

PORTFOLIO

YICHANG ZHANG

COLUMBIA UNIVERSITY | GSAPP | 2022-2023



Adapting Suburbia to Climate Change

Redefining suburbia with minimal human intervention

- Instructor: Nerea Calvillo
- Seed & Fire distribution for a Collective Lawn Management
 - Location: Charles Street, Jersey City, NJ
- Team Work with Armita Peirovani and Sue Kim
 - SUMMER 2022

Preliminary Background Research

How Is Climate Change Affecting Floods?
 A climate change activist guide to doomsday

Climate Change Is Not Negotiable

Automated Flood Barricades are coming to Hoboken This Fall

Hoboken underwater by 2100; is there hope?

BY OZ AGUINAGA ON APRIL 22, 2022

Designing an end to a toxic American obsession: The Lawn

Updated 27th April 2020

The LAWN: A History of an American Obsession

Support the Guardian

The Guardian

This heatwave is a reminder that grass lawns are terrible for the environment

Another Downside to Your Classic Green Lawn

EDITORIAL: Climate change, drought signal time to go against the green

Perfect Lawn Is Bad for the Environment. Here's What to Do Instead

The American Obsession with Lawns

Lawns are the most grown crop in the U.S.—and they're not one that anyone can eat; their primary purpose is to make us look and feel good about ourselves

19th President: Woodrow

Ladies & Lawns

Fully Automatic

H. H. DILLE & E. W. McGUIRE

Lawn Mower

Patented Aug. 17, 1880.

Coldwell Lawn Mower

Coldwell's Motor Lawn Mower

Will do the work of three horse lawnmowers—and do it better

Coldwell Lawn Mower

Hand, Horse and Motor

In 1870, Elwood McGuire of Richmond, Indiana designed a machine that basically brought push mowing to the masses.

World Locations

1600: Fur trade began between the Natives and the French

1640: Horse weed first listed in North America

1653: Seeds traveled incidentally on beaver pelts to France and Canada

1600: The beaver was virtually extinct in Europe due to high demand for beaver top hats

1912: Chinese empire collapsed and horse weed traveled to the country through less strict trade

1940: Seeds were accidentally dispersed through air mail via bombing during WW2 by English Planes

2020: Horseweed is a strongly resilient in Wisconsin and rural fields

Origin: Zulu natives used horse weed medicinally to treat stomach problems & cure malaria they induced through it. In addition, the natives used the stem to start a fire through friction.

Today: Horse weed is considered as exotic in Central America and the Caribbean, one of the few places where horse weed is native.

History Summary

"Horseweed contains a compound that can irritate one's nose and has been used intentionally by humans to induce sneezing as a means to relieve sinus pressure."

"Digestive issues can also be treated using horseweed. Traditionally, Native Americans treated dysentery with it, and it has also been found to help ease diarrhea. The plant is considered to have tonic properties, making it useful for treating discomfort from indigestion, food allergies, and leaky gut syndrome."

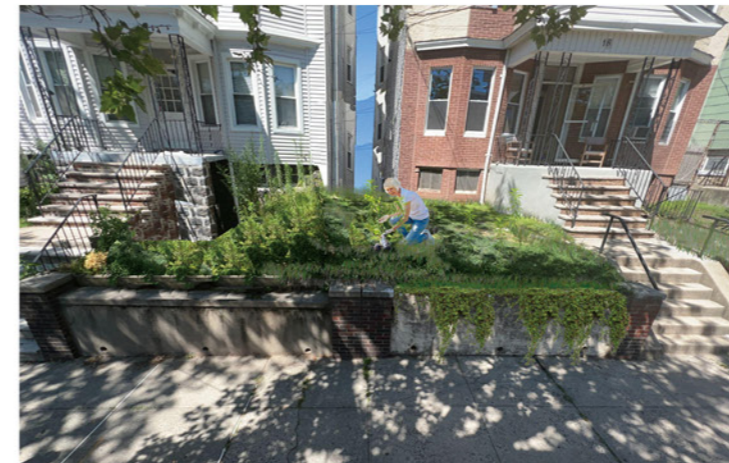
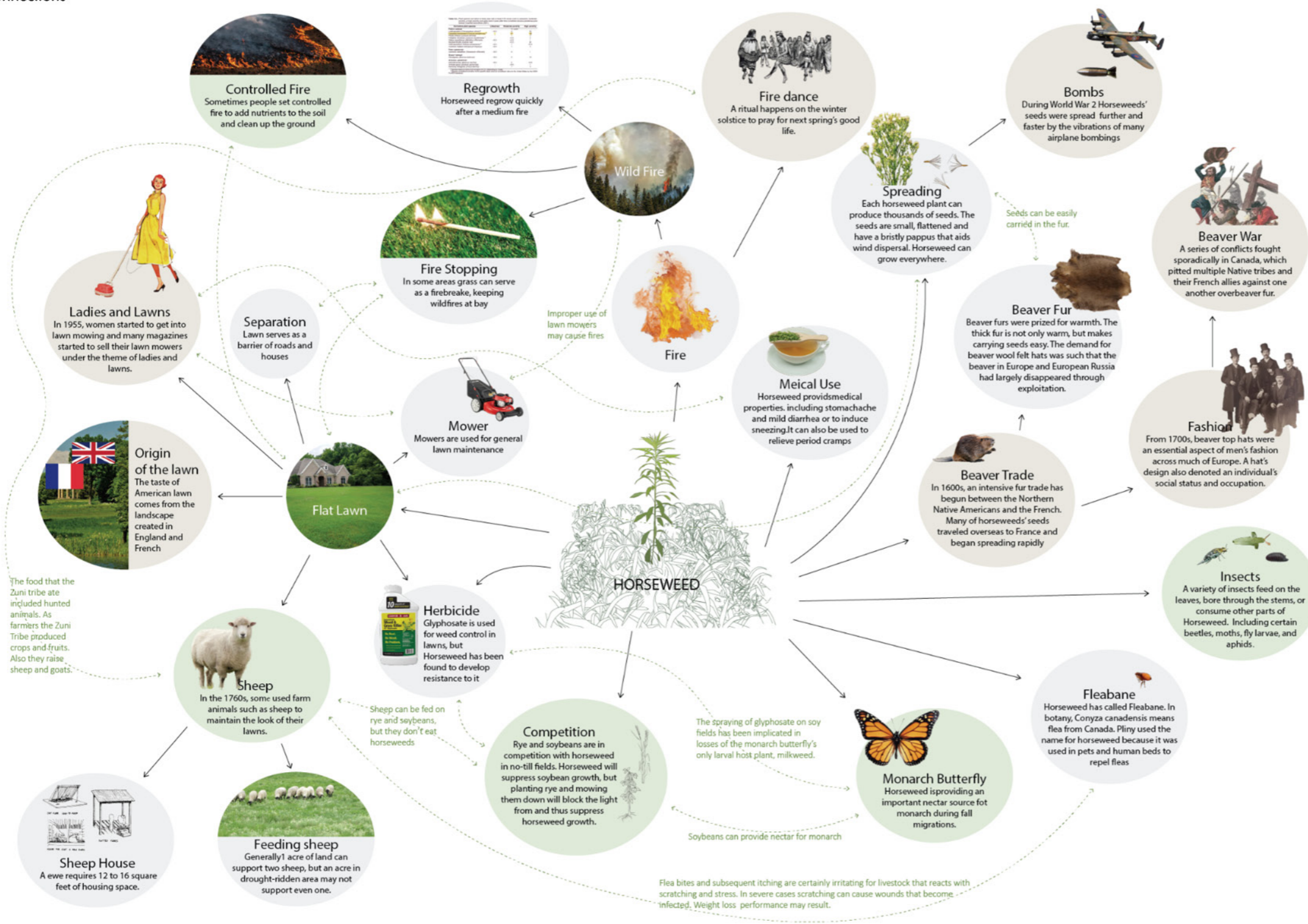
"They used Horseweed for inflammation of the main airways in the lung, sore throat, abnormally heavy bleeding during menstrual periods to stop bleeding"

