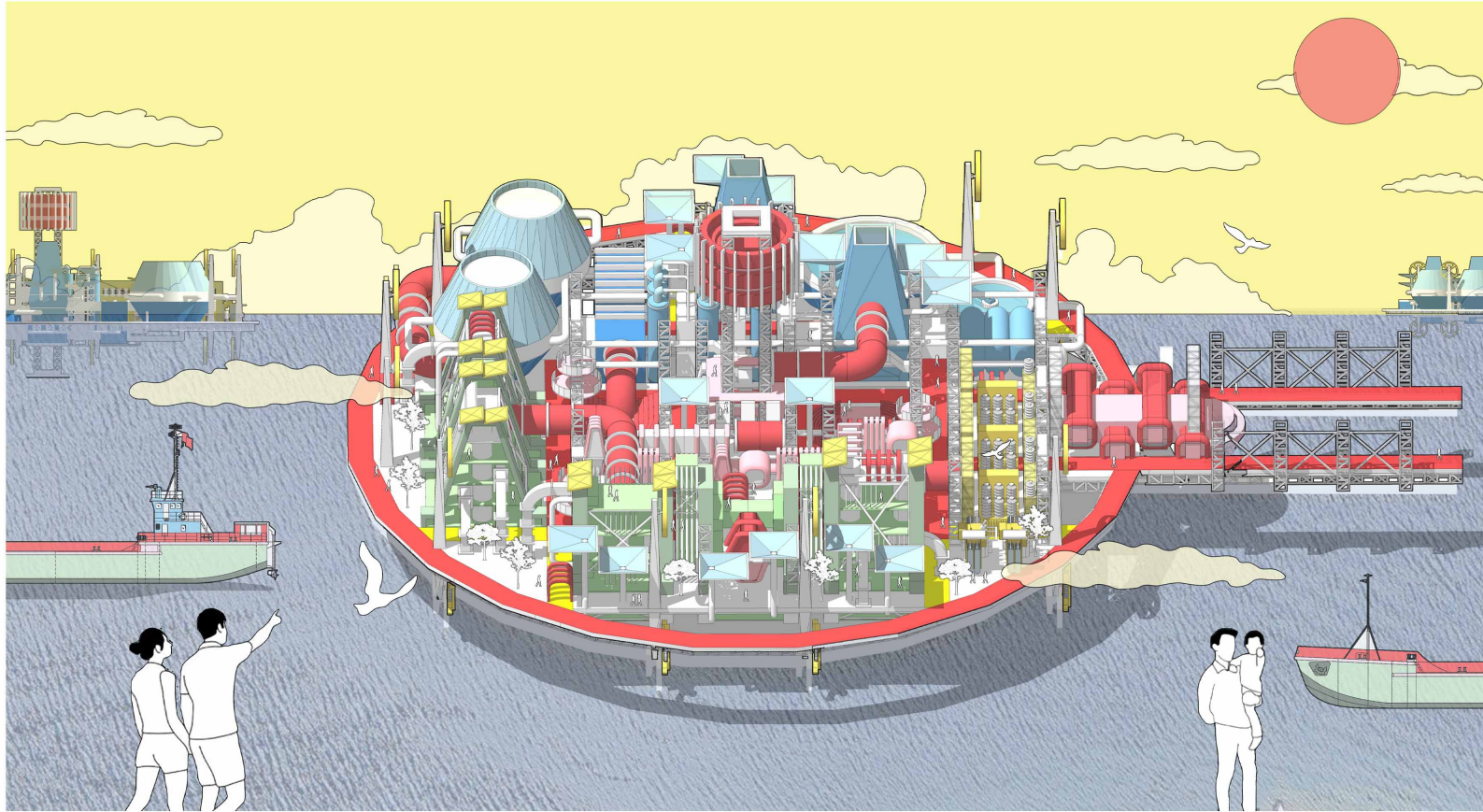


'The Apocalypse of Land from Twoness Concept to The Eternal Future of Rural'



1. Redefine Rural

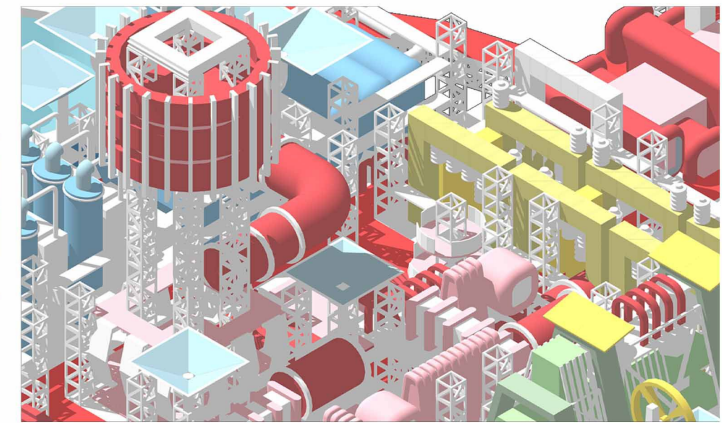
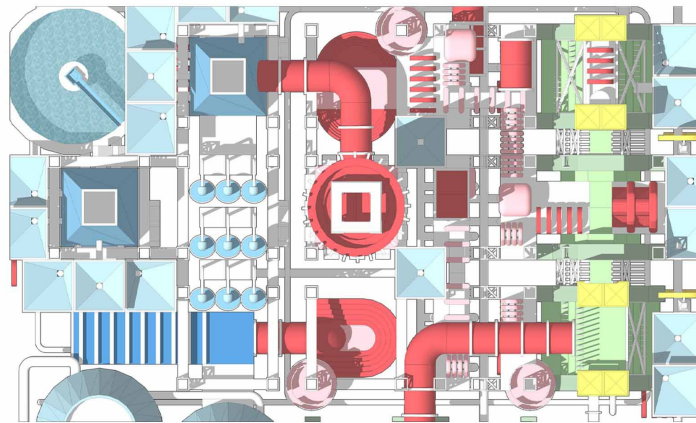
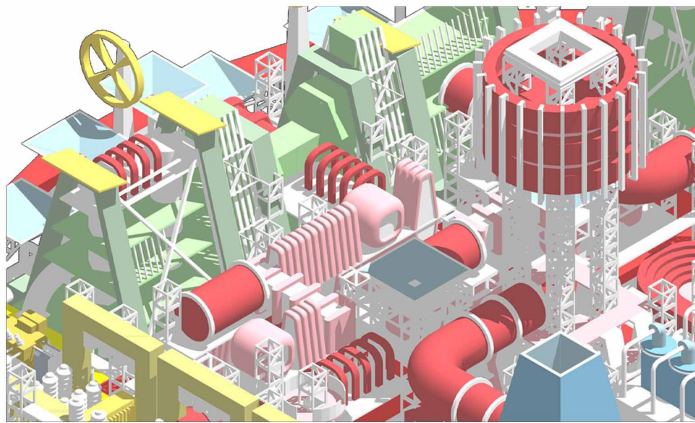
At the beginning of its development, urbanization has indirectly influenced the understanding of the meaning of rural areas. Because based on the concept of rural dualism, the countryside is always seen only as something that is contrary to the urban. Over time, rural areas are required to meet urban needs. Rural areas are exploited to develop agriculture and industry. So, this has resulted in new characteristics that can shift the understanding of the existing meaning of rural. If urbanization can significantly influence the rural development process. So, to what extent can a new challenge like climate change transform and redefine rural areas in the future?

