

Greenhouse community buildings - wind and water machines for food and living.

+ Wastewater city hubs



.....Netherlands can teach countries not to have to compete with landscape, conditions and scarcity of food. It has, thanks to its own created artificial landscape, in hundreds of years developed wind and water machines that provide knowledge and artifacts **to turn struggle into 'learning to play a game'** with the natural elements and conditions. This creates the possibility for new spatial conditions, economic prosperity and knowledge. This is essential for many emerging countries struggling with food security. In addition, the (technical) game of playing with the elements wind and water (free energy) means the possibility of experiencing freedom for the individual within the living conditions of an open community.....



1. Le Corbusier's symbol of **the open hand** together with the unavowable community. **Open Hand** – Open to receive newly created wealth, open to distribute it to its people and to others. The open hand will assert that the second era of the machine age has begun: the era of harmony.

2. The unavowable community – feedbacksystem, community of a astronaut a dancer , architecture by het grace of wind and water. Hans Moor Architects

3 . Wind and water machines in Greenhouse

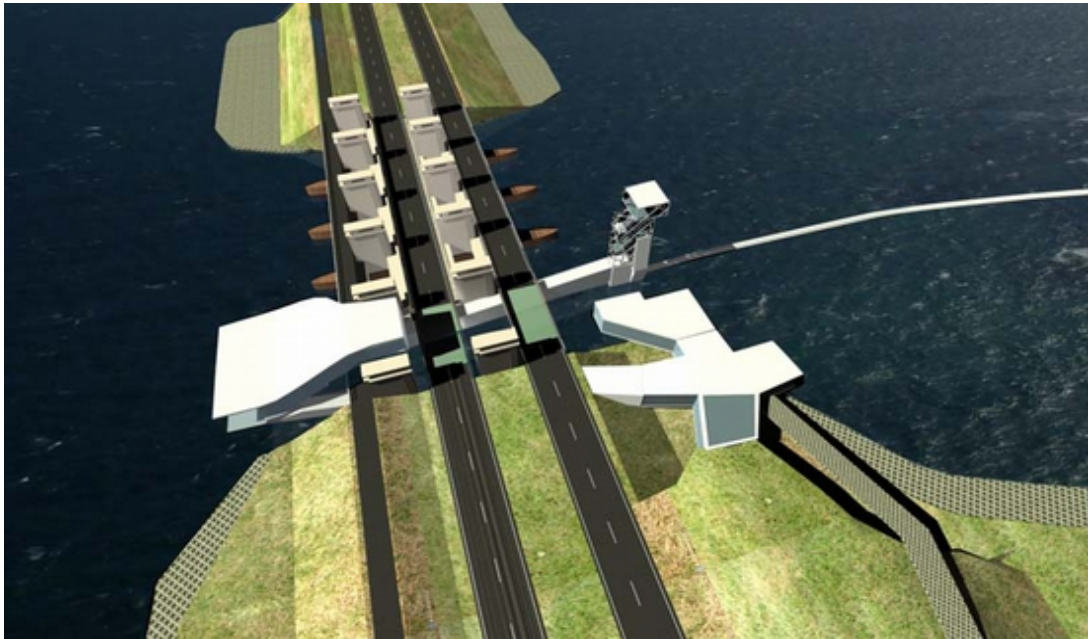
4. community marketplace and food



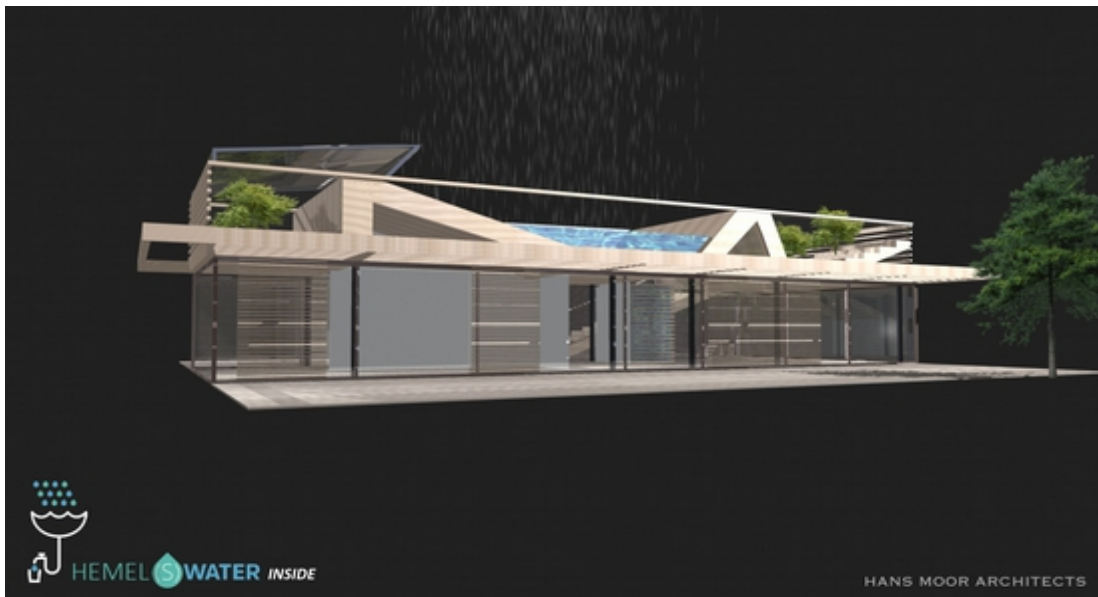
The Dutch landscape that has been transformed over hundreds of years forms a technical construction. It can be seen concretely everywhere through dikes, locks, and pumping stations. This specific way of dealing with the landscape has ensured that the Dutchman can live safely behind the dikes and dunes. Previously, technical boundaries between landscape and sea were seemingly unambiguously defined. It meant holding back the water as much as possible. This has changed since the Eastern Schelde storm surge barrier in 1986. As a flexible 'dike', a wind and water machine (open construction so that wind can easily pass through), it can allow water to pass through on a large scale, but can also safely hold back the sea at dangerously high tide. With this flexible, technical way of dealing with the sea and