"Mature plants grow erect, 6-1/2 to 10 feet tall." "Leaves branches resemble a horse's tail" it is also referred to as Mare's tail."

"The horseweed is also one of the best, if not the best local material for a drill when making fire with friction. Actually too fragile to be used with a bow, it works very well using the hand method."

"Horseweed has also been called Fleabane because the leaves put in pets' beds help to get rid of fleas."

Connections







Dispersing Flowers

Public Installations Based on Scaffolding and Plants

- Instructor: Bryony Robert
- A new system integrated into the existing network to build a reproductive justice care system
 - Location: Mott Street, NYC, NY
 - Building Area: 5000m²
 - Individual Work
- FALL 2022

Herbs used for Birth Control



PENNYROYAL
is a plant in the mint family, which has a strong spearmint smell when crushed. It is native to North Africa, Europe, and the Middle East. Long used as a medicinal herb, pennyroyal has been cited as aiding in pneumonia, repelling insects, and inducing a miscarriage. The plant, after a certain quantity, is also toxic to the liver.



BOATLIPPED ORCHID
is native to Australia and can be used as both a contraceptive and an abortifacient. Native Australians were documented to use this herb as such when the early European settlers arrived. The settlers also began to use this herb in the early stage of Australia's colonization.



SILPHIUM
was an herb harvested in the Greco-Roman city of Cyrene in modern-day Libya. Silphium was so valued for being able to induce abortions that the Cyrenians harvested the herb to extinction. It was one of the city's main exports and was worth its weight in silver. So precious was this herb to daily life that its image was

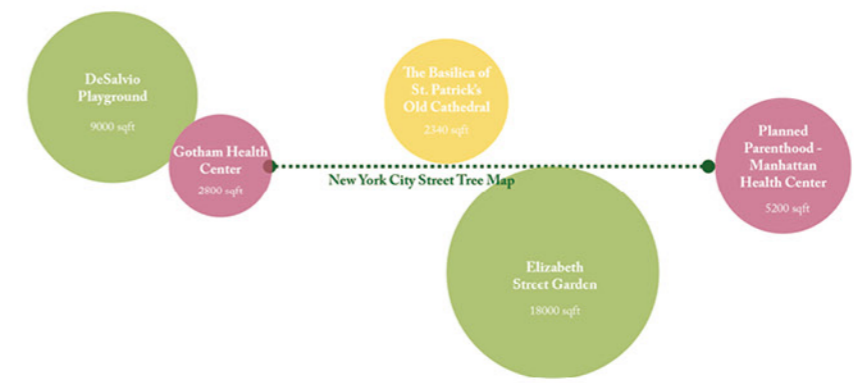


MUGWORT
is a flowering plant native to the Americas, Asia, and Europe. Mugwort has been known to help with anxiety, digestion, and period cramps, as well as being an abortifacient. The stems, leaves, roots, and flowers all have different

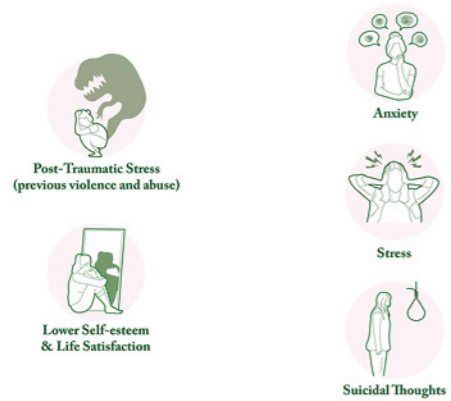


MADAME DEAN'S French Female Pills
They have relieved thousands... They will relieve you.

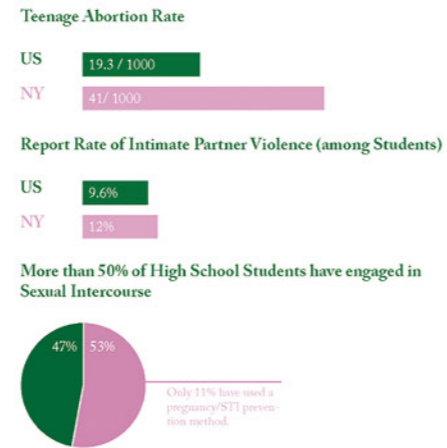
Network of Site - Spatial places



Mental Problems Brought by the Restrict of Abortion



Sexuality Information and Education Council of the United States (SIECUS) Founded

