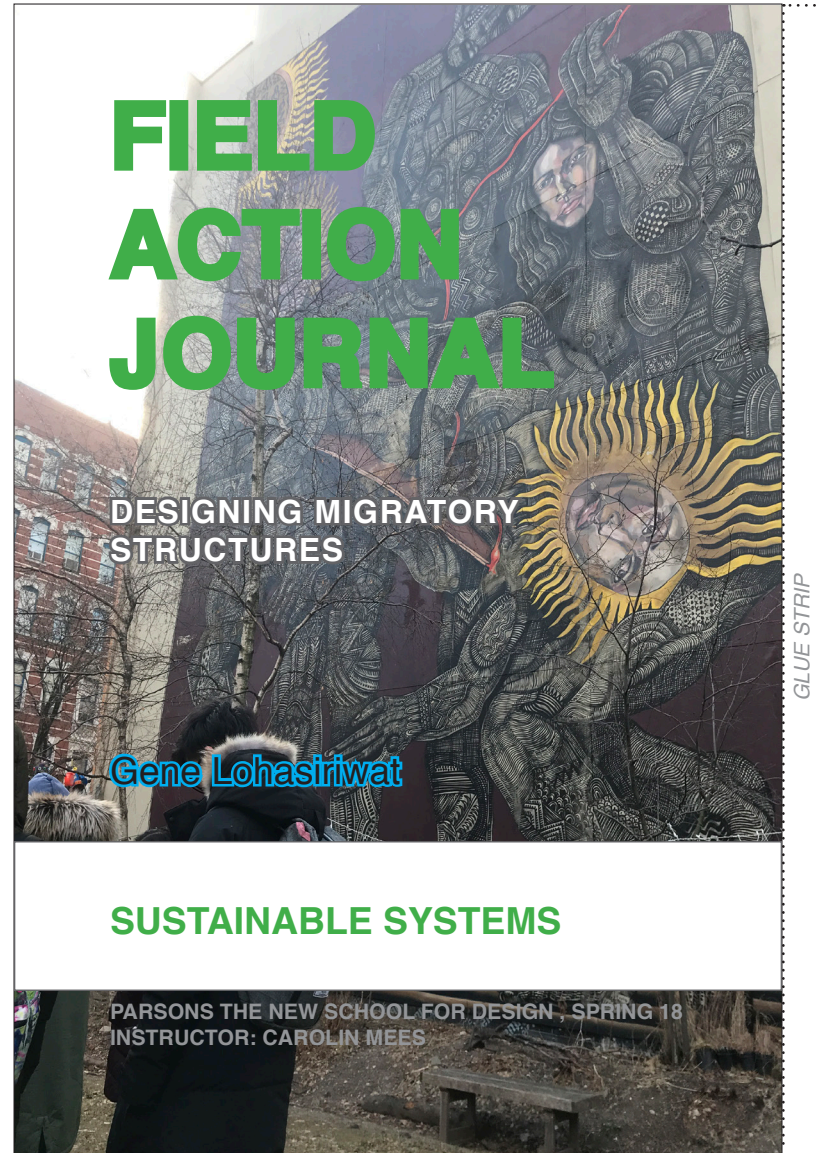


NOTE: PLEASE ADD PAGES AS YOU SEE NECESSARY



FIELD ACTION JOURNAL

DESIGNING MIGRATORY STRUCTURES

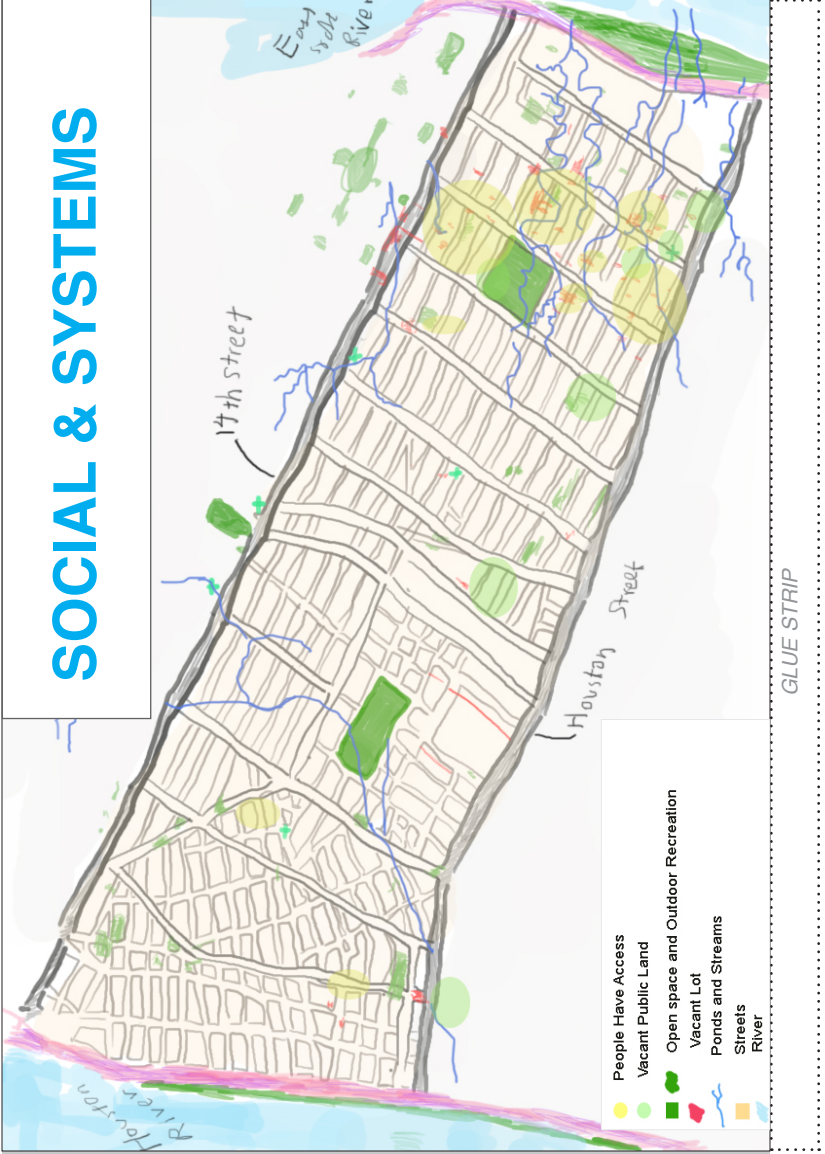
Gene Lohastriwat

SUSTAINABLE SYSTEMS

PARSONS THE NEW SCHOOL FOR DESIGN, SPRING 18
INSTRUCTOR: CAROLIN MEES

GLUE STRIP

SOCIAL & SYSTEMS





(Top) The garden has the place where family and kids can play and enjoy themselves. - Own image, Feb. 2 2018



(Above) The garden experiments on different kind of plants including a big bamboo tree. - Own image, Feb. 2 2018

GLUE STRIP



(Left) The instructor explaining the idea how can a big rock with rough texture be used as arain water harvesting. - Own image, Feb. 2 2018
(Right) Students learning about composting. - Own image, Feb. 2 2018

Community gardens in New York are important for its urban landscape and citizens. Most of community gardens are developed from the lands where their previous landlords failed to pay tax and left them behind. As a result, these area returned to New York City and made the community members including activists and artists decided to renovate the vacant areas into gardens. This community gardens provide city with many cultural opportunities, prvention, green spaces, and food sources.

Musuem of Reclaimed Urban Space (MoRUS) is located at 155 Avenue C, New York, NY 10009. The organization promotes and encourages the action of squatting, cultural diversity and community gardens. According to the guide, MoRus recovers and develops the community gardens at the zones in East Village. The improvement includes growing plants, vegetables, alternative medicine, cleaning rubble and filtering and treatmenting soil. MoRUS also helps to improve the public facilities such as walls, ponds and sinks and composting the food waste properly.

GLUE STRIP



(Top) Asian-looking gazebos placed in the middle of the garden.



(Top) Various type of medical herbs are planted and free to be picked by anyone.