the landscape, a fundamental change has dawned in terms of safety. Within the dykes, for example, new types of landscape are being created by mixing salt and fresh water. through our flexible and technical approach to landscape and buildings, we are changing our environment. But the opposite is also the case. The changed landscape transforms people. **Where previously the natural elements meant the struggle against water, the Dutch and its landscape emerges now as playful, creative, and innovative. The world emerges as a feedback mechanism, a feedback system*.**

** Thanks to the technology, for example satellites circulating at a distance around the earth and providing mankind with information (CO2, ecology, etc.) about the limited habitable earth, the earth and man appear as a feedback mechanism. Another example: on the one hand, the truck is made in series, piece by piece, so that it can be delivered immediately and permanently after ordering. Available to deliver other goods on the other hand. The factory delivers the truck, the truck delivers the goods the factory needs. In such a feedback system, there is no hierarchy anymore. The truck is there for the factory and the factory for the truck. In this sense, both become equivalent. (Das Gestell - Heidegger and Le Corbusier, Brent Batstra, 2001)*





*design of a **world sustainability centre** – afsluitdijk and Lorenz locks, North of Netherlands – Hans Moor Architects*



*Design of **Rainwater is drinking water house**. - Concept house with installation to transform rainwater into drinking water. The principle of the house consists of an innovative roof with the living space underneath. The roof contains as many sustainable innovations as possible. The roof of the house collects rainwater and thus provides water storage. The collected rainwater is used for drinking water.*

Under specific conditions, wind and water machines have not only provided safety, but these artifacts have also managed to achieve economic prospects and prosperity (that is profit by 'playing a game with the elements'). A good example where a lot of economic advantage and security has been achieved is in the greenhouses sector. The role of wind and water machines is here undeniable.

