

PURIF TOWER

SEAWATER POLLUTION AND PURIFICATION

Intro

- global primary production of plastic was 270 million tonnes;
- global plastic waste was 275 million tonnes – it did exceed annual primary production through wastage of plastic from previous years;
- plastic waste generated in coastal regions is most at risk of entering the oceans; in 2010 coastal plastic waste – generated within 50 kilometres of the coastline – amounted to 99.5 million tonnes;
- only plastic waste which is improperly managed (mismanaged) is at significant risk of leakage to the environment; in 2010 this amounted to 31.9 million tonnes;
- of this, 8 million tonnes – 3% of global annual plastics waste – entered the ocean (through multiple outlets, including rivers);
- Plastics in the oceans' surface waters is several orders of magnitude lower than annual ocean plastic inputs. This discrepancy is known as the 'missing plastic problem' and is discussed here.
- The amount of plastic in surface waters is not very well known: estimates range from 10,000s to 100,000s tonnes.

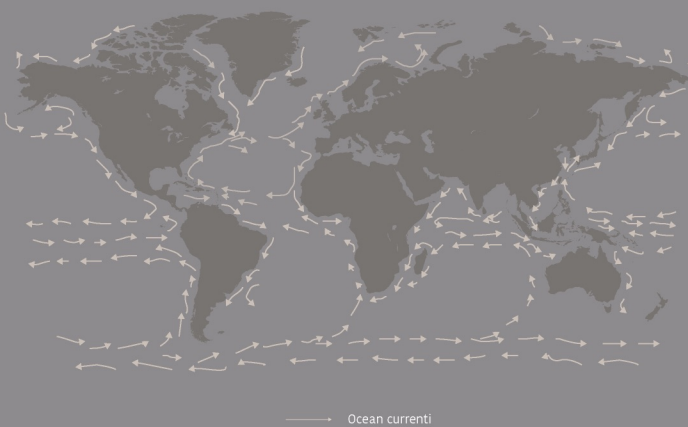
Marine garbage pollution



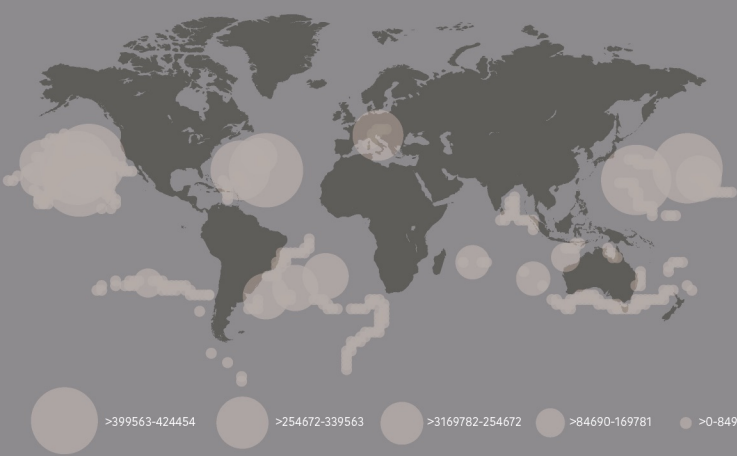
The majority of the garbage that enters the ocean each year is plastic—and here to stay. That's because unlike other trash, the single-use grocery bags, water bottles, drinking straws, and yogurt containers, among eight million metric tons of the plastic items we toss (instead of recycle), won't biodegrade.