GLUE STRIP



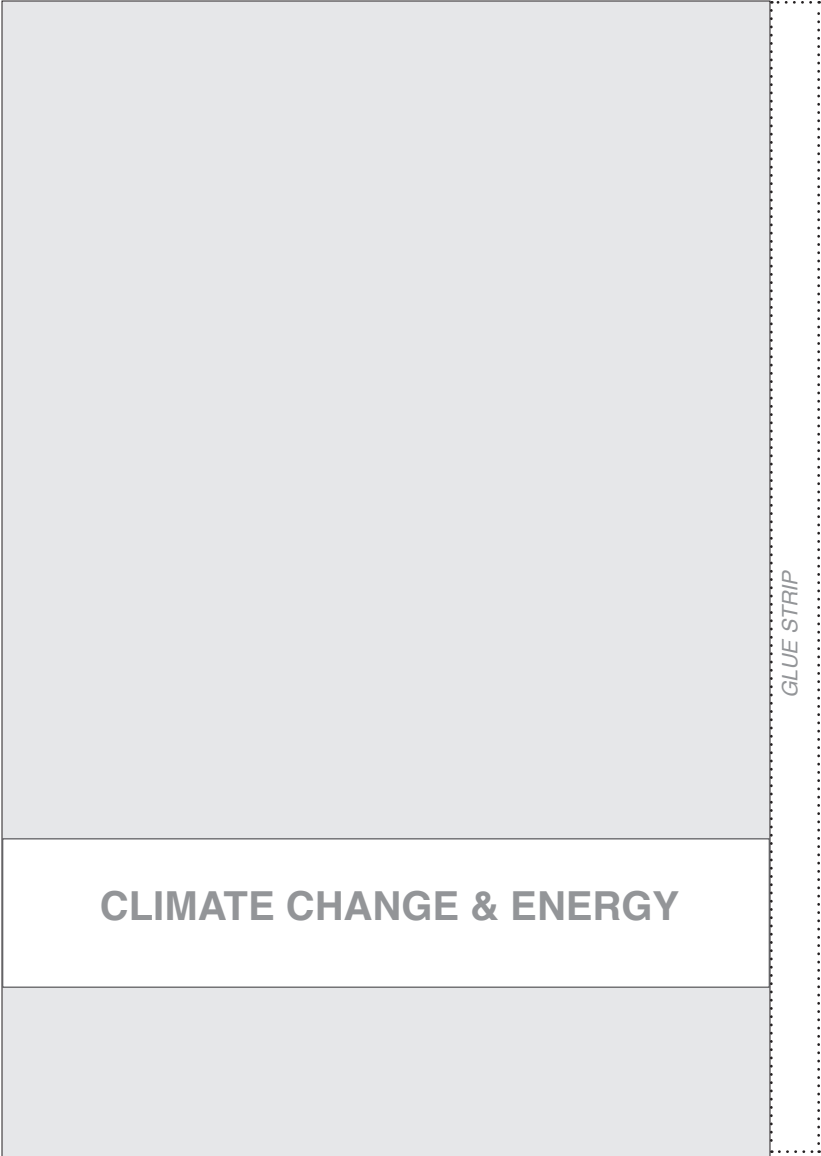
(Top) The squared creation is the solar power generator that MoRus designed.

MoRus demonstrates many creative self-built (DIY) structures and participatory design of eco-friendly devices such as the solar power generator (Top), Human-powered composting, and rain water recovery system.



(Right) The mural appeals and draws people attention to the garden. - Own image, Feb. 2 2018

GLUE STRIP

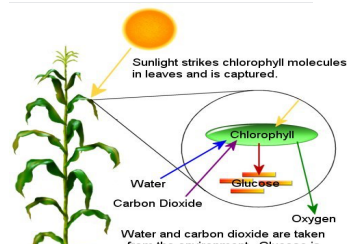


CLIMATE CHANGE & ENERGY

GLUE STRIP

(A)(B) Roots, stems and leaves are three main organs of plants that involve in plants' transportation. Each tissue in these organs have protocolar functions such as xylem and pholoem. For water transportation, the process starts when the water absorbs by the roots from the soil. The water then moves from root through xylem tissue to stem and then leaves. Plants living condition such as temperature and other environmental factors may results in the different in leaves. Most of the leaves that we see everyday are named as monocotyledons and dicotyledons. Though monocotyledon plants have narrow leaves and dicotyledon have wide and stalks leaves, both process of transportation are the same. However, with different condition, some plants have specially adapted their leaves to reduce the the rate of losing water like cactus that has a needle hair shaped like leaves. This hair has tiny surface areas that expose to the sun and as a result, reducing the evaporation of water vapor. While other plants have wide and hollow photosynthetic stems, xerophytes (plants that lives in the condition where water is in short supply) have narrow and flattened photosynthetic system to store water.

GLUE STRIP



(C) (Left) The diagram of plants during the photosynthesis process.

(C) Plants make their own food because they consist of green pigment or cellulose and make food through the process called photosynthesis. The process requires the sunlight energy, carbon dioxide and water to produce glucose (starch) and oxygen.

D)(G) Climate change is caused by the burning of fossil fuels and the heat gases that are trapped in the Earth's atmosphere. The trapping of these gases or green house effect is the main cause of the current global warming situation. The gases that generate the green house effect mainly include water vapor, nitrous oxide, methane and carbon dioxide. In contrast with human activities, plants absorb carbon dioxide and in exchange, release oxygen to cool down the atmosphere and lessen ozone layer damage. They have the ability to remove the harmful substances in the air and eliminate toxins through their leaves and roots.

(E) Roots of plants function in absorbing water from the soil and with the water that is polluted, plants filter the pollutants from water by absorbing these poisons and heavy metals that come with water. Some plants can also remove the contaminated substances from the water such as oil and bacteria.



