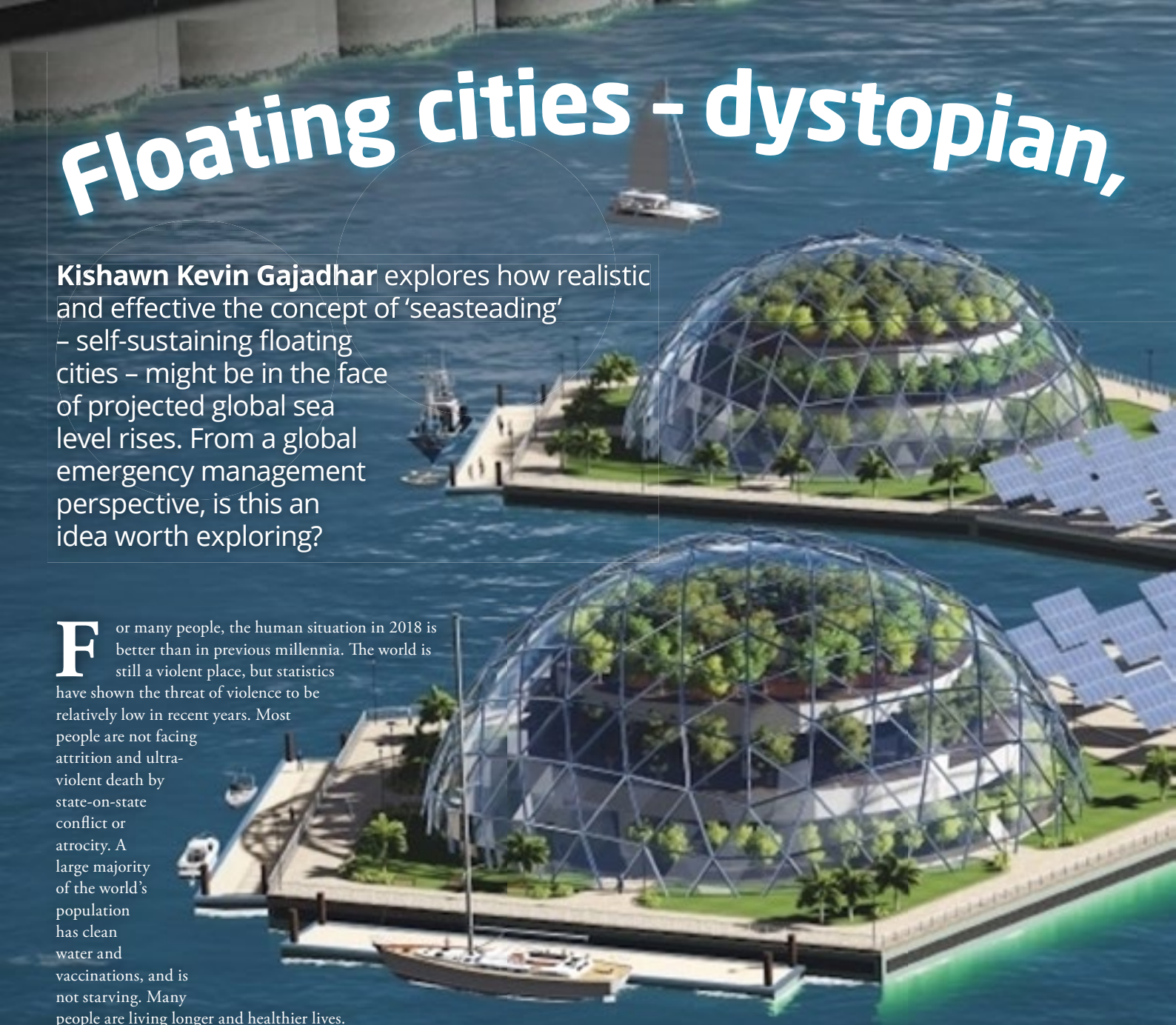
Floating cities – dystopian,

Kishawn Kevin Gajadhar explores how realistic and effective the concept of 'seasteading' – self-sustaining floating cities – might be in the face of projected global sea level rises. From a global emergency management perspective, is this an idea worth exploring?



Artists' concept for the Seasteading Institute

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www.seasteading.org

For many people, the human situation in 2018 is better than in previous millennia. The world is still a violent place, but statistics have shown the threat of violence to be relatively low in recent years. Most people are not facing attrition and ultra-violent death by state-on-state conflict or atrocity. A large majority of the world's population has clean water and vaccinations, and is not starving. Many people are living longer and healthier lives.