Wind en water machines in the Dutch Greenhouses – food security



If there is one thing that has facilitated the entire development of the greenhouses, it is the flat landscape of the Netherlands. Large oblong glass boxes thrive hard in a mountainous landscape. Market gardeners discovered 150 years ago that growing in heated greenhouses with as much glass as possible gave them more yield from their plants. Plants grow faster when they get more light and have a constant warm environment. This made it possible to grow other products as well. Products that otherwise only grow in warm countries. It is not for nothing that greenhouse horticulture in the Netherlands dates back to the 17th century when tropical crops from the colonies were grown in glass greenhouses. In addition, the greenhouse is ideal in the Dutch landscape. Everywhere in the polder, we have water and wind. Water runs through dikes and canals. The wind is almost always there. Greenhouses are located next to a pumping station to use and drain water. There is also the soft rainwater that can be used for the crops... Wind and water are at first excluded, if they become too extreme then you can't control these elements, and they form negative influences, but through wind and water machines the wind and water are conditioned and form energy to let the crops thrive.



Recent developments (after 2000) include the closed greenhouse, also known as 'the greenhouse' as a source of energy and floating greenhouses, which can be used in water storage/overflow areas. While the Dutch still put a lot of energy into heating the greenhouses, the heat in emerging countries is less of a problem. Solar energy provides energy for the production process, for example.

The new Idea – Greenhouse community buildings - wind and water machine for food and living.

Wind and water are the natural elements that create and maintain the dynamics of life in the building. The elements of wind and water not only provide energy for growing the food crops, but it is also the connection between food and living. People and food need water. Cooling done by wind and water is part of greenhouses and houses for living as well. Wind and water are the natural elements that are embedded technologically in the building by using innovative and simple interventions that make life more pleasant, natural ventilation, and cooling by using e.g. wind chimneys.

The key of these community buildings is the greenhouse. It enables the inhabitant or user to grow and sell their safe food. The connection between the food and the resident is wind and water. The food in the greenhouse needs wind just like mankind, wind and water provide the growth of crops, wind, and water is the energy for mankind as an individual and community.

The living thing about wind and water is movement and energy. We designed a prototype first "Greenhouse living small community"



Greenhouse small community living¹ is a concept for living using various innovations, including own food production through vertical farming, collection **rainwater = drinking water system** (rainwater), bee hotel, heat supply through greenhouse principle. The living area can be separated from the greenhouse. The greenhouse is on the second floor is in this concept a space-saving intervention (in urban conditions this spatial position is important). The house is constructed in wood as much as possible.

Greenhouse living community

New building concept for living communities using greenhouse technology. The concept of this living community is concentrated 'by the energy of the individual capable of growing and selling his safe food. The individual is living in this building. Wind and water are the natural elements of energy distribution within the building. Greenhouse technology is supporting the traditional way of local construction and use of materials. The design uses cheap parts, such as containers, recycled wood, installation of rainwater to drinking water. It can also be used in emerging countries. Greenhouse with vertical farming + water supply + cooling by wind chimney is as standard as possible and located on the 1st floor. First floor = living + selling food on the internal market + public space.