(H) (Above) Flowers are bees food source as flower is the plant organ that stores nectar.

(F) Plants assist in both water, air and land decontamination. For polluted soil, plants help extract pollutants such as selenium, copper, nickel and zinc and disposed them as a waste. However, the effectiveness of the decontamination of plants depends on how deep the roots are.

(H) The mutualistic relationship between plants and animals are happening all the time between plants' photosynthesis where they give out oxygen and take in carbon dioxide and animal's respiratory system, taking in oxygen and take out carbon dioxide. Another complex mutualistic relationship between plants and animals might be the relationship between insects, bees and flowers. Bees collect nectar from flower to flower. They have hairy bodies which makes pollens from one flower scatter into the air and pollinate.

(I) Cellulose is the main building part of plants which can be obtained form leaves, stem or bark of plants. It also offers a potential for building materials. It's already used as insulation, sourced from recycled newspapers. Cellulose can be transformed to manufactured cellulose fibre when passed through the extruding process that polyester are made. It can be used to replace the material like wood, plastic, and brick.

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This Changes Everything

Some scientists call our era the “Anthropocene” - the contemporary epoch in which geologic conditions and processes are overwhelmingly shaped by human activity. In this era climate records not only atmospheric forces but the whole of human history: the fuels we use, the lifestyles we cultivate, the industrial infrastructures and supply chains we build, and the possible futures we may encounter. With this project we will focus our research on the connection of human caused climate change, the use of fossil fuels, water pollution and the effects on life on earth.



(Top) A Scene from the movie This changes Evrything showing climate change may results in forest fire

The movie “This Changes Everything” narrated by Naomi Klein is the movie that aims to encourage and educate audiences about climate change and the polluters including how activists fight back. The movie is the proof that climate change is real and increasing each day and what we can do to lessen this problem. The movie also illustrate the truth about government and their ignorance. UN has provided the reduction of emissions goal each year internationally, however , the plan of meeting this target didn’t go in a serious way as if the government failed to meet the target emission point, no penalties will be made. In fact the UN has no right to give any kind of punishment but the environment, the planet we are living in will be giving us a direct punishment for failing to meet this goal in time.



(Top) A Scene from the movie «This Changes Everthing showing the smoke releasing from the factory

3 main types of fossil fuels are oil, coal and natural gases. There existence in reality, do no harm to our community and people but it actually the their production of harvesting them that leads to the damage of our environment and health; damage on american equality and citizens’ quality of life. Fossil fuel process or the combustion is leading us towards “global warming” which can be seen to these consequences :- rising of sea level which is the results in several of storms for cites like New York or New Orleans.

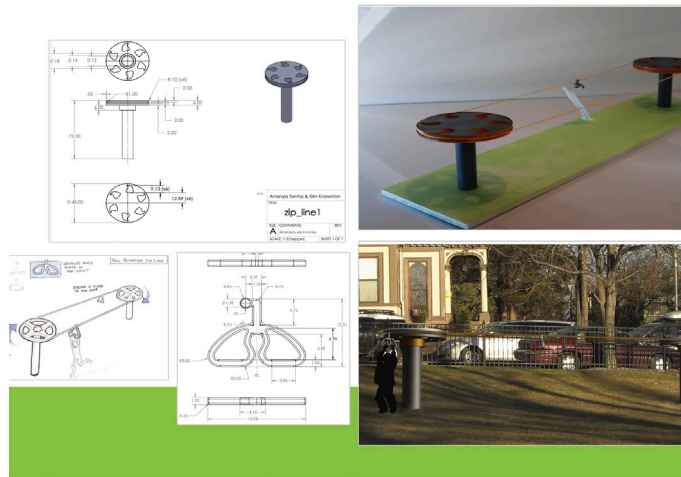
Climate Change. Performed by Fin Harries. 3-FinHarries. February 16, 2018. Accessed February 17, 2018
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GLUE STRIP

Renewable and kinetic energy.

One of the newest emerging sources for clean energy is kinetic energy. Kinetic energy is power that is gained from motion, and this motion can involve vehicles, individuals, and any other object, really. In fact it can be seen that many innovations that associate with renewable energy's purpose is to help poor communities by providing them with clean energy and replacing their current inefficient and hazardous means of energy, but it also help in lowering our carbon footprints in a fun, intuitive way, the future of kinetic energy as a renewable energy source is surely optimistic.

The popular example might be the product by the name of Pavegen. The Pavegen is the floor tile that absorbs kinetic energy when it is walked on. These tiles contain a small LED that lights up when a person walks over it, informing him/her of their contribution to the Earth. The tiles themselves are produced from recycled materials.

