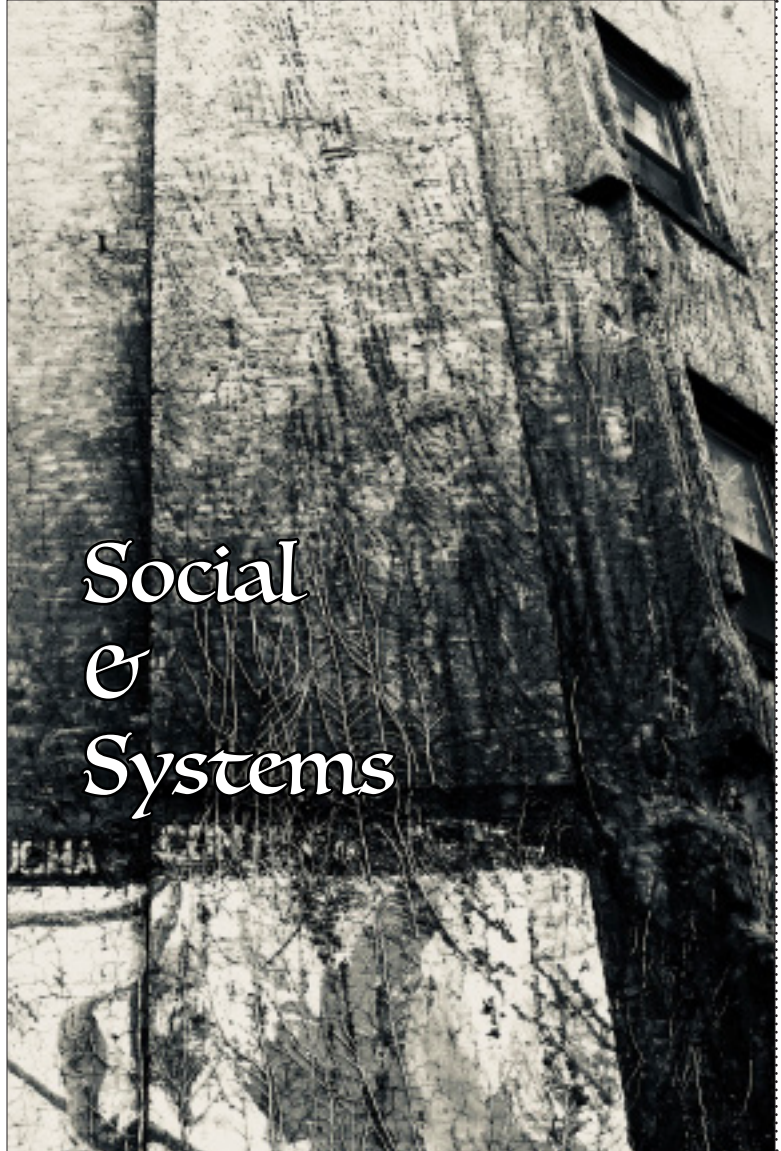


FIELD
ACTION
JOURNAL

JIZHENG CHEN

SUSTAINABLE SYSTEMS

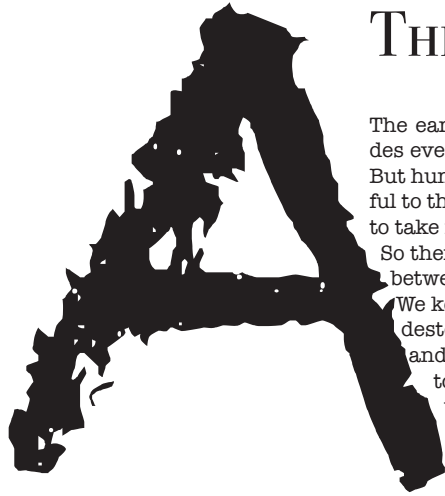
GLUE STRIP



*Social
&
Systems*

GLUE STRIP





THE CONFLICT

The earth is our home. It provides everything for us to survive. But humans are not being thankful to the earth. Instead, we start to take more and more from it.

So there is an invisible conflict between us and the nature.

We keep taking resources and destroying the environments, and the earth gradually start to become more and more unstable. Disasters like flood and earthquakes are taking livinghoods and human lives too.