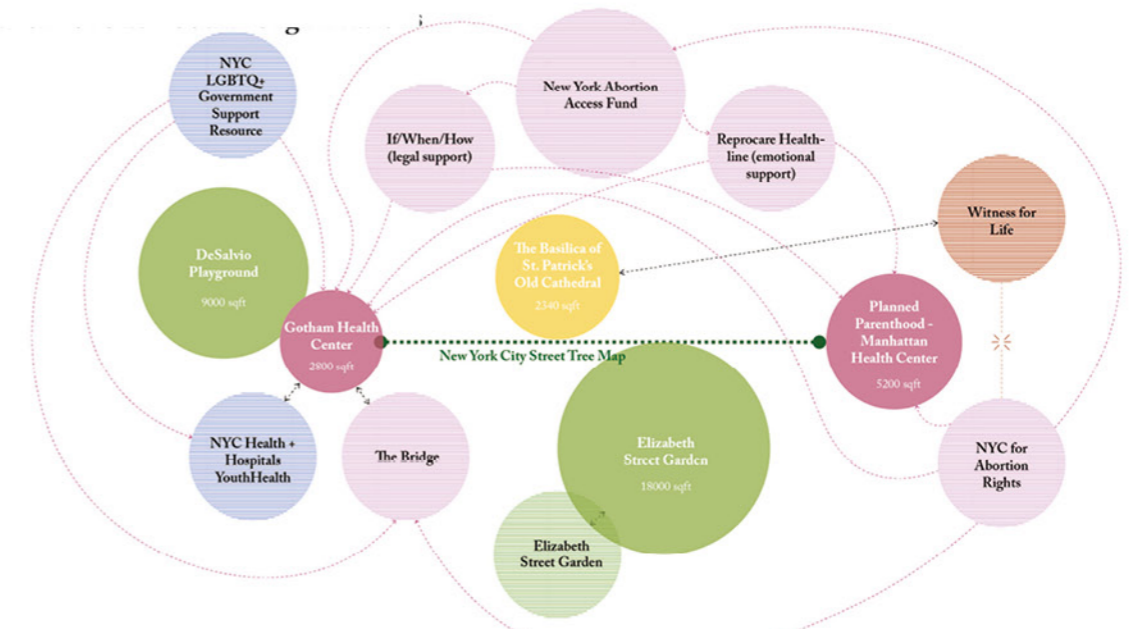


Reproductive Justice for LGBTQ People

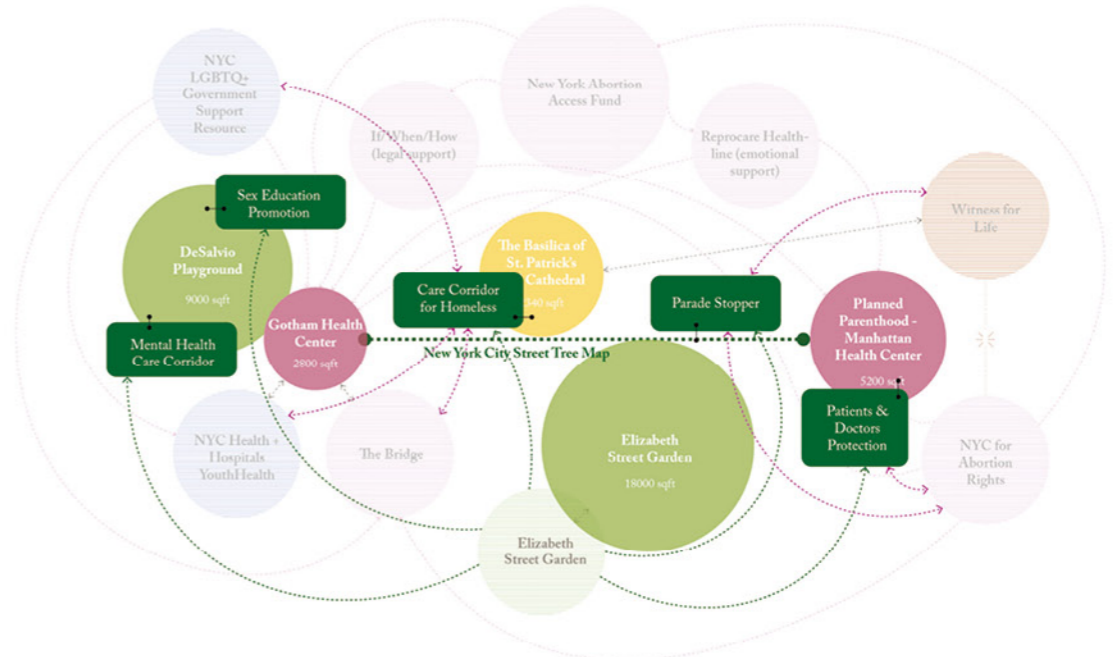


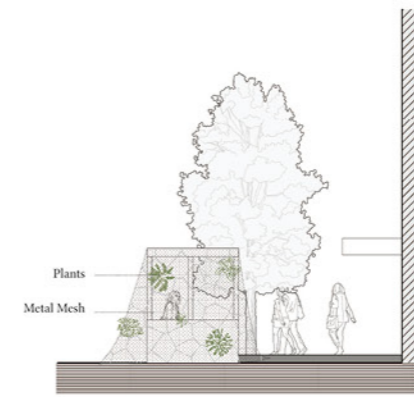
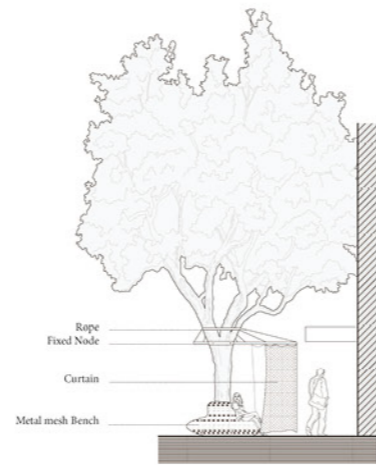
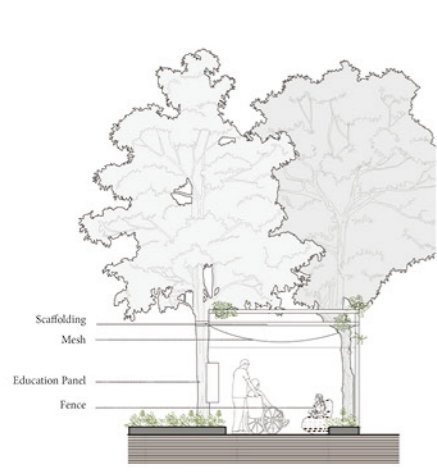
The percentage of youth who identify as LGBTQ as opposed to heterosexual doubles again for New York City — **40% of homeless youth in NYC are LGBTQ**. An estimated 1,600 young people who identify as LGBTQ are currently experiencing homelessness in New York City, yet only 143 emergency shelter beds are dedicated to this population.

Network of Site - Social Organizations



Network of Site - New Form

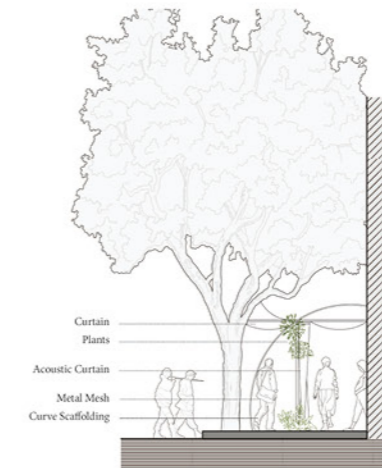
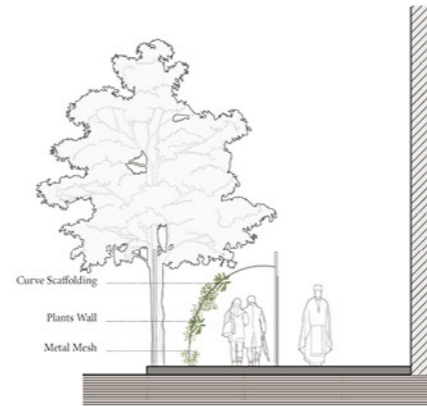
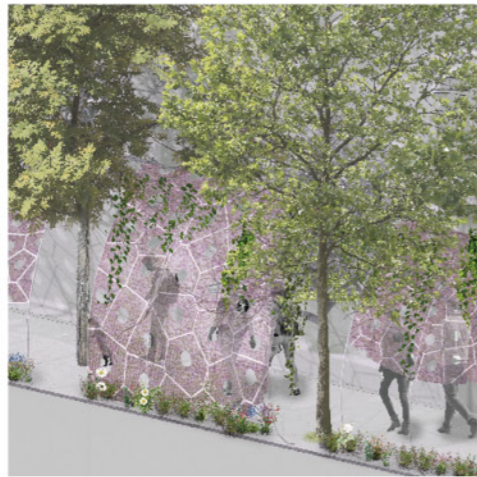
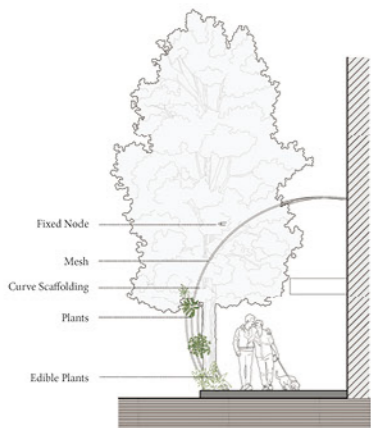




