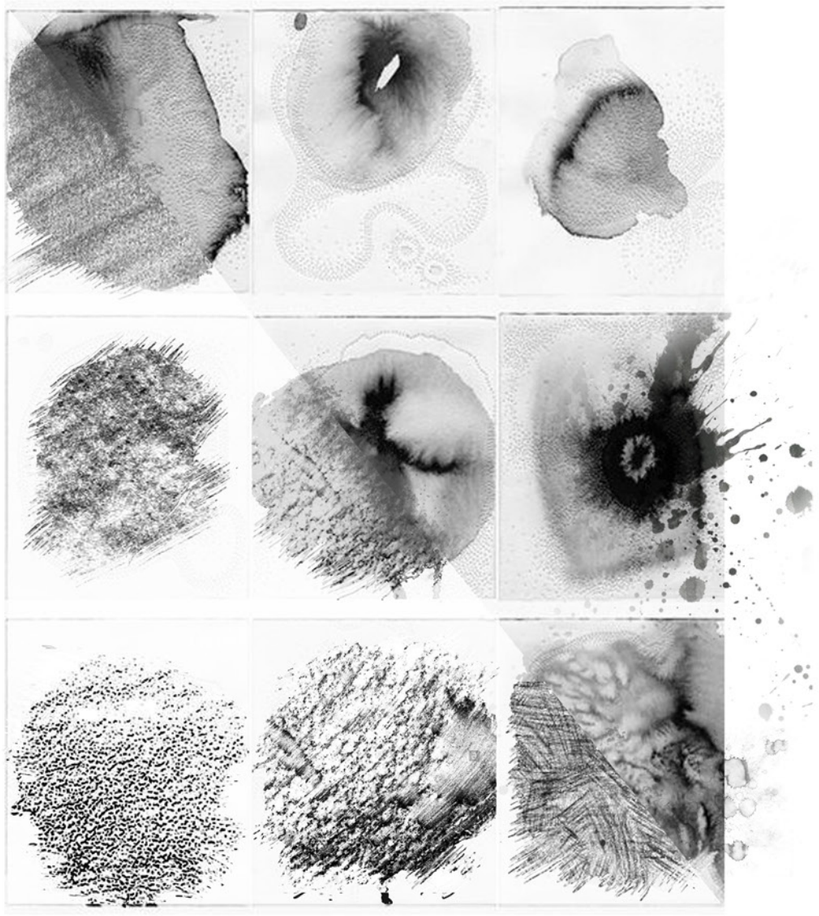
[Secondary Filtration]



[Tertiary Filtration]

[video record]





Pencil and ink experiments on different kinds of papers.

03 Arid Oasis

Thoughts on the Unequal Distribution of Water Resources Caused by Political Factors

Studio Work, Individual

Date: 01/2018-03/2018

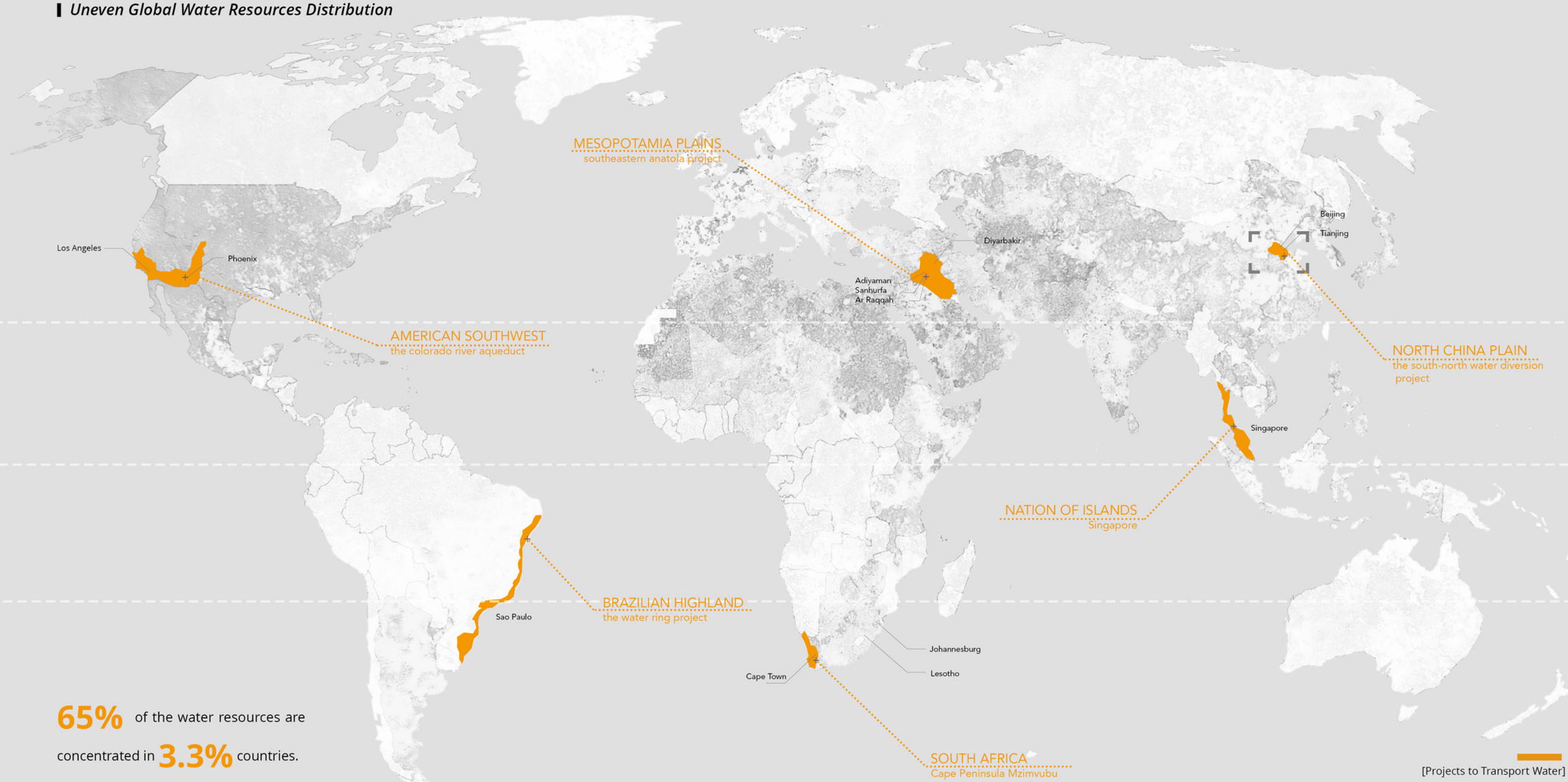
Site: Haidian Beijing, China

Beijing is one of the most water-poor cities in China. However, when I went to Beijing for the university, I found that water there seems to be inexhaustible. So where does the water come from? The answer is the South-to-North Water Diversion Project. Billions of cubic meters of water activate Beijing, just like blood. In contrast, other northern cities, without enough **political support** to get enough water and other resources, are faltering.