vertical farming



water bethesda south africa



community (church) + wind machine bethesda south africa



marketplace community



container living

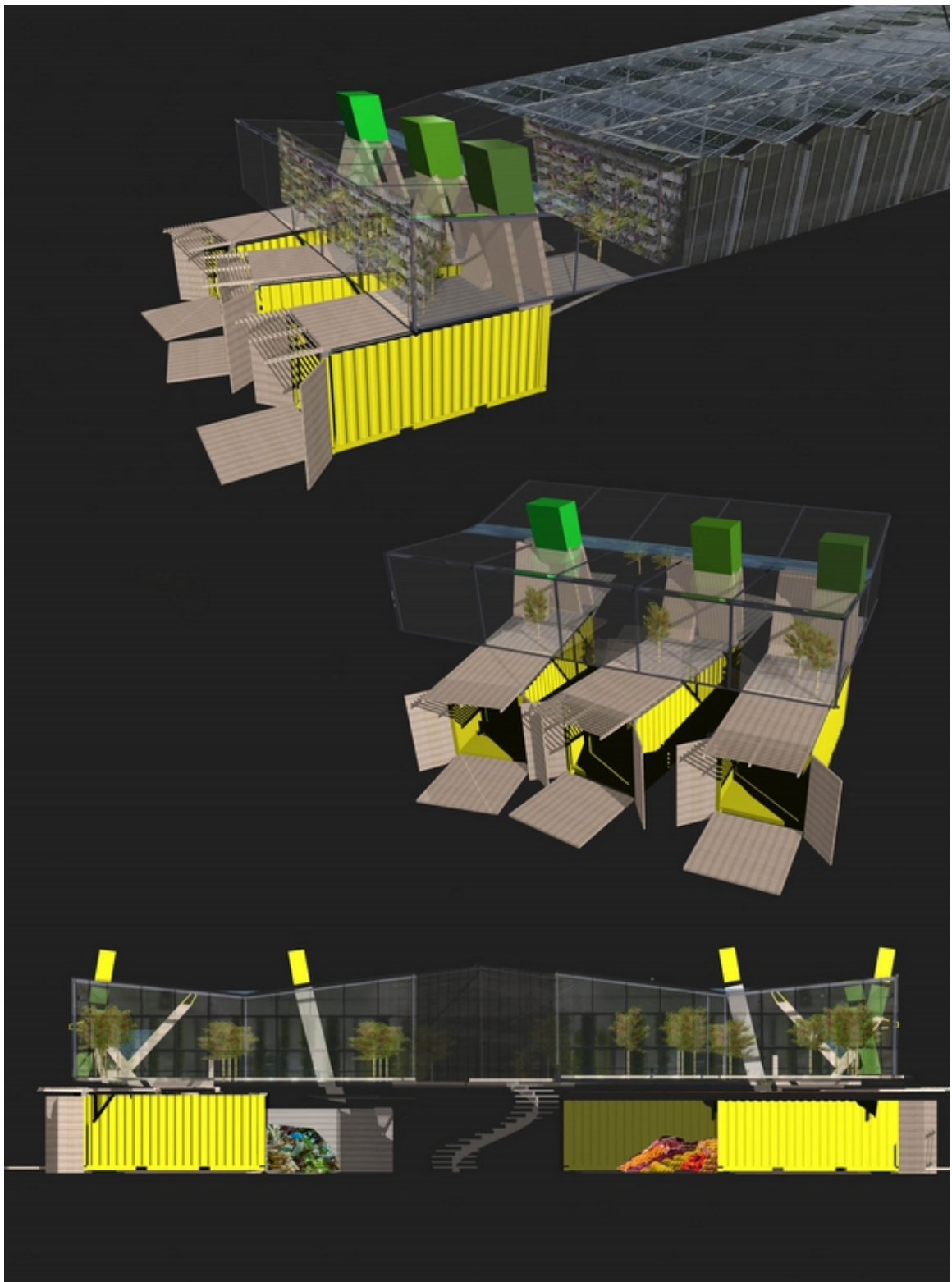


greenhouse + education

ELEMENTS TOGETHER

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GREENHOUSE COMMUNITY LIVING



GREENHOUSE LIVING COMMUNITY – DETAILS

It is an innovative concept that can be a promotion for horticulture and greenhouses can find a new connection to the people. Design is based on standardization of greenhouse construction (simple and relatively cheap) and uses greenhouse technology.