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<http://www.eesi.org/topics/fossil-fuels>

If there is no fossil fuel, there will not be agriculture, industry and art. All of our modern transportation systems are relying on fossil fuels, it provides the basic energy to operate all the machines. But

fossil fuels are not renewable, we are getting closer to the extremity day by day. If we can not find a way to replace the infinite resource, the human race will be starving to death in the end.

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Be nothing
at all

Green Revolution



GLUE STRIP



A little house in New York city shows the history of how some people protect the community gardens from city constructions.



Since New York is one of the most abustle city in the world, an inch of land values an inch of gold. It is harder for those people who love nature to build a small paradise between numbers of buildings made out of stones and irons. They fight for a long time just to let others find peace in this busy city.

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The host of this neighborhood is a kind and passionate man looked like sixty to seventy years old. He kept some memorable and meaningful things from the past. Some of those items were not very conspicuous but each of them contains a period of

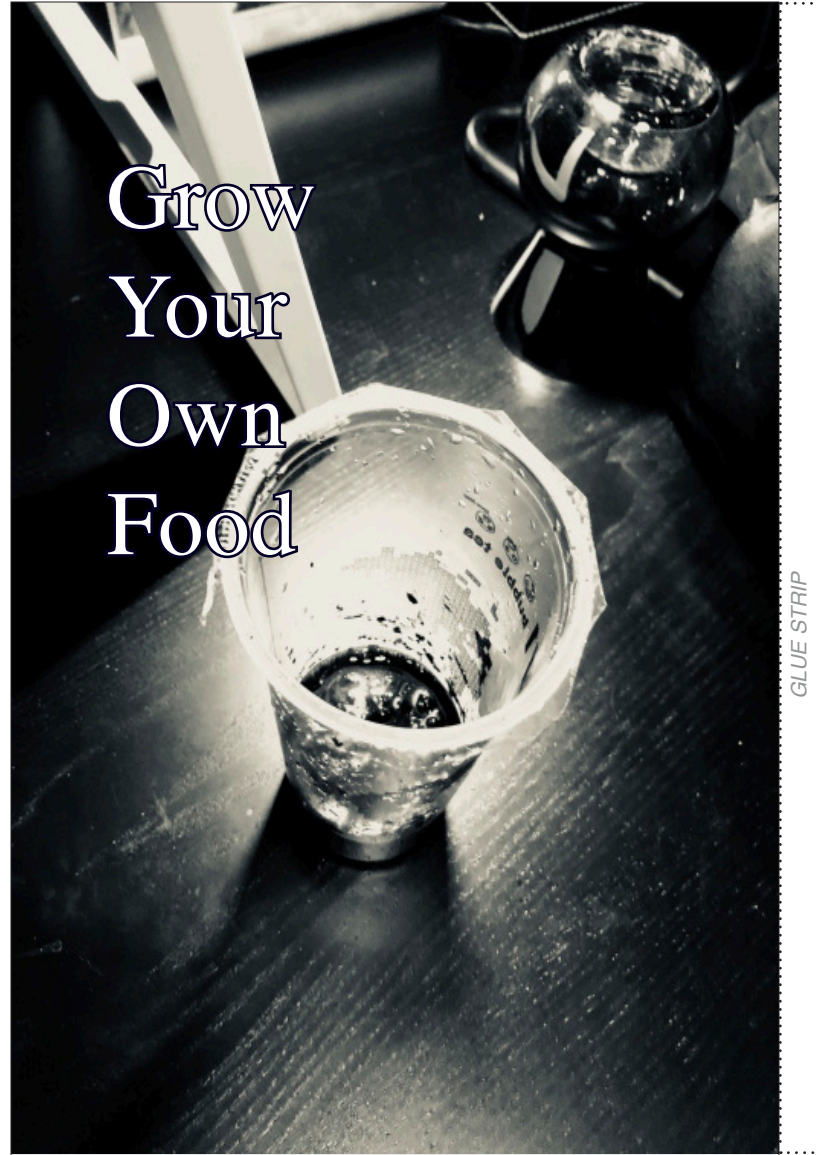
history that witness their hardworking. Some interesting paintings on the basement's wall are also impressive because the styles and meanings were unique from modern scrawls. He also explained patiently about how they help other communities.