2. The Endgame of Rural

One of the greatest challenges of human civilization today is significant climate change. In the context of the Yalova region, Turkey's climate change can be shown by rising sea levels that continue to increase every year. These two extreme changes can have a major impact on the sustainability of human life. In the worst-case scenario, sea level rise can cause flooding to drown coastal areas. On the other hand, extreme temperatures also have a negative impact on the agricultural cycle which can lead to crop failure and a sustainable food crisis in the future.

3. A New Hope

To quote Bjarke Ingels, "The human body is made up of 70 percent water. And the surface of our planet is 70 percent water. And it keeps increasing. And even if the rest of the world wakes up tomorrow and becomes carbon neutral at night, there are still island nations destined to sink in the ocean, unless we also develop alternative forms of floating human habitat. And the only constant in the universe is change. Our world is always changing, and right now, our climate is changing. No matter how critical the crisis will be. One thing I understand is that we have the power to adapt to change and we have the power to shape our own future." Then there will always be hope for the sustainability of human civilization, so let architecture help make it happen.



2023 JACQUES ROUGERIE FOUNDATION AWARDS

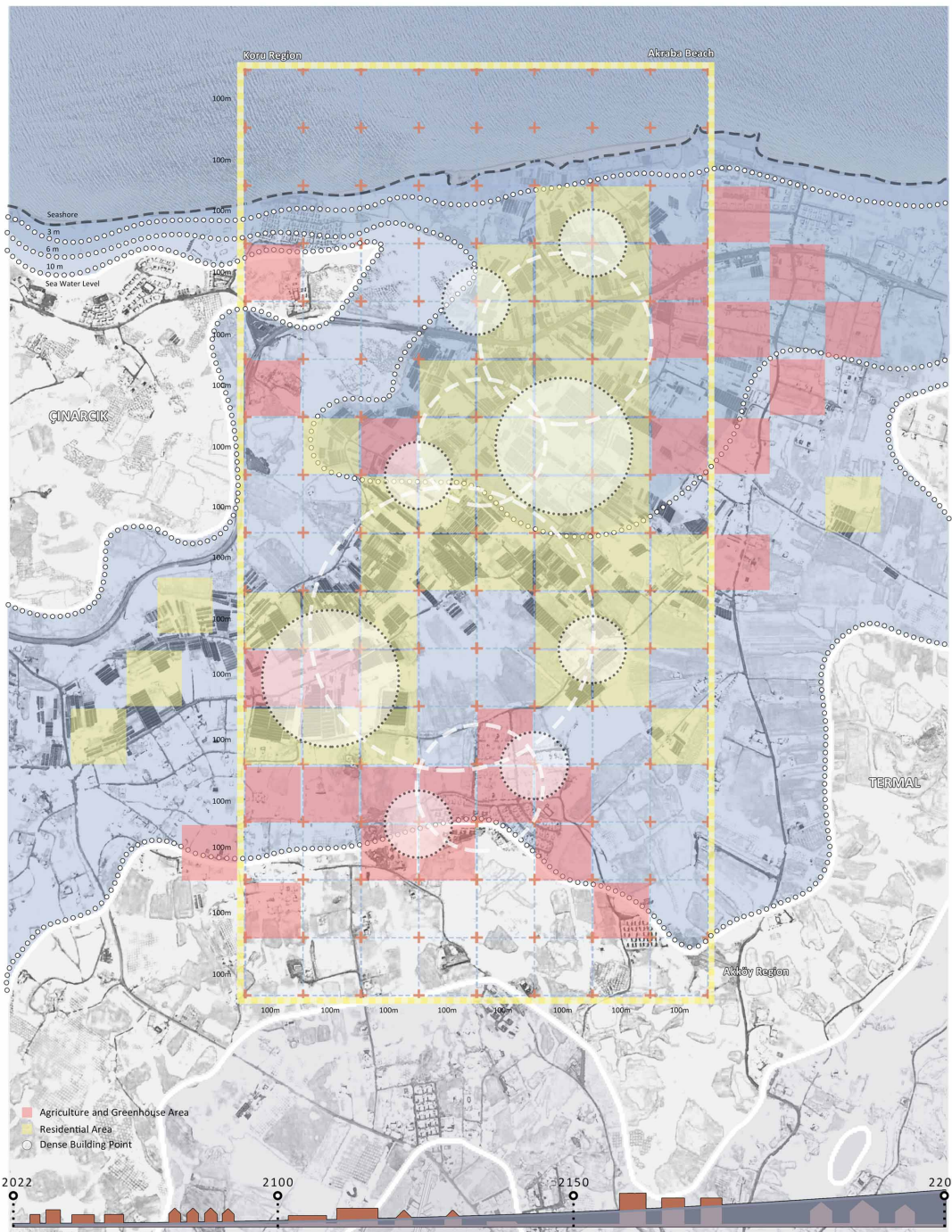
Award's category : Architecture et Innovation related to Climate and Rising Water

Project's Name

A Tale of Rurality

Description

The story of a land apocalypse caused by rising sea levels, from the twoness concept to the eternal future of the rural world



4. Realizing A Tale

In the site analysis process, the coastal area of Akraha beach is the area with the second largest sea level rise impact after the Yalova Merkezi. The flat topography and only a few centimeters above sea level make this area a serious threat of flooding and erosion. Approximately 70% of the area that will be affected is agricultural area, which is filled with the floraculture sector and greenhouse cultivation for ornamental plant farming. Then the rest of the area is covered with housing and green open land.