Mental Care Corridor & Sex Education from Flowers

Private Talking Space

Outdining Coverage



Care Shelter on the Street

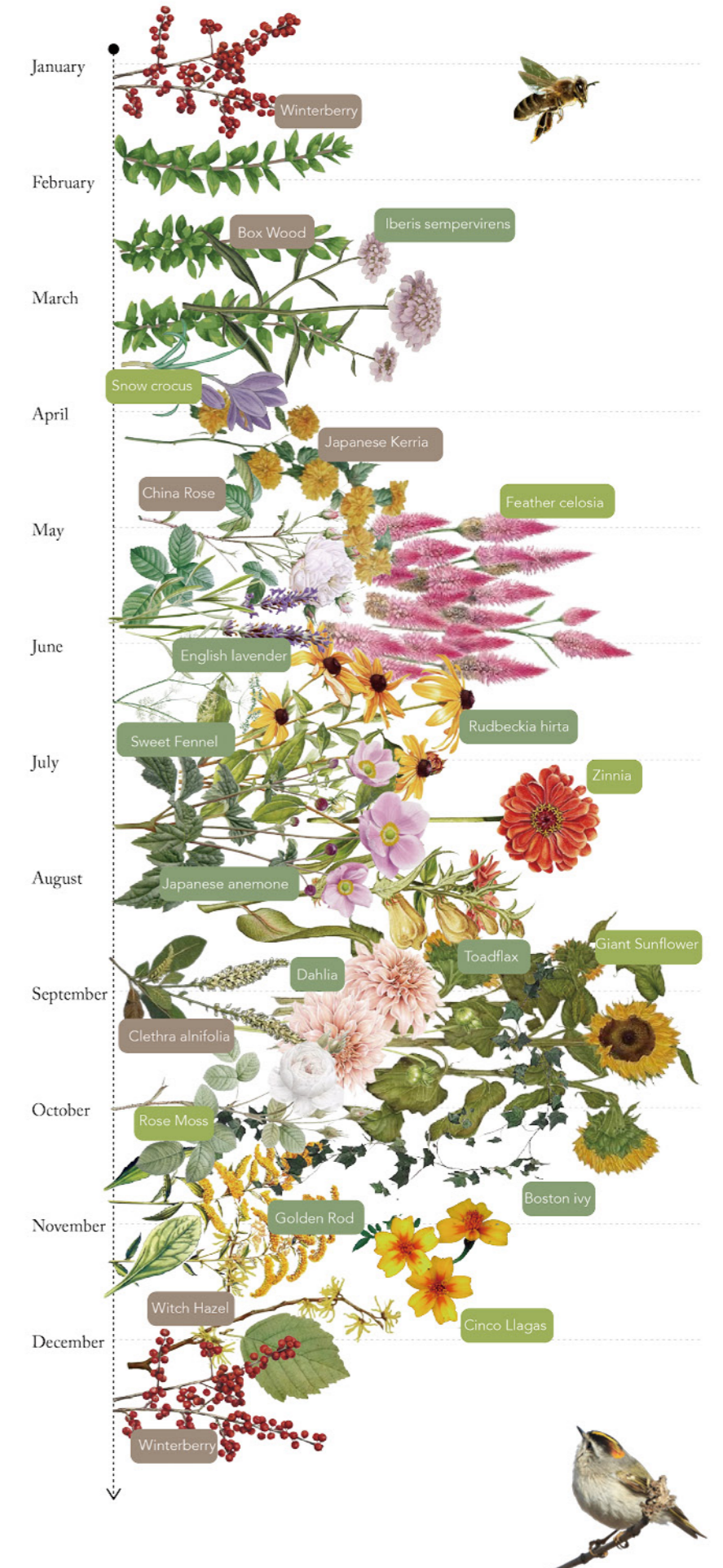
Protesters Stopper

Patient Safety Protection

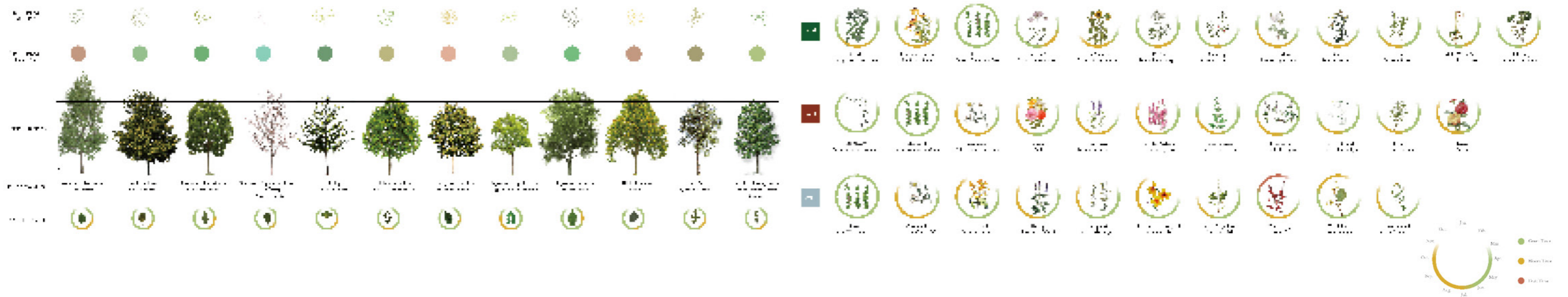


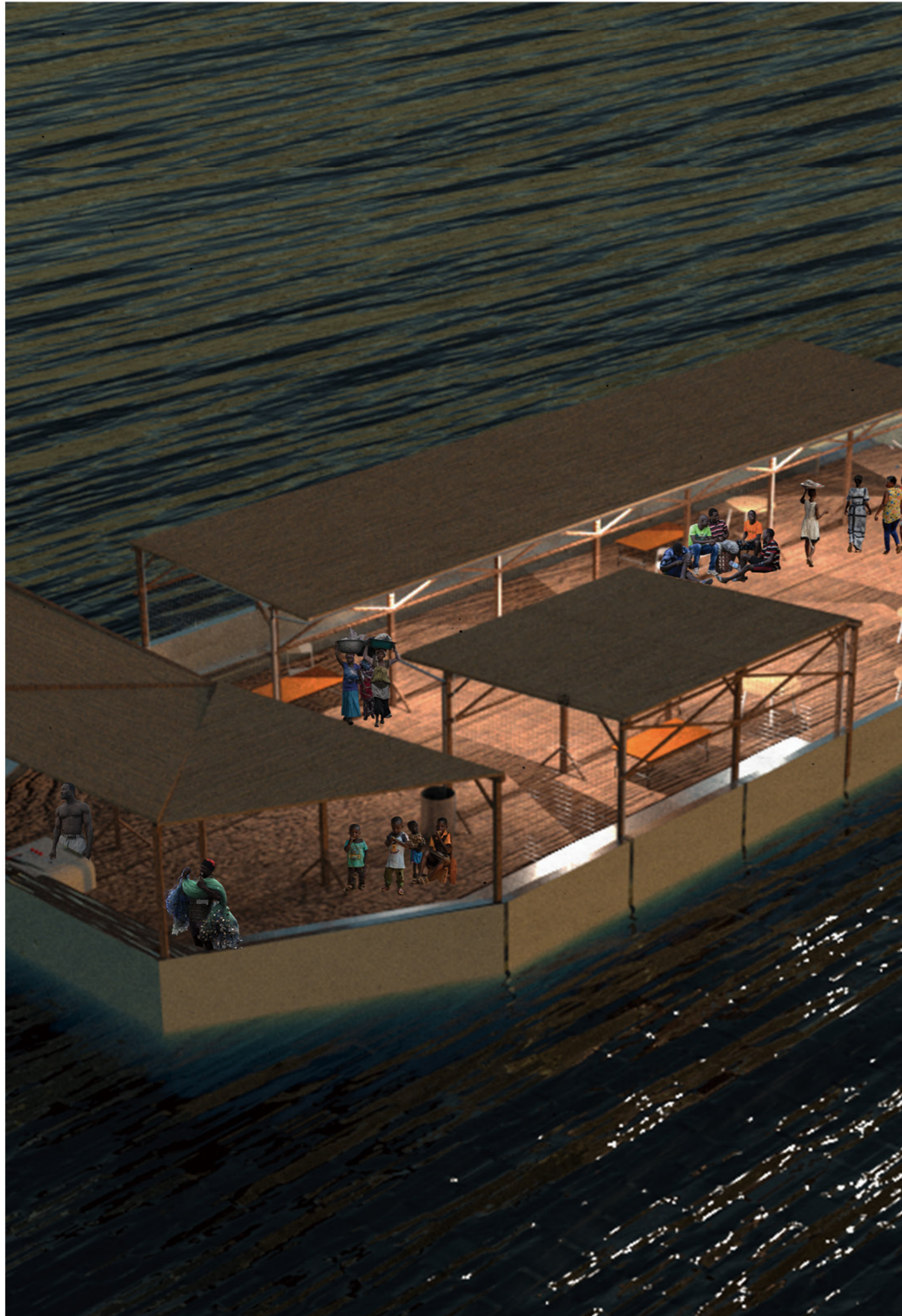


Plant Blooming Time Analysis



ShadowAnalysis & Plants Analysis





AquaGenesis

Education Center and Boat Design

- Instructor: Gary Bates
- A Sustainable Floating Ecosystem for Accra
- Location: Odaw River, Accra, Ghana
 - Individual Work
 - SPRING 2023

Water system and water culture analysis

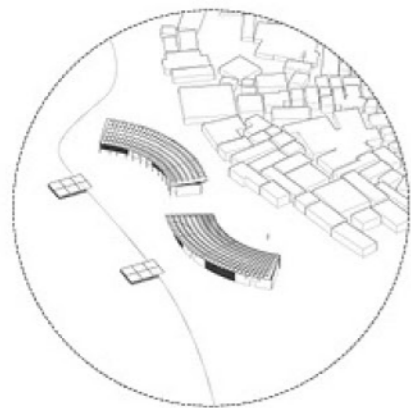
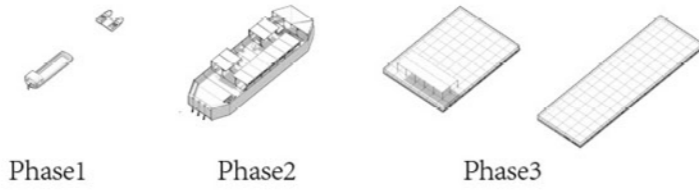


Master Plan

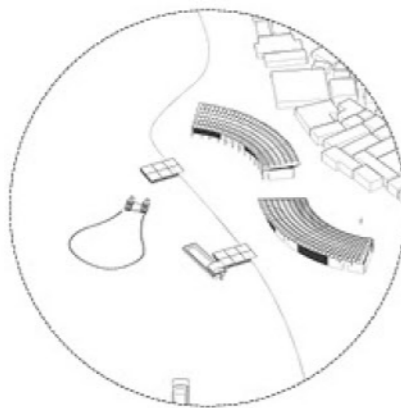


Phase Analysis and Summary

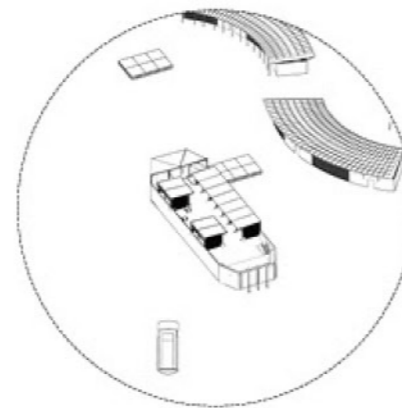
