LI LI | PORTFOLIO

Columbia. GSAPP

M.S.AAD

SELECTED WORKS 2024-2025

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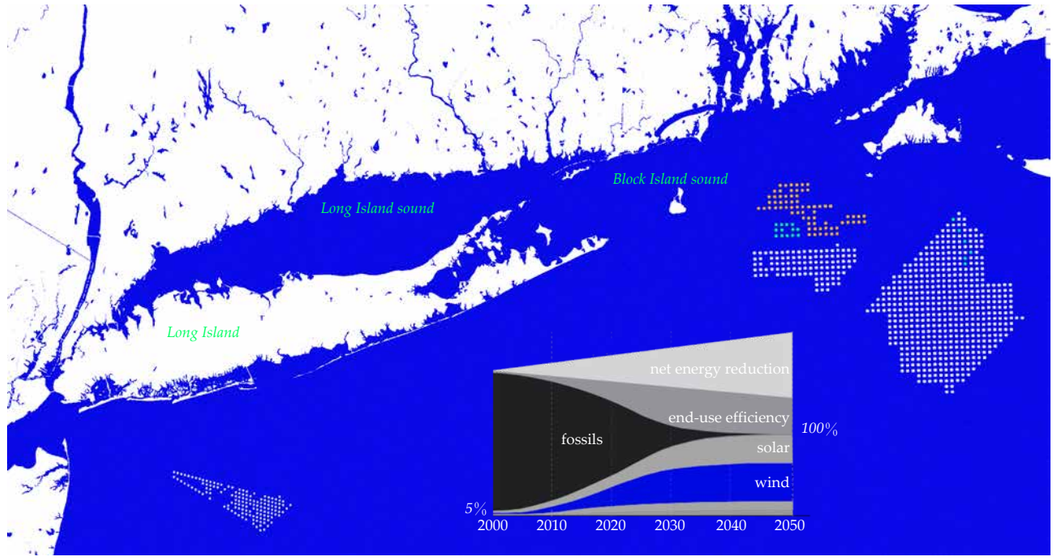
01

THE CHANGING WORLD ORDER

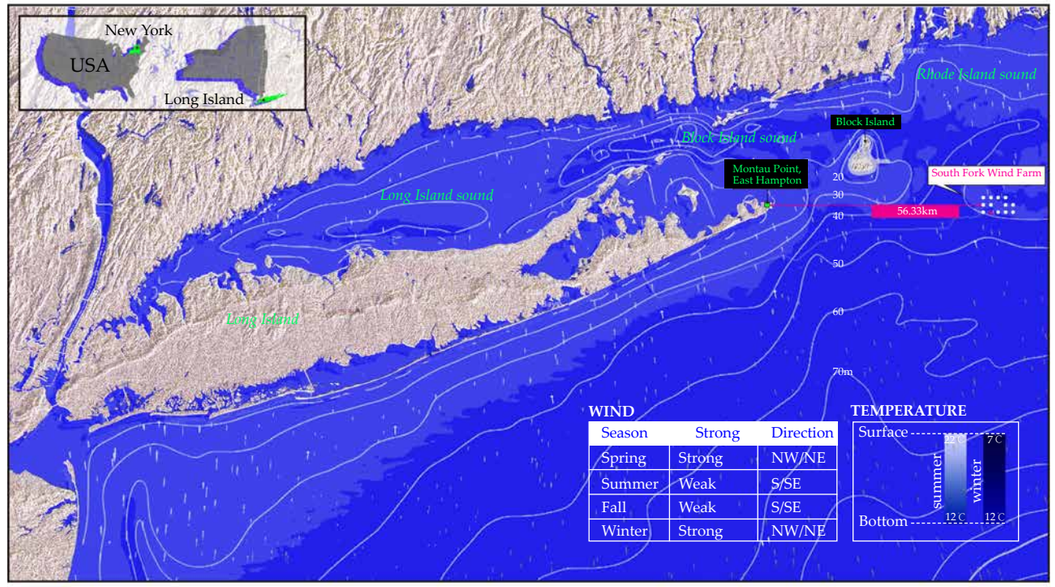
Type: Academic/ Team work
Time: Summer 2024
Team Member: Chua-Tung Hong
Contribution: Concept(65%), Model(30%), Render(30%), Drawing(70%)
Instructors: Laura Fierro, Pietro Rosano

While offshore wind power brings clean energy to mankind, it also brings irreversible damage to marine life and ecosystems. Oysters, as important city builders in New York State, let us see an opportunity to address the issue. After research, we propose that the government, the private sector and low-income groups as joint participants, win-win cooperation to promote energy equality and build a sustainable economic environment. Through the design of the integration of an offshore wind farm and an ocean ranch, the planning of activities for a fisherman community transit, and the sustainable transformation of an old water plant in the low-income community of hempstead. Reconstruct the fishery industry chain, and build a sustainable order network from ocean to community, from energy to ecology based on accessible energy.



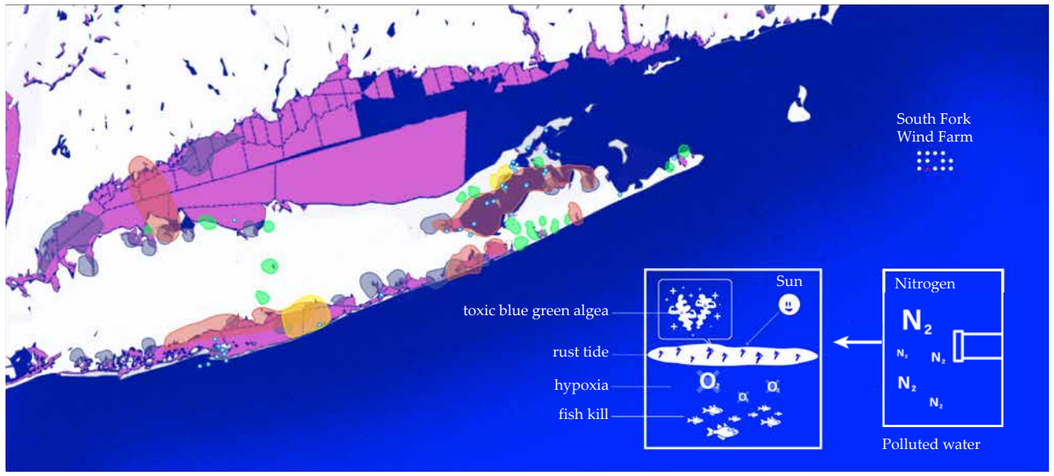
A graph from a study concluding that New York State can shift from fossil fuels to wind, solar and water power by 2050. Is this goal really achievable? Anyway, on this ocean more and more offshore wind farm will be built in the future

AMBITIOUS GOAL



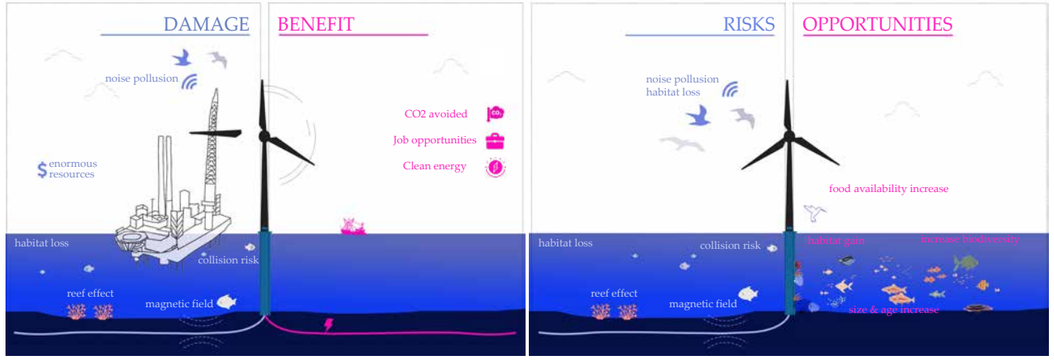
South Fork Wind Farm is America's first utility-scale offshore wind farm and New York's first offshore wind farm, generating enough renewable energy to power approximately 70,000 Long Island homes. South Fork Wind is a 12-turbine, 132 MW offshore wind.

SITE



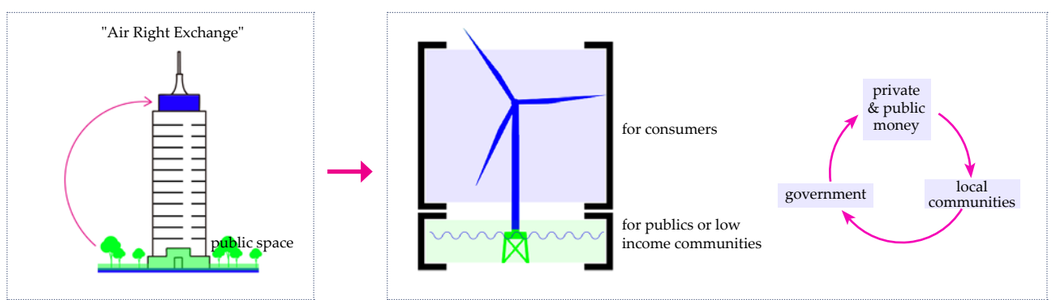
In the past, New York State had an abundance of oysters which were an major source of protein. Due to the polluted water generated from argricultural fertilizer and sewage treatment plant, New York's oyster industry ended in 20th century.

IRREVERSIBLE DAMAGE



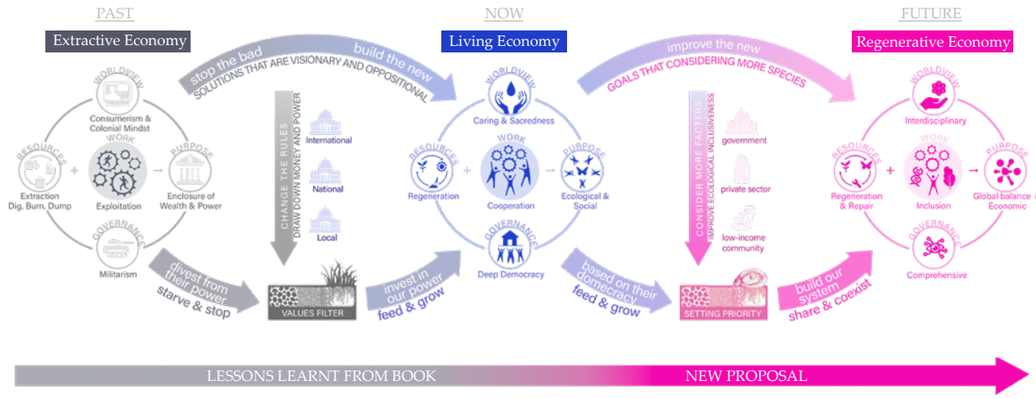
In the background of energy transition, the built of offshore wind farms has some damage and risks, but also bring many opportunities.

RISKS AND OPPORTUNITIES

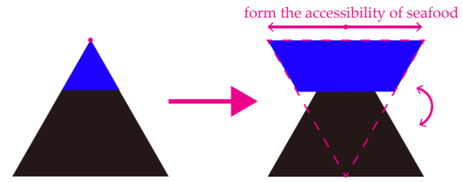


Air right exchange makes us realize that the current policies are mostly biased toward developers, and istead of only considering developers. Can public policies take a different role to benefit the general public and the ecological environment?

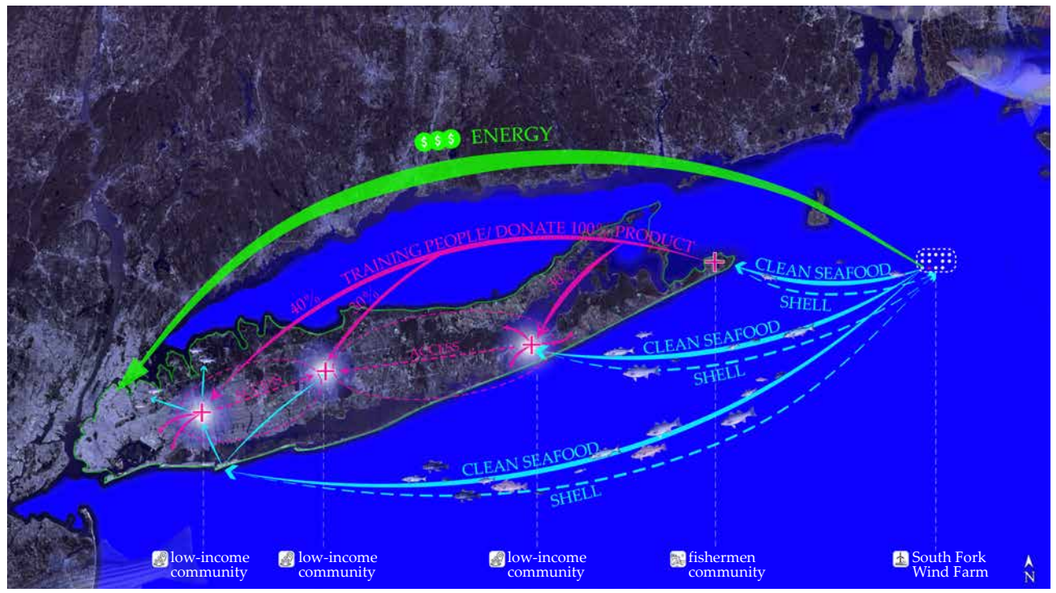
DEEP THINKING OF THE IMPLEMENTATION OF POLICY



Learning from the book 'Energy democracy: advancing equity in clean energy solutions", we know that it is important to transfer extractive economuy to living economy. Could we think of one more step? Combining the power of government, private sectors and low-income communities to achieve a regenerative economy.