This Water Transfer Project, aiming to balance resources originally, has aggravated **social injustice**. Beijing is like a arid oasis, but few people realize it. A large amount of water are wasted every day.

This seems to be a difficult problem for landscape architects to intervene under the top-down structure of socialist patriarchy, but I think a gentle stimulus through **bottom-up design** can work. Characteristics of the barren drought areas without enough water resources are reflected in this park, which is a sharp **contrast** to the ordinary Beijing Park. Through the **AR technology**, the drought is intuitive to visitors. People can see Beijing's water consumption, saving water tips and donate to Dingxi on the app. Thus, this park can have some influence and promote social justice gradually.

Uneven Global Water Resources Distribution



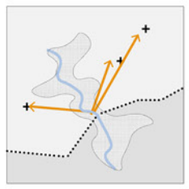
65% of the water resources are concentrated in **3.3%** countries.

5,000,000,000 people are short of water.

Data from http://ourworldindata.org/water-access-resources-sanitation&http://www.thomasnideroest.com

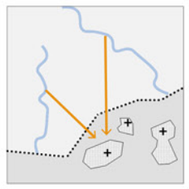
[How to get water?]

1. Water resources are shared by one or more countries.
2. Automous countries with limited resources get water from land.
3. Water resources are moved within one country.



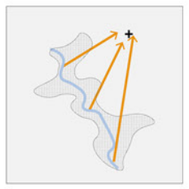
Multi-national project

South Africa



Islands with set boundaries

Singapore

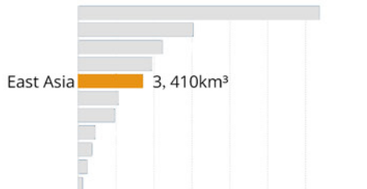


Domestic Projects

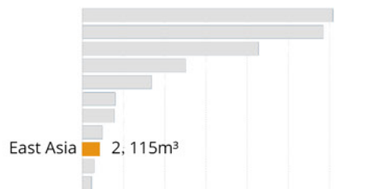
China

[Huge differences and decreasing trends]

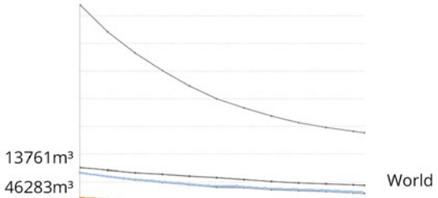
1. The minimum amount of water is less than **one percent** of the maximum amount of water.
2. Water resources are declining at a rate of **five percent** per year.