Global ocean pollution data

Ocean global ocean current map

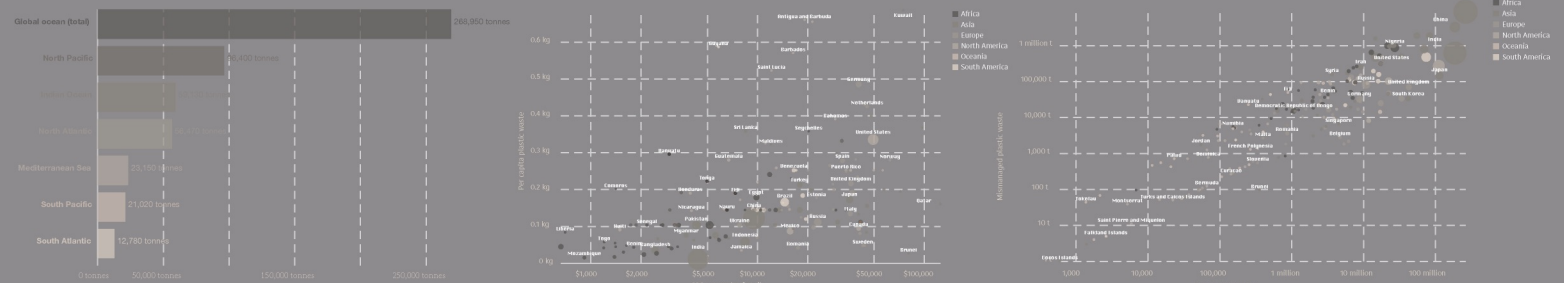


Estimate of Plastic Pollution in the World s Oceans



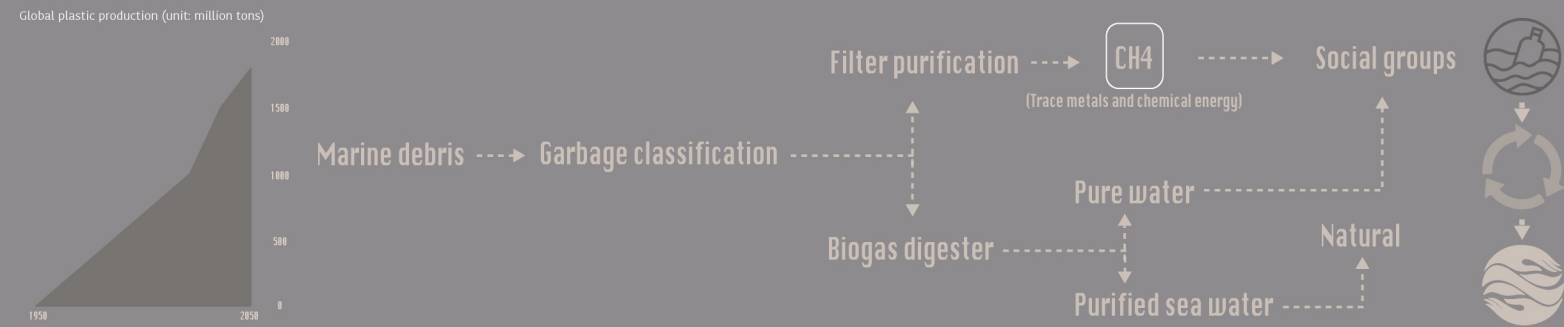
Consequences of overpopulation

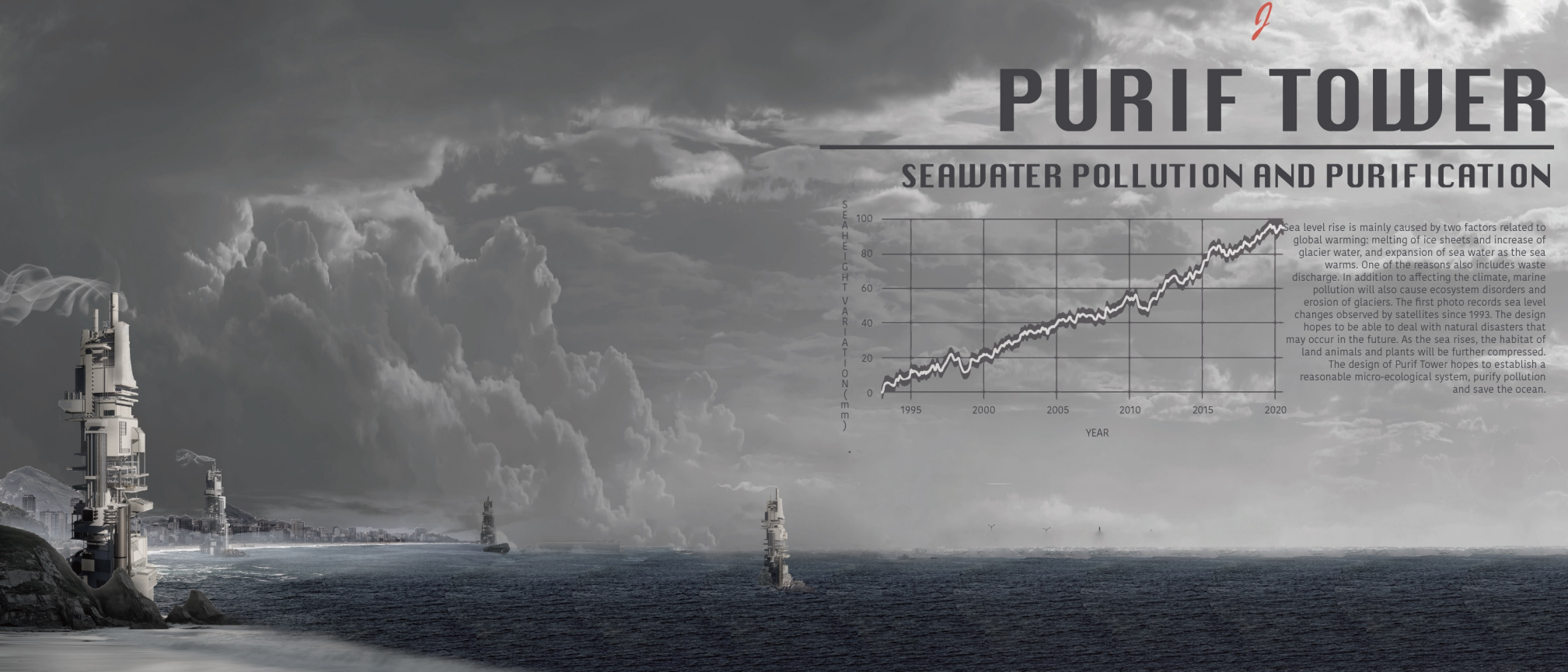
Quantity of plastic waste floating at the ocean surface within each of the world's ocean or marine basins. This is measured in terms of the mass of particles ranging from small microplastics to macroplastics. It includes only plastics within surface waters (and not at depth or on the seafloor). In the chart we show the plastic waste generate rate per person versus gross domestic product (GDP) per capita. In general — although there is significant variation across countries at all levels of development — plastic waste generation tends to increase as we get richer. Per capita plastic waste at low incomes tends to be notably smaller. It is also the case that countries with high levels of mismanaged waste also have large coastal populations. This exacerbates the challenge of ocean plastic pollution because poorly-managed waste is at high risk of entering the ocean.