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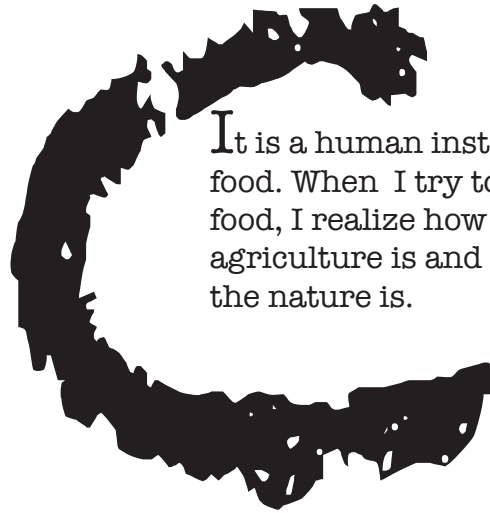


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Grow Your Own Food



GLUE STRIP



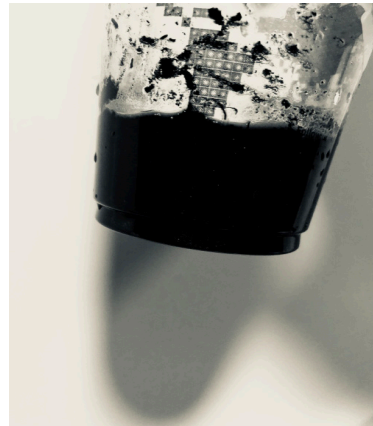
It is a human instinct to look for food. When I try to grow my own food, I realize how important agriculture is and how amazing the nature is.

Step 1: I find an empty boba cup. I washed it from inside to outside so it is clean enough for me to put seed and soil in.



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Step 2: I poored in the soils. Then I use my finger to dig a hole in order to put seeds in.



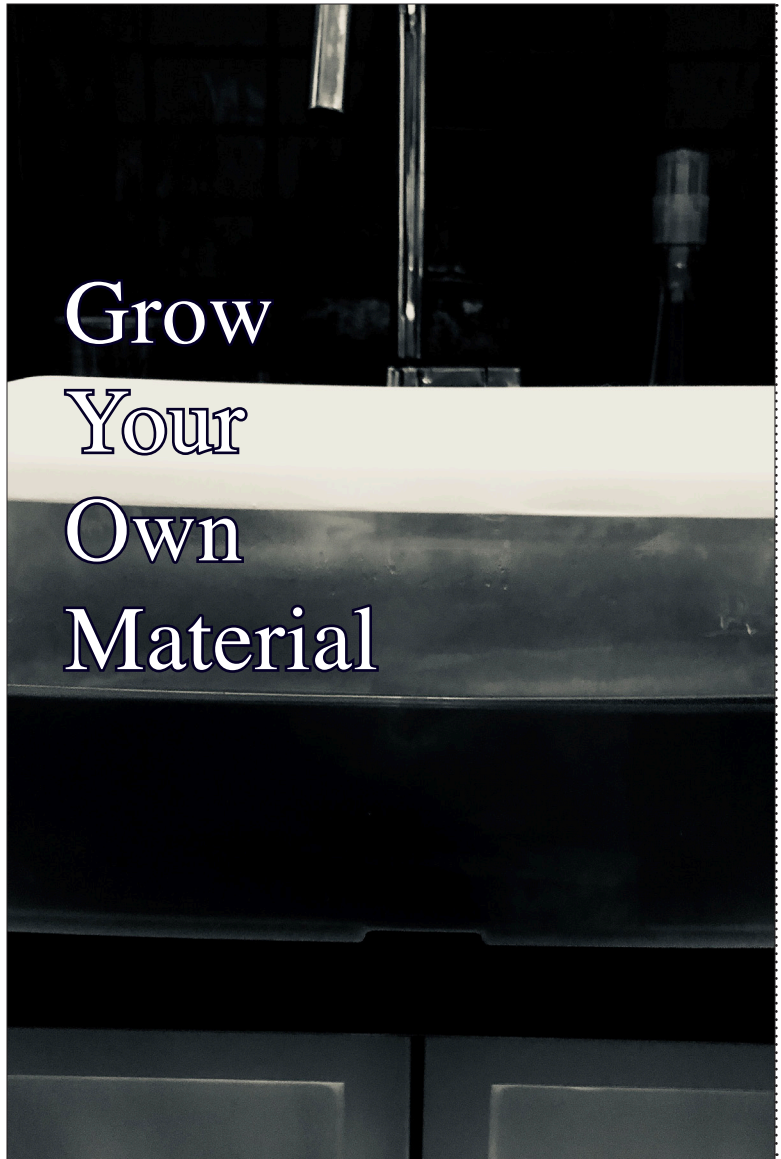
Step 3: I mixed them, and tried to make the soil flat and comfortable for the seeds.