Exceptions to this aside, humanity has not been able to accomplish this without repercussions. But the industrial era has been resource intensive. Steam, coal, and oil improved the quality of life in many nations; industrialisation created high standards of living and a culture that encouraged consumption. But the major drawbacks to utilising fossil fuels have become evident, most notably in the build-up of carbon emissions in the Earth's atmosphere.

Existential threat

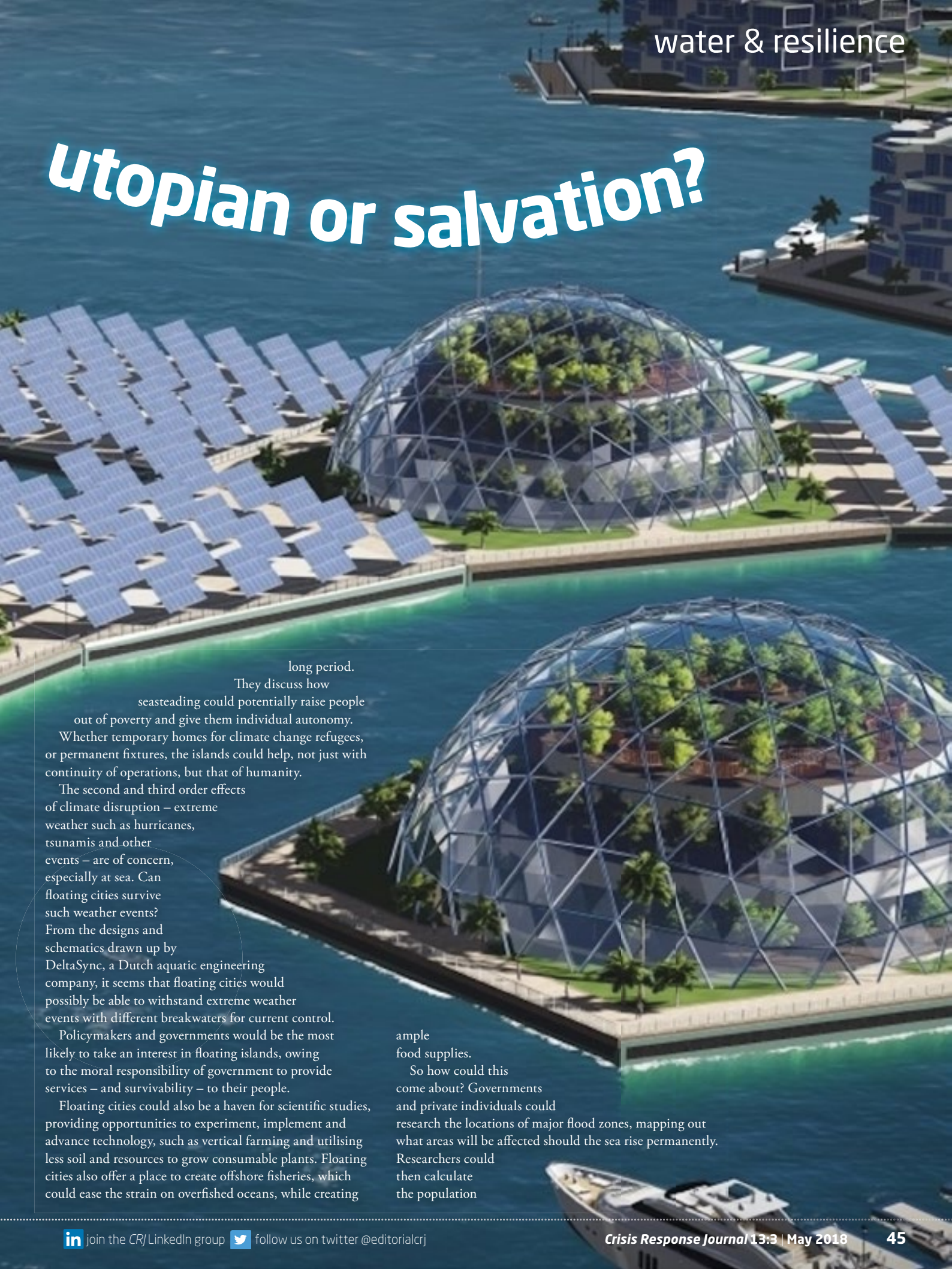
Experts agree that CO_2 emissions have caused the Earth to increase in temperature, with a corresponding increase in statistical outliers. The effects of climate disruption are being seen today. Larger storms, which previously occurred at a rate of one in 100, now happening at a rate of one in every ten storms. However, in the face of existential threat, countries are failing to join together to tackle the issue. Dr Franz Baumann, former Assistant Secretary General and an advisor on environmental and peace issues for the UN, notes: "Everybody, even my home country Germany, has given up on climate goals because it's too hard."