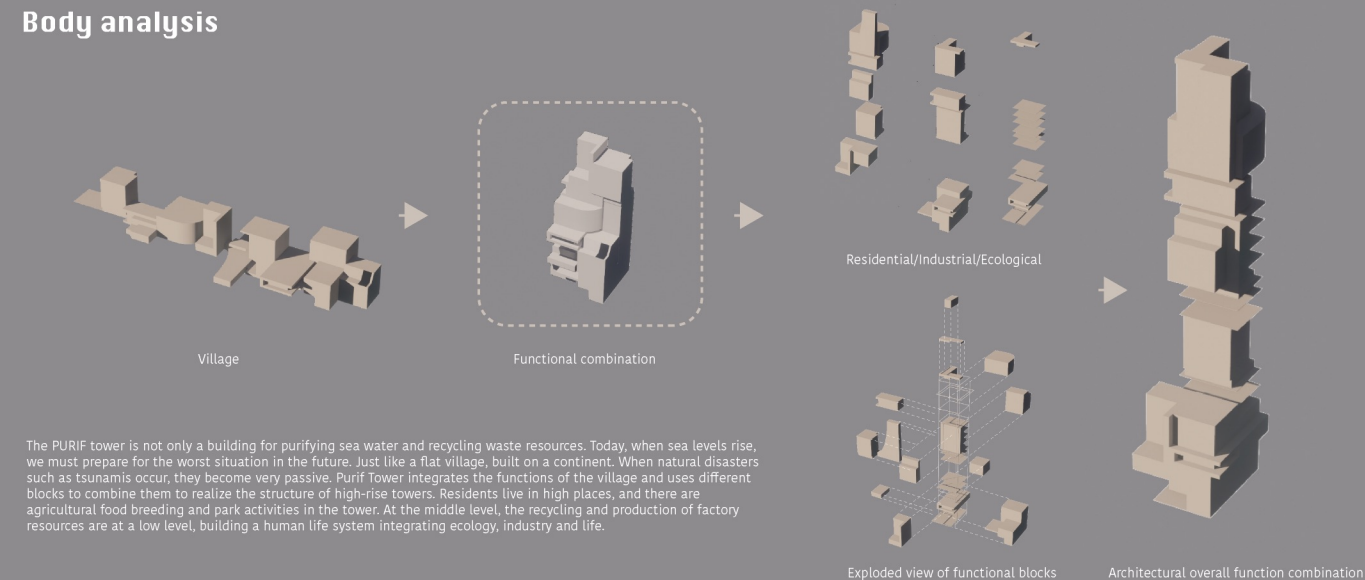
Concept

Toxic pollutants include trace metals such as cadmium, lead and mercury. Pesticides and their by-products, such as dichlorodiphenyldichloroethane (DDT) and chlordecone; industrial chemicals and by-products from combustion. These substances are still used in many places. They accumulate in aquatic systems and cause sediment pollution; these substances are present in 90% of water bodies. The pollutants of most concern are persistent, toxic and bioaccumulative substances. The project design will extract the pollutants in marine sewage for recycling, use the fermentation, accumulation and polymerization of trace elements and plastic particles, electrolysis and other methods to purify seawater resources, recover waste resources, and return the reshaped resources to nature And human society.