Internal freshwater resources, 2015



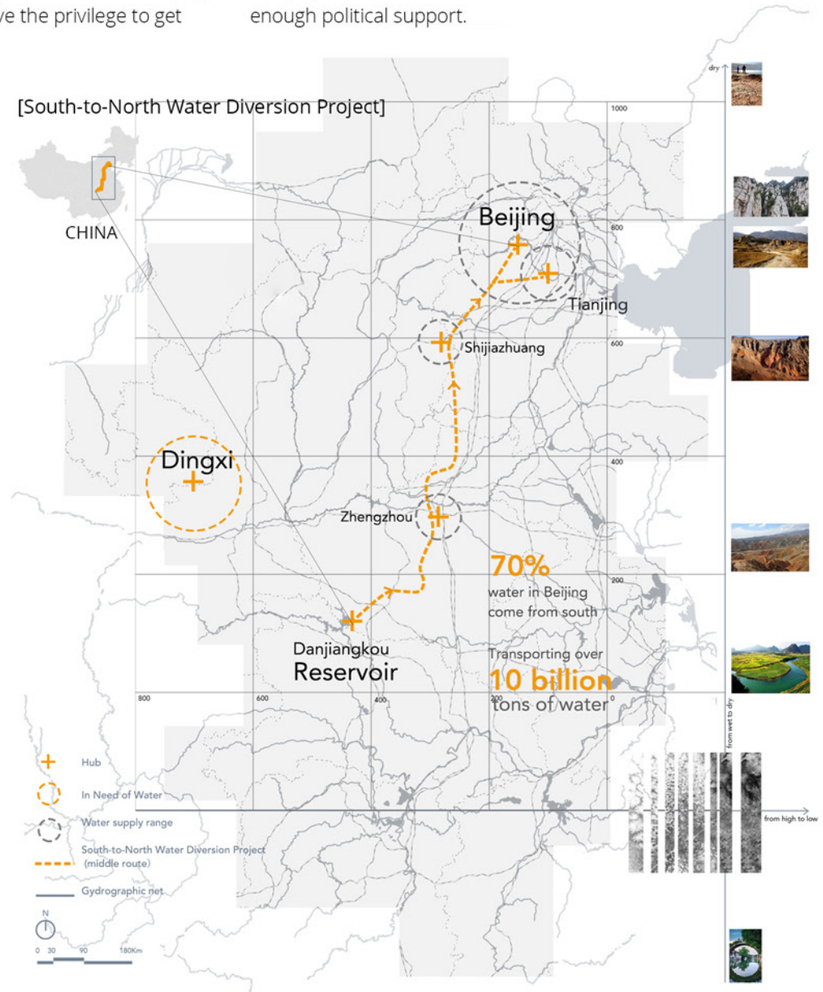
Per capita freshwater resources, 2015



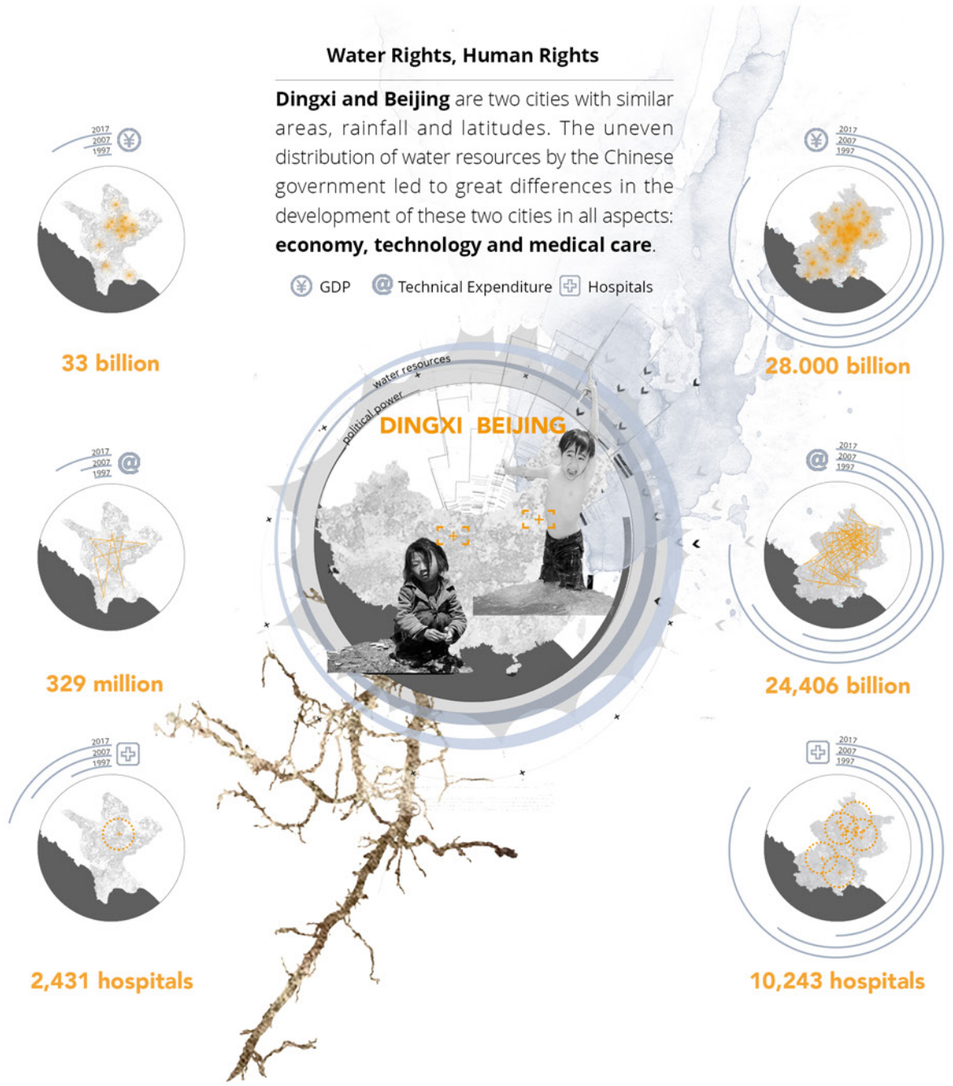
Internal freshwater resources per capita

Where Does the Water in Beijing Come From?

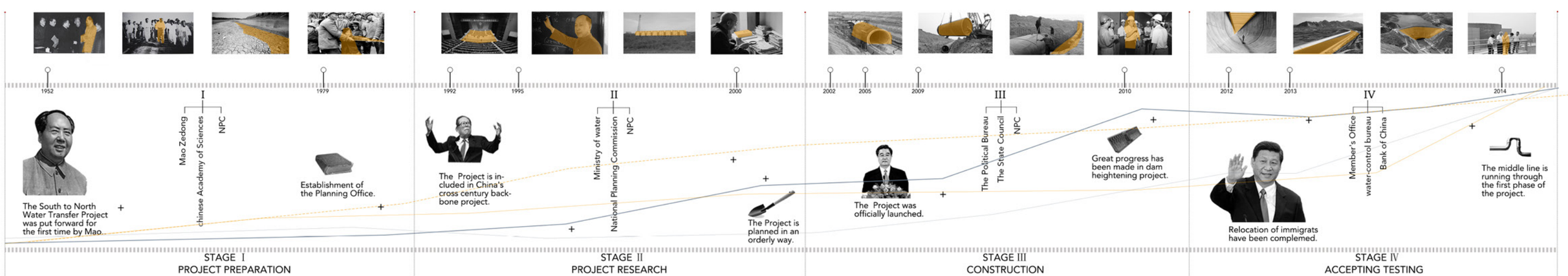
Water resources are **transported** from southern China to the north, but only the **political power centers** - Beijing and Tianjin have the privilege to get water resources. **Dingxi**, which is not far from Beijing, **cannot benefit** from the project because it does not have enough political support.