Possibility for a pilot how a community can provide for its own needs, grow its safe food by individuals, sell food on the market, and at the same time the design creates a new public space. Design is based on the individual concerning the community. Public attractor for the urban environment

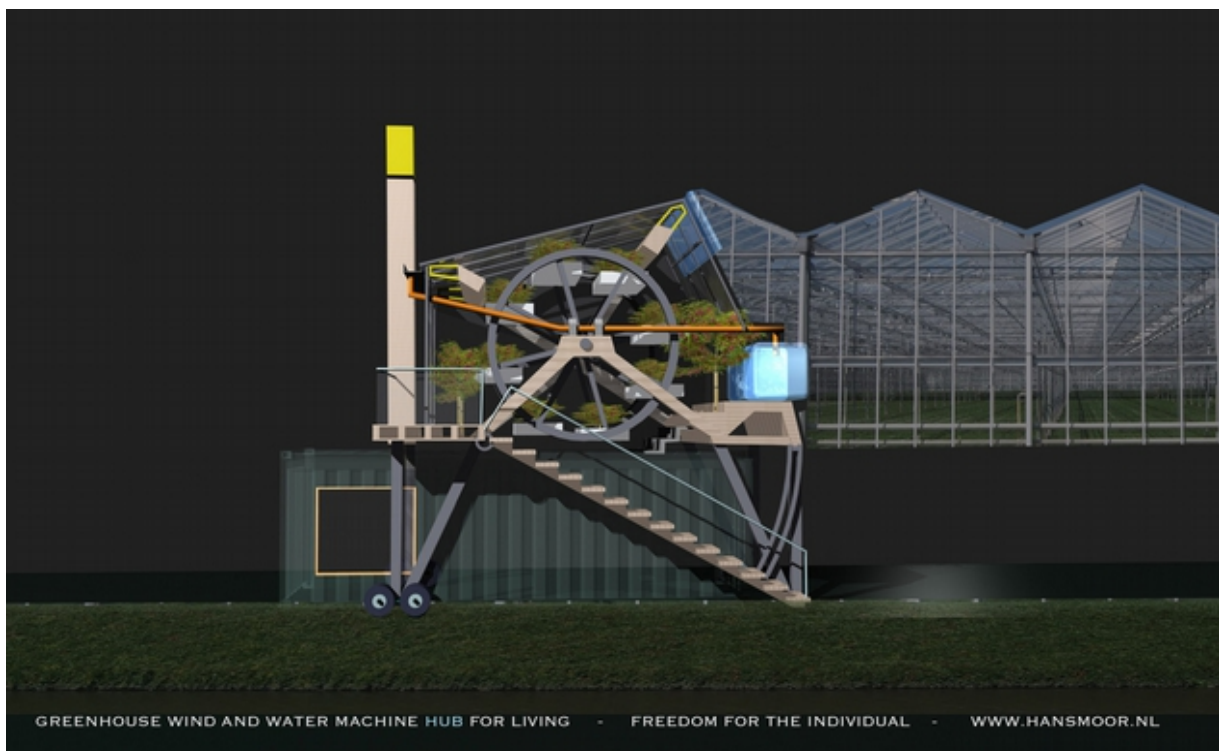
The Netherlands can play an important role because of their knowledge of architecture with limited use of space, safety food supply, wind, and water technology, 'playing the game' for abundance.