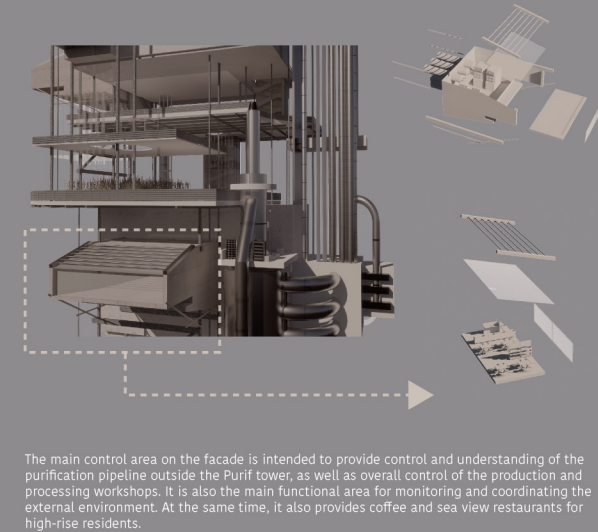




Body analysis

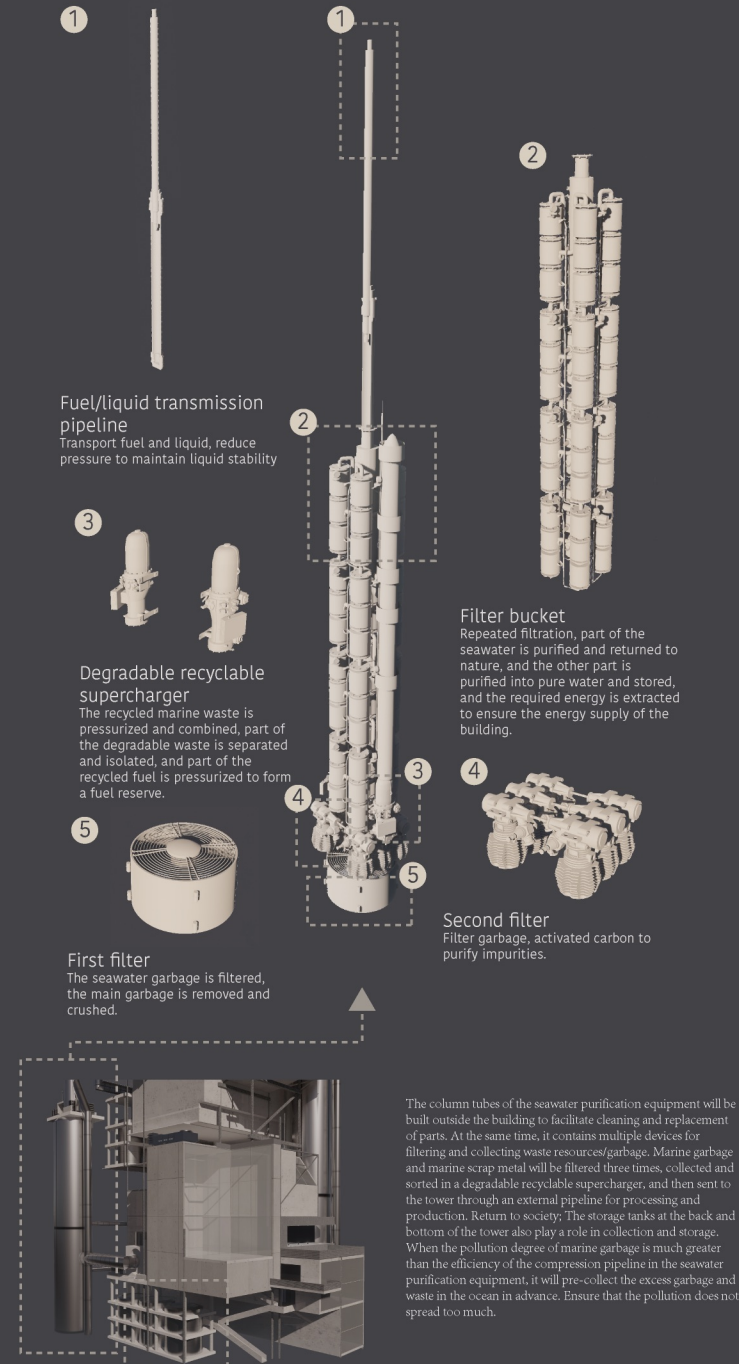


External main control area



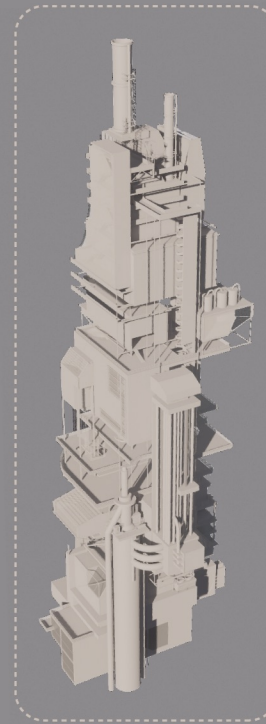
PURIFICATION TOWER COLUMN PIPE FILTER SYSTEM

