"Today's designers need to widen their perspective by considering components that are dynamic instead of static."

BUILDING A WATERWORLD

Working against climate change and rapid urbanisation, Dutch architect Koen Olthuis offers a solution. He builds on water. His belief that water is a workable building layer and can be turned into space has opened the door to a whole new world of possibilities.

TEXT: Shefali Thapliyal

Floating golf course in Maldives

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www.fluxmag.com

Koen Olthuis is a bonafide water baby. Except that his love for water is now opening new horizons for problems created by rapid urbanisation and climate change. Not to forget, sky-rocketing real-estate prices. The Dutch architect, who studied architecture and industrial design at Delft University of Technology and is the founder of Waterstudio, an architectural firm promoting the concept of floating single homes, apartments, office blocks, and even golf courses!

This dramatic shift in thinking and living will not only make low-lying nations habitable and shield them from the dangerously rising sea levels, but also offer a new dimension to habitable space.

It is expected that by 2050 about 70 per cent of the world's population will live on urbanised land. With 90 per cent of the world's largest cities located on waterfront, the time has come to rethink the way water can help the built environment. Large-scale floating projects in an urban environment are Olthuis' tangible solution – an idea that he claims is both flexible and sustainable. His idea challenges current building strategies, such as the ones employed by Amsterdam, which has been struggling to stay dry for the last 500 years by pumping water out – an energy consuming and expensive process. Such technology is also a viable alternative to repeated raising of dikes – artificial slopes or wall built to regulate water levels - in countries like the Netherlands. Floating pavilions will rise and fall naturally with the sea, thus negating the need for continuous adjustments.

On landing his first job with an architectural firm, Olthuis was asked to design houseboats. Instead of despair, he got down to brass tacks and it wasn't long before he started exploring the possibilities of water. From the idea of a floating house sprang the vision of floating office complexes, hotels and resorts. He, along with building partner Dutch Docklands, designed a part of floating islands for Dubai's Palm Islands development project. He went on to set up Waterstudio, an architectural firm in the Netherlands, a practice that is confronting the challenge of developing solutions to the problems posed by urbanisation and climate change. The firm specialises in architecture, urban planning and research related to living, working and recreation on water. Olthuis strongly contends that water is a workable building layer and can be turned into space - a dramatic change of mindset that opens the door to a whole new world of possibilities.

According to the Dutchman, the basis for his design isn't any different from the normal technology to build a houseboat. He has had his share of recognition – he was featured in *Time* magazine's list of most influential people; French magazine *Terra Eco* chose him as one of 100 green persons that will change the world.

1 Koen Olthuis promotes the concept of floating cities o house homes, apartments and office blocks
2 He propagates floating urban components that add a particular function to the existing static grid of a city

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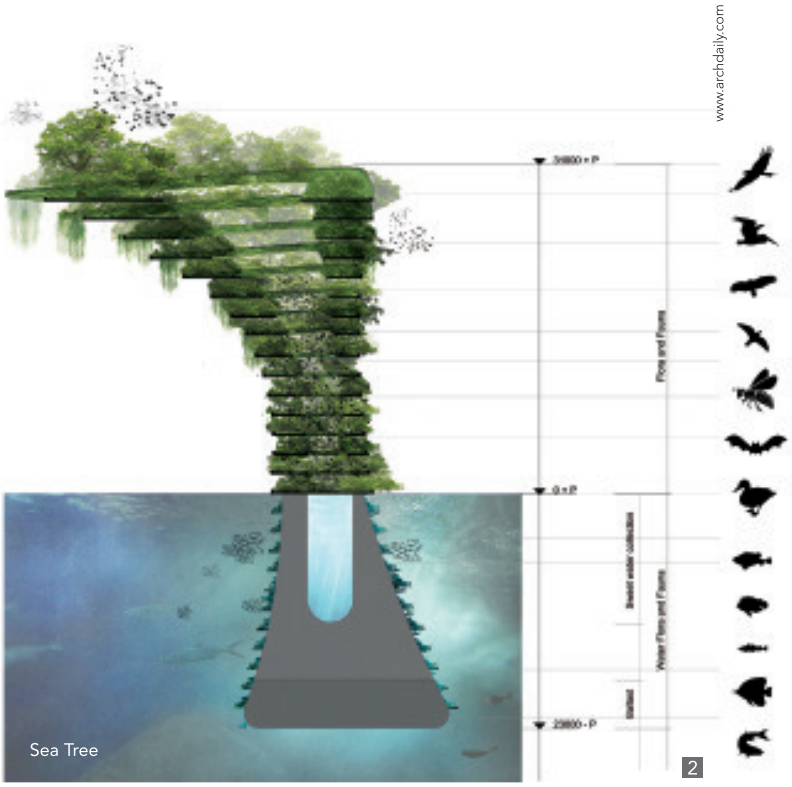

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The architect believes today's designers are an integral part of the climate change generation and need to widen their perspective by considering components that are dynamic instead of static. His solution - called City Apps - are floating urban components that add a particular function to the existing static grid of a city. Using existing urban water as building ground relieves space for a new density,

providing worldwide opportunities for cities to respond flexibly to climate change and urbanisation. The floating projects float on concrete and foam foundations that are stable and heavy. These bodies will be connected to the seabed with cables such as used in offshore technology like oilrigs that hold them at one location and not drift away.