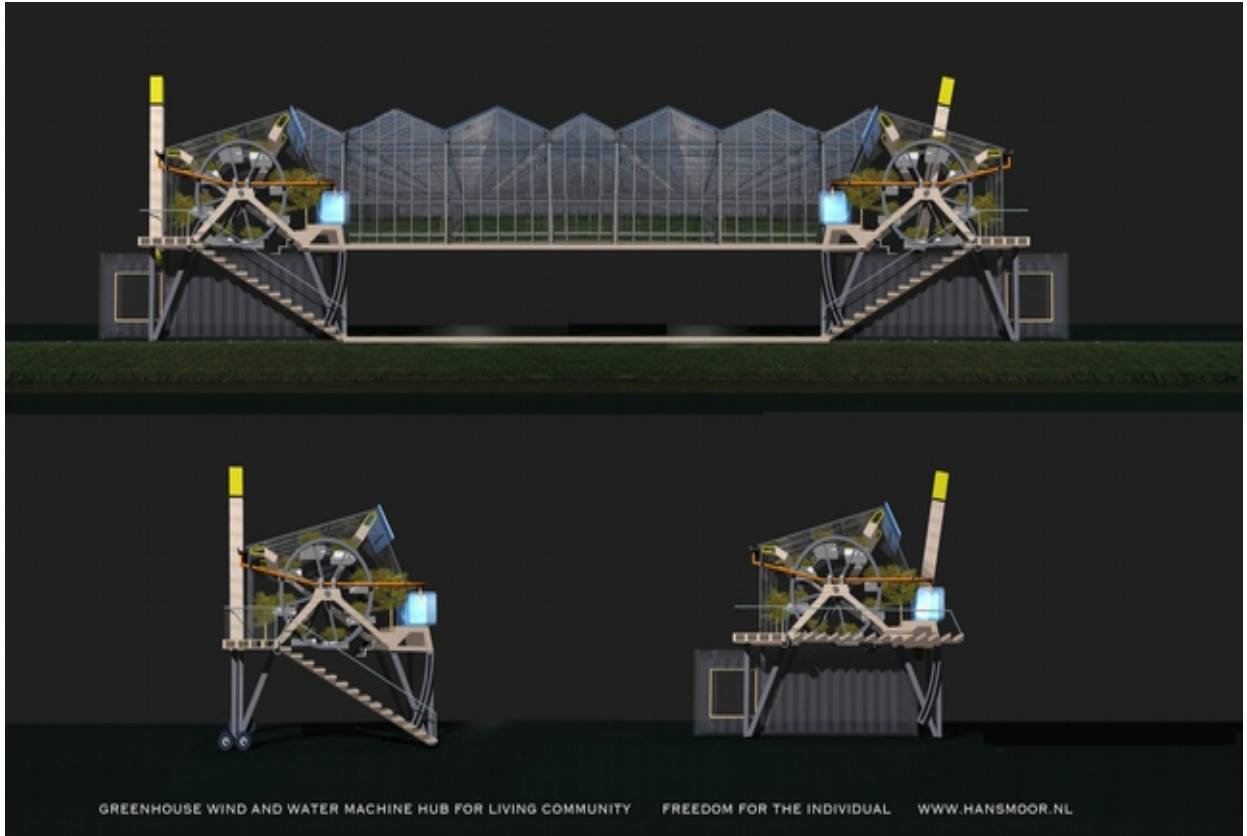
The concept responds to the improvement of the living environment. Food safety and new housing. Technical and spatial innovations mean improved living conditions.

The concept is a starting point with certain values, adaptations are possible depending on the location, budget, etc.

Space principle rests on double land use and tries to find a solution for the 'food or shelter dilemma': Living on the first floor and food on the 2nd floor.

Housing units can be realized according to local building methods.





The wastewater city hub – part of the Greenhouse living community

Hans Moor (Hans Moor Architects) + Maxim Amosov (Infinitix)

“When waste is out of sight there is no emotional connection. Give waste the value of a sacrifice and disembarrrass illusions”

The design of a wastewater city hub is a building with public space where waste in different shapes will transform into new energy (clean water, nutrients etc.) We named the city hub 'the wastewater hub' because water is one of the main issues in all cities. The wastewater hub includes more added value by inserting different modules of needed sustainable value in cities. The wastewater hub collects wastewater, rainwater, dry waste and, wet waste, and retains food, water, energy, materials.