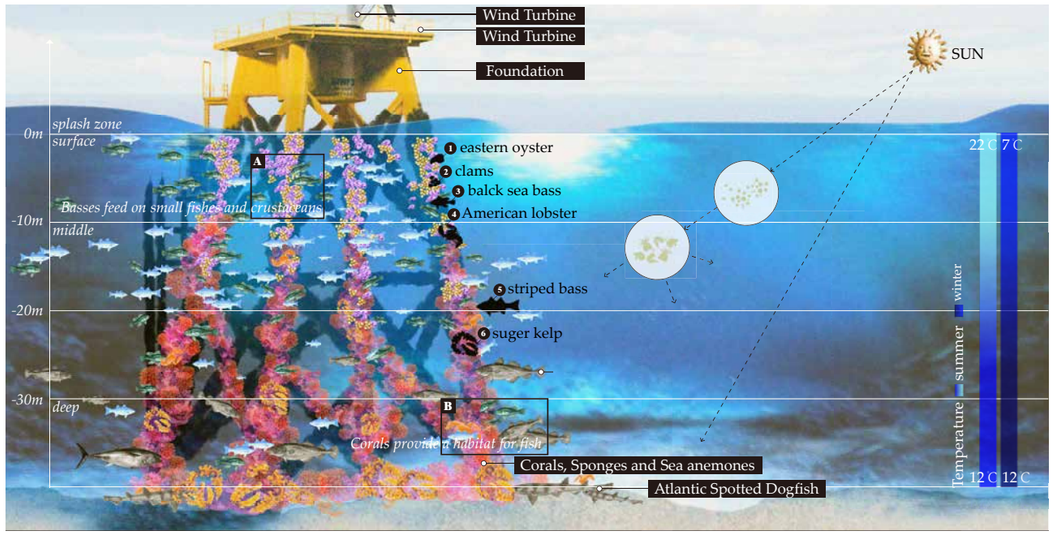


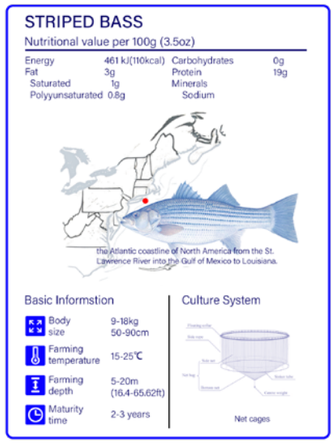
"BRING PROTEIN BAKC": Oyster could purify water and provide good nutritious food to low-income familieswho have less access. We hope to inverse the social structure pyramid to promote sociaand energy equality, as well as ecological protection.

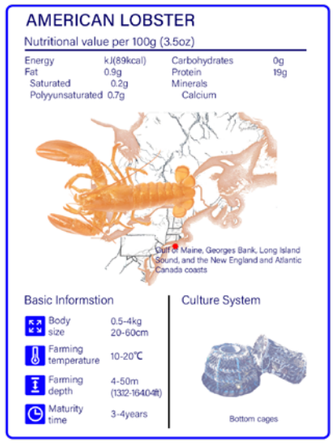


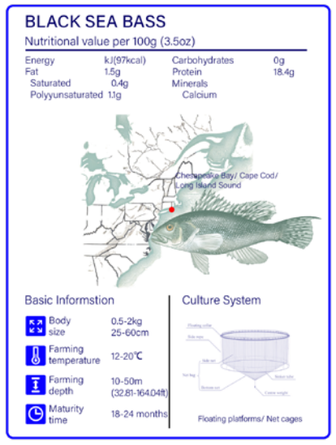
Using oysters as a basic medium, starting from the combination of ocean farms and wind farms, "could we imagine a new environmental policy where parallel to energy production, there is a commitment toimproving ecosystems and our societies?"

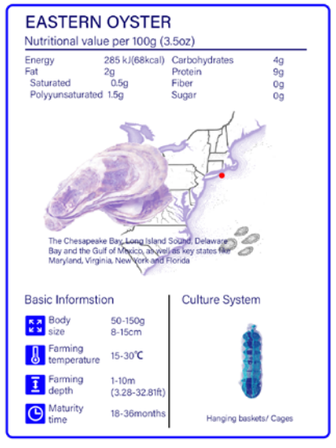
"THE CHANGING WORLD ORDER"

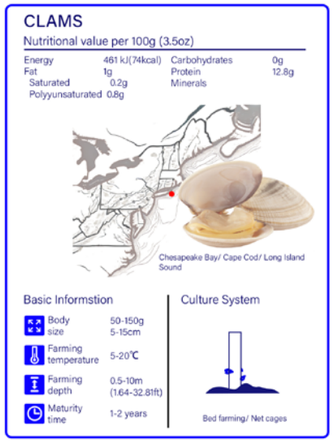


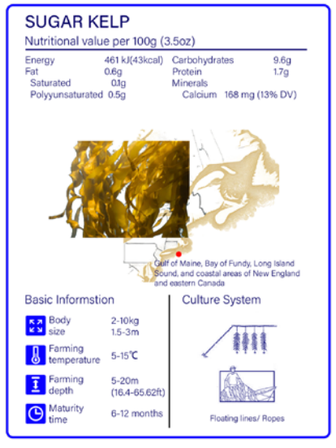






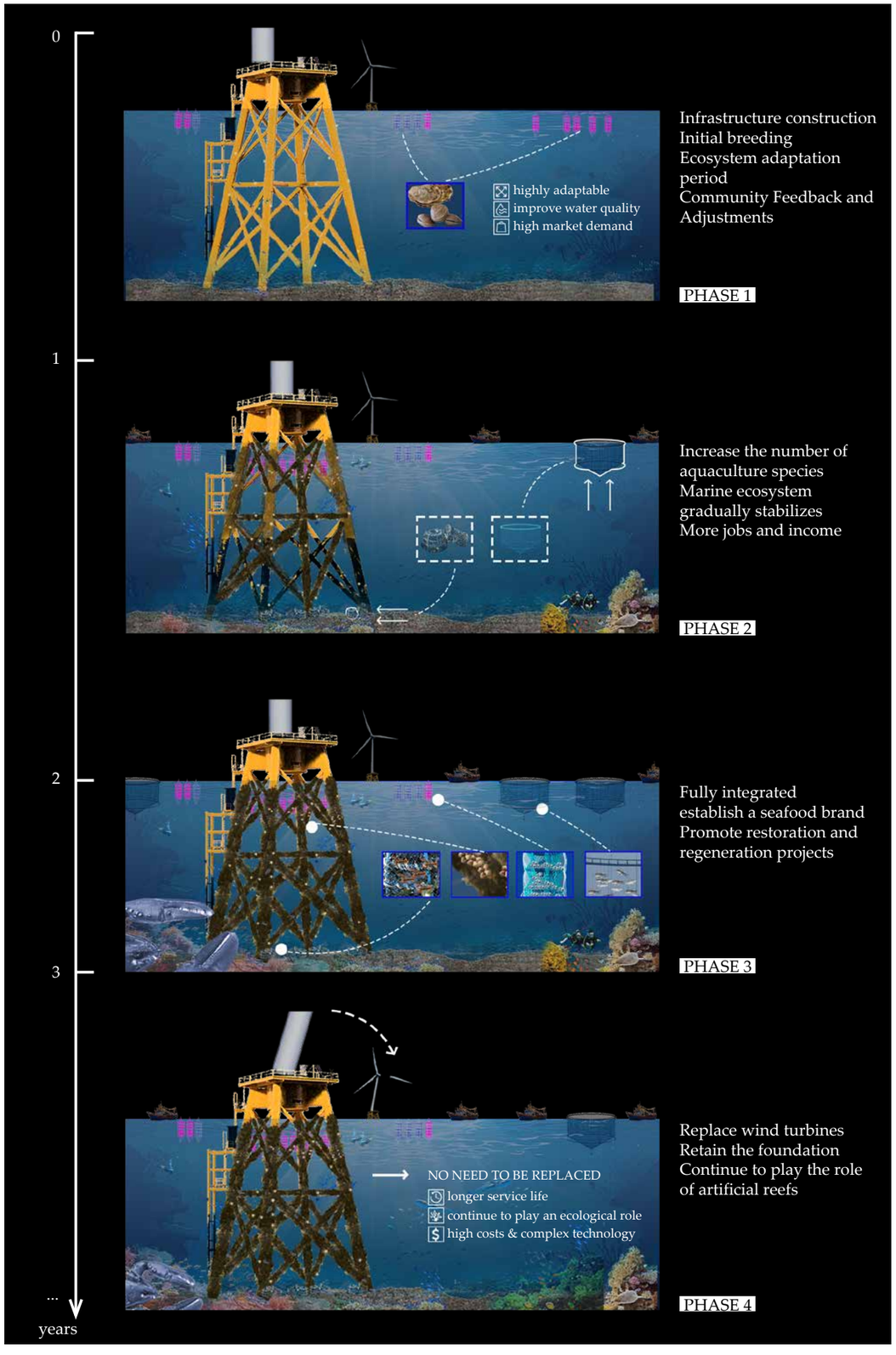


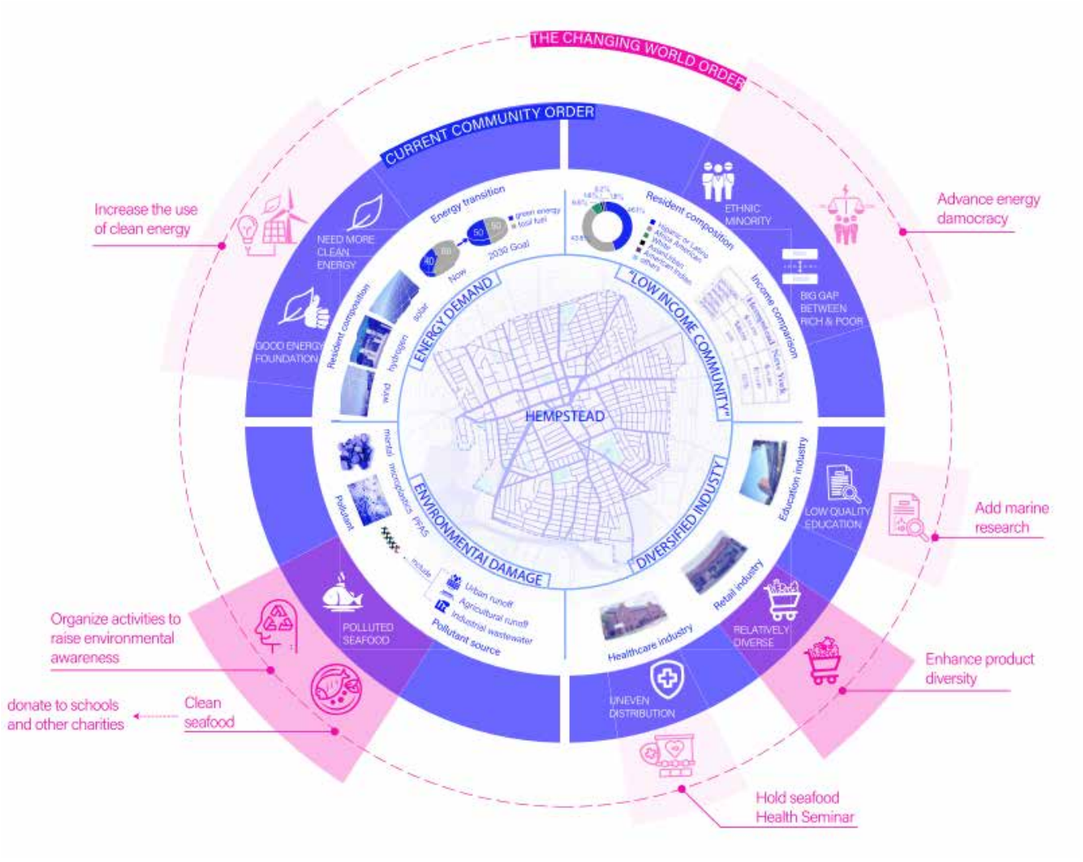




The sea area near the South Fork Wind Farm is suitable for growing fish such as oysters and striped bass. We hope to make full use of marine resources and construct and complete the combination of ocean ranch and wind farm step by step.