"Using water as building ground provides opportunities to respond flexibly to climate change and urbanisation."

On the Right Track

The very first floating pavilion was constructed in Rotterdam as an answer to the city's aim of staying climate-change resilient and reducing its carbon emissions. The construction was carried out directly on water instead of dry dock; it is 12m high and can accommodate about 500 visitors. Although it is floating, the pavilion will remain moored for five years.

To make it lightweight, five layers of expanded polystyrene sheets were used. The thickest layer was fastened to concrete slabs, thus forming the hard shell that also offered protection from the waves. An addition of 20-cm thick concrete floor totaled the pavilion's thickness to 2.25m and rendered it a rigid unit. The pavilion was connected to the mainland by a footbridge.

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3 Koen Olthuis has developed The Sea Tree, a floating park that will be a haven for wildlife and marine life

The firm has also designed many floating homes in the Netherlands and has unraveled an ambitious plan to build 1,200 homes. The plan is called Het Nieuwe Water, or The New Water, and is being seen as one of the leading projects of architectural homes. The proposed site is one of the lowest areas and is land reclaimed from the sea. In the first stage, the world's first floating apartment complex, called the Citadel, will be constructed. It will have 60 luxury homes and space for parking. The project is scheduled to be completed by 2017. The firm has also taken up projects in India and China.

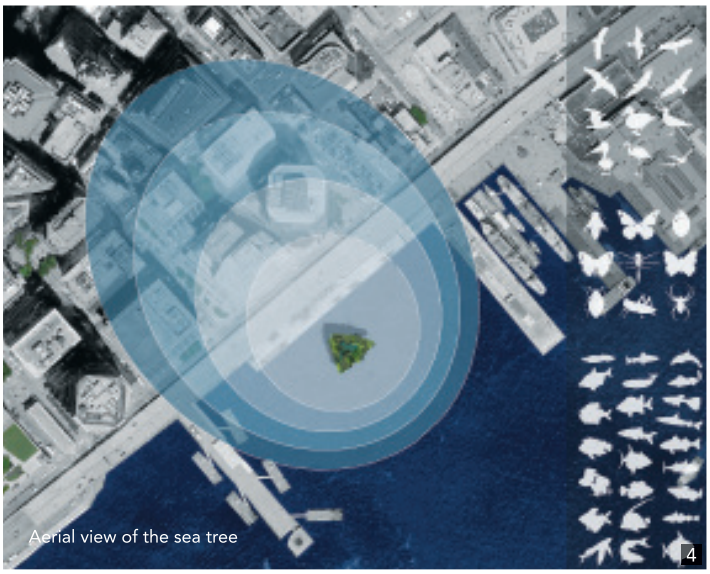
Olthuis has helped bring the future one step closer and given a solution to mankind's abuse of urban space. As the sea rises, his floating projects promise to keep hope afloat as well. We take a look at some of his projects:

Project: The Ocean Flower Maldives
Client: Dutch Docklands
Realisation: September 2012

A joint venture between Dutch Docklands and the government of Maldives – one of the world's most endangered nations due to flooding from climate change - has resulted in turning 80 million sq. ft. of water area into spectacular floating developments. The Ocean Flower, named after a Malvidian flower, is first of the five breathtaking oceanfront projects called "The 5 Lagoons". The first phase comprises 185 beautiful floating villas with private plunge pools. A wellness centre and diving academy complete the luxurious lifestyle - on sale now. The development is located in an upmarket area and is only 20 minutes by boat from the capital, Male.

Project: Sea Tree
Client: Undisclosed
Realisation: January 2014

Urbanisation and climate change have not only affected human life but also made wide-open spaces amid city centres a scarce commodity. Olthuis has developed a floating park, The Sea Tree, which will be a haven for wildlife and marine life. The multi-tiered structure consists of layered habitats for only animals. The structure will not be accessible by man and is built on a similar technology as that



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used for oilrigs. However, sea trees can be constructed on rivers, seas and lakes – their height and weight can be adjusted accordingly. These floating towers will be moored to the seabed and while the upper part will be home to birds and insects, the underwater half will allow aquatic life to thrive. Olthuis suggests oil companies can sponsor a Sea Tree to show their dedication to environmental causes.

Project: The White Lagoon
Client: Dutch Docklands
Realisation: January 2012

The White Lagoon in Maldives could well be the future of tourism. The project includes four ring-shaped floating islands, each consisting of 72 watervillas. Each ring will be a boulevard of white sand and greenery, with its own marina with docking spaces, restaurants, bars and shops. Each watervilla has a private beach, swimming pool and roof terrace.

Project: Greenstar Floating Hotel and Conference Centre
Client: Dutch Docklands
Realisation: January 2014

A part of the Maldivian government's 80 square million feet of floating projects, the Greenstar is a shining beacon. A floating hotel with 800 rooms and a conference centre that can accommodate up to 2,000 visitors, this star-shaped island is being seen as the ultimate destination for holding discussions on climate change. A unique floating restaurant will be built next to the Greenstar. The hotel will be covered in stepped layers of green so as to blend with the natural surroundings.

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4 Waterstudio's projects float on concrete and foam foundations that are stable and heavy
5 The Dutch architect's solutions provide opportunities for cities to respond flexibly to climate change and urbanisation
6–7 Koen Olthuis started exploring the possibilities of water when asked to design houseboats. From the idea of a floating house sprang the vision of floating office complexes, hotels and resorts