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Dutch keep heads above water with floating houses

Buildings designed for flooded land help country cope with rising sea level

By Neo Hui Min, Straits Times Europe Bureau

DELFT (NETHERLANDS) - THERE is a new kind of real estate in the Netherlands these days - buying patches of water.

TESTING THE WATERS: Not just individual houses, but entire apartment buildings housing several families are being planned for a floating community at Ijburg, near Amsterdam. -- NEO HUI MIN

Over 200 people have competed to buy 31 lots of water offered in Amsterdam so far this year with the aim of building solid homes on the liquid ground.

Mr Johan van der Pol, a manager at Dutch company Dura Vermeer Business Development, told The Straits Times: 'Seven years ago, people laughed at us when we started building amphibious homes. Now, near Almere, there are 10,000 to 12,000 floating houses planned.'

With seawater levels predicted to rise due to global warming and as land in large cities like Amsterdam becomes more scarce, there is the growing belief that floating and amphibious houses may become a common kind of property here in the future.

Houseboats have always been a common sight in the Netherlands, but these new floating homes will not be boats; they will look like regular houses, but their foundations will allow them to rise as water levels rise.

Dutch scientists predict a rise in sea levels of up to 110cm by the year 2100.

Attracting worldwide attention, Dura Vermeer built over 30 amphibious houses three years ago in an area called Maasbommel.

The houses have a hollow concrete cube at the base to give them buoyancy and are anchored to the spot by two vertical columns. They can withstand a rise in the water table of up to 4m.

But now there are not just amphibious houses being planned, but also floating ones complete with gardens and garages. Floating residential buildings, roads and office buildings are also in the pipeline.

Mr Koen Olthuis, whose firm Water Studio is a pioneering architectural firm specialising in floating structures in Holland, told The Straits Times: 'If you think of a single floating house, and then you move on to imagine a floating building with a few hundred people living on it, then it's a big step.

'But if you think of oil rigs, which are structures out at sea with thousands of workers on them, and you think back to the floating community, then it's not such a big step. The technology is there.'

But even though the technology to build on water has been available for a while, the growing interest in such properties is only in its nascent stage. It is only in recent years that the Dutch have shifted their strategy from driving out water to create land, towards giving back some land to water.

Much of the Netherlands is actually made out of polders or land that was reclaimed by draining water out of a water body and then enclosing that area by dykes.

The idea is that underneath water bodies, there is always land. If one could get rid of the water, the land beneath would be available.

But even after pumping the water out, barriers such as dykes have to be erected to safeguard against water flooding back in. It is this system that has kept key Dutch cities such as Rotterdam, whose lowest point is over 7m below sea level, from flooding.

Mr Tjitte Nauta, a project manager at Delft Hydraulics, says the idea in the past to keep the polders dry was to build higher dykes or pile up sand dunes.

But with the predicted water level rise, this strategy is now deemed insufficient to keep key parts of the Netherlands dry.

So in 2000, the Dutch government decided that some polders would be sacrificed as retention basins, letting excess water flow back in, in order to safeguard other more strategic polders. In all, some 500,000ha will be given over to water over the next 50 years or so.

For some Dutch people, the idea of allowing water back into their painfully reclaimed land is too much to accept. Discussions with local communities tend to get quite heated, said Mr Nauta.

'People who experienced severe flooding in 1953 say never again do they want water in the polders,' he said.

More than 1,800 people were killed that year when freak high tides and gale-force winds breached dykes in the south-west, swamping about 200,000ha of land.

In addition, the costly process would also take time to advance. Agricultural land on those polders, as well as other infrastructure, may have to be sacrificed as water is allowed back in.

For Mr Olthuis, this spells further opportunity.

Floating structures can increase the economic value of these strategically flooded polders, he believes, so he is pushing ahead with designing whole floating cities with roads, homes and offices.

And thanks to commissions from overseas, he also has blueprints for floating churches, mosques, Formula One racing tracks, and even entire villages.

One of the more curious commissions is a series of islands forming an Arabic poem.

If developers of the Palm Jebel Ali project in Dubai go ahead with the plans, Mr Olthuis' vision will be realised with 89 man-made floating islands forming the Arabic characters for the poem.

Together, the islands would take up space totalling 350,000 sq m, with houses, roads and greenery.

There are now about 500 floating houses a year being built in the Netherlands, while the annual new housing demand is 100,000 a year.

'In 10 to 15 years' time, I believe half of what is produced in terms of new housing will be floating homes,' said Mr Olthuis.

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