Social Injustice Caused by Water Allocation

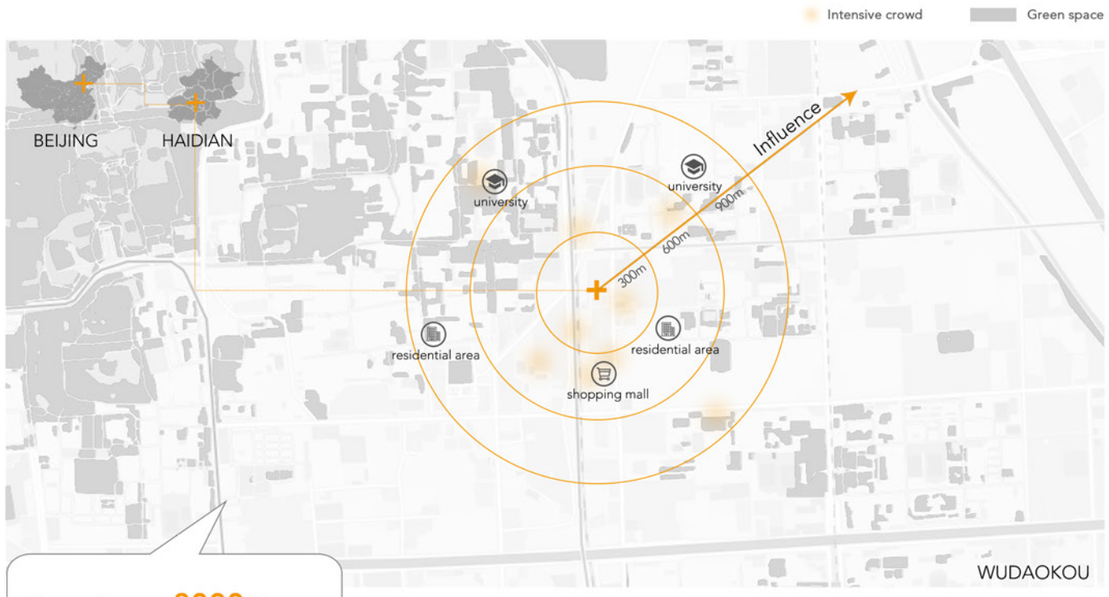


Political Power in the Process



Intervene in a Gentle Way

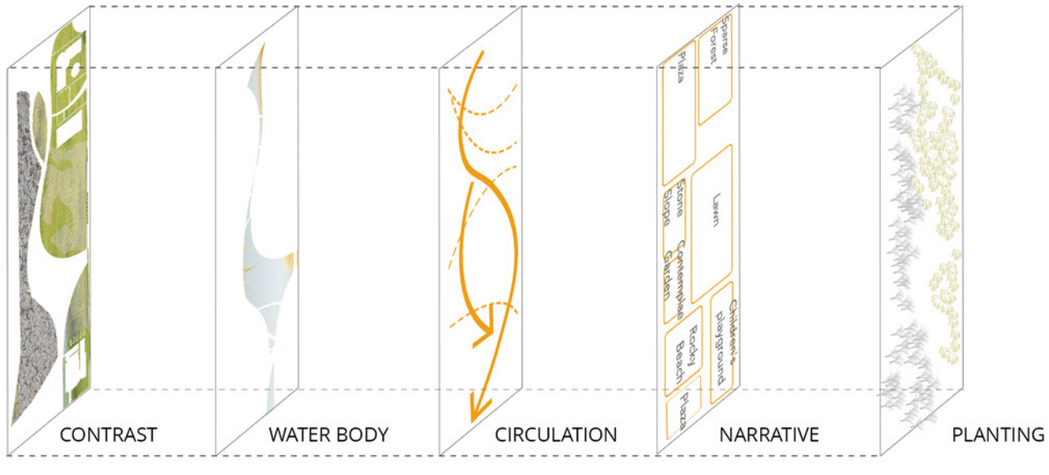
Since designers can't directly intervene in politics, bottom-up design is a good choice. A small **breakthrough point** can reveal the **whole picture** of Beijing: an arid oasis, relying on a lot of transfered water resources every year to maintain a **green surface**. If there is **no transferred water**, what will Beijing look like? This park answers the question by a **contrast** comparison.



Visitors flowrate **8000**/day
Surrounding green rate **28.5%**
Water consumption **3198t**/day

	[Zizhuyuan Park]	[Yuyuantan Park]	[Taoyranting Park]
Water Body	39.8%	45.6%	32.6%
Water Demand :	142,050t/y	411,000t/y	169,680t/y

[Design Concept - Contrast Caused by Transferred Water]

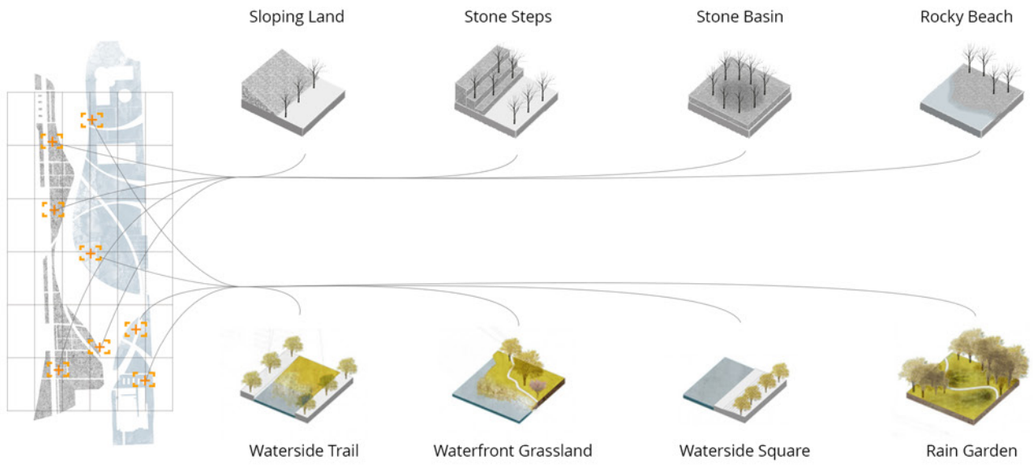


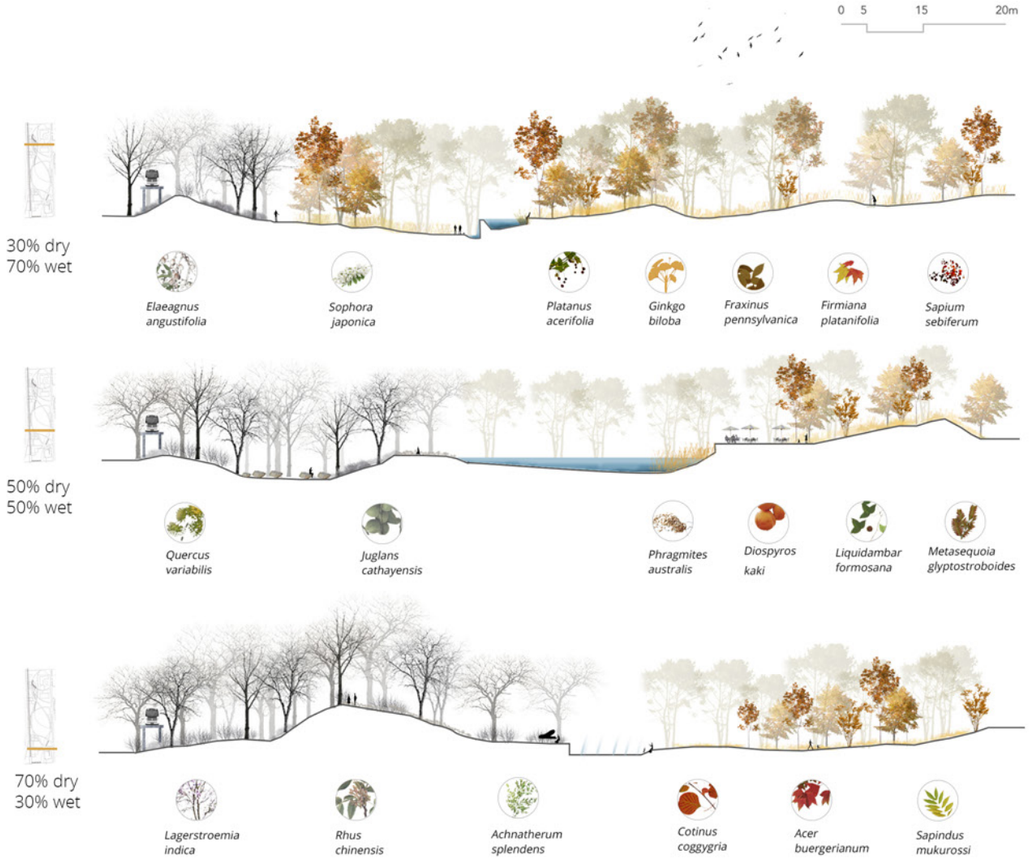
One Park, Two Worlds

The **right** part is similar to the **typical** parks in Beijing, which use a lot of water resources. The **left** part do not use **additional water** supplement, revealing the drought of Beijing. **Two roads** are diverged in the park, representing a completely different landscape experience. The **contrast** reflects **environmental injustice.**

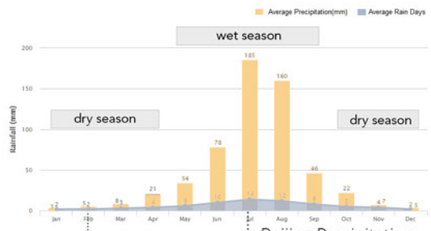
Dry and Wet: Different Experiences

In different paths, people experience different landscapes, which intuitively reveals the problem of **uneven water distribution**. When people visit this park, they can feel the huge difference brought by water resources.