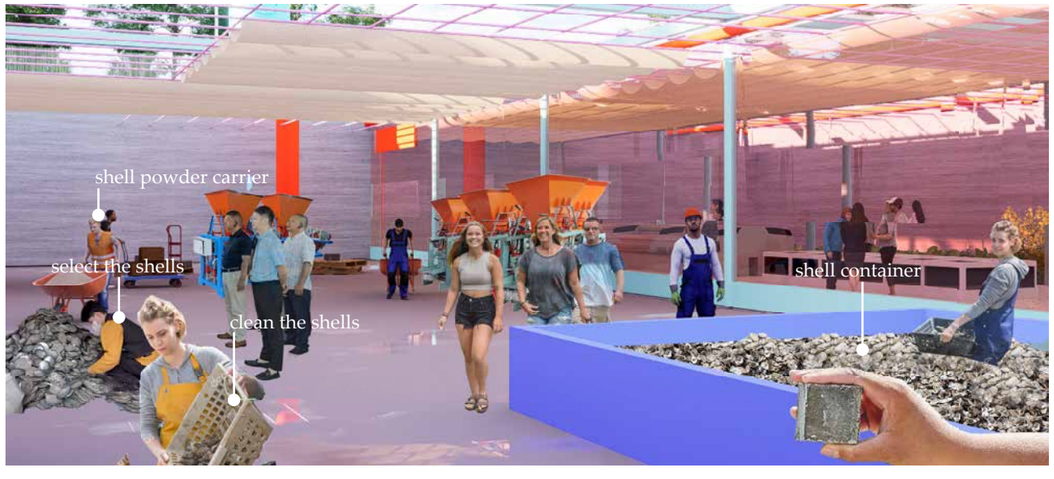
Part 1

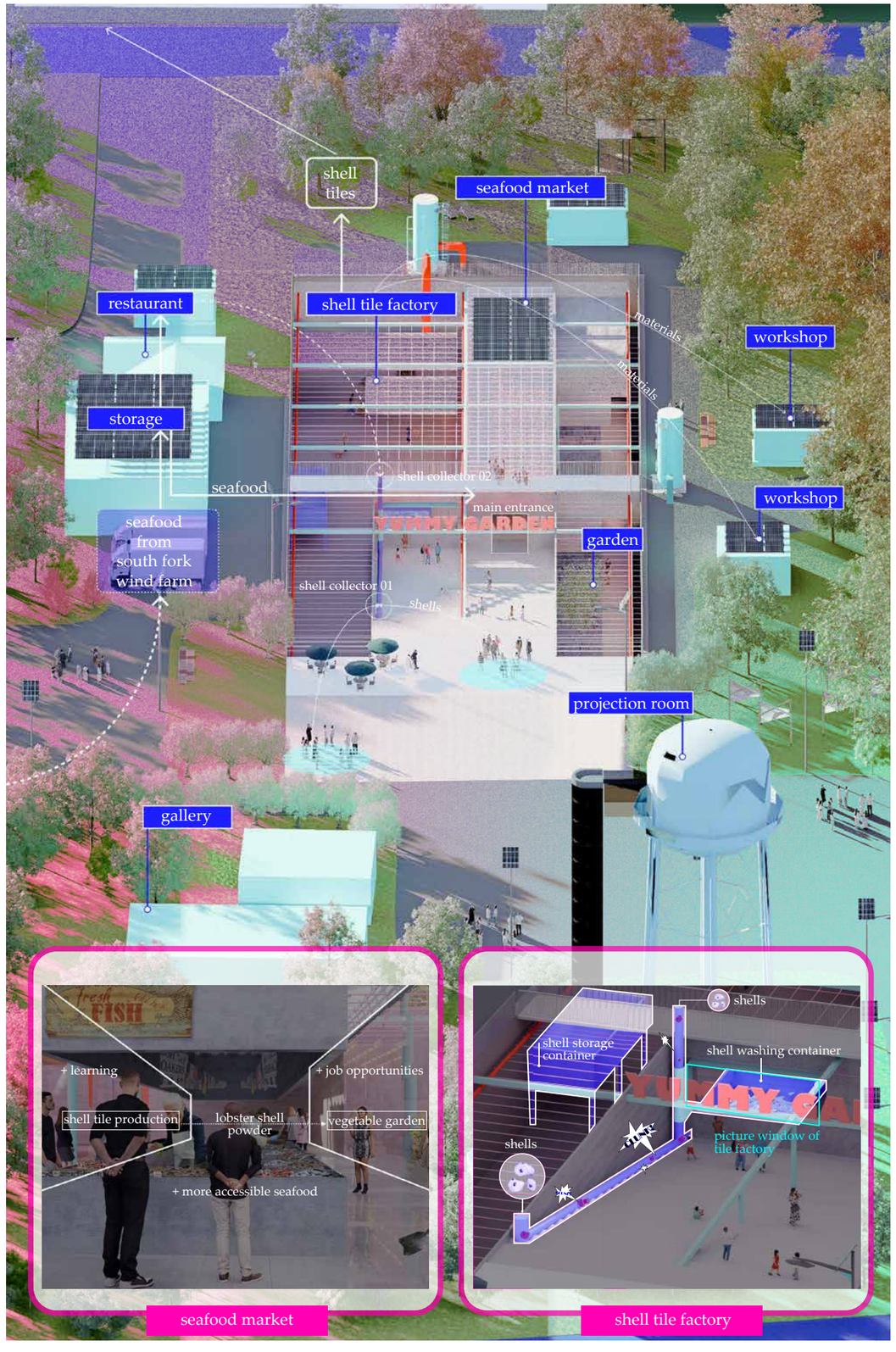




Hempstead is a typical poor community on Long Island, which has problems such as environmental pollution and energy transition. We take the renovation of a water plant that is about to be abandoned as an example to explore the possibility of community life under the new order.

Part 2





"THE CHANGING WORLD ORDER"

Private and Public Money

Instead of just benefiting developers, could we actually start benefiting local communities by the implementation of public policy that reinforces the public sector to do so?

Government

"Could we imagine a new environmental policy where parallel to energy production, there is a commitment to improving ecosystems and our societies?"

Low income community

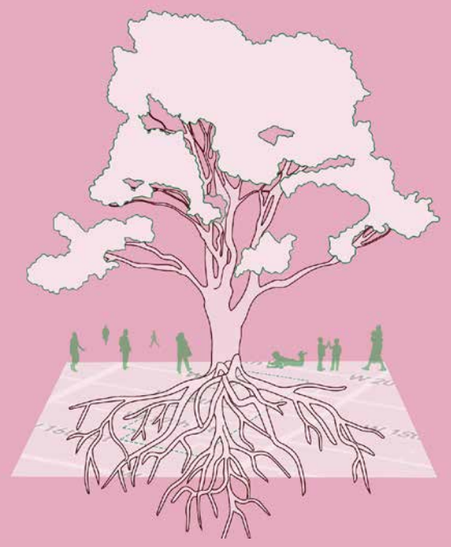
"How can we use the implementation of public policy to benefit low-income communities? "

02

ROOTED BELONGING

Type: Academic/ Team work
Time: Fall 2024
Team Member: Zhiqiu Li
Contribution: Concept(60%), Model(50%), Render(80%), Drawing(50%)
Instructors: A.L. Hu, Pietro Rosano

FEC Houses were built to provide stable housing options for low-income families in NYC. In recent years, with the rapid gentrification of the Chelsea community, FEC Houses have faced many challenges. After research, site tours and communication with residents, we categorized the issues within the site and the residents' needs into internal and external demands, and found that one of the most important is belonging. We take trees as the concept, since trees are one of great est treasure in the campus and have both physical and social benefits to the community's belonging. Sustainability and light design are also key considerations in the design process.



1965 CONSTRUCTION

The built of FEC Houses provided affordable housing for low-income residents in Manhattan aiming to address the growing need for affordable living spaces.

2019 REHAB PLAN

Systematically and effectively address the capital needs of Fulton and Elliott-Chelsea (FEC) Houses.

2021 WORK GROUP

NYCHA Working Group Report clearly stating that residents top-priorities were: "Long Term Affordability, Safety +Security, and No Demolition."

2023 FIGHT

Residents were asked to participate in voting which showed more than half of people "agree" with rehabilitation.

Reconstruction project plan

FEC Tenants Against Demolition.

2024 NO DEMOLITION

Residents opposed demlolition. MCB4 voted to seek Elected Officials' intervention to express its dissatisfaction.

The Working Group listened to residents and found that "no demolition" was a top priority.

Affordable Living | **Community Involvement** | **No Demolition**

HISTORY

site tour

community involvement

extensive trees and plantings

old infrastructure

uunaccessible green areas

public space are fail to promote communication

lack of belonging

not be treated fairly

Greening

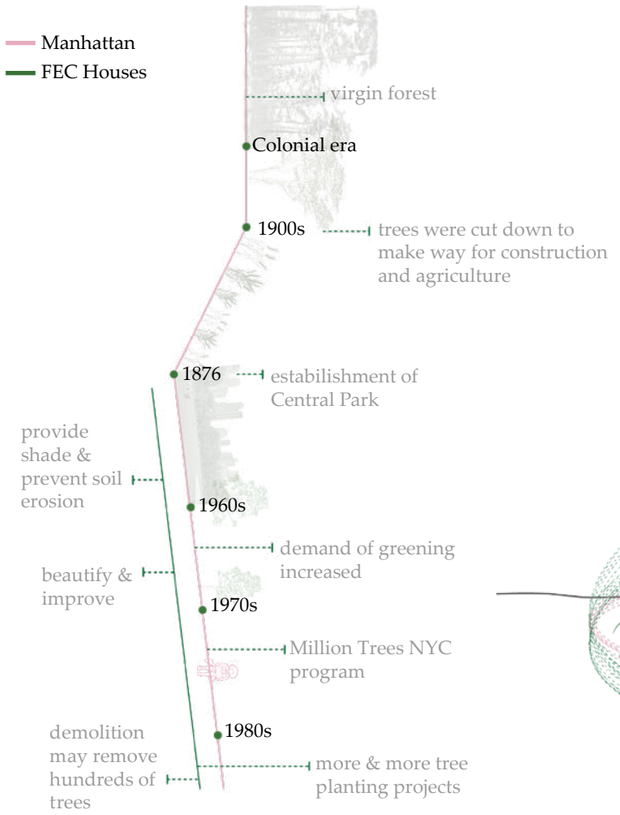
Belonging

Inclusive

TREE

History

Benefits

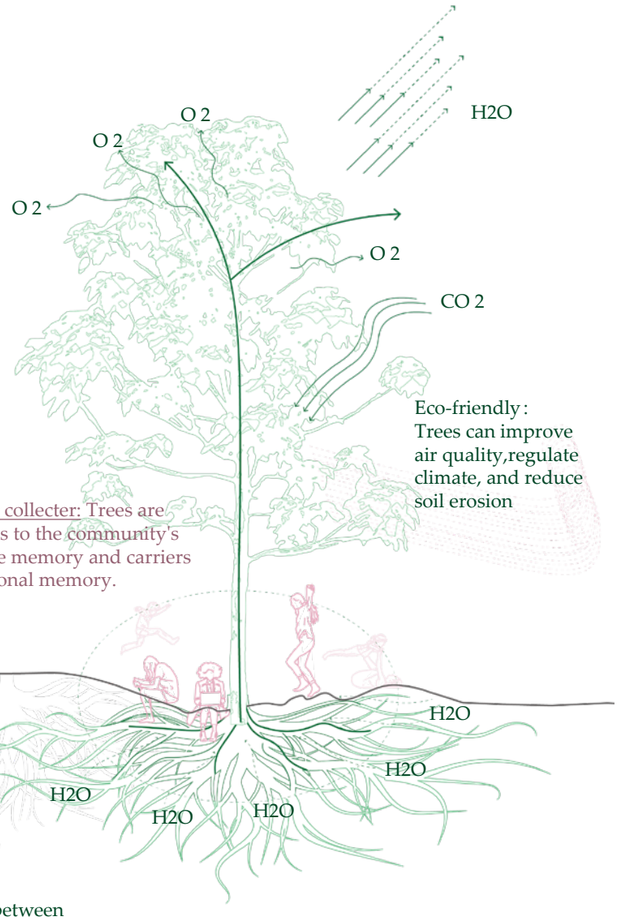


Display: The width of the tree's branch reprents the degree of outward expansion. As the tree expands further and further outward, the content it displays becomes richer and richer.

