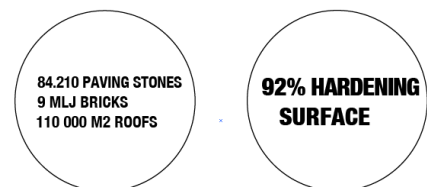


Mosslandscape

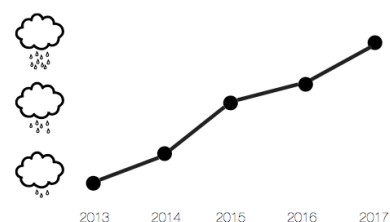
Sanneke Tangel

In the near future, hard surfaces will become a big issue in cities. Hard surfaces might be useful for things like cars and bikes, but will lead to problems in combination with climate change. The introduction of moss landscapes in cities will be an enchanting solution.

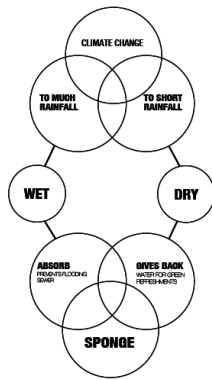
In my research in Agniesebuurt, a neighbourhood in the north of Rotterdam, I counted all the materials that made up the surfaces of the area. Do we really need so many materials to build a neighbourhood? My survey showed that there is a huge amount of hard surfaces: 84,000 paving stones, 9 million bricks and 110,000 m² roofs. In all, 92% of the surface of the district is paved.



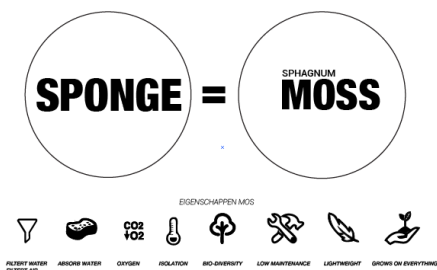
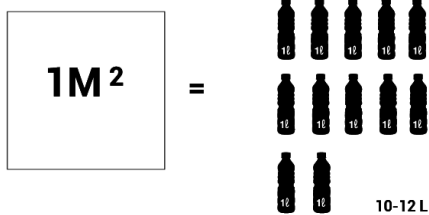
This proportion of hard surfaces in combination with climate change will create problems, especially in Rotterdam. If climate change continues, it is likely that Rotterdam will experience floods by 2030. The expectation for the future weather pattern is more sudden seasonal rainfall with larger amounts of water. Should this be the case, the rain will not be absorbed and will flow directly into the drains. The water will accumulate and flood overcrowded neighbourhoods and streets. The heavy rainfall and the sudden discharged water from the drains will also affect the rivers which will overflow ...



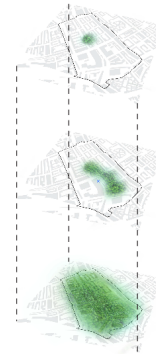
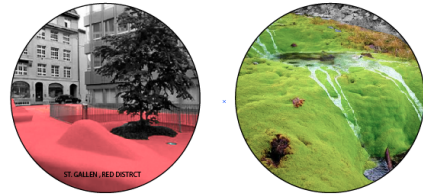
Not only will the rainfall become more sudden and violent, but there will also be warmer and longer dry periods. Yet our water consumption during these dry periods will continue. We will still need to, for example, keep our peat dikes moist to prevent them from sagging with subsidence; provide a growing population with drinking water; and provide potable water for crops. So we will have water shortages during the longer dry periods.



A life-sized sponge is the solution to this problem. The sponge will absorb water which can be returned in drier periods. A natural material that has the properties of a sponge is moss. Moss can absorb 20 times its own weight. At the same time it offers many other positive attributes: it filters air and water, insulates, stimulates biodiversity, is lightweight, is low on maintenance costs and grows on anything.

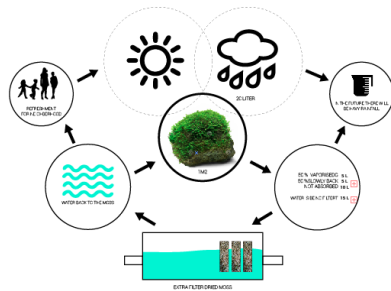


I propose using moss to create a landscape in an urban district. A natural landscape that can grow and spread by itself. It not only ensures that the water is absorbed and stored for later use, but it also gives the district a lot of green and nature.



Water is part of the landscape. In the future, a percentage of the heavy rainfall will be absorbed by the moss. The excess which the moss cannot absorb can be stored in a tank under the moss landscape. There could be four or five points where the excess rainfall could be collected and stored in the tank.

Sphagnum moss combined with fresh moss has the capacity to filter water and is used in its dry form in some systems to filter pools. Filtering is repeated in the tanks below the moss landscape. In a dry period, the clean water is returned to the moss, forming natural streams and a cooling environment. Ultimately, a vapour system is created that returns water to the people and cools the environment. And so the circle is closed.



In an urban area such as Agniese buurt, a moss landscape can absorb 12,600 litres of water in one period or 850,500 litres a year. Half of this is absorbed by the moss and then evaporated, and half can be saved and reused. And the moss landscape enriches the district with a green stimulating environment.

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