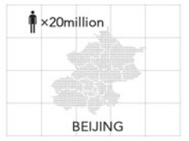




Try Recycling Instead of Transferring



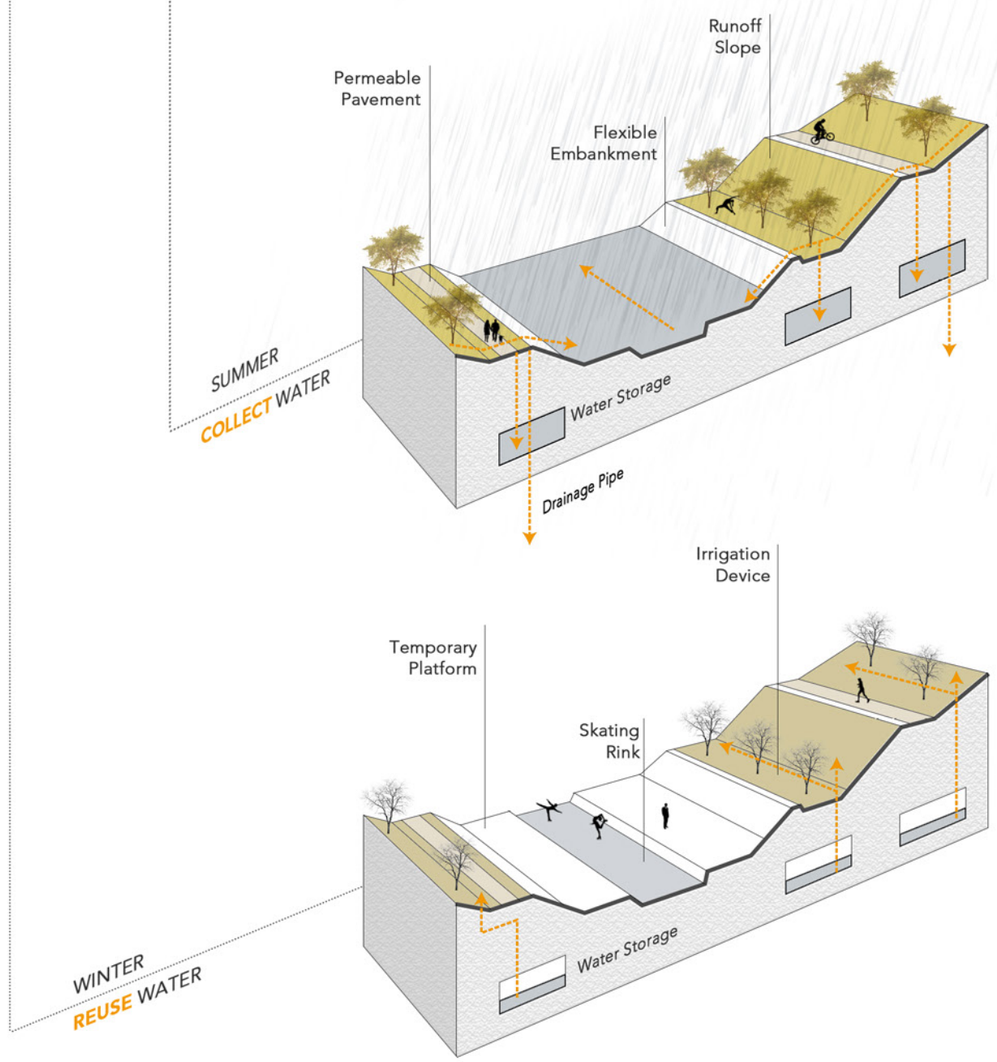
Beijing Precipitation



Beijing Population

600 mm (Annual average precipitation)
×745 m² (Urban area)
=4.41billion m³ (Annual precipitation)

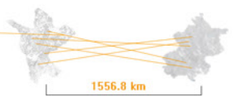
[How to make use of the precipitation?]



Explore the Environmental Injustice with AR Technology

[SCENE 1]
Establish Connection

On the left side of the site, a large number of Dingxi native tree species was planted. Through AR technology, people understand the the **harsh environment of Dingxi**, thus linking Dingxi and Beijing. The lack of resources in Dingxi has become real and sensible scene.

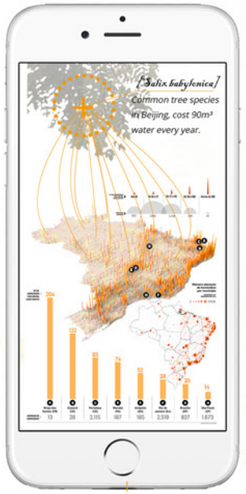


TREE

[SCENE 2]
Offer Help

After people understand the basic situation of Dingxi, they can click on the **donation** botton directly on the interface to help Dingxi develop. Thereby promoting social justice in this way.