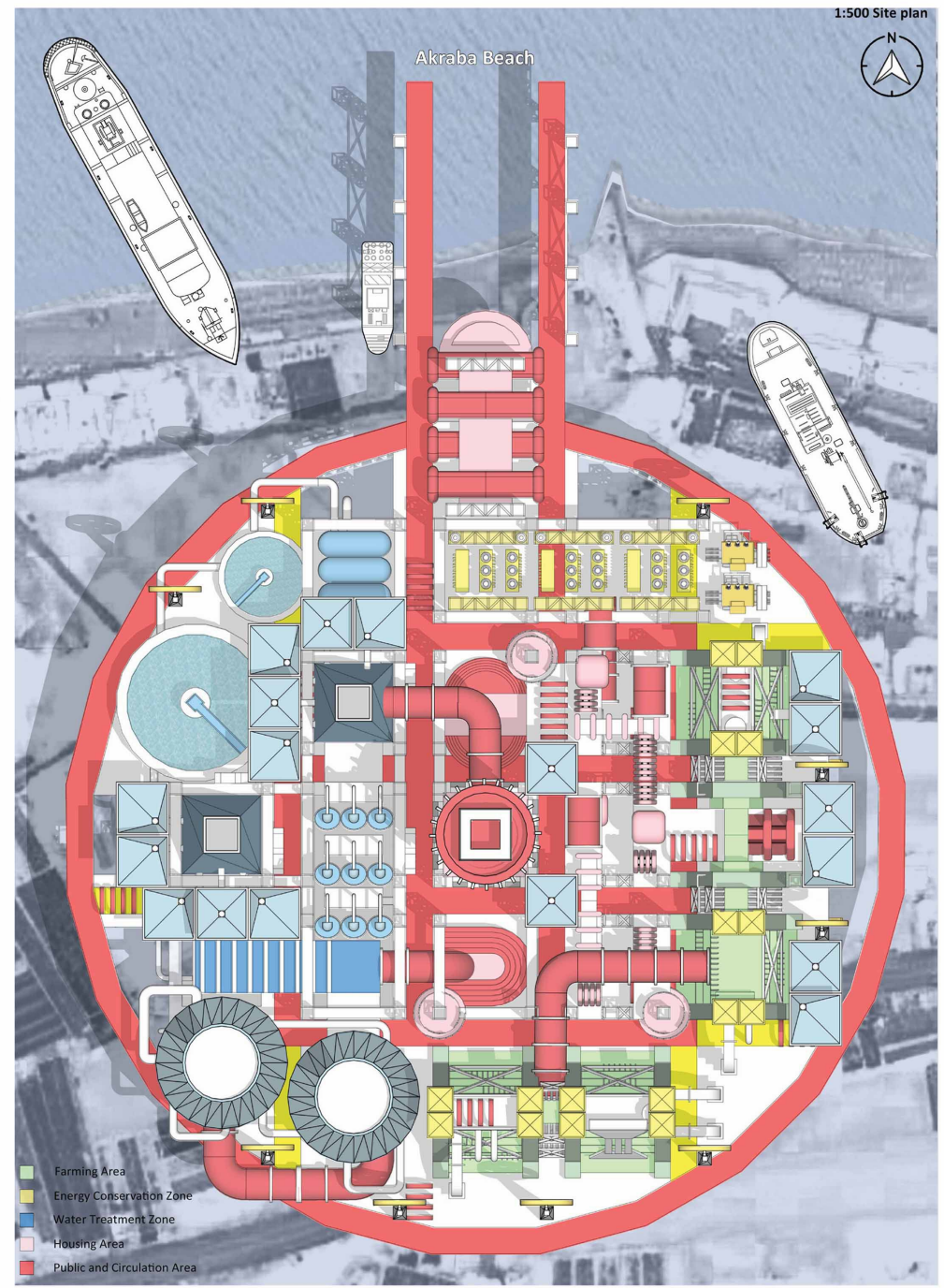
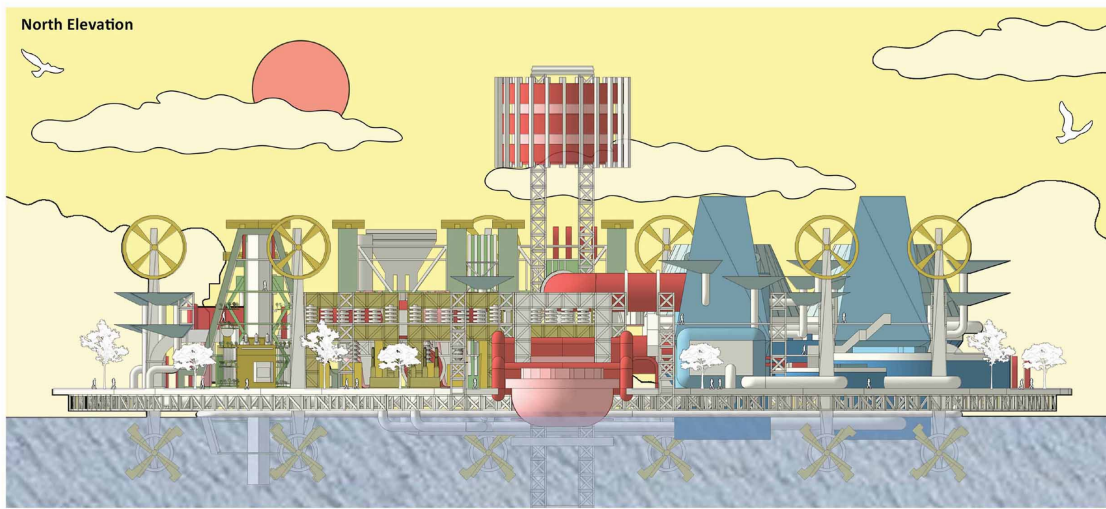
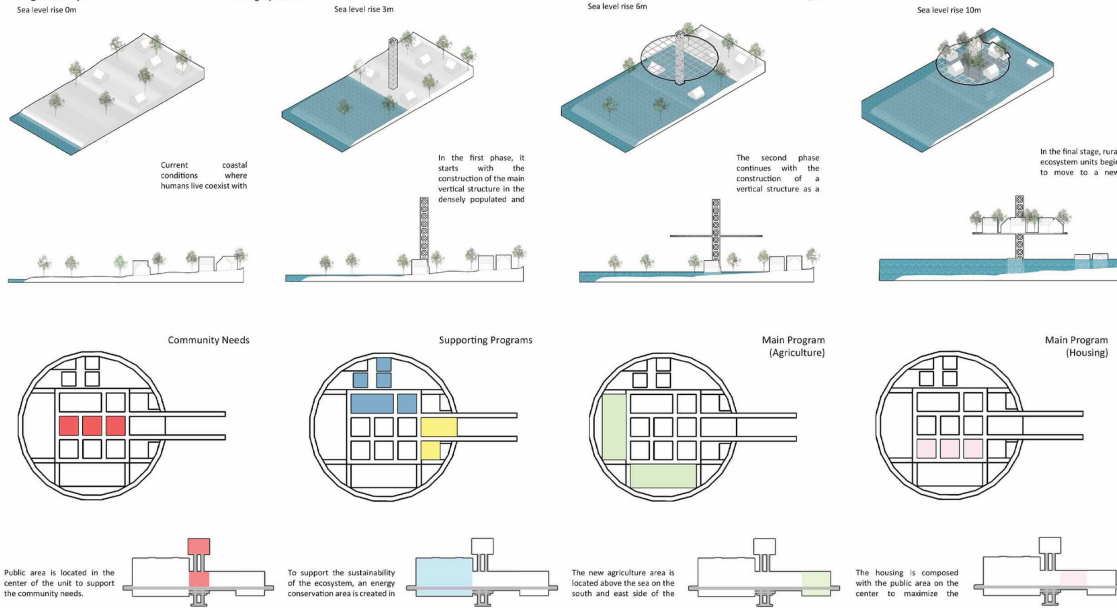
In addressing this problem, the architectural approach was taken by reflecting on a similar project by Japanese architect Kiyonori Kikutake entitled 'Marine City' in 1958, which created an alternative floating city structure on the coast of Tokyo Harbor. By responding to the problem of sea level rise as a challenge to be faced, and existing conditions that have the same characteristics of the coastal area, the structural solution and floating city concept provided by Kikutake can be implemented as a calculated reference design.