The cycle and continuation of life: Dead trees are not wasted, but provide nutrients to the soil and support the growth of other plants. This symbolizes a sustainable cyele and continuation of life.

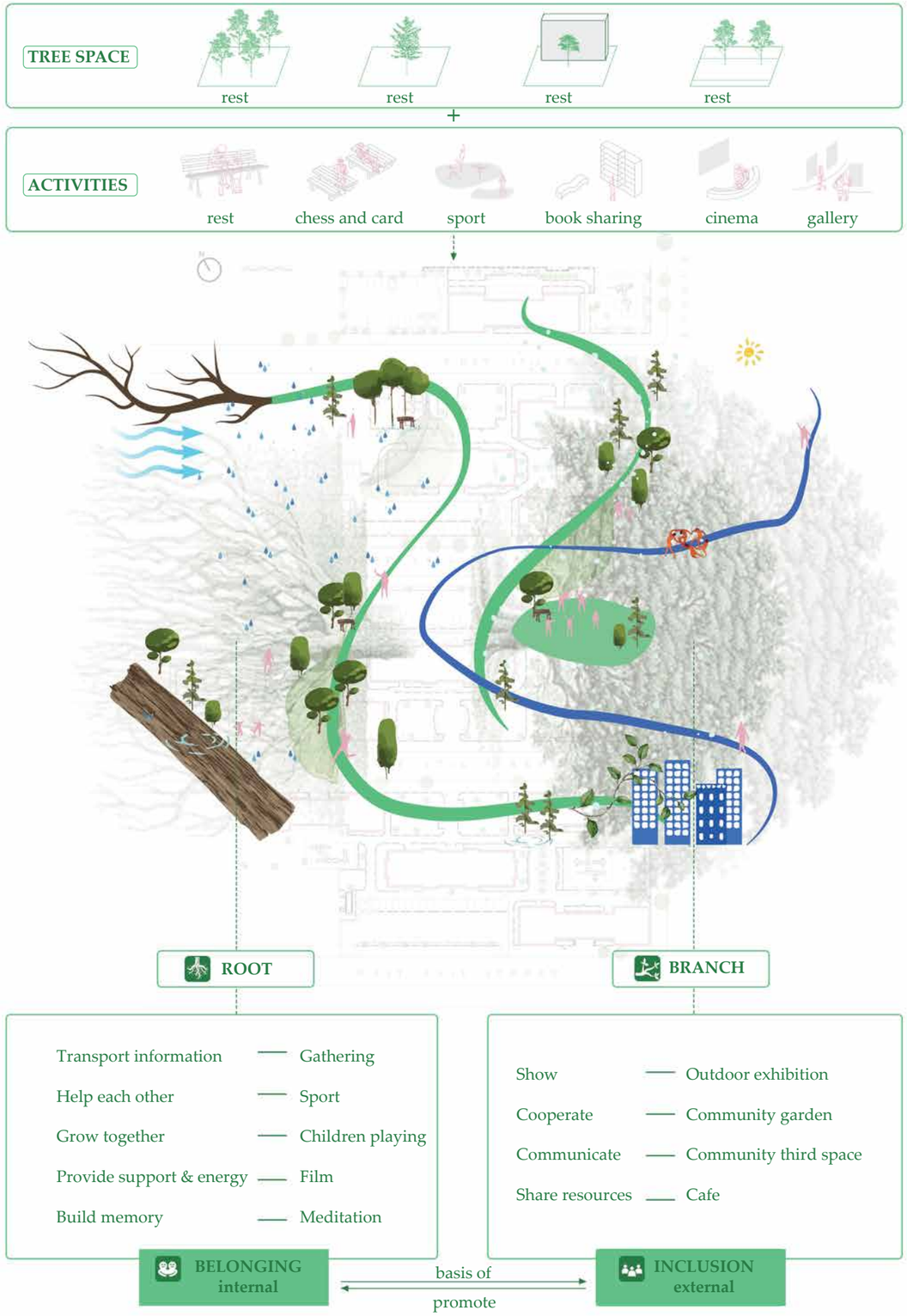
Memory collecter: Trees are witnesses to the community's collective memory and carriers of emotional memory.

Mutualism: Communication between trees can occur through underground root and fungal networks (such as mycorrhizal networks).

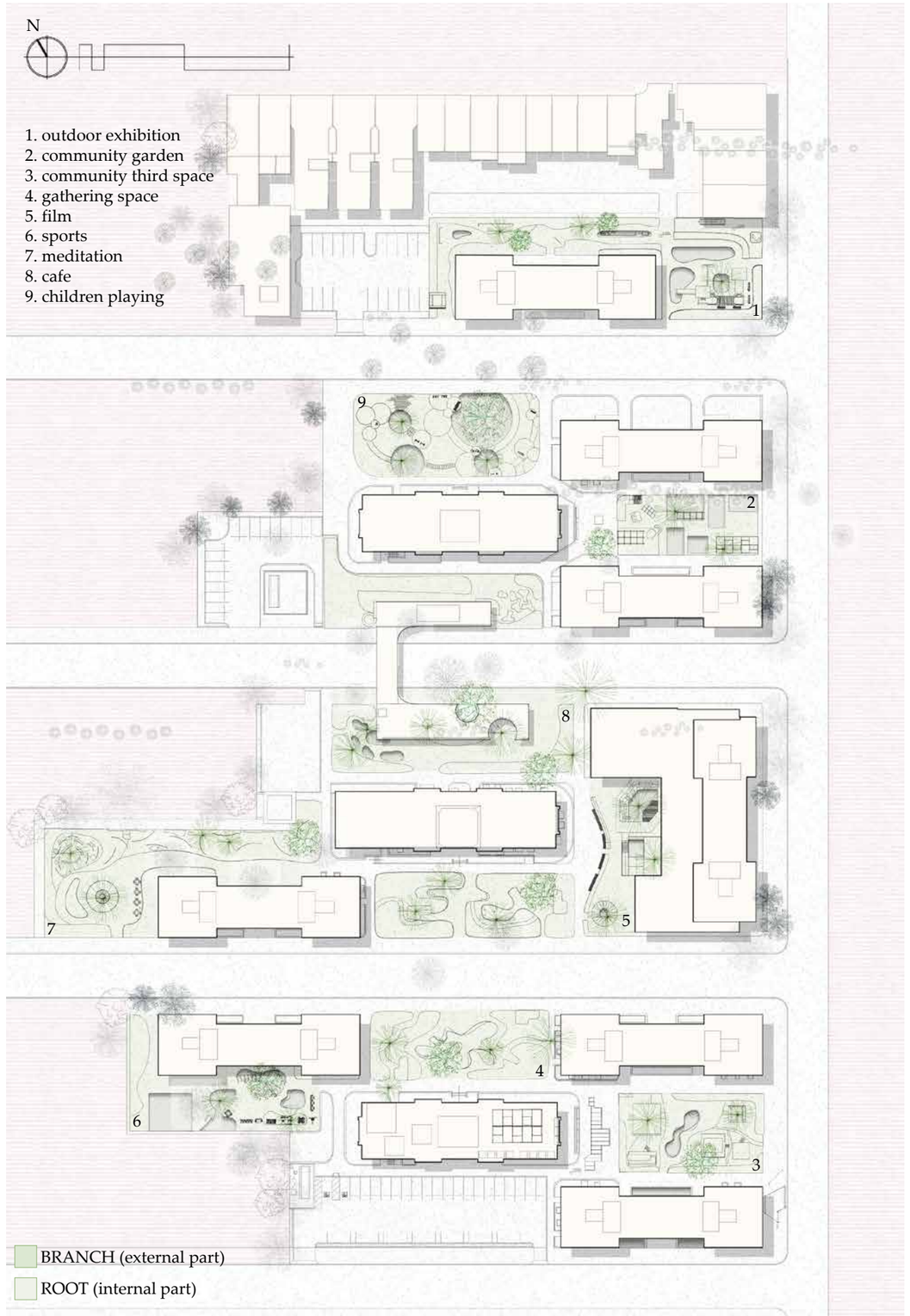


Trees in New York City embody its history, from Central Park's century-old canopies to local memorial plantings. They enhance ecology, foster community, and preserve cultural identity, remaining vital to the city's heritage and future through initiatives like "MillionTreesNYC."

Physical Benefits
Social Effect



CONCEPT



MATSER PLAN

Community garden

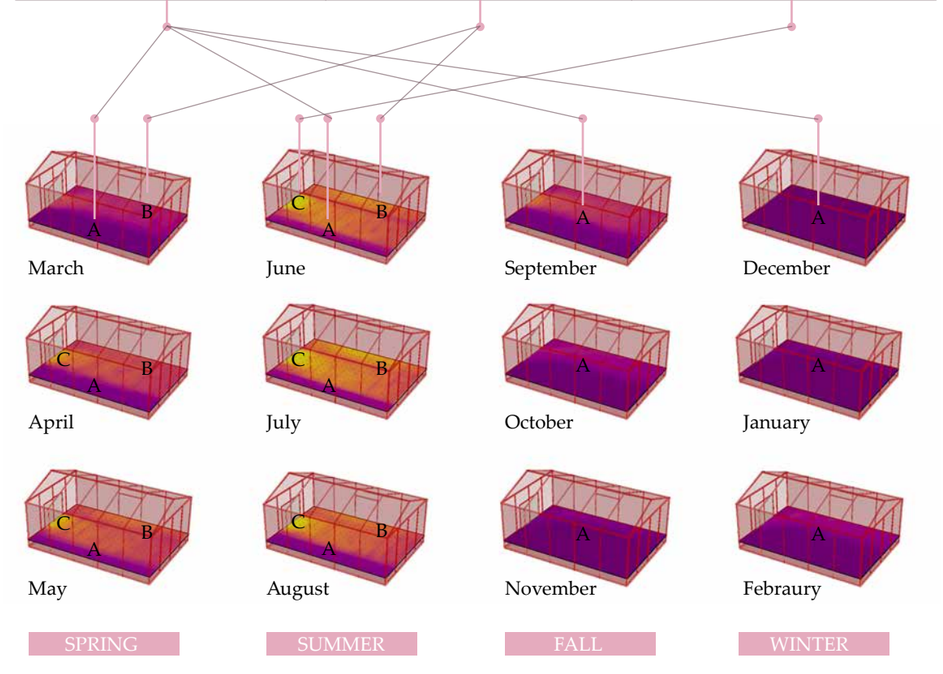
Entrance

Outdoor gallery

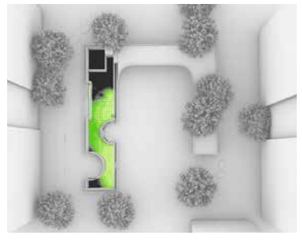
Outdoor gallery

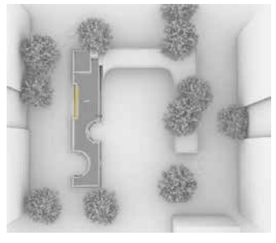
Cafe and Pavilion

Low-light Crops (3-6 mol/m²/day)	Medium-light Crops (6-12 mol/m²/day)	High-light Crops (12-18 mol/m²/day)
Ferns Snake plant Peace lily Potato Spider plant Philodendron Lettuce Mosses	Tomatoes Herbs Lettuce Carrots Cucumbers Zinnias Begonias Arugula	Peppers Tomatoes Squash Cucumbers Pumpkins Eggplant Corn Carrots