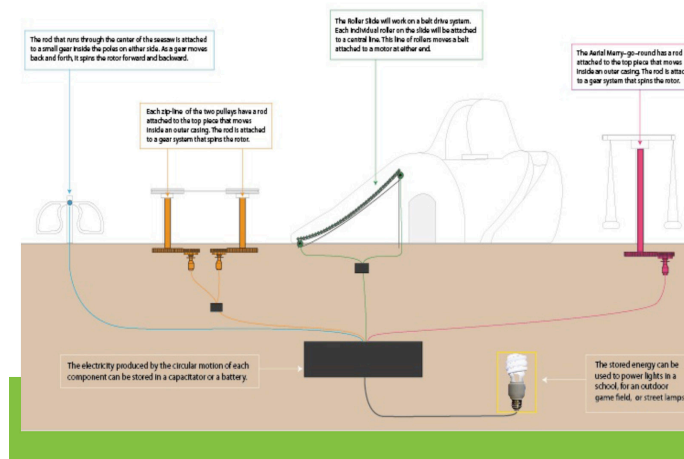


«Pavegen – Events: Kinetic Technology To Power Brand Experiences.» Pavegen - The Next Step. Accessed March 05, 2018. <http://www.pavegen.com/events>.

Renewable and kinetic energy.

Another remarkable that is found by an anonymous designer on Pinterest is a ideal energy generating playground. The two diagrams below illustrate one of the ideal playground that inspired from the original structure of zipline. The designer explained that zipline serves as a transitional piece from part of the park to other, showing kinetic energy. The bottom diagram shows other tools that are different in heights accommodating to different children interests and needs.

According to the description, the designer explains the electric layout of the play ground or how the things work. He or she explains that the each component work bit different on the direction of rotation on motor system to capture electricity. As the rotor spins, the magnets inside constantly change the polar trim positive to negative, producing electrons.

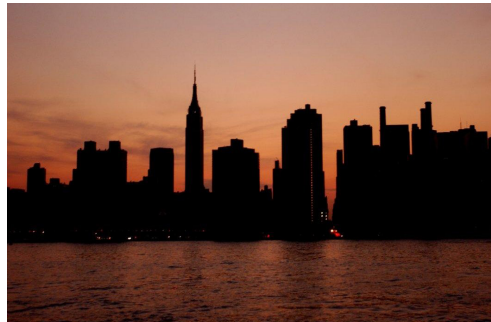


GLUE STRIP

The Electric Grid

Electric grid is the network of electrical system that made up of plant generator, transmission routes, stations, substations, transformer, distribution lines and consumer. Electric grid functions in connecting the electricity generation facilities and locations consumption centers. In electric grid, the two type of generations are centralized which is a huge scale generation that further away from the consumption and decentralize. The generation process includes the burning of coal, hydro, wind, natural gas and nuclear.

Electricity grids transmission is occurred underground or overhead through the power lines that most consumers are commercial , residential or industrial consumers. Transmission system is very important to electric grid as it controls and orders where the energy should be transmitted.



(Top) The benefit of this energy production is the energy can be distributed to the users at over long distance and this is the reason why many trying to extend the system which leads to two main problems: 1) Lack of high voltage lines to where renewable energy is most located and 2) The national grid are not well connecte, resulting in Black out.

d-How could you set up a Micro Grid? What is crucial for its design or in a design context? Explain and find one innovative, fun design examples for each aspect that could inform parts/ features of your own structure or structural settlement.

The first and most important component needed in any microgrid system is the power source. Depending on the demands on the microgrid, the energy source is often adjusted accordingly. Rural areas are able to access energy from remote micro grids with solar power as a popular power source. Maintenance of the modules for solar based remote microgrid is one of the primary challenges; exposure to high moisture levels can decrease performances significantly. Maintenance also imposes a lot of storage requirements. It is important to consider the economic as storage systems usually make up the price of microgrids and more solar capacity requires larger storage capacities.

The power management system controls the transfer of electrical power from the power source to devices that consume electricity. These electric load management usually requires converting the electricity generated from the power source to the form required for most appliances with an inverter that transforms the electricity. These appliances interface with the storage components of the microgrid in order to balance the supply and demand loads of the microgrid. Currently, there are integration of reliable softwares and control systems, such as smart meters, that can manage the grid operation efficiently.

Energy storage systems allow the microgrid to balance the electrical; acting as an important role in making electricity accessible when it is required by the user. For remote microgrids, batteries are most commonly used as storage technology. The storage capacity required for the microgrid does not justify the higher cost of other storage technologies. Large-scale storage technologies, like hydro based storage or thermal storage, have high starting costs that make their use in remote microgrids challenging.