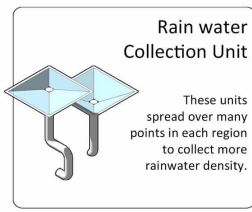
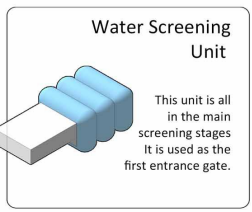
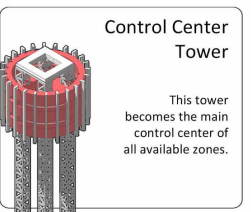
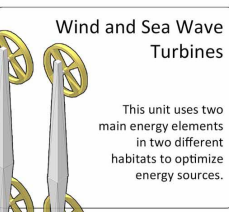

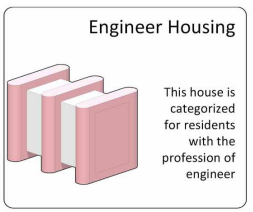
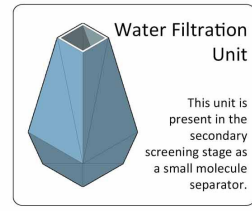
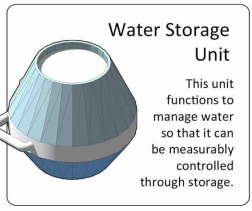
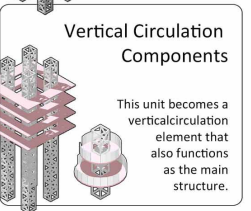
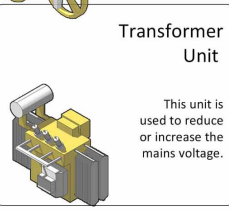
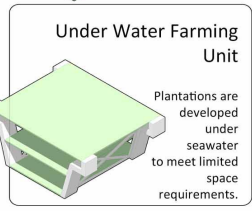
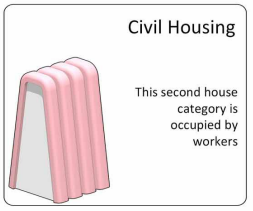
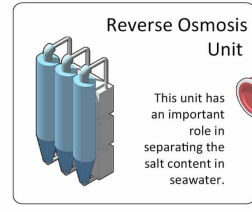
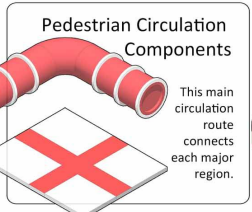
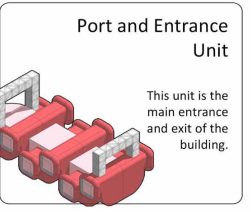
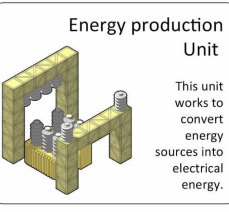
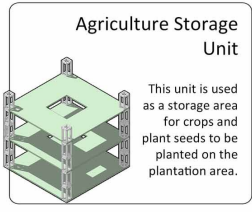
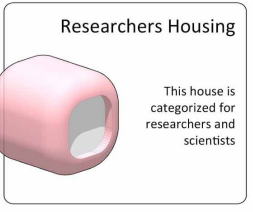
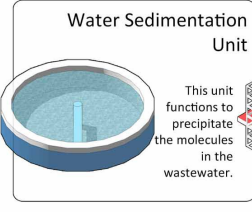
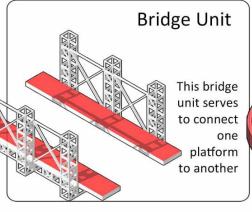
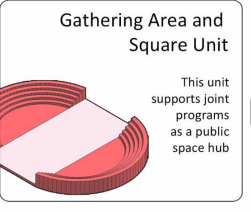
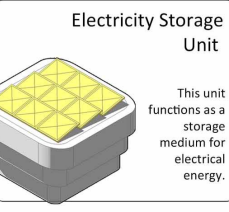
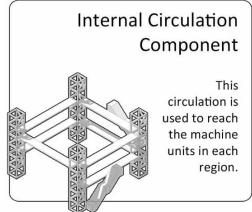
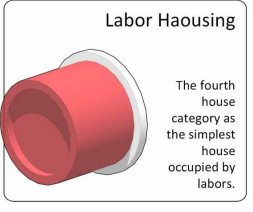
5. Visualize the Unexpected

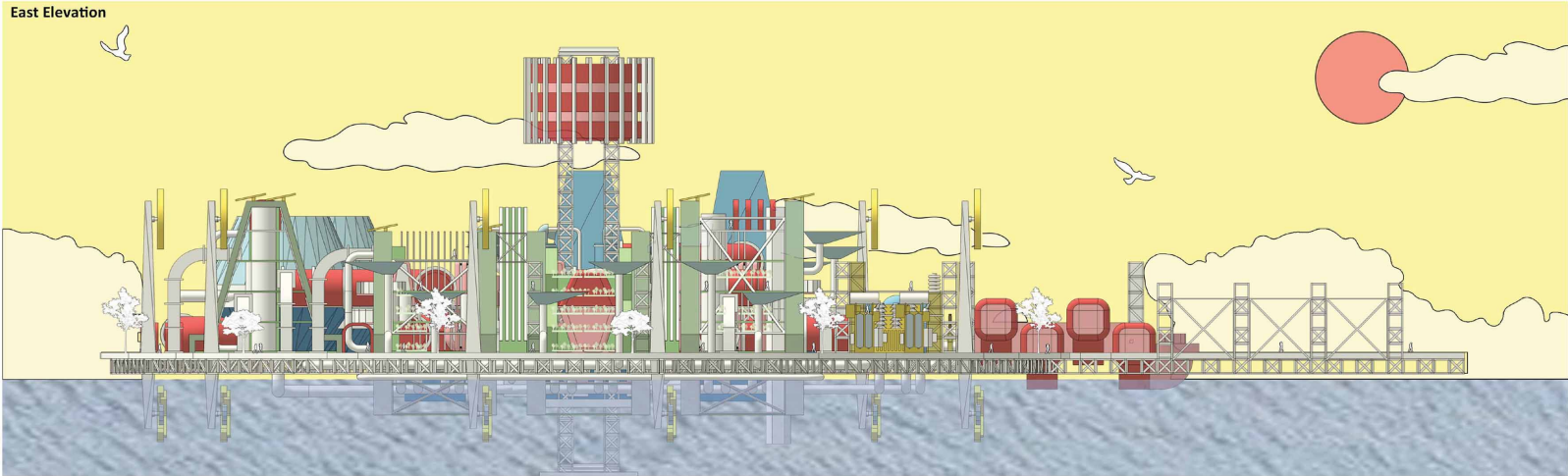
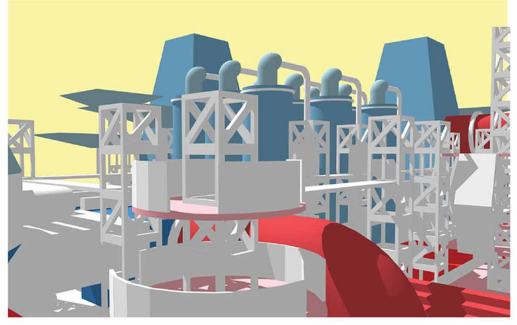
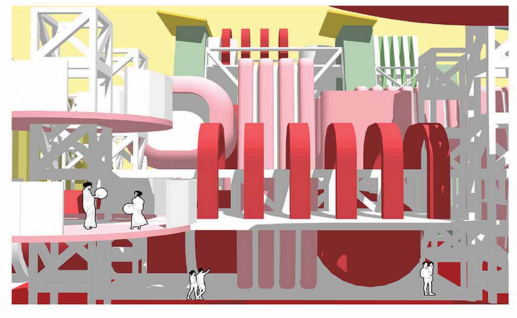
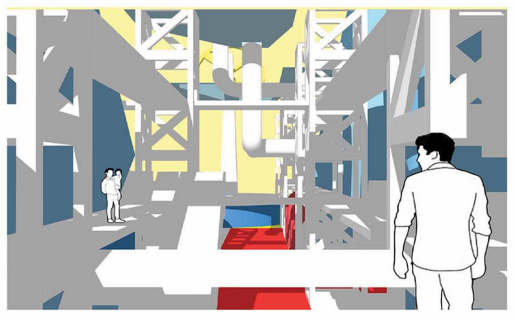
In the process of deepening the problem of sea level, the flood disaster that will be faced is a long-term threat. So that design solutions are offered in several phases which are applied in stages. Unlike the actual built environment, this causes the need to provide new alternative construction methods for different settlements to increase.