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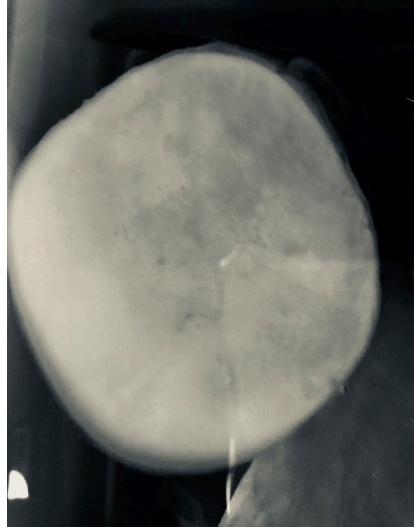
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Step 4: I set the cup at a place where sunshine can reach. And I give some water to it twice a day. It is necessary for plant to get enough sunshine and water.



Grow
Your
Own
Material

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Why your self-made material “bioleather” sustainable?

The bioleather is sustainable because I did not involve its grow process except the beginning and it grows in a form that most fit in the environment.

GLUE STRIP

What are the qualities that your self-made material “bioleather” will have?

In order to survive, the bioleather will become bigger in size because there is still plenty of space for it to grow. It needs to absorb more nutrients and sunlight. I also think it will become thicker to keep itself warm.