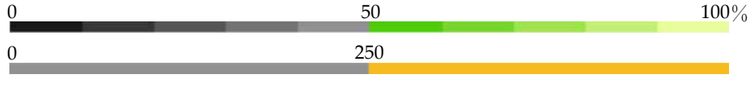
GREENHOUSE AND PLANTING





sDA (Spatial Daylight Autonomy): 57.4%
ASE (Annual Sunlight Exposure): 8.0%

LEED 4.1: 2 points



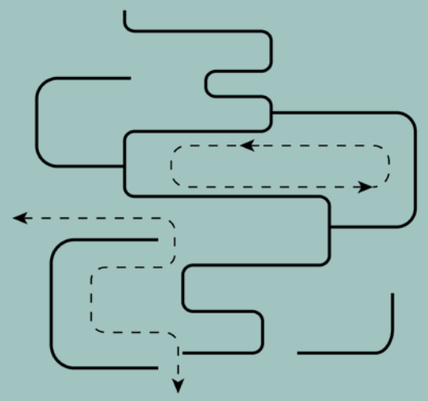
CAFE AND SUSTAINABLE DESIGN

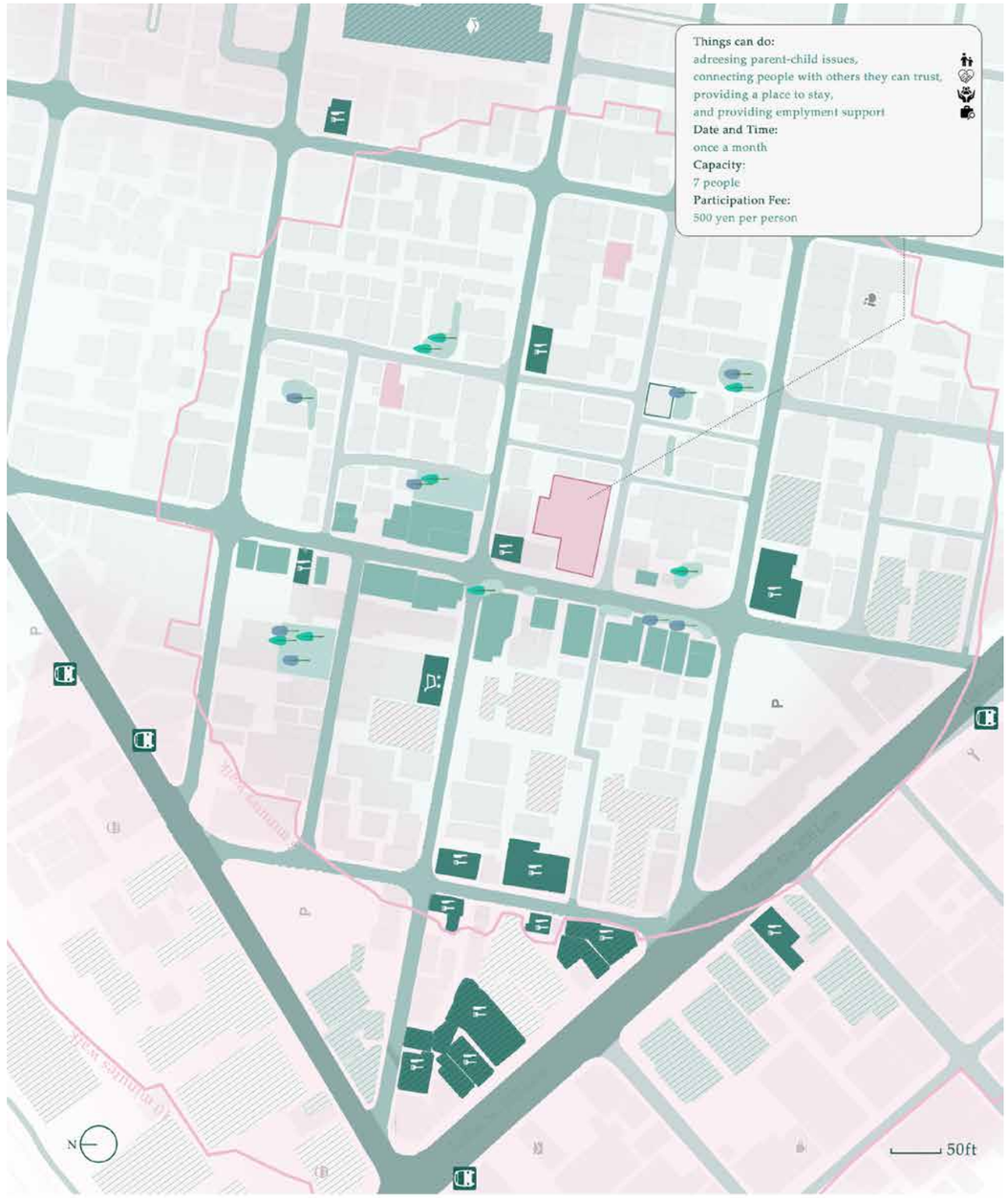
03

GROWING BRIDGES

Type: Academic/ Individual work
Time: Spring 2025
Instructors: Anthony Clarke, Alonso L Ortega

This project addresses the invisible struggles of Hikikomori — individuals who have withdrawn from society due to overwhelming pressures from education, family, and culture, mostly happened in Japan. Prolonged isolation often leads to deteriorating mental and physical health, reinforcing cycles of depression, anxiety, and even self-neglect. As urbanization accelerates and aging progresses, the number of elderly Hikikomori is **rising sharply**, posing both emotional and structural challenges. Aging Hikikomori **face worsening cycles of self-neglect, mental health decline, and social invisibility.** Their silent suffering leads to issues like **helpless after parents' death, lonely deaths and the weakening of community life.** So it is crucial to rethink both domestic and urban design not just for mobility or productivity, but for seeking to design gentle structures of reconnection before isolation becomes irreversible.





transit stations

community center

Multi-layered Support System Development Project, draft
Meeting for Middle-Aged and Elderly Hikikomori Families, monthly
Mayor Takeshi Saito launched metaverse social events to try to ease the hikikomori back into society.

greeninng

<4 floors

>=4 floors

public

private

noise

quiet

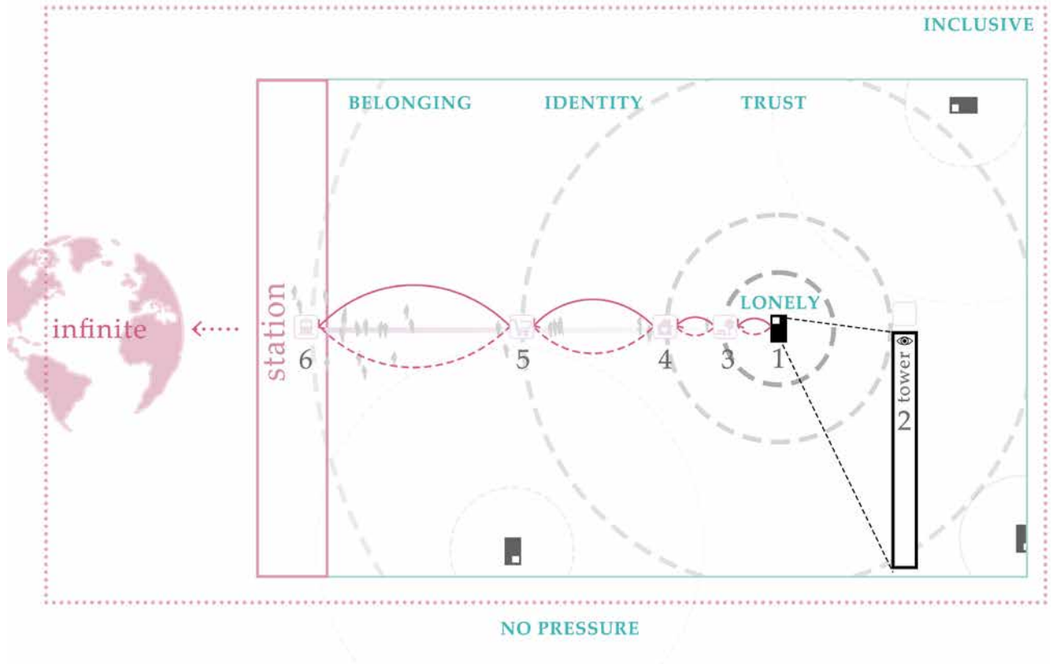
SITE

PEIRODS OF WITHDRAWAL FROM SOCIETY BY AGE

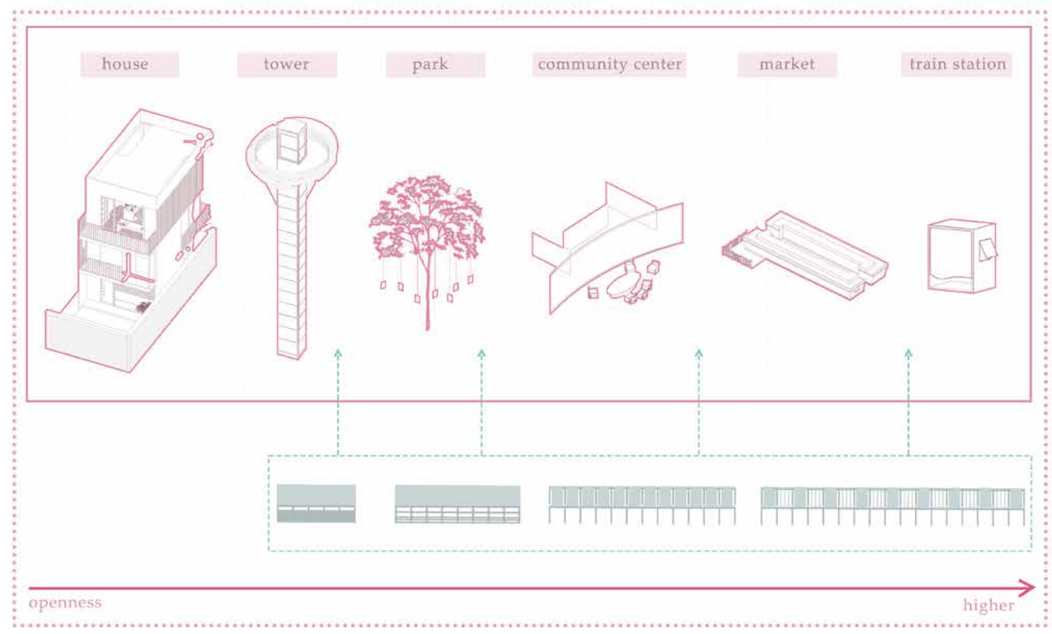
Total Hikikomori:
9,096/690,000 (1/76)
Household prevalence:
1/24 households had someone who was hikikomori
9.8% living alone, 90.2% living together
Gender:
51.4% women, 48.3% men
Reintegration:
2/3 want government help