As a solution, the above-ground floating construction is proposed as a platform for the new rural ecosystem in the future. This floating city structure is used so that the city platform can adjust to the sea level. In addition, under the influence of environmental threats these platforms are shaped in a circle so that the loads on the structure can provide a unique combination of flexibility and strength to create greater resilience.

Design Concept



 <p>Rain water Collection Unit</p> <p>These units spread over many points in each region to collect more rainwater density.</p>	 <p>Water Screening Unit</p> <p>This unit is all in the main screening stages. It is used as the first entrance gate.</p>	 <p>Control Center Tower</p> <p>This tower becomes the main control center of all available zones.</p>	 <p>Wind and Sea Wave Turbines</p> <p>This unit uses two main energy elements in two different habitats to optimize energy sources.</p>	 <p>Farming Area Unit</p> <p>This unit acts as a new environment for the plantation.</p>	 <p>Engineer Housing</p> <p>This house is categorized for residents with the profession of engineer.</p>
 <p>Water Filtration Unit</p> <p>This unit is present in the secondary screening stage as a small molecule separator.</p>	 <p>Water Storage Unit</p> <p>This unit functions to manage water so that it can be measurably controlled through storage.</p>	 <p>Vertical Circulation Components</p> <p>This unit becomes a vertical circulation element that also functions as the main structure.</p>	 <p>Transformer Unit</p> <p>This unit is used to reduce or increase the mains voltage.</p>	 <p>Under Water Farming Unit</p> <p>Plantations are developed under seawater to meet limited space requirements.</p>	 <p>Civil Housing</p> <p>This second house category is occupied by workers.</p>
 <p>Reverse Osmosis Unit</p> <p>This unit has an important role in separating the salt content in seawater.</p>	 <p>Pedestrian Circulation Components</p> <p>This main circulation route connects each major region.</p>	 <p>Port and Entrance Unit</p> <p>This unit is the main entrance and exit of the building.</p>	 <p>Energy production Unit</p> <p>This unit works to convert energy sources into electrical energy.</p>	 <p>Agriculture Storage Unit</p> <p>This unit is used as a storage area for crops and plant seeds to be planted on the plantation area.</p>	 <p>Researchers Housing</p> <p>This house is categorized for researchers and scientists.</p>
 <p>Water Sedimentation Unit</p> <p>This unit functions to precipitate the molecules in the wastewater.</p>	 <p>Bridge Unit</p> <p>This bridge unit serves to connect one platform to another.</p>	 <p>Gathering Area and Square Unit</p> <p>This unit supports joint programs as a public space hub.</p>	 <p>Electricity Storage Unit</p> <p>This unit functions as a storage medium for electrical energy.</p>	 <p>Internal Circulation Component</p> <p>This circulation is used to reach the machine units in each region.</p>	 <p>Labor Housing</p> <p>The fourth house category as the simplest house occupied by labors.</p>



6. Retroverted the Realm

Each platform is placed according to the density of construction in the existing conditions in the present. Then the platform will be developed with a radius ranging from 125m to 250m. The platform will be conditioned to accommodate most areas of agriculture, settlement, and management of renewable energy resources. Broadly speaking, the ecosystem life in this area will be moved on a platform with a new structure above sea level. The main components presented include a floating city structure, vertical and horizontal circulation elements, housing modules, multi-stored agricultural modules, and energy resource management elements (Wastewater and natural resource management). Each component is divided into three different platform levels with adjustments to the effectiveness of their respective functions. And circulation between platforms will be adapted to sea transportation in order to maintain the dynamic principle of each platform.

7. Perpetuating the Eternal

The loss of land due to flooding as a result of this sea level rise, has a major influence on the agricultural production system. The levels of salt and sulfuric acid contained in seawater can affect the quality and level of soil fertility. So that multilevel agricultural production methods and hydroponic applications are new options in the development of the agricultural sector in the future. At the same time, the method of water management and renewable energy resources will become a new important task that must be understood. Utilization of rainwater and wastewater management is focused not only on creating water reserves but also minimizing pollution in seawater. On the other hand, the management of renewable energy resources by utilizing wind and ocean waves is also the main calculation to encourage the concept of a floating city in the future that is resilient and sustainable.

Solar Energy Source

Solar energy source is still used to meet the additional electricity need.

Ocean Wave and Wind Energy Source

Ocean waves and wind energy sources are used to supplement the needs of the power plants with the turbine environment.

Desalination Plant

When most of the land is covered by water, seawater will be the main source of water that can be used.

Sea Water

Rain water

Water Management System

Rainwater will be conditioned as a secondary source of fresh water to meet demand.

Waste Water Treatment Plant

Wastewater treatment will also ensure a cyclical supply of clean water sources.

Aquaponics Farming Area

When most of the soil is polluted by the salt content of sea water, the farming system will be developed with aquaponic environment.

Aeronic Farming Area

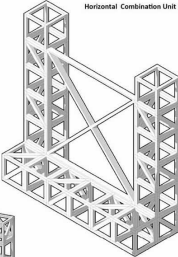
Due to the increasing need for space, the development of plantations under sea water is also being developed with an aeronic system.