SOIL



[SCENE 3]
Ecology Learning

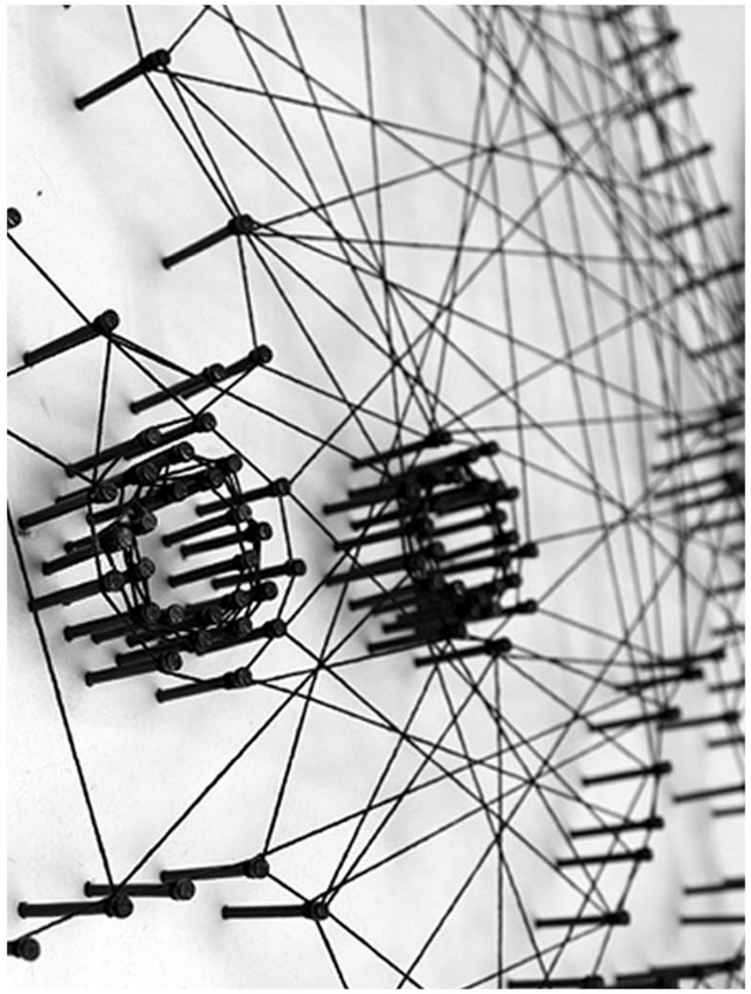
People can scan the site trees through AR, thus learning about the typical tree species and their distribution in Beijing. In this way, they can learn about the amazing **water consumption** every year.

TREE

[SCENE 4]
Promote Recycling

AR technology shows where water comes from, how long it takes, and how much money it costs, making people realize that in resource-poor Beijing, water **conservation and recycling** are the most appropriate method.

WATER



A conceptual model of neural networks.

04 Fourth Nature

Imagination of the Future New York Centural Park-Birth of the Autonomous Landscape

Competition, partner : Jia wei Lv

Date: 07/2018-09/2018

Site: New York, United States

Landscape theorist **John Dixon Hunt** identified the wilderness and cultivation as "**first nature**", and cultural landscape as "**second nature**". Hunt also offered the term "**third nature**" for places such as gardens that have been designed with specific aesthetic intentions.

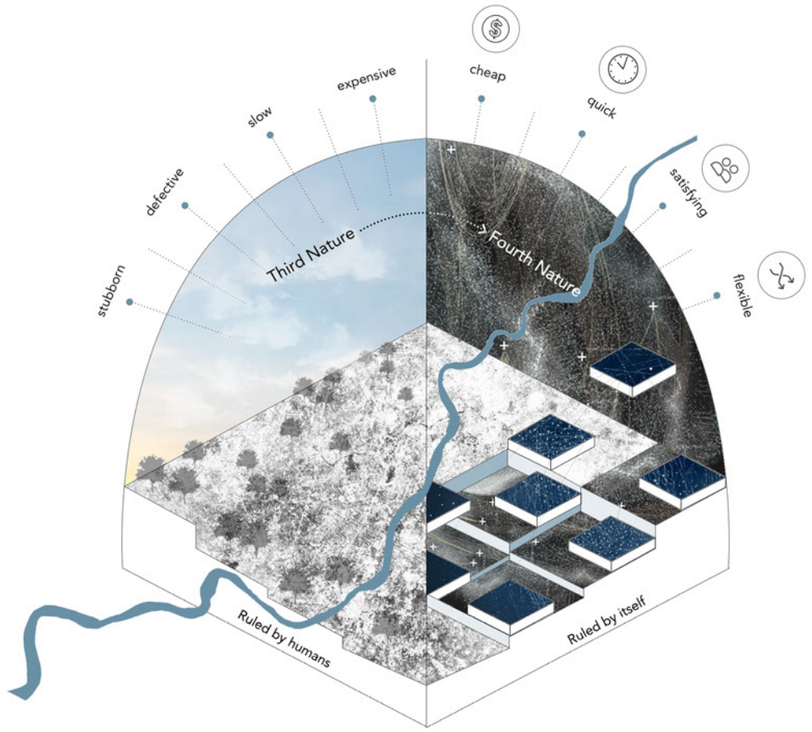
Now hundreds of years have passed the traditional park has been unable to meet the ever-changing human needs. The birth of the "fourth nature" seems imminent, that is, the landscape is excepted to get rid of the human domination, and **embraced autonomy**.

The new centural park can transform itself automatically to adapt various external changes without any human intervention. The realization of all these mechanisms are based on a neural-intelligent system. Imitated from the human nervous system, the park has constructed a powerful and extensive **neural network**. Tens of billions of nerve endings scatter in the park, collecting data and uploading to the clouds for analysis. The cloud system will make decisions based on heterogeneous information. It then sends the results back to the site, which will change themselves **dynamically** in real time. In this way, the whole neural-intelligent system can dramatically extend the life span of the park and satisfy people at any moment.

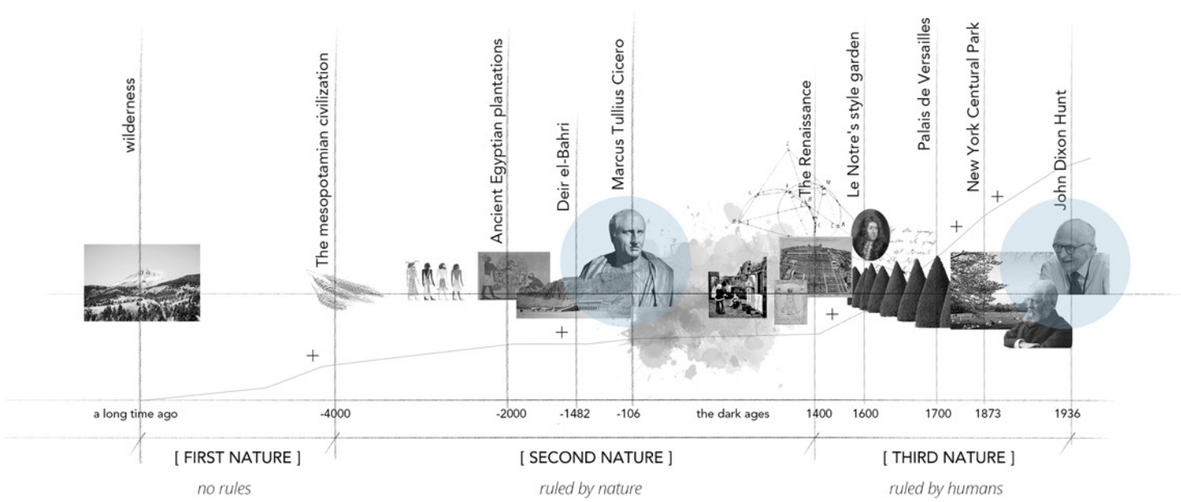
In the history of human kind, we have long pursued the power of technology and innovation. Now, however, the reality has shifted to the other end, we can never see a buzzing bee or a wandering leaf in this "perfect park". Standing in the face of such perfection that lasts and endures, will we miss the pure nature that breaks and degrades? Is it really **the best of times or the worst of times**?