HIKIKOMORI IN EDOGAWA

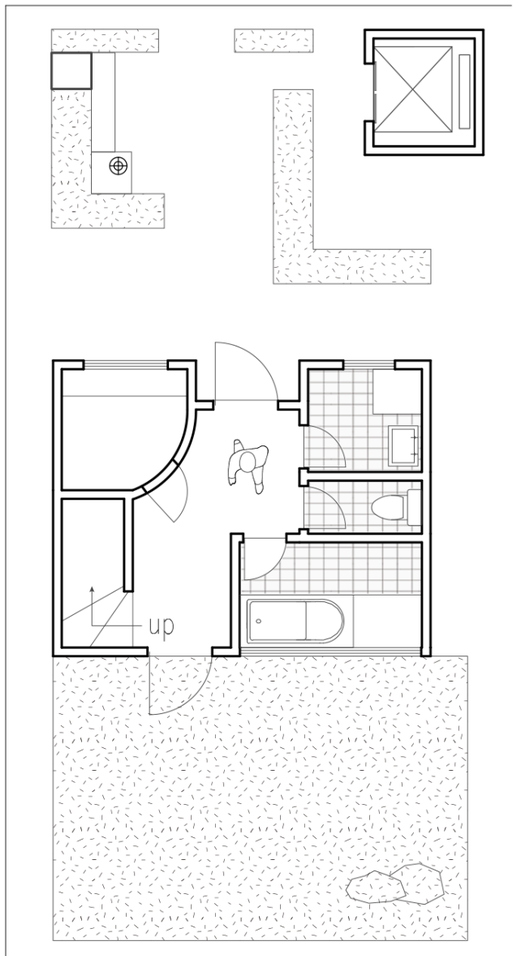
TYPICAL HOUSE

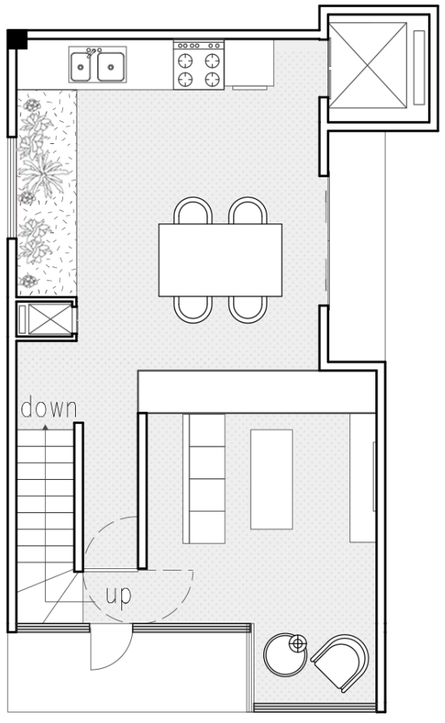


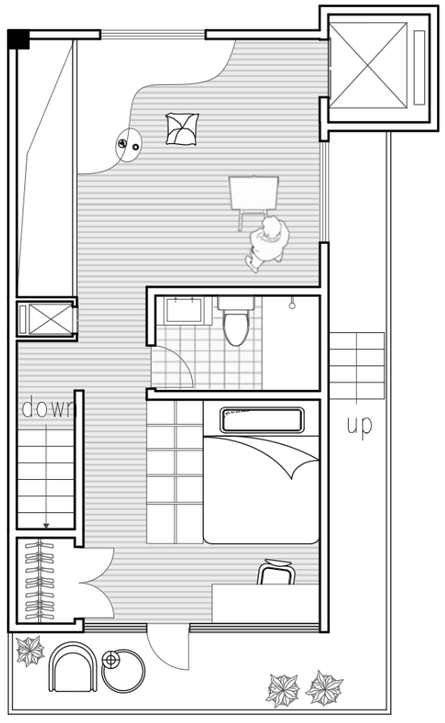
CONCEPT

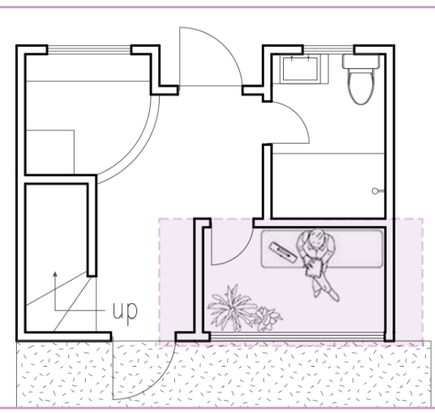


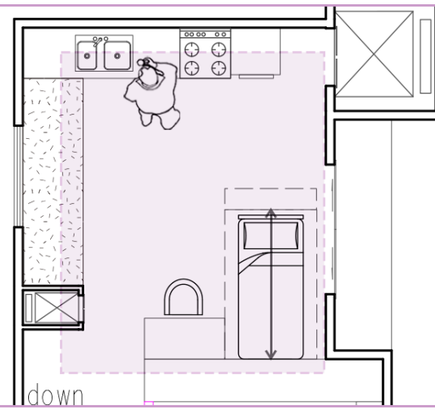
STRAREGY

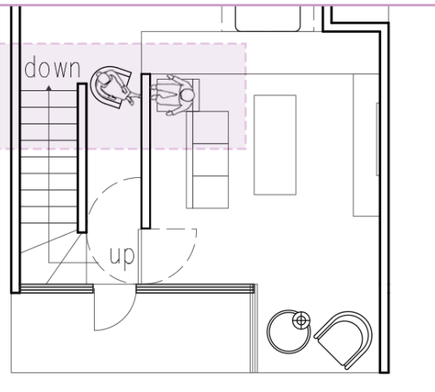




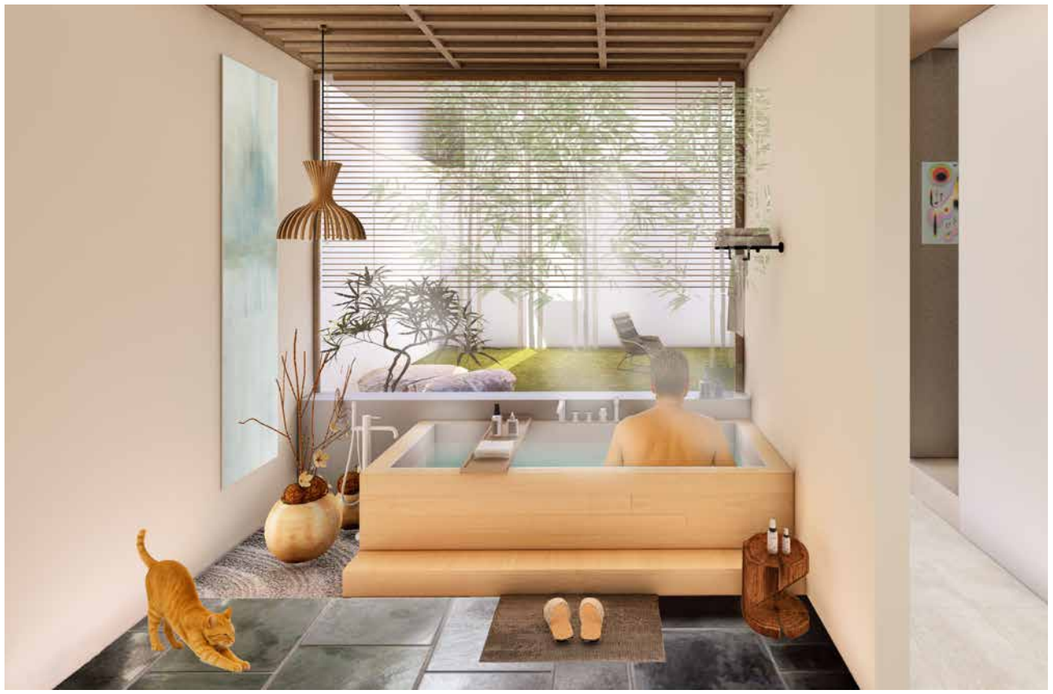








PLAN



FIRST FLOOR

SECOND FLOOR

THIRD FLOOR

Respect the existing life fabric

Hikikomori need familiarity more than novelty

Psychological safety

“Home” is the only place letting them feel safe (emotional safety)

Practical and structural feasibility

Economic situation of hikikomori is not good
Large scale new construction is not feasible in terms of economy, time and social resources.

WHY REDESIGN

1 HOME

2 TOWER

3 PARK

4 COMMUNITY CENTER

5 MARKET

6 TRAIN STATION

TRAIN ST.

04

ARGUMENT

Type: Essay/ Individual work
Time: Summer 2024
Instructors: Alireza Karbasiou

Question: Is community involvement in Xu Tiantian's project really make a difference in sustainable development? Are there groups whose voices are ignored or marginalized? Are there any voices should to be ignored because of the limited resources and the requirement of policy?

Li Li

Alireza Karbasioun

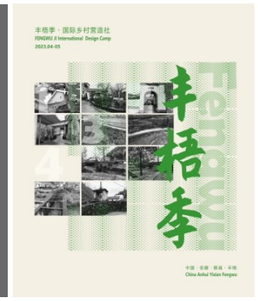
Final essay on argument

08/09/2024

Attention and Neglect

In the context of energy transition and rapid global change, designers are required to be more comprehensive and interdisciplinary. Xu Tiantian, as an architect, is concerned about the social and economic revitalization of rural China and has her own unique views on sustainable design. I was deeply impressed by her work "Groundwork-Into the Island" and her speech. Combining with an Chinese village revitalization activity I participated before, I raise a question about community participation on sustainable design and development and try to find the answer from an interdisciplinary perspective.

Groundwork-Into the Island is a three-part film and exhibition series exploring the conceptual development and field research of contemporary architects cultivating alternative modes of engagement with new project sites. The architectural portion of the project was happened in Meizhou Island off the coast of China. Xu Tiantian tried to use a set of interventions to mediate between pressures of heritage and tourism with marine ecology. Similar to Xu tiantian's project, I had participated a Chinese rural revitalization project named "Fengwu Ji" last year in Huangshan City, Anhui Province, China. The project united experts and students from different fields to activate rural space through urban-rural linkage and villagers' joint construction. Although the project is based on the construction of architecture, it is more like a social design because of the addition of research, lectures, and interviews.



Both the two projects concern current social issues and consider the need of locals and the cooperation of different fields. Whether it is rural revitalization or energy transition, the topics of the projects are all about future sustainable development. They listened and learned from locals, focused on environmental impact and applied precise and minimal design interventions. They concerned lots of aspects, especially

community involvement, and let me to think about that does community involvement have to be concerned during the design? Are there groups whose voices are ignored or marginalized? Are there any voices should to be ignored because of the limited resources and the requirement of policy? These questions involve multiple disciplines. I firstly try to find the answer in below three separate categories.

1) Architecture and environment

In Xu Tiantian's project, she did a serious of design, such as offshore cooperative, seaweed ecology center, mangrove research base and so on. In the movie, we can see that Xu Tiantian personally visited the site of the fish steak, and learned the structure and use of the local fishermen. Architects and local community residents discuss and learn from each other, which not only ensures the full use of resources, meets the needs of ecological protection, but also meets the actual needs of the community. However, in the design of mangrove research base, the involvement of community seems to be less important. Concerning the protection of ecology and environment, the significance of environmental experts and government official would be larger. Therefore, even in the same area, in the same context of a large project, the difference in building function and environment will cause the difference in community participation and consideration. Community involvement is always important in some projects, but to some extent it is not necessary. Emphasizing the importance of community involvement in every project risks a loss of professionalism and reduced effectiveness

Same in the project I have participated in, the need and voice of villagers should be listened at the beginning of the project. How to systematize the fragmented needs of villagers is a very pivotal factor for architects to consider in their design thinking.

2) sociology and anthropology

In this semester's speech, Xu Tiantian mentioned the importance of combination of architecture, society and culture for many times. She also mentioned social strategy in the booklet of 'Groundwork'. She said that "The overall design is a social strategy to translate and connect diverse forms of life." From the perspective of anthropology and sociology, the concept of Ecological Wisdom could explain the importance of community involvement to some extend. Ecological wisdom refers to the knowledge and practices on how to sustainably use and protect natural resources that communities have accumulated through their long-term interaction with the environment. As long-term owners of the community, local residents are more suitable as regional designers in terms of time and society. As outsiders, designers should learn and cooperate with local residents to maximize benefits. Nevertheless, in such an interdisciplinary project, a single disciplinary perspective should not be the main basis for decision making. For instance, in 2000, the Brazilian government implemented a large-scale urban renewal project in the Banque Argentinas area, with a special emphasis on community participation, but with little regard for economic viability and funding sources, and the project became unsustainable due to insufficient funding. Thus, community involvement is important, but overemphasizing the importance of community involvement can lead to poor consideration at other levels and lead to project failure

3) economics and policy

There is no doubt that China's push for carbon neutrality has greatly influenced local decision-making and implementations. More and more agents pay their attention to the sustainable development. Under the rule of these kinds of policy, community involvement and design are just two of many tasks to be performed under authoritative regulations. When standards are established and all behaviors have a basis to be judged, the discussion on the impact of community participation on sustainable development will rely more on facts and data, with less emotional factors and more case by case.

From different perspective I am deeply impressed by Xu Tiantian's answer about sustainable design in an interview. She said that "Many of the sustainable designs being discussed today are still at the technical level. In fact, sustainability is also reflected in cultural sustainability, economic sustainability, and social sustainability."(Xu Tiantian, 2023) Nowadays, the world is changing rapidly, and there are so many factors should be moved for something to happen. A finished project is like a big achievement because it is not just an architect designing, but a collection of elements. Thus, I think instead of considering which parts are reasonable to consider and which part is not necessary, it is more crucial to think about the project systematically from a global and strategic perspective. For instance, from building construction itself, to history and culture behind it, and then to the rules and policy for building operation. Designers should not only use critical thinking, but also system thinking, and maybe in the future we may need to have "step-by-step thinking".

To conclude, community involvement could bring multiple benefits in sustainable development, but also has potential challenges. Understanding the positive effects and potential challenges of community participation can help us develop optimization strategies to ensure the sustainable development of the project and maximize benefits. Meanwhile, having a systematic and strategic thinking method could help us go further on the road of sustainability.