Structure Units

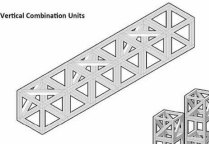


Structure and Material Concept

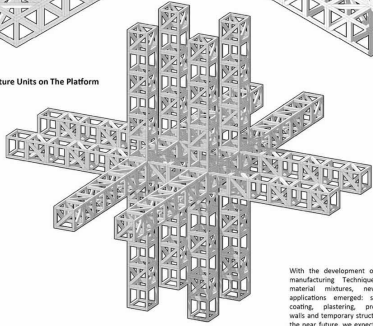
Horizontal Combination Unit



Vertical Combination Units



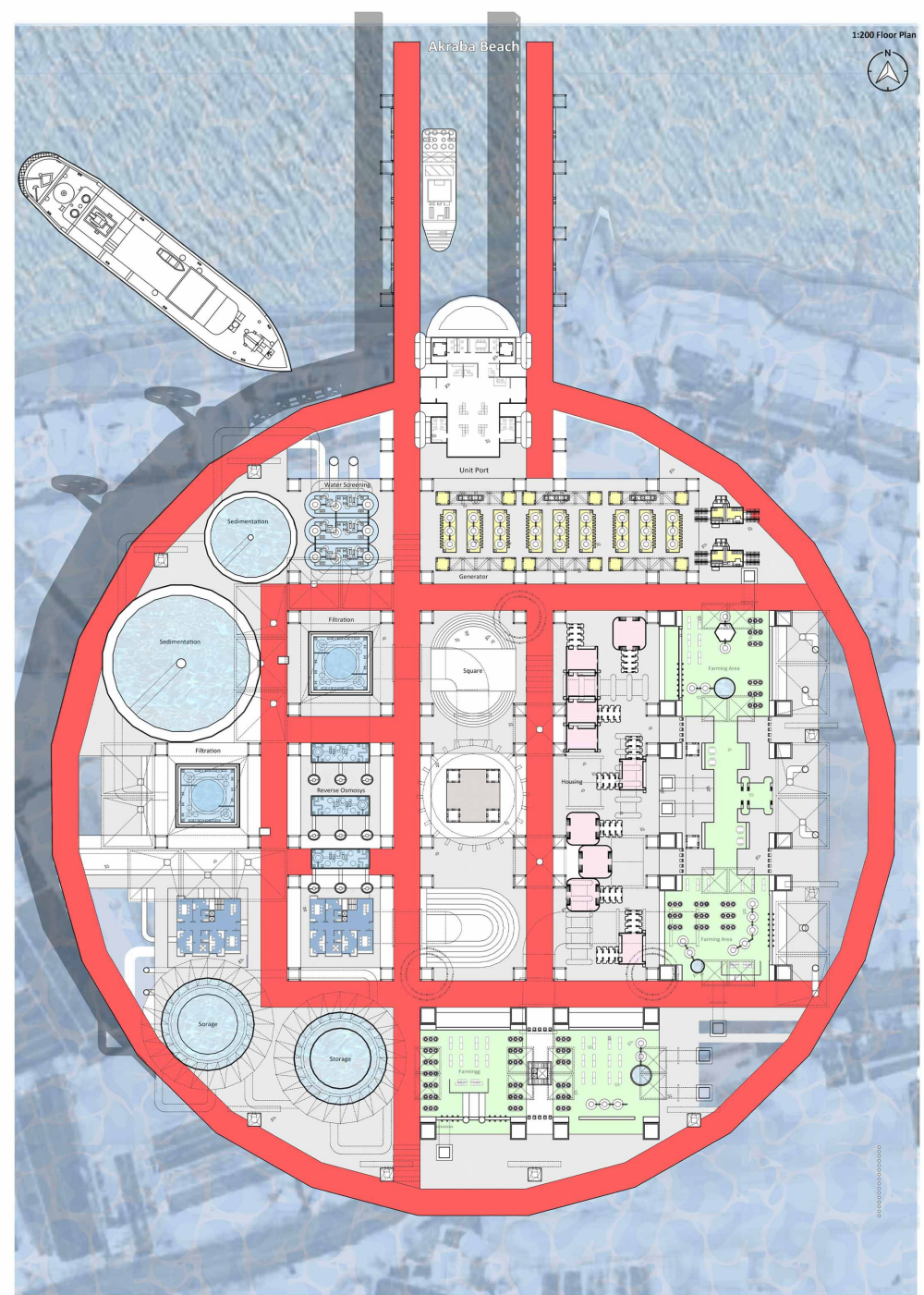
Structure Units on The Platform

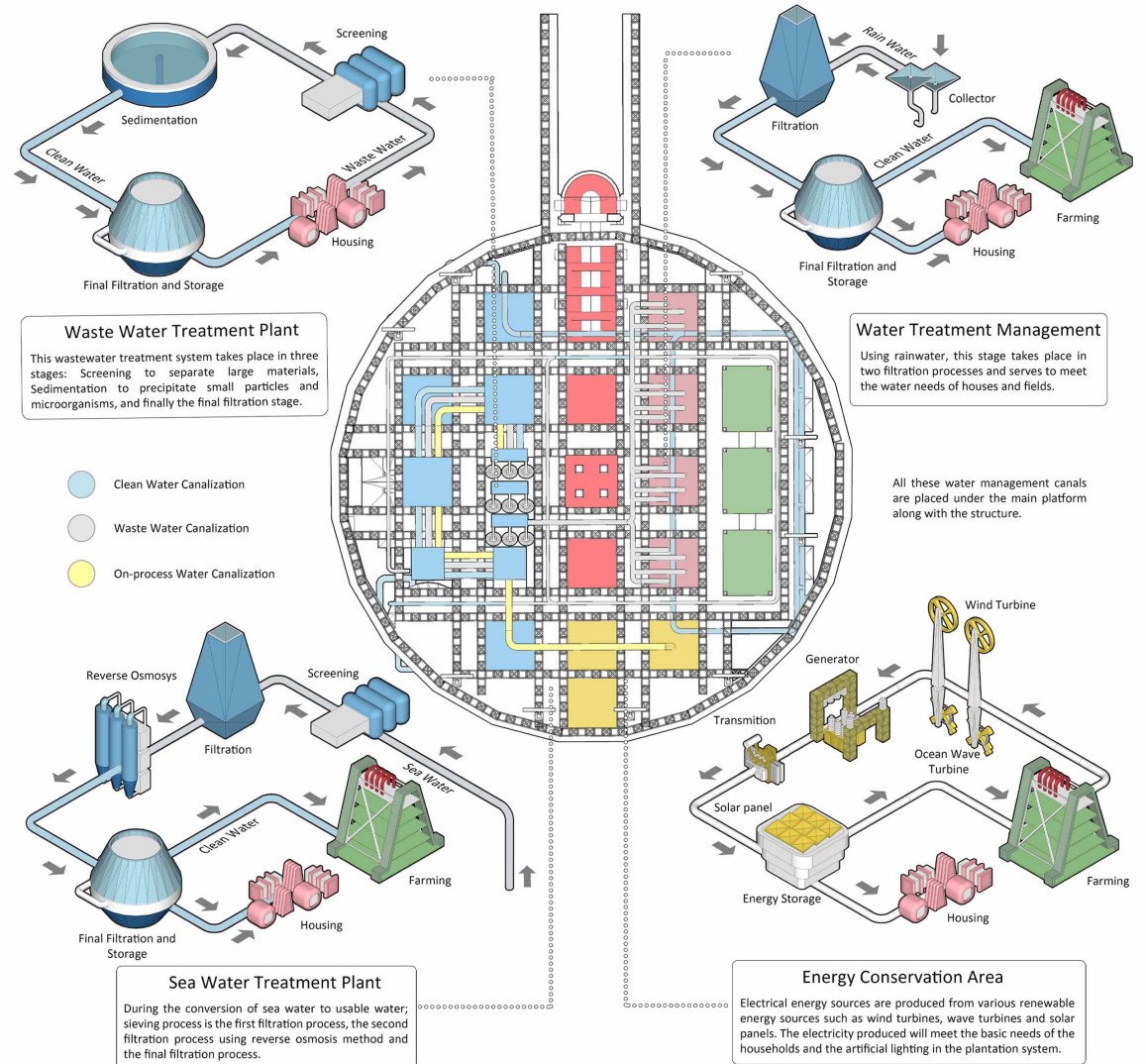
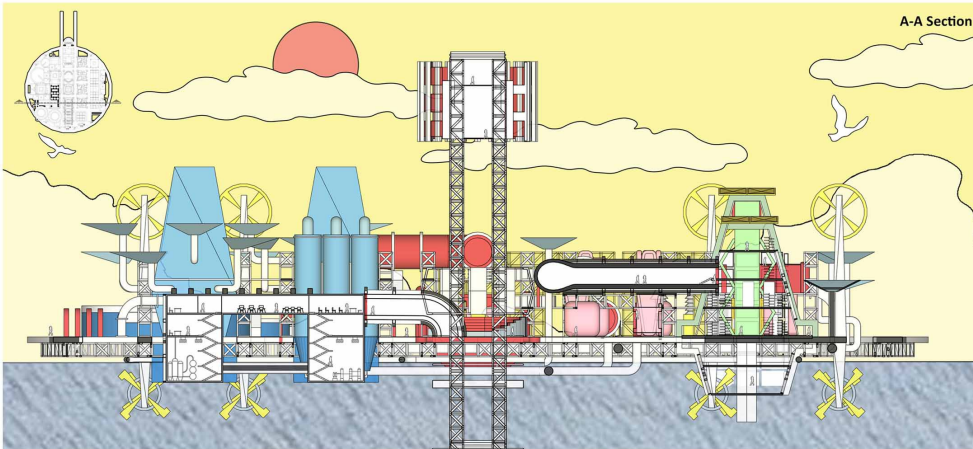
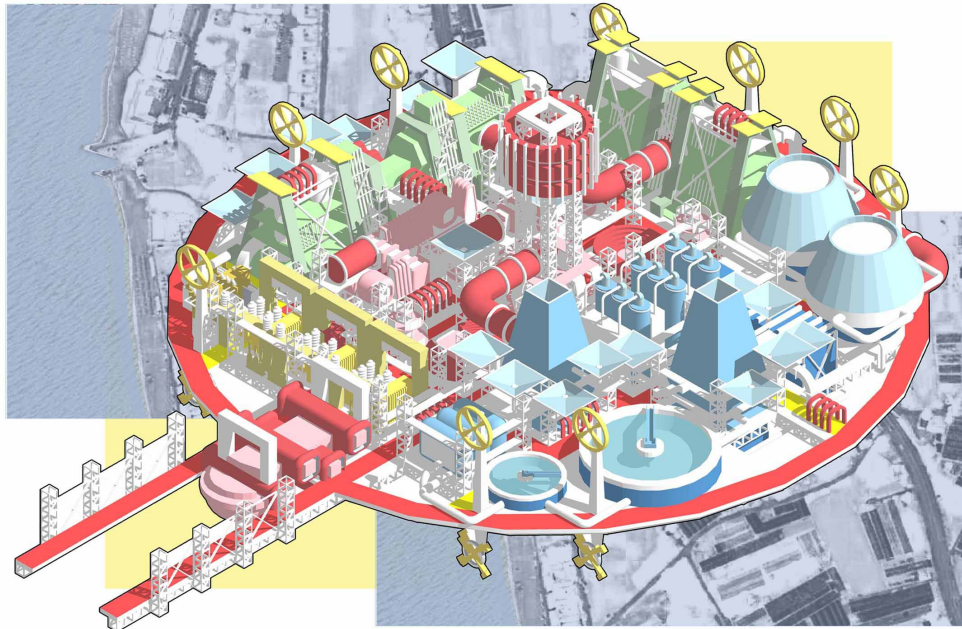
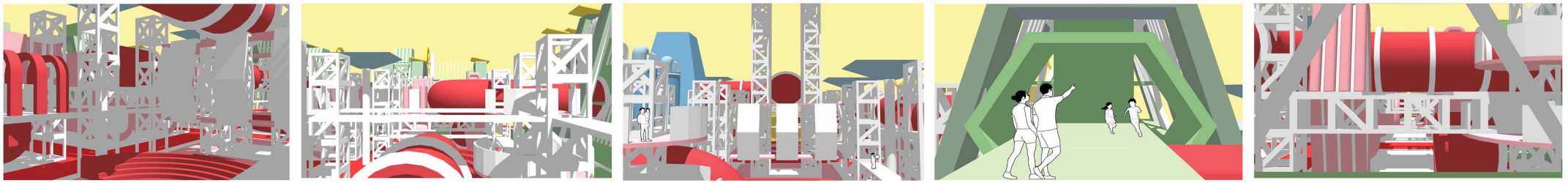


Detailed Structure Section

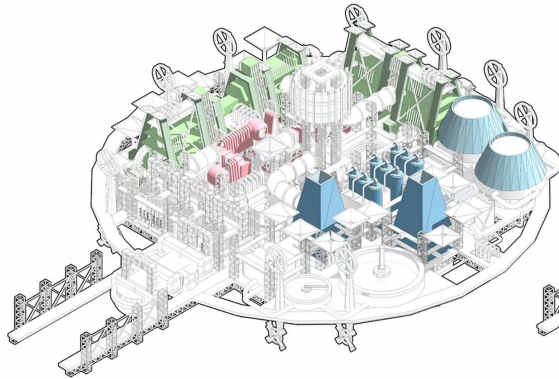
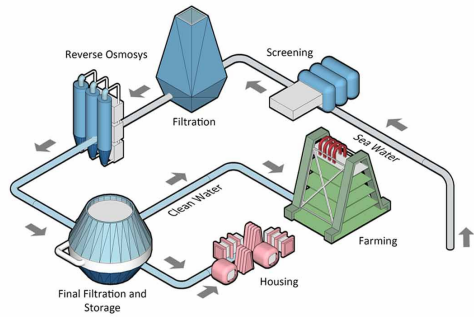
Overall, the construction will be developed with two main materials, salt crystallization and steel, so that a building structure can be created that can respond to future needs and adapt to changes.

With the development of other manufacturing Techniques and material mixtures, new salt applications emerged salt for coating, plastering, protecting walls and temporary structures. In the near future, we expect salt to be used in additive manufacturing (3D printing) to save time and money.