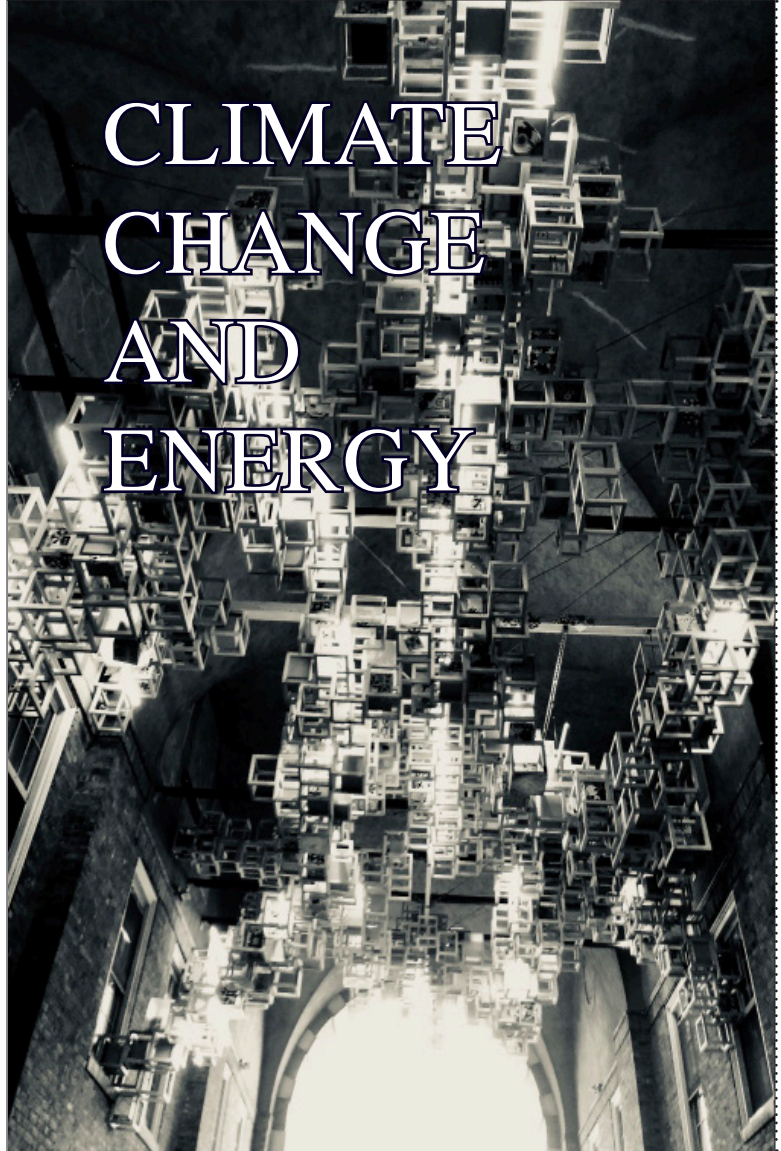


Which un-sustainable materials can be replaced by your self-made sustainable material?

Plastic. It will not change at all in the water. Plastics are hard to be resolved and it would not change into another form.

GLUE STRIP

CLIMATE CHANGE AND ENERGY



GLUE STRIP



In which way are the urban farming and environmental projects, Billion Oysters, Earth Matter and GrowNYC's Teaching Garden, sustainable projects?

The three projects in this urban farm are all sustainable. They require less energy and source to maintain a steady condition. During the visit, I did see any wasted source or overusing of toxic material. There were some impressive machines that designed by their own, use nature to help food or plant grow instead of human force.



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How are these three projects integrated in the larger context of food systems in New York City?

Instead of producing waste, they collect waste from different places such as restaurants, wasteyard and industries, and

use them to irrigate their own productions. New York City is so big that it produced tons of trash everyday, they make the city cleaner and environmental. The plants and animals they feed are also stronger and healthier than those from other places.

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How could these three projects be better integrated in their immediate surrounding, i.e. the public park on governor's island and in the larger context of food systems in New York City?

The climate change is real, but not many people realize how serious it is. So if the projects are built in a place where more people can see, they

will know what are they doing and understand why they try so hard to stop the climate change. I have been in New York for a year but I never notice this project is happening on an island. Maybe they can give out propaganda, ask more people to join them, and also make people know more about our environmental protection.

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Credit: <https://solaric.com.ph/solar-energy-philippines/>

How does the specific energy production, energy storage, energy transmission, energy mitigation aspect works?



The rooftop agriculture is a new type of farming that move farm from ground to open-air space. People cultivate vegetables on a rooftop so it gets more sunshine and fresh air to help it grow. Rooftop agriculture requires adding lots of soil amendment, or nutrients, to the rocky medium already up there.

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Credit: <https://www.npr>.

What are the benefits and/or complications? What is positive about this energy aspect and what needs to be improvement in context with it?

Rooftop gardens look good, have a great view, and provide a smart and quick way to enjoy a quiet retreat in the heart of the city. In an open-air space the

sunshine and air quality are also improved. There will be less bugs in the air too. So the vegetables can grow quickly in a safe place. One problem of this type of agriculture is lack of space. Because rooftops are not as big as lands. So when the place is full, there will not be enough space for farmers to have more projects.

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Who is involved with this or affected by it? Mention specific organization involved or, if applicable, impacts on humans, plants and animals.

Angie Mason, director of the Chicago Botanic Garden's urban agriculture programs. He participated the green-roof movement in recent years, and some cities have made them central to their sustainability plans. They claimed that 359 roofs are now partially or fully covered with vegetation in Chicago. They can provides all kinds of benefits to the city such as improving air quality, making city more beautiful and also healthy vegetables.

Credit:
[https://
www.1hotels.
com/thefield-
guide/urban-
farming/](https://www.1hotels.com/thefield-guide/urban-farming/)