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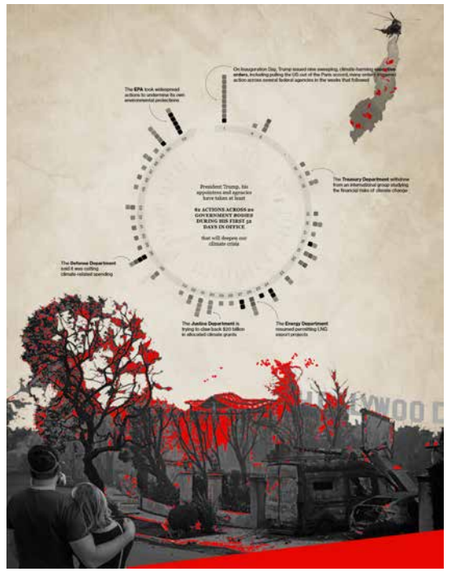
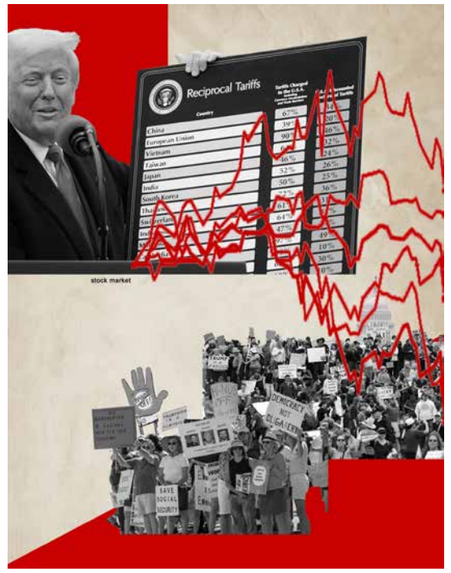
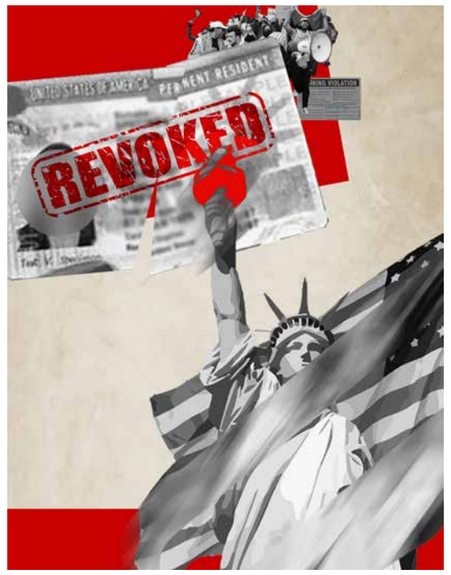
05

ARCHITECTURE APROPOS ART

Type: Academic/ Individual work
Time: Spring 2025
Instructors: Steven Holl, Dimitra Tsachrelia







LEARN FROM VARVARA STEPANOVA

Out of Control

The Soviet fashion designer Varvara Stepanova, born to a peasant family in 1894, was one of the greatest creative forces of the revolutionary years. Stepanova was never content for her work to sit in galleries – real artwork was made in the streets, factories and laboratories. She produced photomontages, book covers, posters and theatrical sets, and fashion design.

In my project, I mainly focus on her photomontage. A photomontage can include photographs, text, words, and even newspaper clippings. I analyzed several of Stepanova's works, including *The Results of the First Five-Year Plan*, *Be Ready!*, and *Pravda*, and *I Sing My Motherland* recognizing how her compositions blend visual aesthetics with propaganda. I was particularly impressed by how Varvara Stepanova used red—not just as a color, but as a **visual language of revolution, urgency, and collective identity**, infusing her compositions with political energy. For example, in *The Results of the First Five-Year Plan* (1932), the red power lines symbolize industrial progress, visually connecting the masses with the state's modernization efforts.

From her works, I learned that photomontages could be an important reminder of how an artist can blur the line between aesthetic passion and ideology. Dynamic composition, integration of image and information and speaking ideologically could be three useful ways to express ideas.

Considering what is happening now, I use "Out of Control" as the title to start my own works. "Out of Control" is a four-part collage series that critiques the illusion of control in contemporary systems. Each panel addresses a global crisis—**Climate**, **Tariff**, **Immigration**, and **AI**—by juxtaposing found imagery, red graphic elements, and fragments of media to evoke tension, urgency, and fragmentation.

CLIMATE: "The earth is burning in silence"
TARIFF: "Borders protect capital, not people."
IMMIGRATION: "They promised freedom — then stamped it revoked."
AI: "The algorithm knows you, but will never care."

But how to integrate contemporary elements into my photomontages? Firstly, I intentionally moved away from polished digital aesthetics and began by **tearing paper by hand,** hoping to bring in a sense of fragmentation and uncertainty. I also changed the background to gray and added some news clippings to create a more chaotic, real-world feeling. At the same time, for the AI topic, for the *AI* panel, I pushed this further by designing the work to fit the exact dimensions of a **smartphone screen**, so it feels more connected to our daily life.

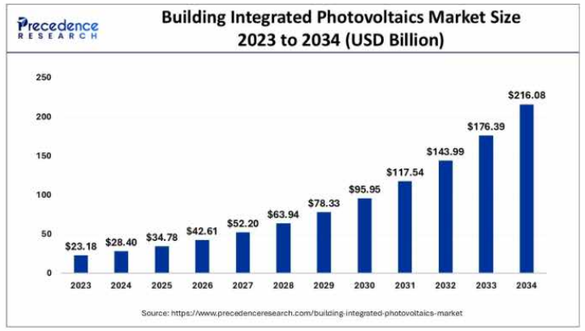
In addition to the visual language and content of each collage, I carefully considered the size and proportion of each piece to reinforce its thematic urgency and impact. The *Climate* collage, rendered at 11 x 17 inches, is the largest—mirroring the overwhelming scale and complexity of environmental collapse. In contrast, the *Tariff* and *Immigration* pieces, each at 8.5 x 11 inches, adopt the familiar size of official documents or political posters, evoking state-issued authority and bureaucratic control. The *AI* panel is the smallest at 2.82 x 5.81 inches, intentionally mimicking the dimensions of a smartphone screen.

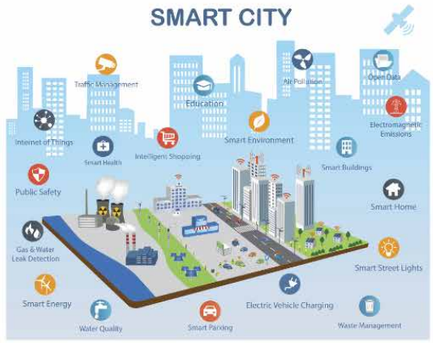
"Out of Control" project began with a study of Varvara Stepanova's photomontage and evolved into my personal exploration of how visual language can confront contemporary crises. I would love to give attention to such contemporary urgent topic, raising awareness and triggering discussions. "When control is claimed, collapse is near. These are not accidents. They're happening — now"

06

GENERATIVE DEIGN

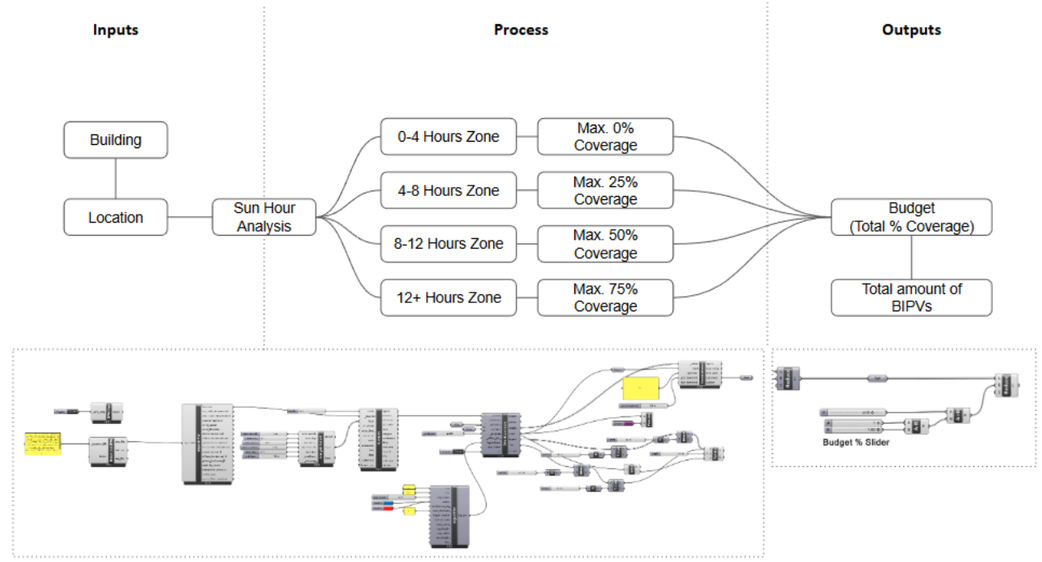
Type: Academic/ Team work
Time: Spring 2025
Team Members: Xiaotao Mo, Shaoyu Chen, Yuxin Hong
Instructors: Danil Nagy





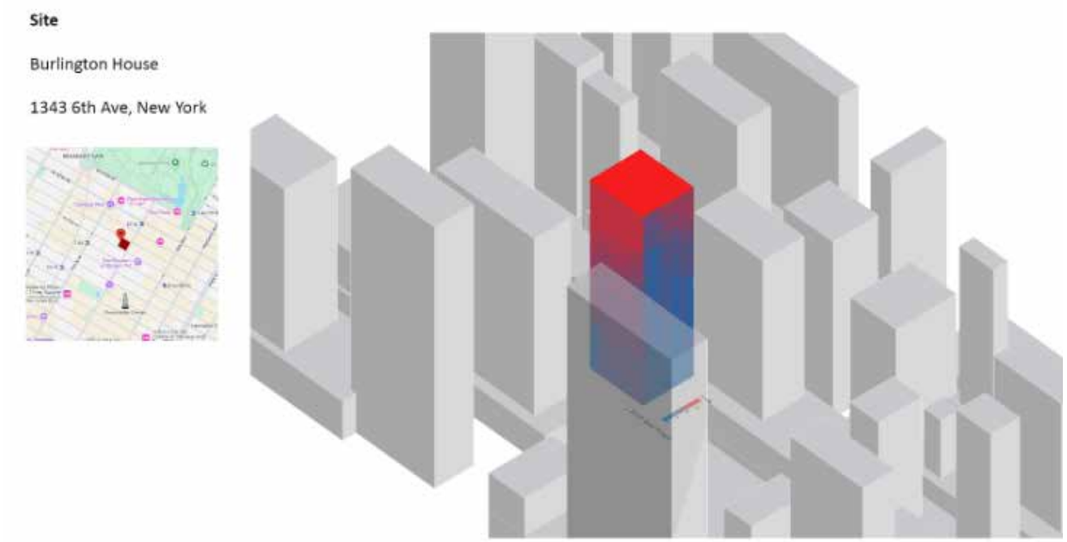
The global building integrated photovoltaics (BIPV) market size is projected to expand around USD 138.64 billion by 2034 and is experiencing a CAGR of 16.59% from 2025 and 2034. The global BIPV market is experiencing a compound annual growth rate (CAGR) of 16.59% between 2025 and 2034.

BACKGROUND

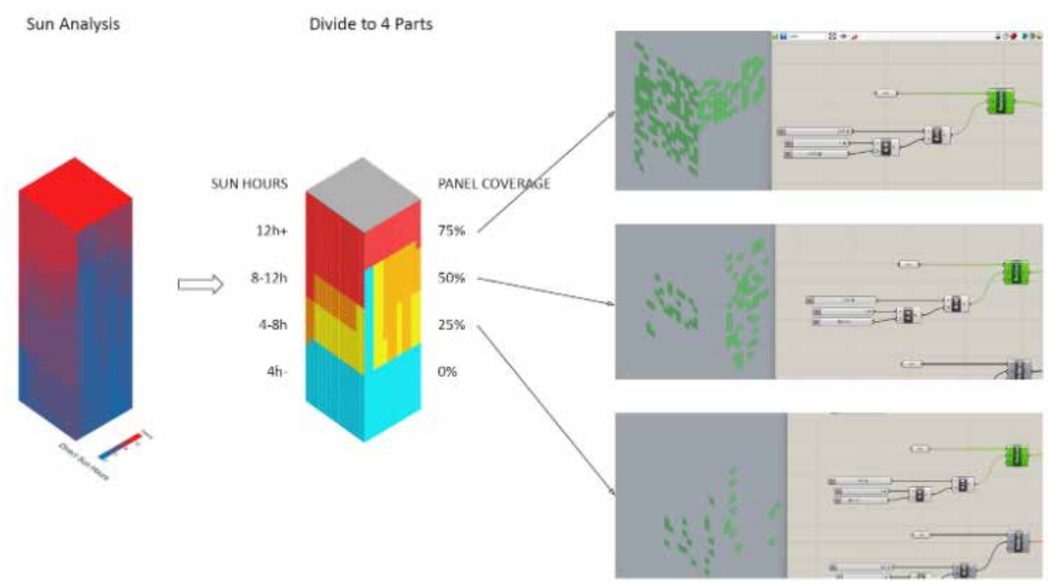


The methodology utilizes Grasshopper in Rhinoceros 3D, in conjunction with the Ladybug plugin to perform a Sun Hour Analysis based on inputs of building geometry and location data. This analysis evaluates the solar exposure of building surfaces and classifies them into four zones: 0–4 hours, 4–8 hours, 8–12 hours, and 12+ hours of daily sunlight, using our customized parameters. Each zone is assigned a maximum BIPV (Building Integrated Photovoltaics) coverage limit—ranging from 0% for low exposure to 75% for high exposure areas—to ensure that solar panels are deployed effectively and efficiently. These zone-specific limits are then aggregated to compute the total allowable coverage, forming the BIPV budget. A budget percentage slider is included in the Grasshopper script to allow real-time adjustment of the total coverage percentage, thereby influencing the final total number of BIPV modules allocated. The logic and parametric controls shown in the lower section of the diagram demonstrate how data flows from sun hour analysis through conditional filters to final outputs, enabling performance-driven solar design decisions.