The new energy 'produced' by the wastewater hub will not only bring about advantages, like new energy and cost reduction. Because of the physical appearance, the wastewater hub will also manifest an emotional connection with waste. The wastewater hub with the newly produced energy will make sustainability and the circularity of life visible.

In addition to technical and sustainable solutions transforming waste, the hub will also operate as a public space. On the one hand, the public space is a marketplace selling and contributing to products of waste. On the other hand, the public space will manifest silent and contemplative aspects of nature and green.

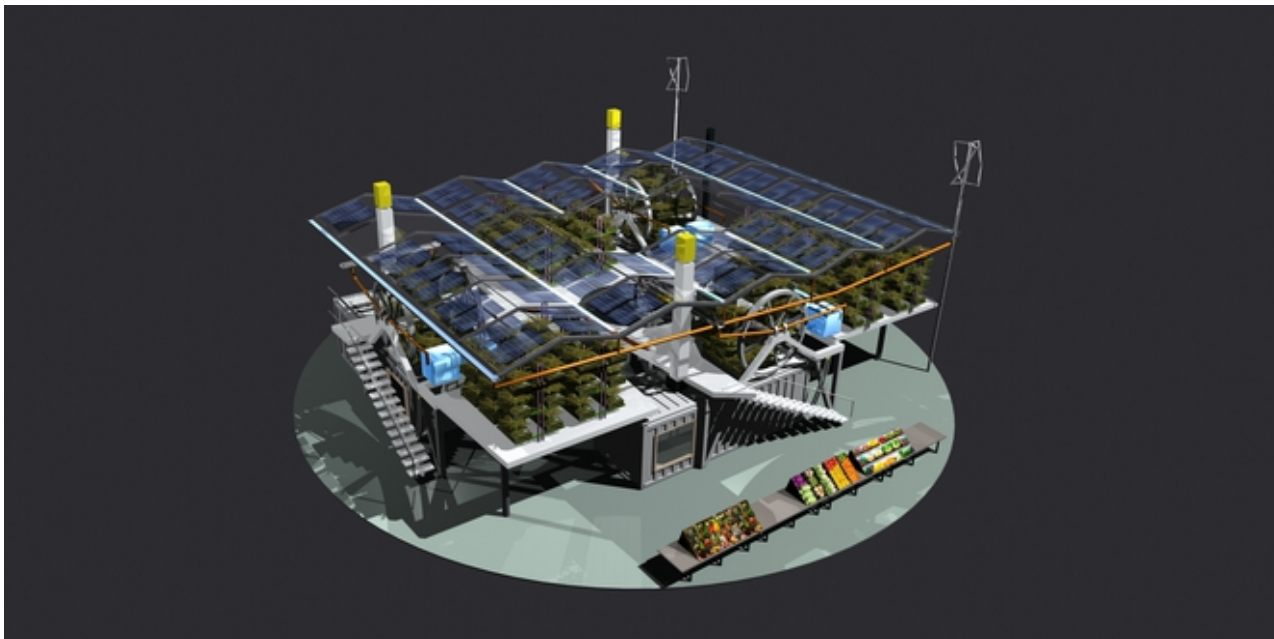
The wastewater hub with public space is part of the sewer network. Imagine a network of existing sewers that cover the underground of the urban area. On top of this sewer network, you see Hubs that collect wastewater, rainwater, dry and wet waste, and retain food, water, energy, materials, and culture for the individuals and local community. On a city scale, you can see the solution as a system of decentralized hubs implemented up the chain of the existing WW infrastructure, i.e. sewers, WW boosting stations, or smaller WWTPs. The hubs take local waste/renewables, give back food, water, energy, and raw materials, and reduce or contribute to the water flow and risks towards the existing WWTPs. The hubs are designed for different scales so as to sustainably transition 100 % of the current wastewater infrastructure depending on a few external factors i.e. decision of individuals or small communities to be off-grid (self-built), population, and density of the area, climate change. The hubs include core modules (wastewater, nutrients, and water) with public space and flexible modules (solar, food, heat & power).