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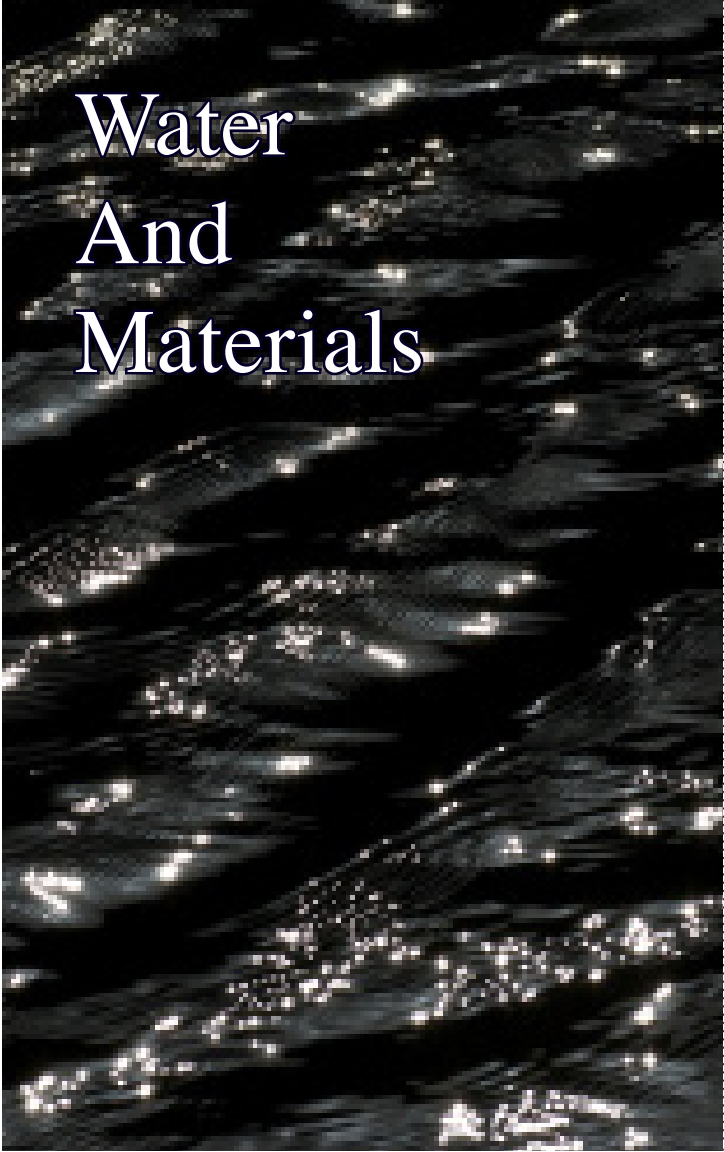


<https://www.1hotels.com/the-field-guide/urban-farming/>

What is crucial for its design or in a design context and could relate to new innovation? Explain and find one innovative, fun design examples for each aspect that could inform parts/ features of your own structure!

In the future, we can build sky agriculture. In the sky we can use sun energy to operate the whole agriculture system. So our food will have higher quality and quantity. The source we use to grow food can also be saved. The waste will also be reduced. I believe if we really put this in real life, it will benefit the world, protect our environment and also useful to prevent global warming.

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Water And Materials

GLUE STRIP



Why are New York City's waterways contaminated with sewage during rain events?

New York City's waterway is polluted by the big waste of the city. In New York people use a number of different resources that are not sustainable, and people do not take care of those wastes in the right way, they pour toxic wastes into the water and pretend nothing happened.



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What influences the drinking water quality in New York City?

Industries are the main places where release a lot of wastes into the river. Water are influenced by toxic elements.