From Third Nature to Fourth Nature

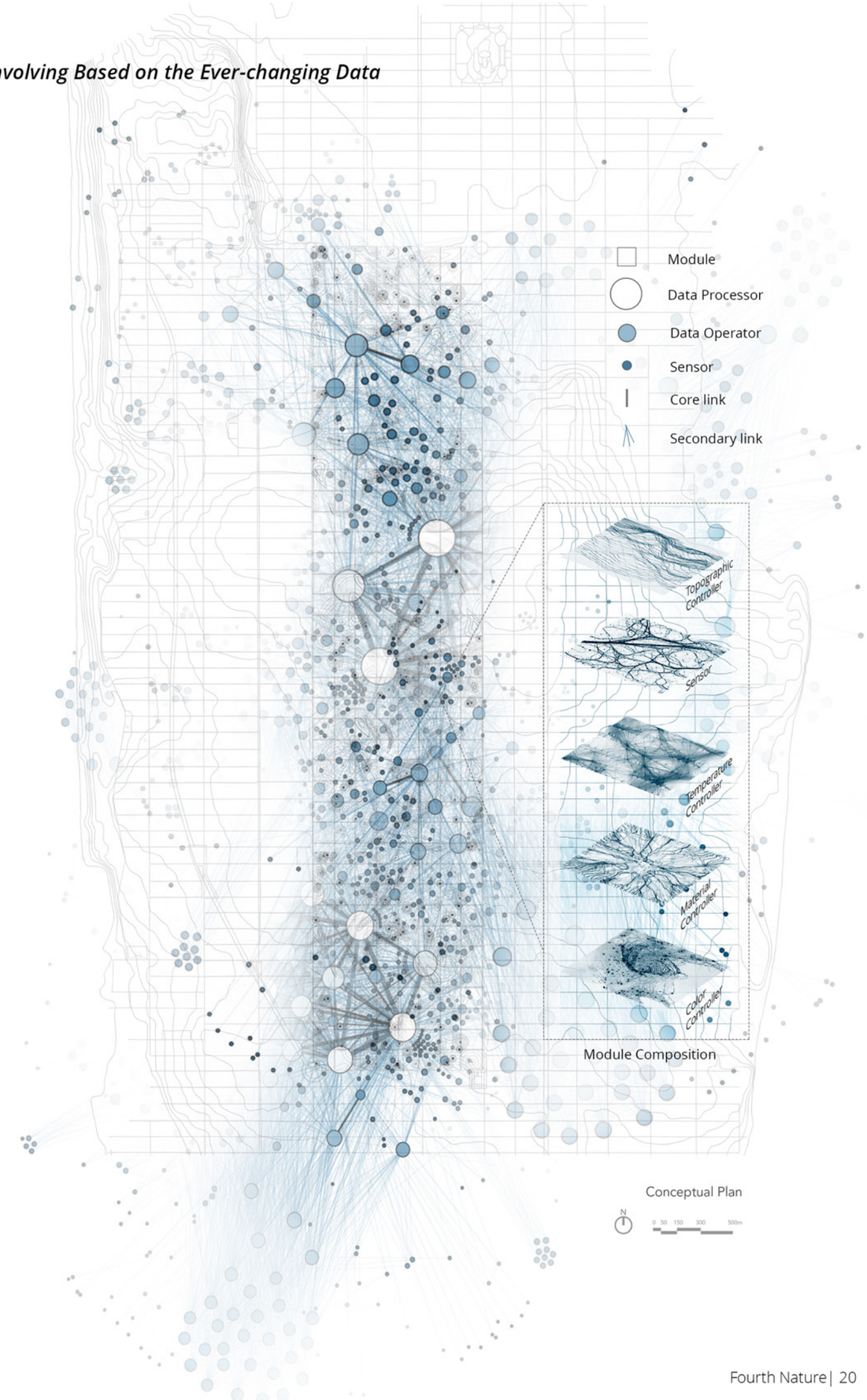
The third nature requires **human intervention**, while the fourth nature breaks away from this **paradigm**. Fourth Nature has a modular neural network system that can be updated in real time through big data collection. The process is called "**self-metabolism**".