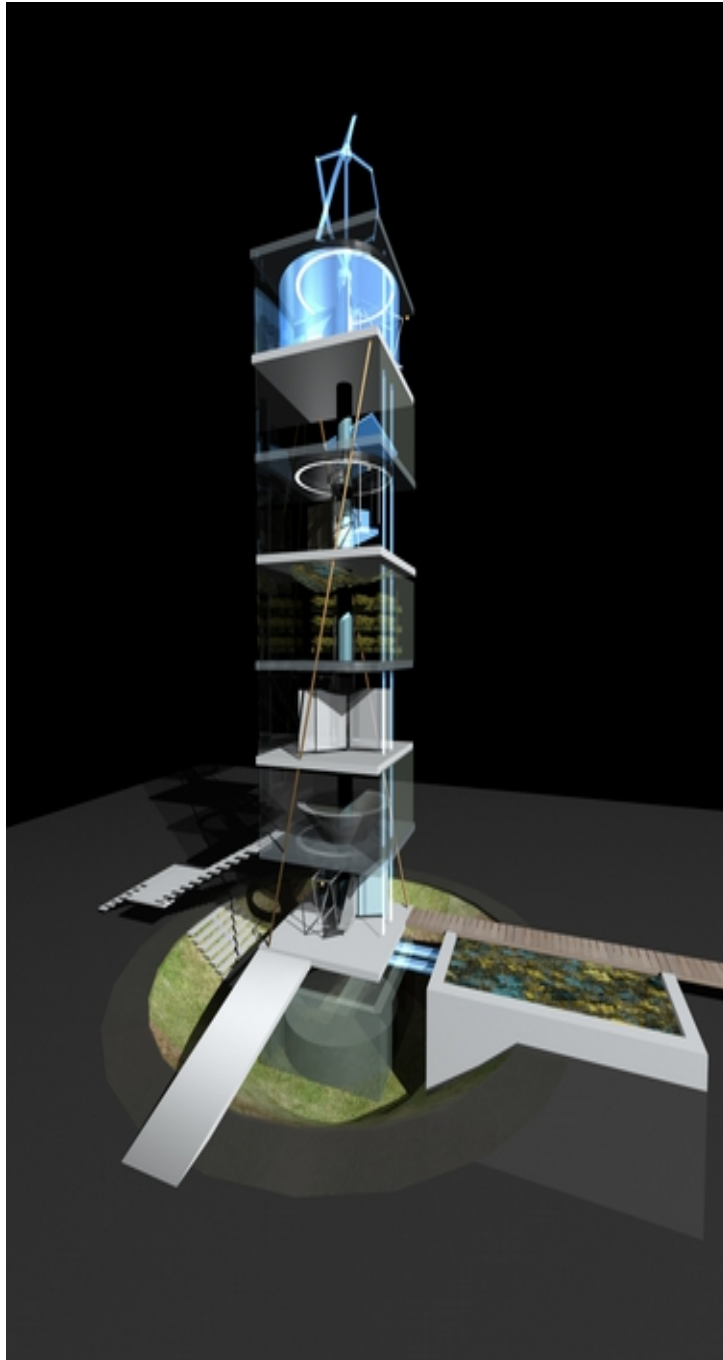
'WHEN WASTE IS OUT OF SIGHT, THERE IS NO EMOTIONAL CONNECTION.
GIVE WASTE THE VALUE OF A SACRIFICE AND DISEMBARRASS ILLUSIONS'



NEW ENERGY OF THE WASTEWATER CITY HUB

An example of a flexible module is the green roof and gray roof. A percentage of the glass roof provides by solar panels. Enough daylight reaches the vegetables and fruit. At the same time, rainwater collects by the roof and can be used by the installation of water to transform it to drink water.





Wastewater city tower hub

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