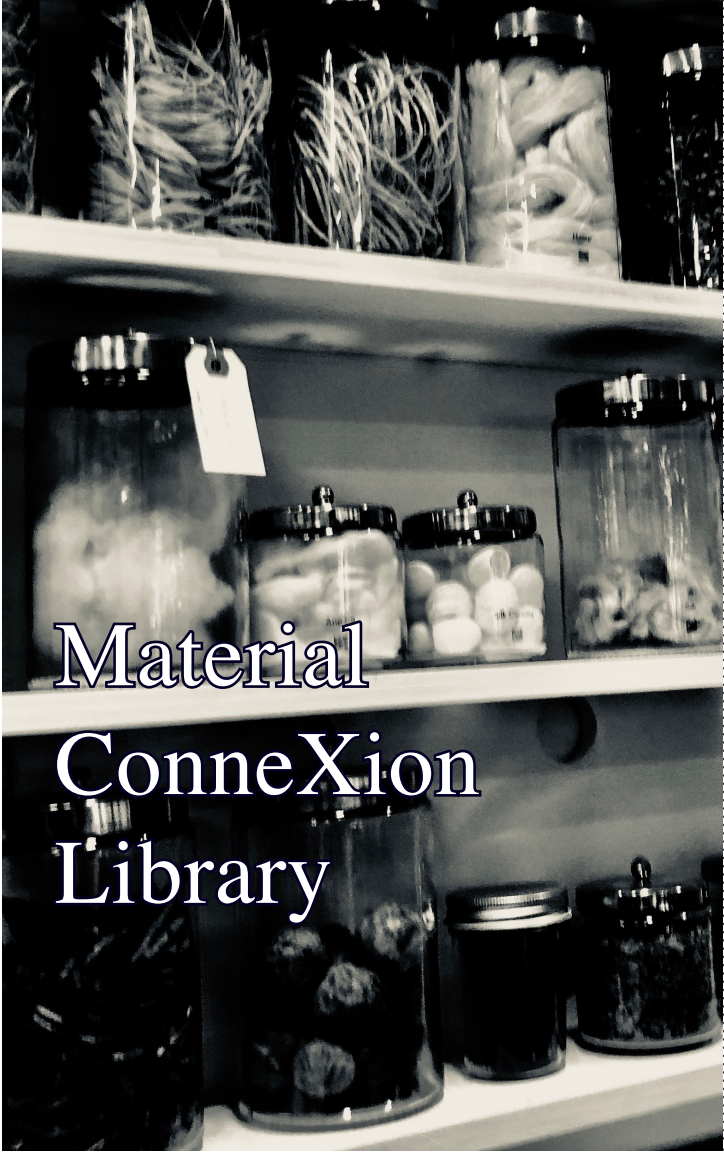
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How could the contamination of the waterways and the potential contamination of drinking water be stopped and instead clean water provided at all times?

It is hard job to solve the water problem completely. Because we are keep using different materials, we have to sacrifice something in order to develop. But we can reduce the serious problem by setting up more environmental protect programs and make public have more knowledge about the serious situation so they will start to be aware of daily use of materials.



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Material
ConneXion
Library

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The Material Connection Library is located in 101 building in Manhattan. We can find all kinds of sustainable resources in this place. By looking around in the library, people can discover what are materials that both efficient and good for nature.

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Structural Strength

Credit:
[https://
www.
materi-
alcon-
nexion.
com/](https://www.materialconnection.com/)



The panel is offered in three grades: wall and roof sheathing, shear wall and panelized roof sheathing with higher strength; and subfloor-underlayment that provides a smooth surface for application of carpet and has a high concentrated impact load resistance.

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Food Production

Credit:
[https://
www.
materi-
alcon-
nexion.
com/](https://www.materialconnection.com/)



This is made from bio-polyols, derived from plant materials without diverting resources necessary for food farms or animal feed. It contains more than 30 percent bio content from renewable sources.

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Solar Energy Collection

Credit:
[https://
www.
materi-
alcon-
nexion.
com/](https://www.materialconnection.com/)



This source can absorb and discharge energy over time. It binds water molecules to the salt crystals, so the solution is able to function as highly effective latent heat storage.

GLUE STRIP

Water Collection

Credit:
[https://
www.
materi-
alcon-
nexion.
com/](https://www.materialcon-nexion.com/)



A harvested bioresin that honey bees collect from different trees and use as a sealant for unwanted open spaces inside the beehive. Once a year, beekeepers have to remove a proportion of this material in order to extract the honey from the frames of the beehive.

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Thermic Insulation and Cooling