Phase	Timeframe	Components	Activities	Interaction
1	1st year Dry season	- Educational center - Small garbage/ trading boats	- Establish center - Boats collect garbage/trade	Boats travel daily along the river
2	2nd year Certain garbage amount	- Connection with recycling factory - Larger boats	- Garbage sent to factory - Create floating docks	Boats operate mainly in rainy season
3	3rd year Dry season	- Landfill near Korle Lagoon - Large floating platform	- Power boats with WTE - Create platform	Platform docks; travels every six days
4	4th year	- Trading points - Small transportation boats	- Form trade/ recycling system - Introduce boats	



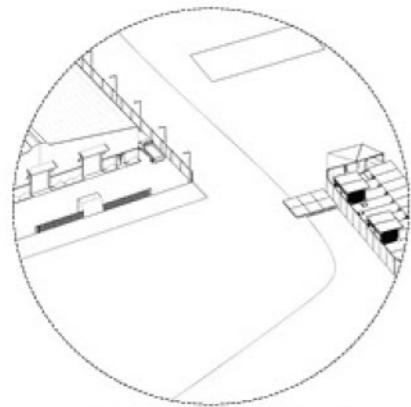
Construction of educational sites



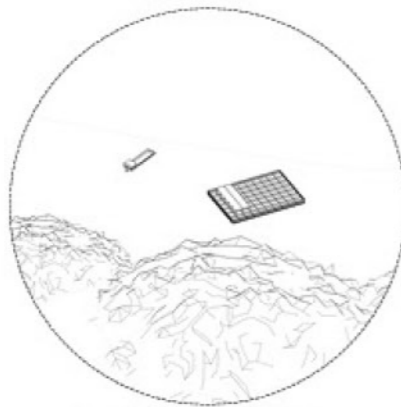
Trade and waste collection for small vessels



