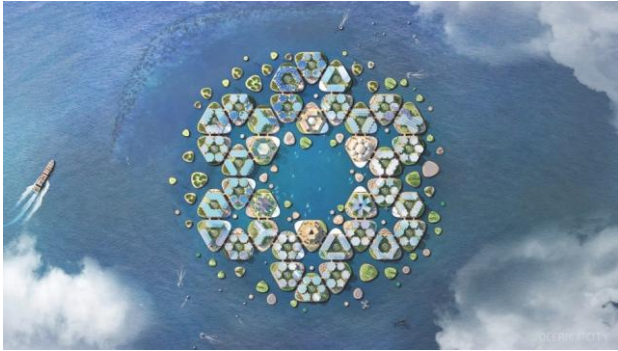


As sea levels encroach on the land, could we move people to the oceans?



In 2007, Marc Collins Chen was working as the minister for tourism in French Polynesia when reports started to emerge that the Pacific islands would be under threat from rising sea levels in the coming decades. “There wasn’t consensus around when this would happen,” he says. “But there was a sense of doom.”

Today, Chen is CEO of Oceanix, a company based in Hong Kong that’s developing concepts for floating cities. He’s now been working on the problem for 12 years. “If you’re a Pacific Islander and many of your islands are at sea level, you have to look at a solution,” he says.

Earlier this year, Oceanix announced a collaboration with the Bjarke Ingels Group (BIG) and MIT’s Centre for Ocean Engineering, creating a concept for a city of 10,000 people. It was unveiled as part of the UN’s New Urban Agenda, a plan to create ways for the world’s growing population to live more sustainably.

The 10,000 figure is an estimate, says Chen, and the way the city works means it will be able to host as few or as many people as necessary. The city will be made up of floating, roughly triangular platforms, each around two hectares in area and home to 300 people. Each platform, or ‘neighbourhood’, will generate its own renewable electricity from the waves and Sun, and the population can be

increased by adding more of these modular platforms.

Alongside renewable energy, the city will grow its own plant-based food, and treat and reuse all waste water. “If you wanted to feed everybody with beef and chicken, you’d need so much surface area and freshwater,” says Chen. “It’d become economically unfeasible.”

The platforms will be secured to the seabed with biorock, which is a material already being used to create artificial reefs around the world. A low-voltage electrical current is passed through a steel frame, which electrolyses the seawater around it and causes charged particles (‘ions’) to build up on its surface, coating the steel in a rocky substance that’s as strong as concrete.

Making sure the cities have a positive impact on the environment is crucial, Chen says. The UN uses ‘ecological footprints’ to measure the impact people have on the natural world, measured in global hectares per person.

At current population levels, our planet has only 1.7 global hectares (gha) of biologically productive surface area per person. At the moment, the UK has a footprint of 7.9 gha per person, which means we’re using more than we have.

As the world’s population increases, we need to be reducing our individual footprints. Chen says that Oceanix could have a footprint of as little as 0.5 gha per person, helping to reduce the strain on our ailing planet.

This might all sound quite far-fetched, but Chen believes it will happen, and soon. The company is aiming to have a prototype of the floating city in place within the next two and a half years, although the location has not yet been pinned down.



1. Residents will walk, cycle or boat through the city, with solar-powered ferries transporting them to the mainland
2. Villages will be composed of six platforms around a small, central harbour
3. A large, protected harbour will be formed in the heart of the city. The six innermost neighbourhoods will include a public square, marketplace and centres for spirituality, learning, health, sport and culture
4. All buildings will be lower than seven storeys (to windproof them) and made from locally-sourced materials such as bamboo
5. Six villages will connect to form a city of 10,000 residents, spread across 75 hectares
6. Individual platforms, or neighbourhoods, will be two hectares in area and home to up to 300 people
7. Each neighbourhood will generate its own renewable electricity through technologies such as solar roofs and wave energy converters

Source: [ScienceFocus](#)