Another component of the microgrid are the electricity consuming devices; their energy is supplied from the microgrid system. These devices dictate the electrical loads placed on the microgrid, affecting the storage requirements and the power generating capacity from the power source. This can be seen when comparing charging a cell phone with connecting a refrigerator. Charging a phone places a small capacity requirement on the overall system whereas connecting a refrigerator creates difficulties in managing electric loads due to the much larger power demands of the appliance.

In many developed countries, microgrids have utility connections. This integrated connection allows the microgrid to exchange power with larger utility networks. This type of microgrids with utility connection are commonly used for universities and hospitals.

Passos, Maíra. «Design Produtos.» Pinterest. April 08, 2015. Accessed March 05, 2018. <https://www.pinterest.com/pin/292030357063953795/?!p=true>.

GLUE STRIP

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GLUE STRIP

A-

1- Write a short text of about 100 words in answer to the following questions:

A-C

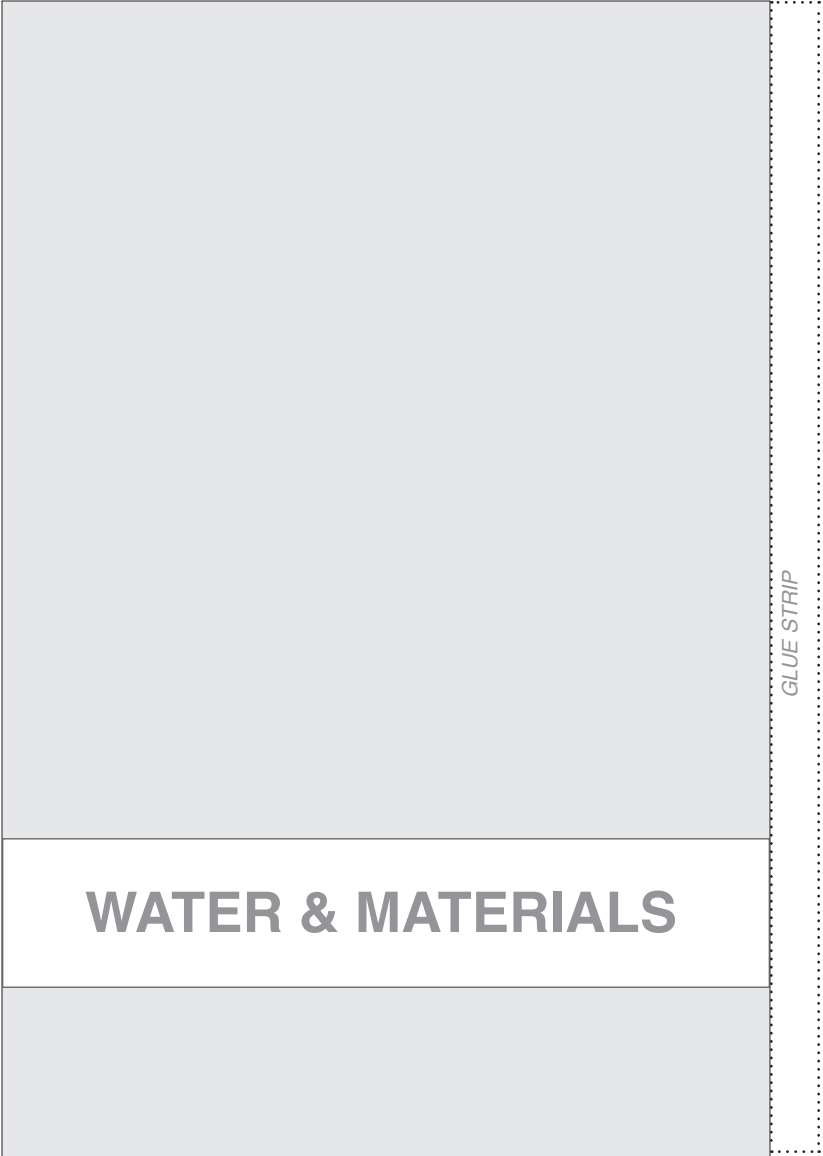
Since we have to use the material we are going to make for the model, I decided to stick with kampuchea leather as it resembles the color of lizard scales. I take this opportunity to regrow the kampuchea leather again because I failed to grow it last time. The main reason I chose house kampuchea is because I want to make it look as close as the real shelter, the leather is water resistance and withstand the collapsing or folding action. For the qualities, in my opinion, the quantity or how much kampuchea leather will form is based on the wideness of the container's surface area and because it's just 10" model. I decide to use the same container (5-6"x 16-18").