The History of Landscape

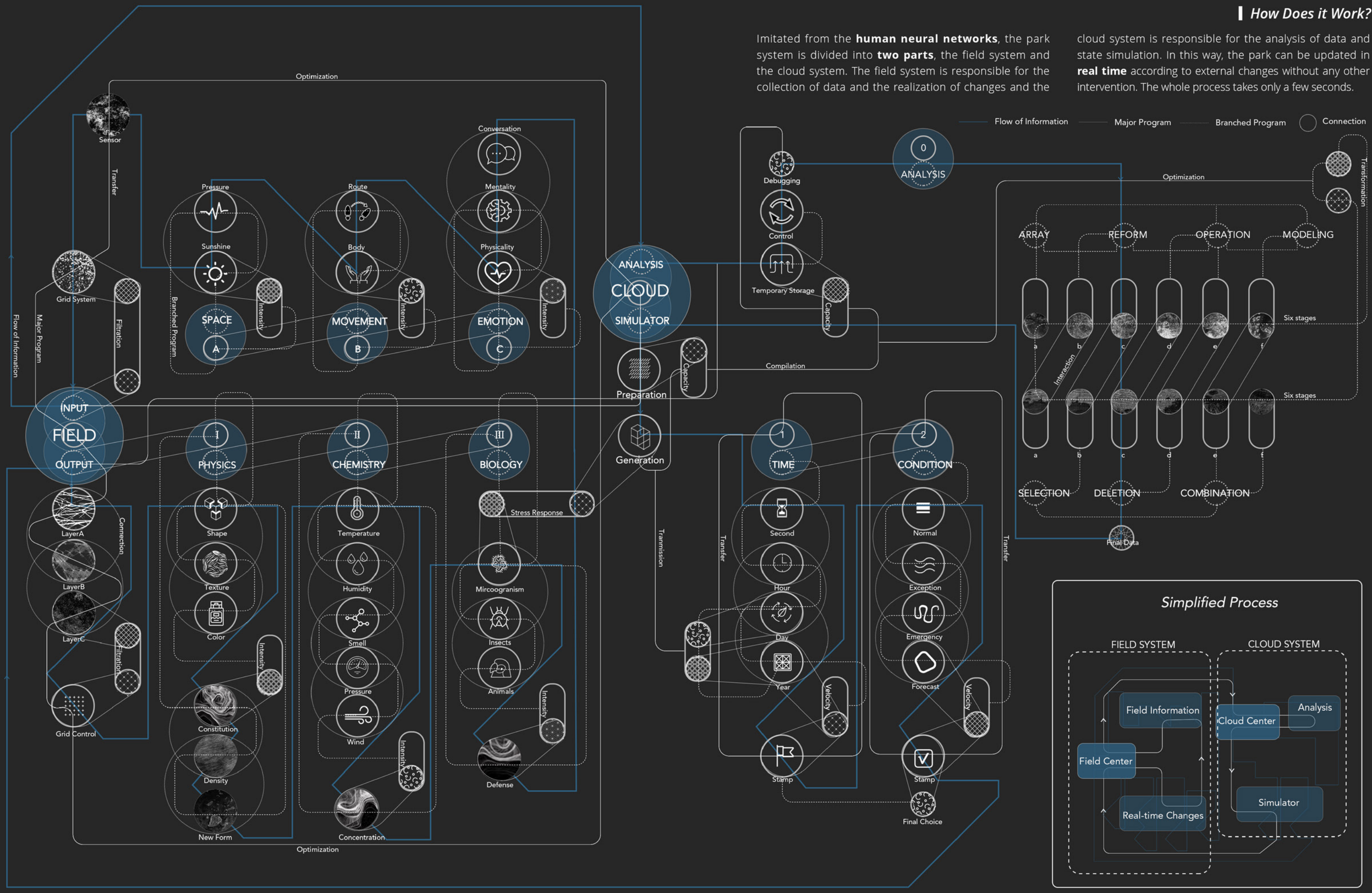


Envolving Based on the Ever-changing Data

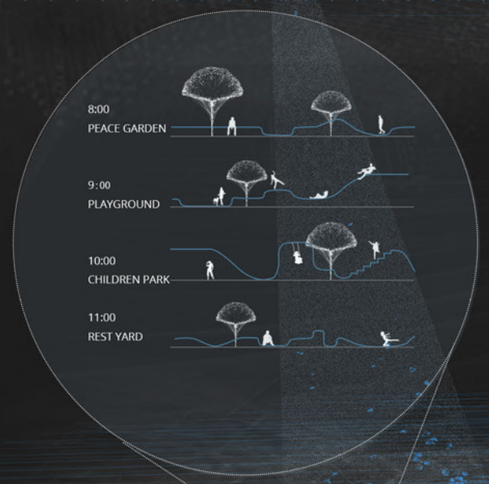


How Does it Work?

Imitated from the **human neural networks**, the park system is divided into **two parts**, the field system and the cloud system. The field system is responsible for the collection of data and the realization of changes and the cloud system is responsible for the analysis of data and state simulation. In this way, the park can be updated in **real time** according to external changes without any other intervention. The whole process takes only a few seconds.



Simplified Process



Cloud Processor

Time Slice 5

Superposition of conditions

Time Slice 4

Time Slice 3

Time Slice 2

Time Slice 1

The Automony of Landscape

Based on the powerful neural system, the Central Park has successfully realized the "fourth nature", namely "the autonomy of landscape". It can cope with the **rapidly changing environment** and meet the **needs of human** at any time and anywhere. It provides a safe and comfortable shelter for human, which lasts for ever. However, at the same time, human lost the "delicate but pure" nature. Is it really the best of times?

Watercolor, Spain, 2015

05 Other Works

Paintings and Photographs

Daily life,
Individual

"Beauty is everywhere. It is not she that is lacking to our eye, but our eyes which fail to perceive her."

—— Auguste Rodin

I have always kept this sentence in my heart. Perhaps the beauty of many things in life seems to be **invisible** to most people, but landscape architects has the sensitivity to capture these moments and translate them into **visible** design. With the curiousity towards beauty in my life, I found painting and photography are very good ways to record those moments .

Date: 09/2014-
12/2018

I started to paint from the age of seven. Through the experience, I found my **insights** become sharp. The flowers in my eyes, except for the thin petals and leaves, I can observe her fluff, her little thorns, and the ants in the stamens and the water droplets at the top of the leaves. It is these rich details that make up a beautiful flower.

After I went to college, I had my first camera and I enjoyed using it to **capture every moment** of my journey. The rising fog, the ripples caused by the wind and the mottled tree shadows on the walls, these are the imprints of time and they all have breathtaking beauty.

Site: around
the world

I believe painting and photography will help me to go futher in the daily observation and professional development.

Paintings

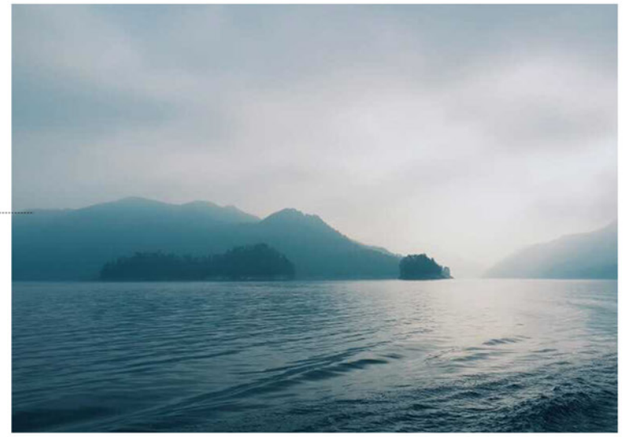
watercolor, village in Jiangsu province, 08/2017

quick sketch, Lingyin Temple, Hangzhou, 04/2018

sketch, Set of still life, 11/2016

Painting helps me to learn how to observe things in detail.

Photographs

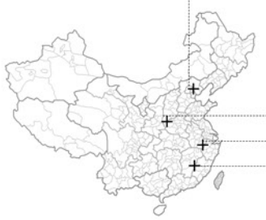


Beijing, China, 04/2017
[SPRING]

Xian, China, 08/2016
[SUMMER]

Hangzhou, China, 10/2018
[FALL]

Xiamen, China, 12/2017
[WINTER]



Photography helps me capture the layers of time.