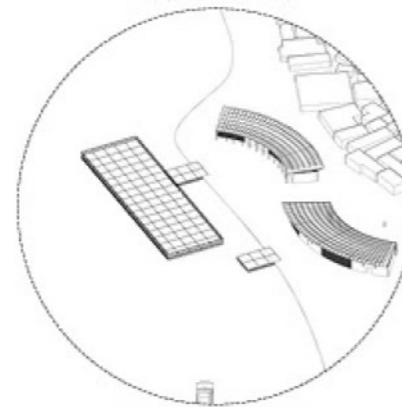
Design of large ships for educational trade



Vessel interaction with waste recycling plants

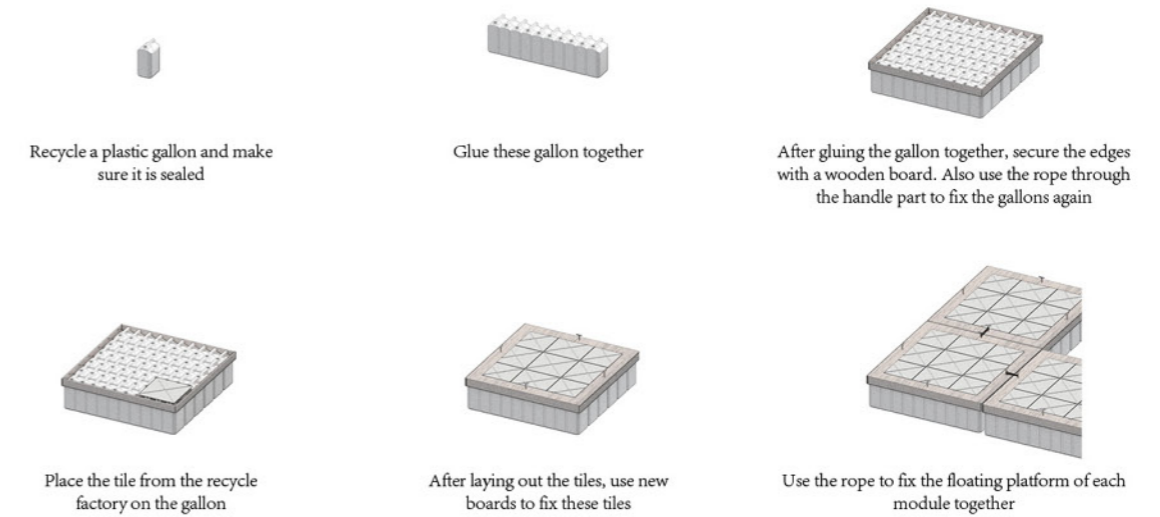


The emergence of floating platforms



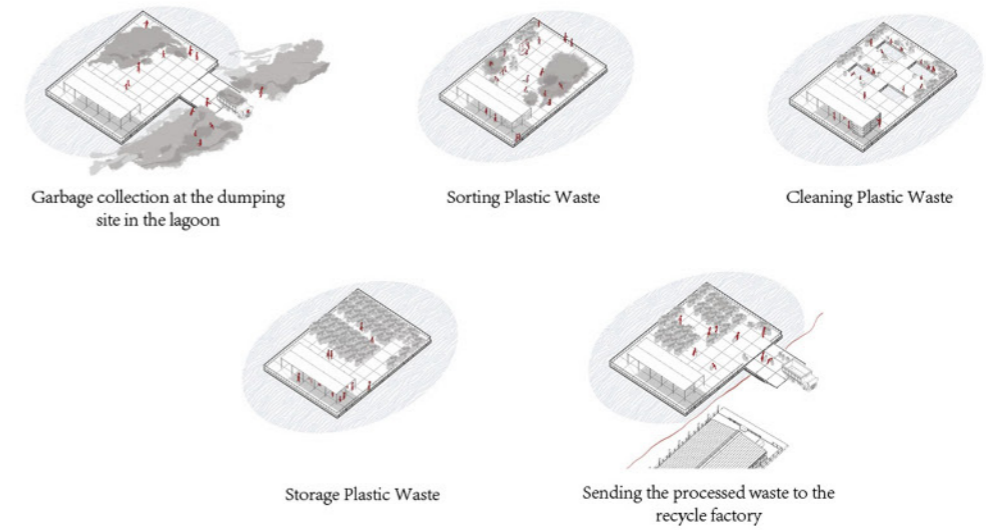
Interaction between floating platform and educational base