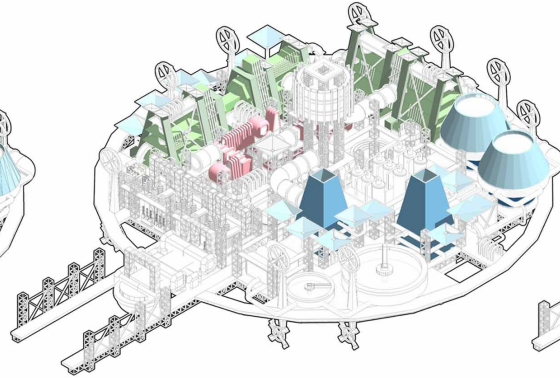
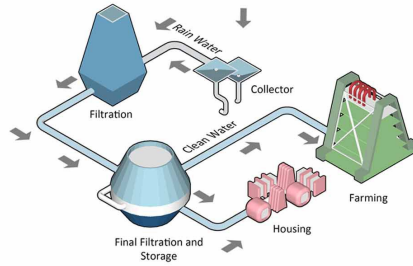


Sea Water Treatment Plant



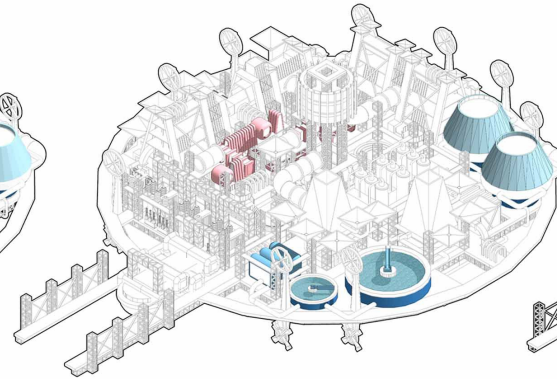
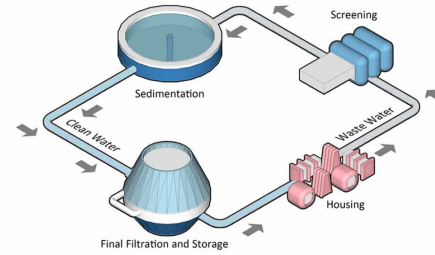
During the conversion of sea water to usable water; sieving process is the first filtration process, the second filtration process using reverse osmosis method and the final filtration process.

Rain Water Treatment Management



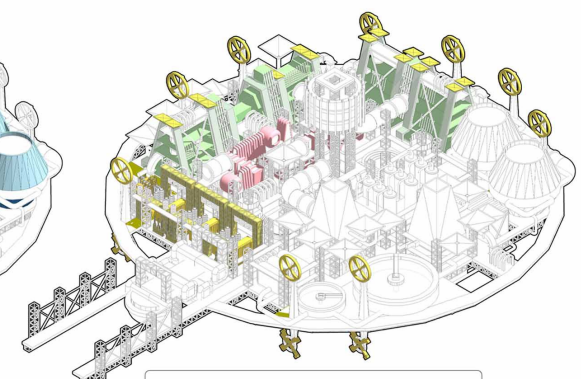
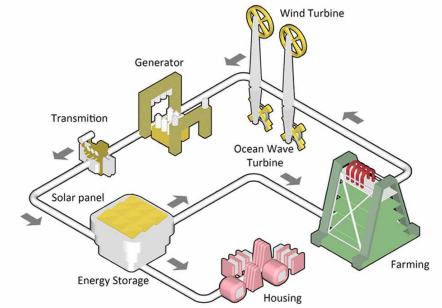
Using rainwater, this stage takes place in two filtration processes and serves to meet the water needs of houses and fields.

Waste Water Treatment Plant

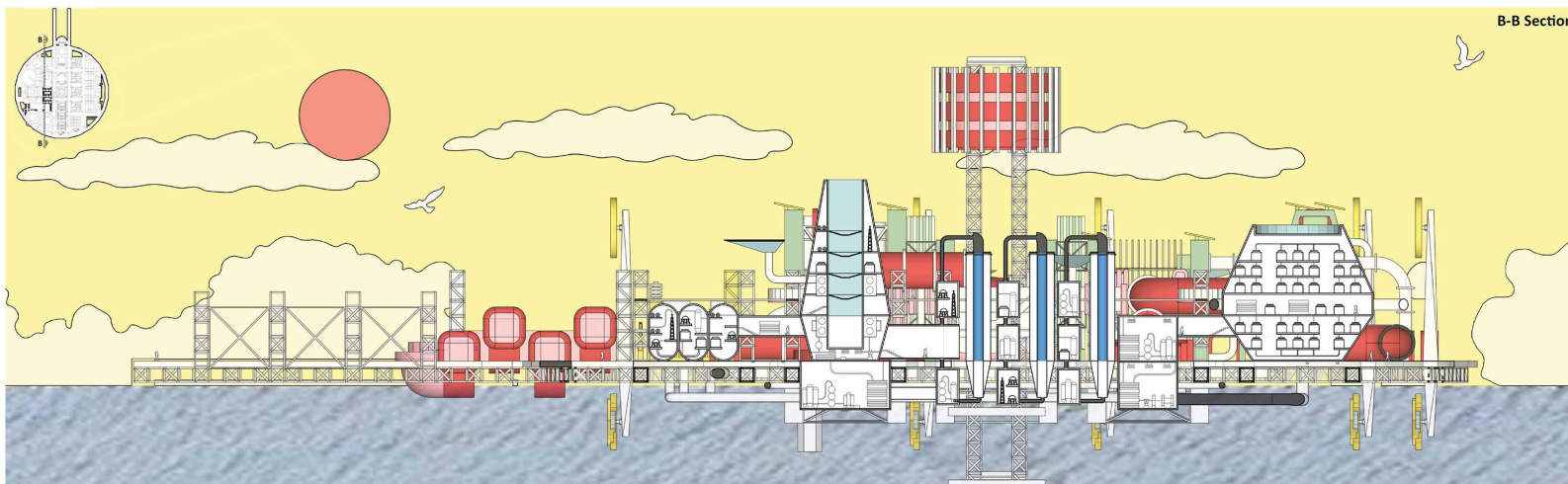


This wastewater treatment system takes place in three stages: Screening to separate large materials, Sedimentation to precipitate small particles and microorganisms, and finally the final filtration stage.

Energy Conservation Area



Electrical energy sources are produced from various renewable energy sources such as wind turbines, wave turbines and solar panels. The electricity produced will meet the basic needs of the households and the artificial lighting in the plantation system.



B-B Section

8. Turning the apocalypse into a blessing

In the context of regions affected by extensive saltwater flooding, a groundbreaking approach has emerged, offering the potential to create entirely new landmasses through innovative techniques centered around the extraction of salt from seawater. This transformative process involves a radical reconfiguration of traditional seawater desalination methods, specifically through the application of electrodialysis. By harnessing this cutting-edge technology, we can effectively convert saline water into valuable construction materials. The remarkable outcome of this process is the metamorphosis of sodium chloride, commonly found in seawater, from its liquid, irregular state into a solid, rigid material. Consequently, the abundant salt resource that would otherwise contribute to the depletion of arable soil now finds itself repurposed and reimagined as a versatile asset in the development of artificial hybrid architectural elements and the production of rock salt. As a result of these innovative advancements, new sheltered environments emerge above the once submerged seawater, characterized by the fascinating agglomerations of crystalline salts.