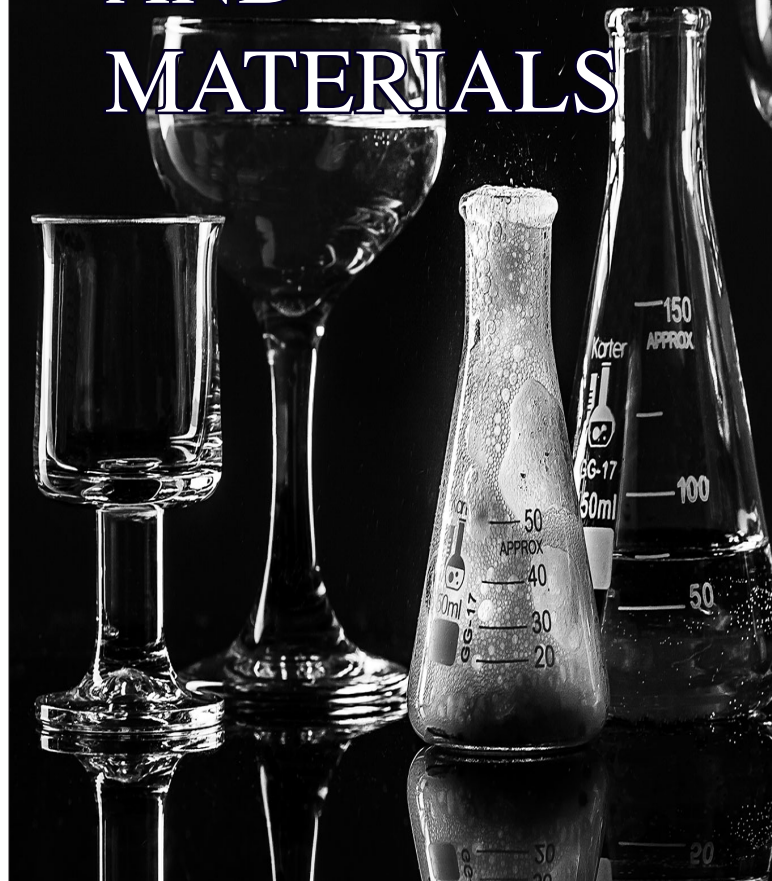
Credit:
[https://
www.
materi-
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com/](https://www.materialcon-nexion.com/)



Kapok is a natural fiber from the seed pod of the tropical tree *Ceiba pentandra* that is harvested annually. Kapok is naturally water repellent as the fibers have a waxy outer coating. The wax film also repels insects and bacteria, which is beneficial both for kapok cultivation and for performance benefits in the final product.

GLUE STRIP

WATER AND MATERIALS



GLUE STRIP

A

How could the experiment conducted in the lab or an experiment conducted under comparable conditions be informative for future sustainable design?

This experiment makes me understand the importance of habits. What we are doing everyday, each of our small action will cause a big result. To achieve a sustainable design, we can not only think about how to make a good product, we also need to consider what materials or ways we use, so the process is sustainable too.



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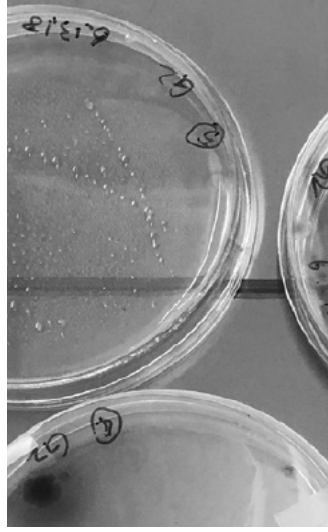
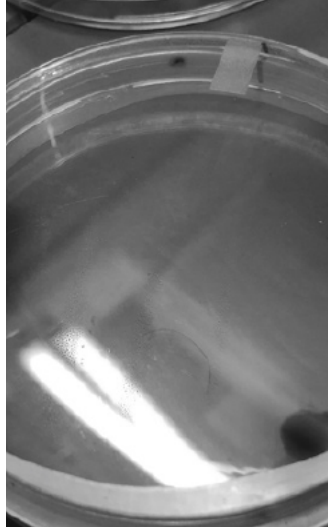


What other experiments could you envision that would make use of the Science lab and would lead to interesting outcomes and data for sustainable design concepts?

If we collect the data from two completely different places, the

result will also be interesting. For example, if we do this experiment in Los Angeles and in London, the data will show differently because in London there is more wet and rains, Los Angeles is dry and hot.

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Newtown Creek



GLUE STRIP



The Newtown Creek Alliance is a community-based organization dedicated to protecting the environmental, recreational and commercial integrity of Newtown Creek. It is a tributary of the East River. Historically, Newtown Creek drained the uplands of western Long Island and flowed through wetlands and marshes.

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GLUE STRIP

The organization faced a lot of problems along the way, including the world war, government construction and heavy pollution from industries. But they overcame all those difficulties and today they are operating in a steady condition. Bring better environment to the community.



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