SYSTEM MULTI-LEVEL FILTRATION AND PURIFICATION OF SEAWATER AND RECOVERY OF RESOURCES

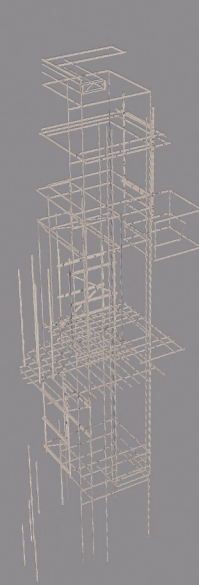


Program

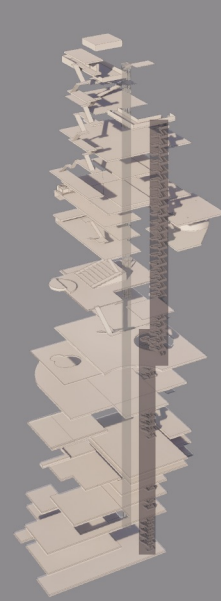
Building exterior



Structure

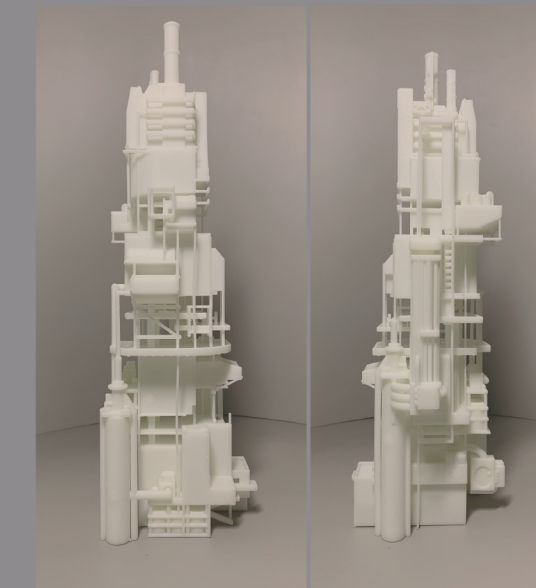


Floor distribution

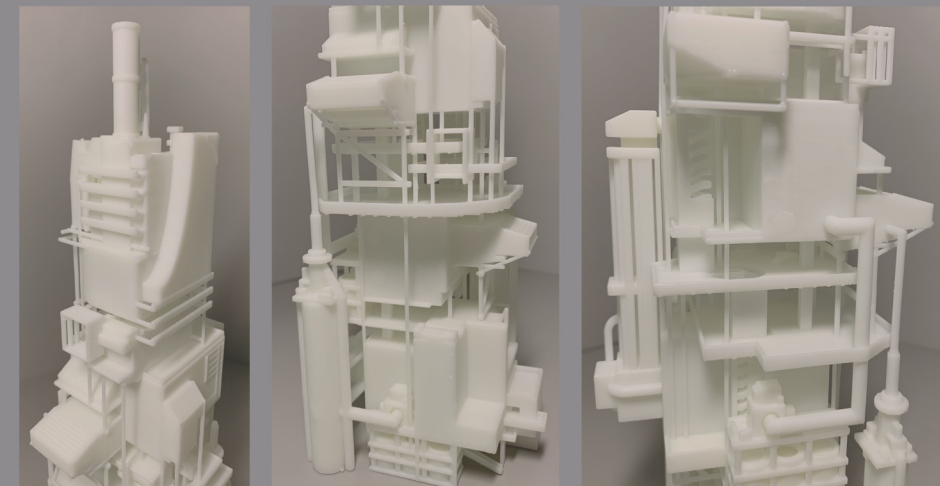


Based on the acid corrosion caused by the marine environment, the structure uses a mixture of steel and reinforced concrete and has been treated with nano-anticorrosion in appearance. At the same time, the structure has a certain bearing capacity, strong resistance to wind and waves and earthquake resistance. The external wall passage can ensure the commuting and interaction inside the building to a certain extent.

3D printing model



The model uses 3D printing technology to restore a resin model with a height of about 300mm to show the details of the purification tower.



Section view