Plastic platform making process

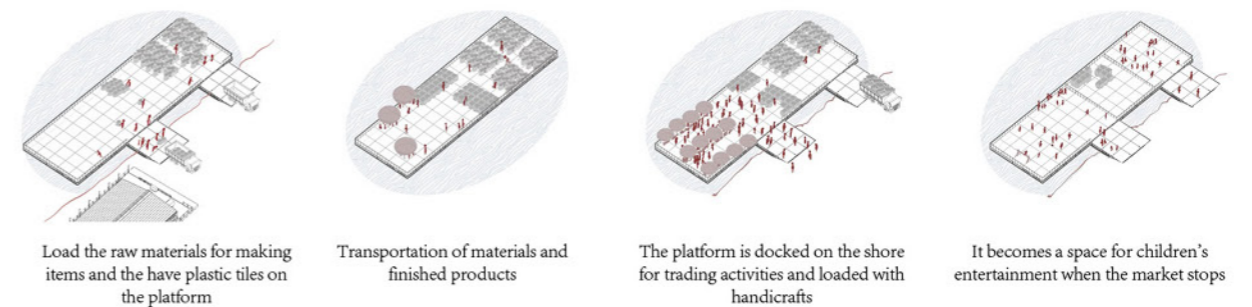


Plastic platform activities analysis

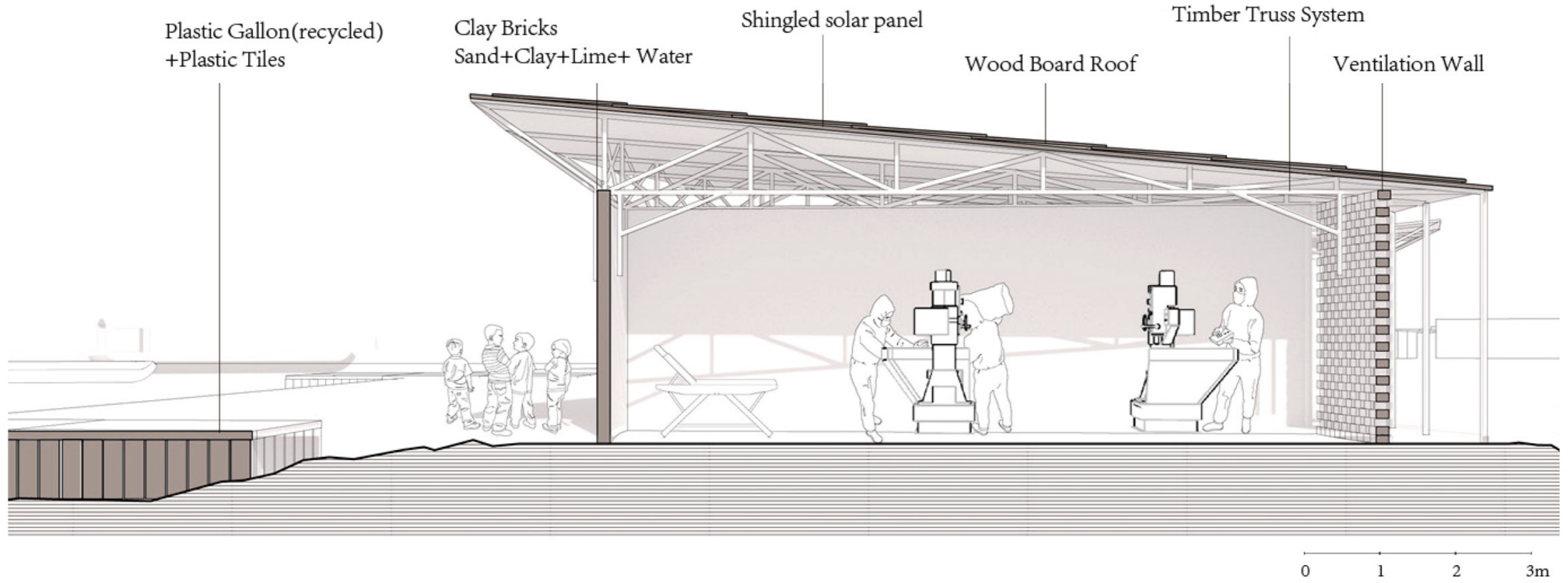
A.Processing



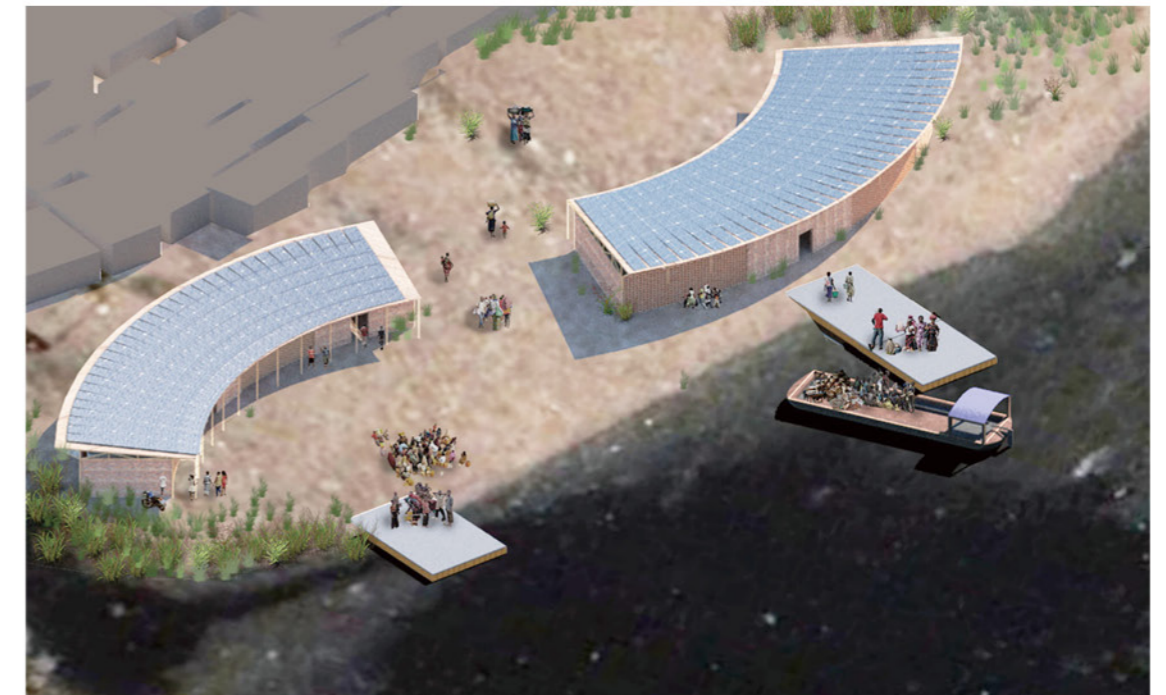
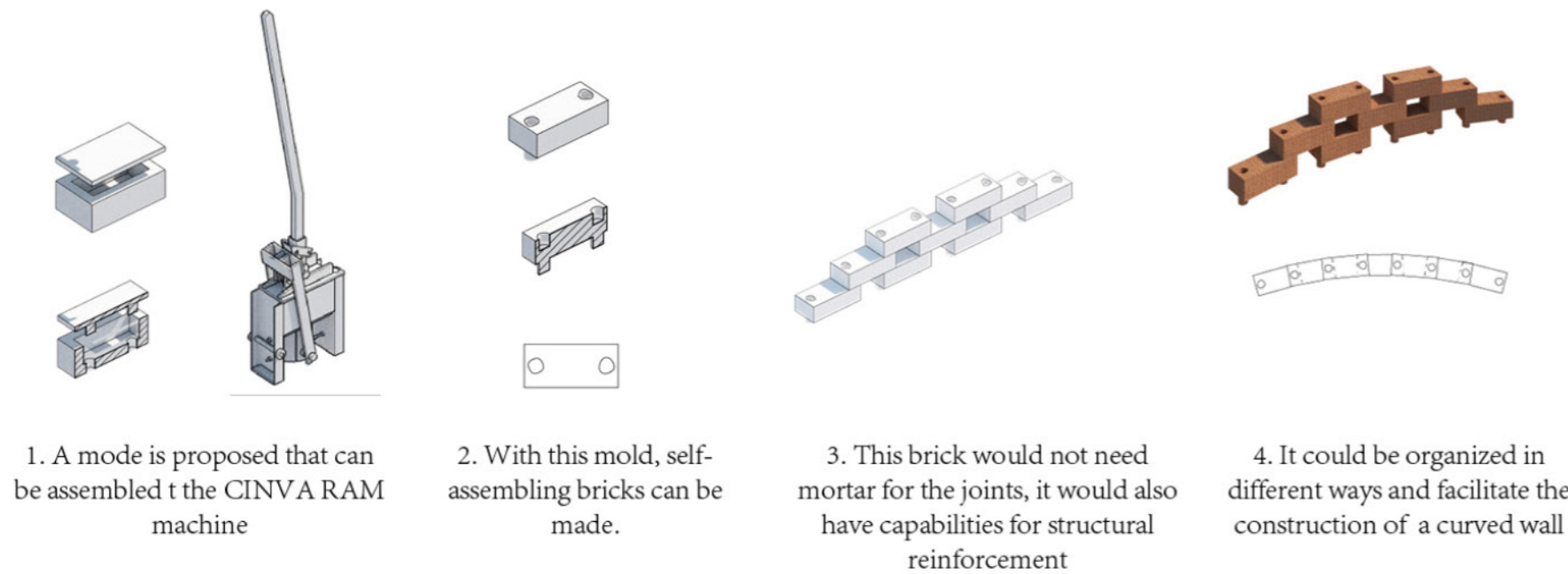
B.Trading & Marketing