GLUE STRIP

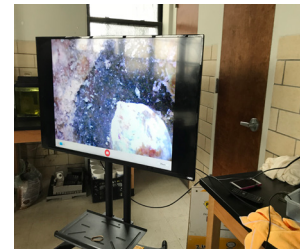
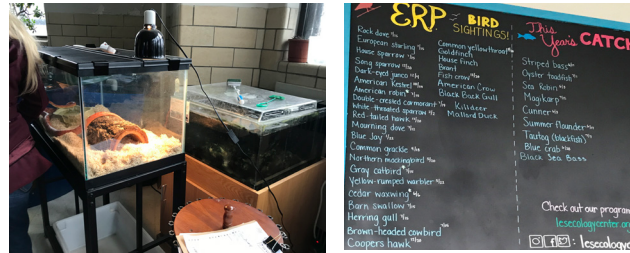
D- Which un-sustainable materials can be replaced by your self-made sustainable material?

If the self-made sustainable material dent work out, the best un-sustainable choice would be paper. At same time, I think paper is a good choice of material because it is decomposable and easy to shape.

GLUE STRIP



Lower East Side Ecology Center is the non profit organization where the centers located near hudson river and manhattan bridge. The center offers the information about New York water system, animals, energy, plants and issues that have effects on the city's ecology and citizen. The organization also focuses on how us, New Yorkers, can help to improve and develop the city's ecosystem and enhance the remain facility to the best outcome such as the workshop giving knowledge about fish clinic and fishing in the river and exploring invasive species (picture above)



GLUE STRIP

1- For each of the following aspects find one material, with the above described qualities, that you propose for use in your structure:

A- structural

option 1 wooden rod : the rigid rectangular wood rod is one of the choices that can be used to form the structure before applying any surface materials.

- option 2 wire: More easy to adjust and bend compare to wooden rod side no glue is needed. The only concern about this material is the its small surface area that will left no space for surface material to apply on.

B - food production = skin material to be flexible or semi-rigid (represented by in model by paper panels/ facets)

- Bristol paper : According to the design, food production or the veggies pot will be stored around the inner surface of the shelter panels. The material is decomposable and light weight.

-
C - D solar energy collection or solar energy reflection = skin material to be flexible or semi-rigid (represented by in model by panels/ facets)

- Kambucha leather : will be used as 2 in 1 material for solar energy panels and for water proofing surface. Although Kambucha leather is hundred percent water resistance, considering the condone - extreme heat, water will be evaporated before it really gets through the user. Kambucha leather is flexible, semi rigid but the only concern is it doesn't have good memory when folded like paper, in other word, it has a chance to regain its original shape.

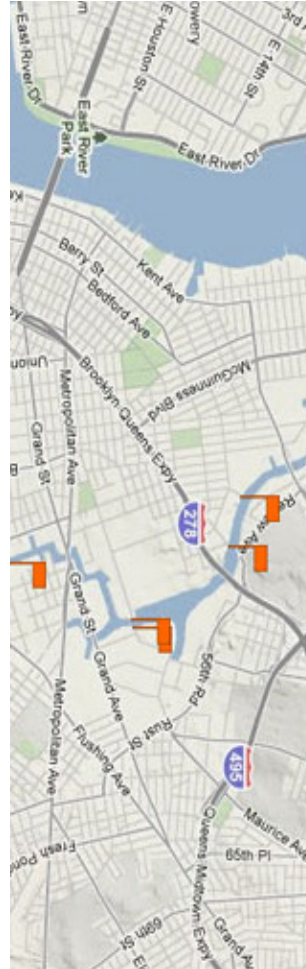
-
D - water proofing and water collection or water drainage = skin material to be flexible or semi-rigid (represented by in model by panels/ facets)

GLUE STRIP

3.A-

1- Write a short text of 50-100 words in your Field Action Journal reflecting on the

According to Newtown Creeks alliance's presentation and discussion in regard to our investigation of sustainability aspects in New York City, Newtown creek is the waterway that has the size of approximately 4 mile located between Brooklyn and Queens in New York city. Back in 1800s, It was surrounded with loads of industrial facilities such as chemical plants, banks, glue, fertilizer, lumber and coal factories. These industrial activities result the creek to be polluted. Nowadays, those type of factories are still in operation beside the creek. It is named to be nation's most contaminated



GLUE STRIP



2- Add at least one of the Newtown Creek Alliances work that you find on the internet. Refence the photographer.

Newtown Creek Alliances offering the water quality monitoring programs with the cooperation with Environmental Science department at LaGuardia Community College. The operation functions in tracking bacteria and oxygen levels in different locations of the creek together with checking temperature and rainfall to get to know the quality of water. The program informs information about water quality and suggests how members can improve the conditions.