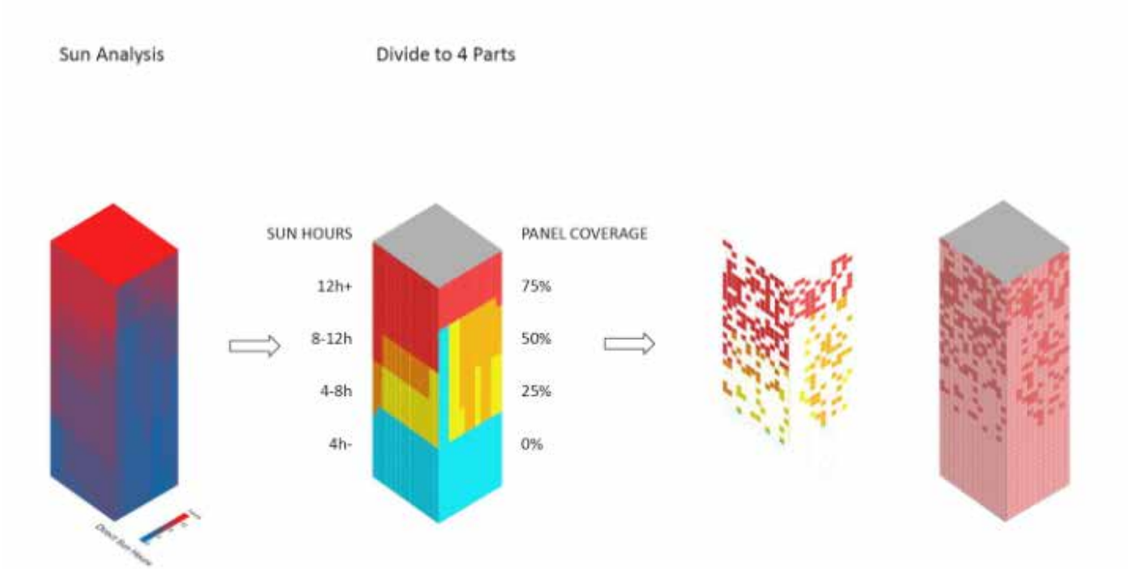
LOGIC



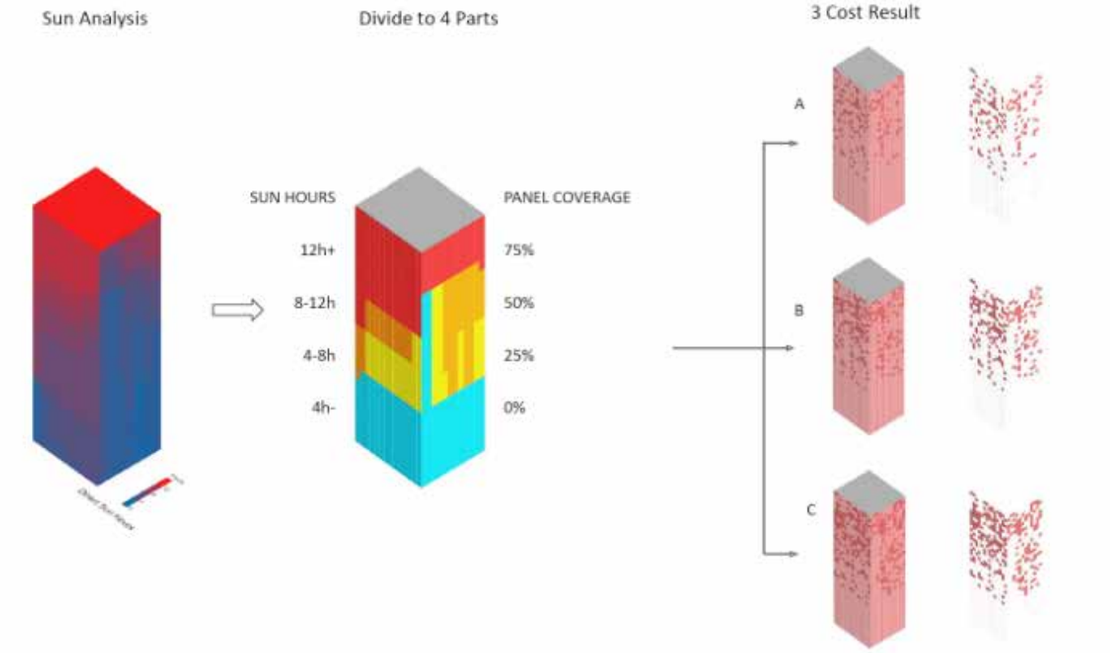
STEP 1



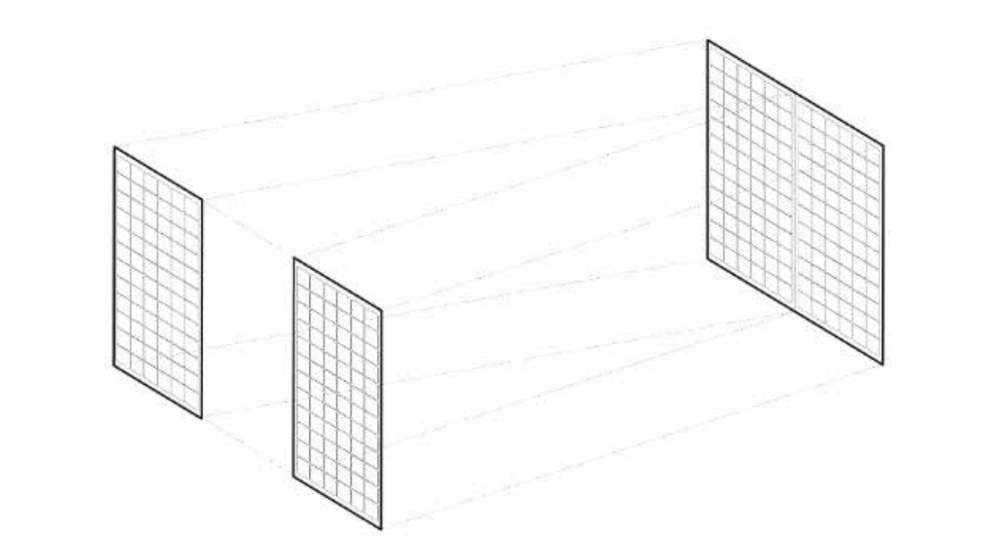
STEP 2

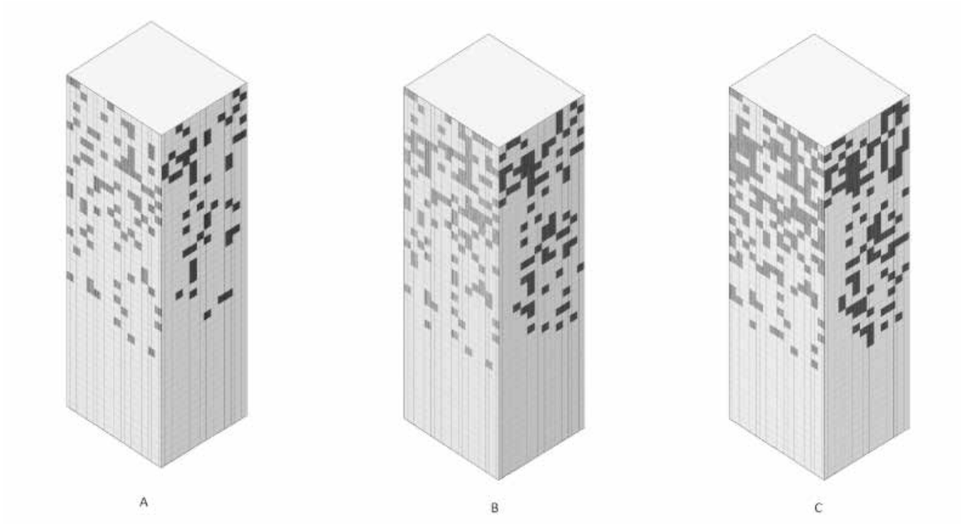


STEP 3

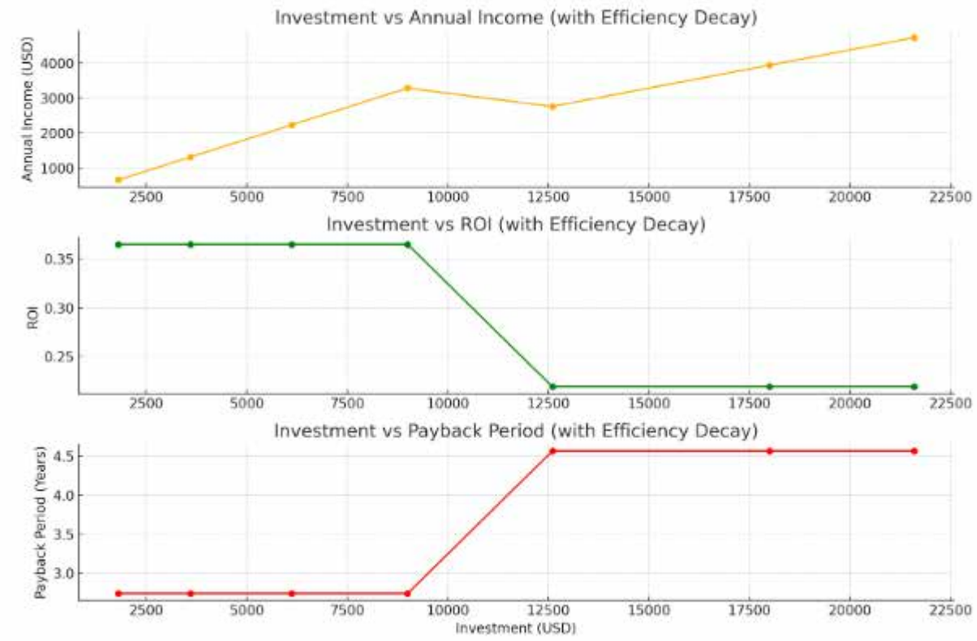


STEP 4





DETAILS



In order to identify the return on investment (ROI) under different budgets, we estimated three scenarios - each representing a different initial investment previously.

We simulated the relationship between total investment and annual energy income. The cost of installation was calculated using market average prices. To make the estimation more in line with the actual situation, we further introduce a realistic efficiency decay model — assuming a 3% drop in average panel efficiency for every unit beyond 50 panels due to shading, thermal accumulation, and maintenance complexity.

The results reveal a clear inflection point:
1) The system reaches its peak ROI at around 50 panels. Beyond 50 panels, although total energy output continues to increase, ROI declines.
2) Investment and ROI do not increase linearly.
3)A moderate investment has the most balanced return which is the most cost-effective choice.

These cost estimation analysis help us identify the most financially rational and feasible strategy based on controllable budgets.

ESTIMATED COST

As the global building photovoltaic (BIPV) market continues to grow rapidly, driven by growing sustainability demands and smart city development, the need for intelligent, site-responsive solar solutions is more pressing than ever. Solvera is responding to this market trend. By combining environmental data with the built environment, Solvera offers an intelligent and adaptive solar approach that ensures optimal solar panel placement to maximize sunlight and energy efficiency. With a focus on economic viability and environmental performance, Solvera positions itself as a forward-thinking solution at the intersection of sustainable design and smart city development.

CONCLUSION