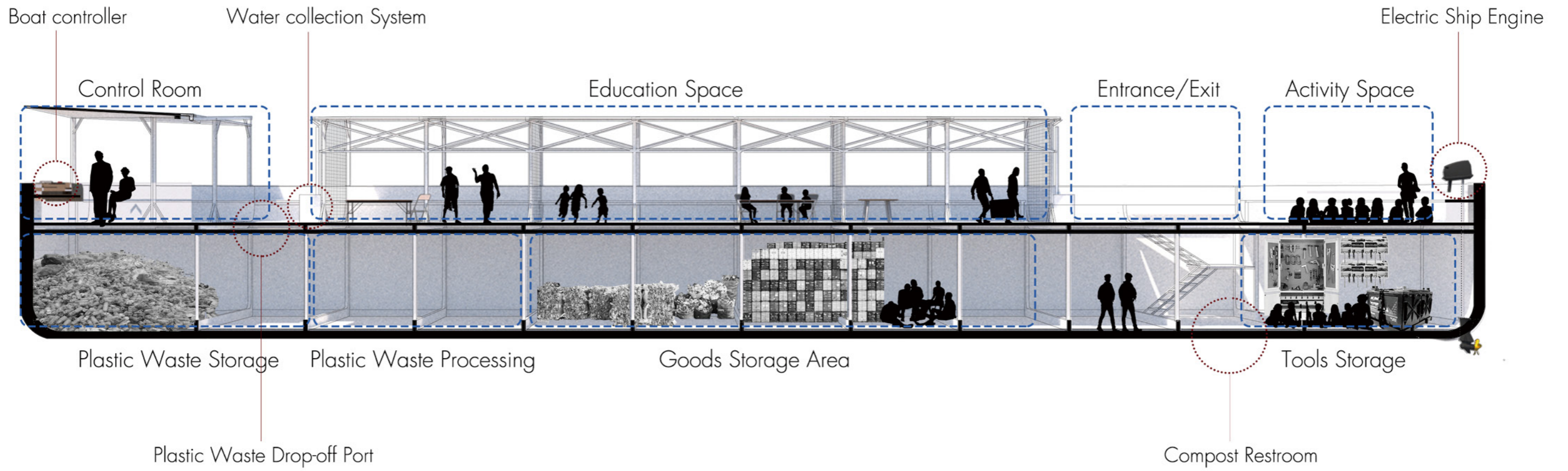
Education Center Section



Bricks making process



Boat Section



ENVIRONMENTS ANIMALS TECH

GAME DESIGN

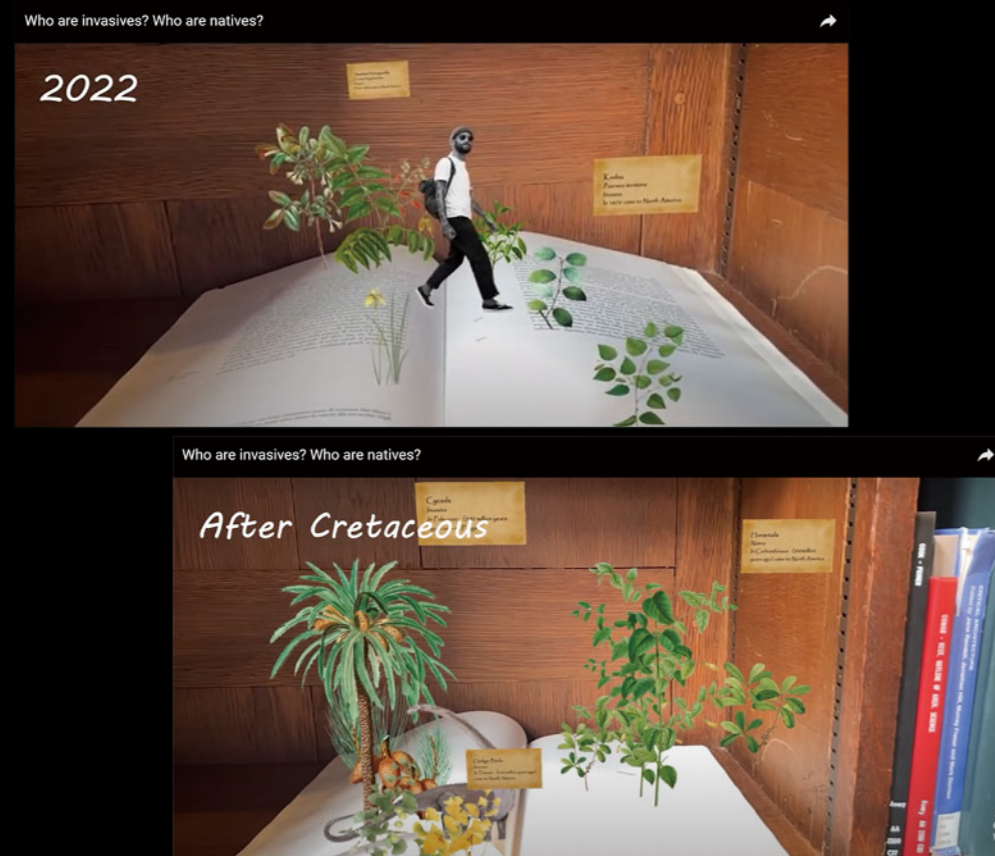
I found the idea of the blue butterfly by brainstorming while doing the final project. The technologies mentioned throughout the class: audio, video, interactive, vr and ar, etc. all gave me new ideas to expand. Many thanks to my friend XinPeng Liu for giving me a lot of help to understand the game building process and requirements to make the idea possible. Also the advice gal gave me about the hand tracker was very interesting and I accomplished my goal in a simpler and better expressed way.



AR DESIGN

Plants have "superpowers" for regeneration. Plants' roots, stems, leaves, and other parts may regenerate themselves when given the correct conditions for growth, making them excellent examples of invasive creatures in the natural world.

We always think of some plants as invasive and some plants as native, and we resist exotic plants. But a long time ago, plants lived together, and if you go back far enough, all plants can be considered invasive.



MAKING WITH EARTH

Living Architecture

Instructors:
LOLA BEN-ALON

Location: New York City, NY

Time: 2023.1-2023.5

Team members:
Weiwei Wang, Yvonne Fu

Description:

Ingredients: Organic soil, Shifted soil, Straw, Alginate, Cellulose, Wheat

Method: 3D printing

Living Architecture aims to redesignate earth based materials as its design process. Experimenting with intermixing organic and shifted clay allows for various volumetric forms that could host appropriate spatial voids for upcoming growing plants.



Living Architecture

Ingredients: Organic soil, Shifted soil, Straw, Alginate, Cellulose, Wheat
Method: 3D printing

Living Architecture aims to redesignate earth based materials as its design process. Experimenting with intermixing organic and shifted clay allows for various volumetric forms that could host appropriate spatial voids for upcoming growing plants.

Weiwei Wang, Yichang Zhang, Yvonne Fu