GLUE STRIP

4.+ Part 5

1- Create a collage using GoogleMap or Mapquest or Open Street map and photos that you take during the Circle Line field trip. You should draw/trace over the map and the photos to create your own image. You can incorporate the map and the photos if necessary.



GLUE STRIP

3- Make sure to take photos and notes during the field trip. Use these notes together with your research to write a text of about 200 words that explains your vision of New York City as a growing city with urban agriculture that is resilient to flooding.

Urban agriculture is a type of agriculture that grow and process food within the city or around the city. Urban agriculture comes in variety of forms, including, backyard, balcony, roof top, and community gardening. An urban agriculture system is an essential tool in a gigantic city with enormous population size. City with this quality will without doubt create a water waste and pollution that would not be easily dissipate. The city water waste could be used toward growing crops or as a water source for animals.

In my perspective, there are two possible ways that urban agriculture could aid the prevention of flooding of the city and from destroying crops itself. Since New York, especially Manhattan has an exorbitant land price, it would not be wise for the city to spend these valuable lands on farming. This leading to some fragment of the total urban agriculture farms to be located on the roof top. When flood occurs within the City of New York, these precious crops and animal would become unharmed.

Another potential solution to flood disaster is a temporary unused land lease, such as land that are already purchased but are not starting construction yet. These lands are commonly found under power line, flood zone or land reserve for future use. With more crops grown, as water are entering the city these crops will minimize the amount of time to reduce the water level. This is because crops have the ability to absorb water and could also be used as a wall to slow down the water from entering the city. With the recent Urban Agriculture policy bill that had been passed by the New York City Council, it is safe to say that the future is bright.

GLUE STRIP

5.6

Part 6

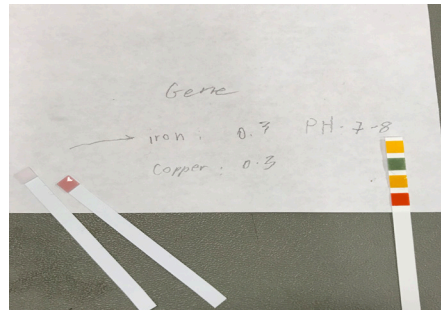
1(A) Why is the water testing important as a tool to make aware of environmental issues such as the contamination of New York City's waterways and the oceans?

Too much substances in water such as ph, copper and iron in water may lead to many diseases...

- iron : Hemochromatosis happens when too much iron builds up in the body. Your body needs iron to make hemoglobin, the part of your blood that carries oxygen to all of your cells. But when there is too much iron, it can damage the liver and heart and lead to other diseases, such as diabetes and arthritis.

- ph: When your body fluids contain too much acid, it's known as acidosis. Acidosis occurs when your kidneys and lungs can't keep your body's pH in balance. Many of the body's processes produce acid. Your lungs and kidneys can usually compensate for slight pH imbalances, but problems with these organs can lead to excess acid accumulating in your body.

- copper : n exception is the person with Wilson disease who has acute liver failure. In this case, the level of copper in the blood may be higher than normal. Any of the following conditions could cause your test result to be high: Copper toxicity from taking in too much copper, perhaps through water or dietary supplements



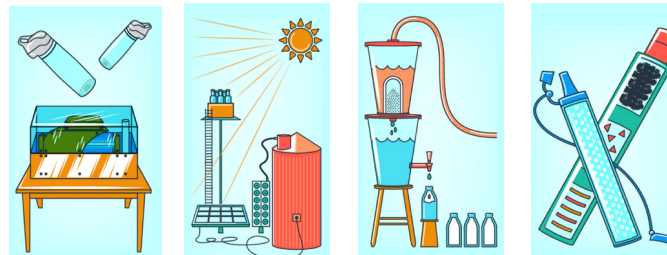
Results from testing water from own aptment for ph, copper and iron in class

GLUE STRIP

(B) What could we do as designers to reduce the impact of our designs on water quality in New York City's waterways, our drinking water and the oceans?

2- Find two images that relate to your answers.

Redesign water system in New York by improving the filtering system. Good Water purification design can reduce the amount of bacteria, viruses that caused by organisms and other agents. Many methods that could be included are shining the UV rays, solar purification and for drinking water such as ceramic filters and water purifying bicycle or even having own personal filtering straws could help. There are many advantages by using these methods but also many disadvantages, for instance by using solar purification, it may support about 50 residents but at the same time it requires a length of time to treat the water, while for UV rays, it does clean 99.9 percent of bacteria but it requires electricity to power the UV lamp to disinfect water.



GLUE STRIP