The amount of CO_2 in the atmosphere is so great that even with steps being taken now, many scientists fear the negative outcome will not change and the damage appears to have been done. Perhaps humanity must do what it has always done over the millennia – adapt and survive.

Seasteading – ie relocating populations to floating islands as sea levels rise and natural disasters strike – could be a viable, if radical, solution. With research in engineering and hydrology; preparation and training for both best and worse case scenarios, along with novel social, economic, and political systems addressing this unique form of migration, this concept could potentially sustain large populations, both short and long term.

Seasteading is Joe Quirk and Patri Friedman's 'floating island project'. Quirk is an American author, ecologist and environmentalist, and author of *Seasteading: How Floating Nations Will Restore the Environment, Enrich the Poor, Cure the Sick, and Liberate Humanity from Politicians*. Patri Friedman is grandson of the economist Milton Friedman. Their book explores utilising green technologies already in existence, which could be used to sustain humans over a

utopian or salvation?



long period.

They discuss how seasteading could potentially raise people out of poverty and give them individual autonomy.

Whether temporary homes for climate change refugees, or permanent fixtures, the islands could help, not just with continuity of operations, but that of humanity.

The second and third order effects of climate disruption – extreme weather such as hurricanes, tsunamis and other events – are of concern, especially at sea. Can floating cities survive such weather events? From the designs and schematics drawn up by DeltaSync, a Dutch aquatic engineering company, it seems that floating cities would possibly be able to withstand extreme weather events with different breakwaters for current control.

Policymakers and governments would be the most likely to take an interest in floating islands, owing to the moral responsibility of government to provide services – and survivability – to their people.

Floating cities could also be a haven for scientific studies, providing opportunities to experiment, implement and advance technology, such as vertical farming and utilising less soil and resources to grow consumable plants. Floating cities also offer a place to create offshore fisheries, which could ease the strain on overfished oceans, while creating ample food supplies.

So how could this come about? Governments and private individuals could research the locations of major flood zones, mapping out what areas will be affected should the sea rise permanently. Researchers could then calculate the population

of these areas to estimate living quarters required to house people, the energy to be generated, and the food output and job placement needed.

It would be important to allocate community planning departments and human resources contractors to vet the people and create a system to house them adequately. Community planning would aid in co-ordinating engineers to build the islands, the various living quarters and critical infrastructure.

The human resources organisation or apparatus would also need to conceptualise and plan jobs. Individuals with emergency and safety backgrounds should be sought, as they would be key to co-ordinating the rest of the society, providing leadership and safety. Response can be slow to mobilise in the first 24 hours after a disaster. Organising these systems and having them in place prior to an emergency should make the next stages go more smoothly.

After mapping flood zones and putting logistics in place, floating cities would typically be built in bays, atolls, and reefs because they are easier to assemble and launch in calmer waters. Coastal areas that would face the strongest effects of rising tides and tsunamis would be the ideal exploratory sites.

It is also logical to create and place these floating islands near identified flood zones, so the affected population and staffing elements would have ease of accessibility to the island.

At this point, the engineers and contractors would have begun building the elements necessary for an island's assembly, or the island should be almost at completion stage. Also at this stage, inspections and security planning personnel should have filled the positions of security and emergency leadership.

Training plans should be filed, reviewed and either sent back for refinement, or approved.

Organisers would need to select and conduct drills to simulate a crisis and to test the limits of the island, life support systems, and emergency apparatus. After action reviews should be conducted.

The testing phase should be continuous so as to prepare for a myriad of issues; personnel cannot prepare for all scenarios, but should be given enough training – paired with autonomy to think for themselves – to assess chaos and take appropriate action in the absence of orders.

During a crisis, affected populations would follow the guidance of security personnel. Plans provide some system structure, but complexities are likely to present themselves and need to be dealt with as they arise. It is important to bear in mind that no plan will ever survive the first contact.

Continuous communication and damage assessments would be key to providing a semblance of order. The security elements should be responding and providing guidance as necessary and should be triaging injuries. Families and individual personnel would be allocated lodging and provided access to dining halls. Personnel counts should be compared to population censuses. Security personnel would have to perform search and rescue and, depending on the command system, individuals with occupations relevant to response operations could volunteer.

With regard to recovery, much depends on the disaster and whether anything is recoverable for the refugees. If there is nothing to recover, they might need to be permanently located aboard their seastead. Recovery in emergency management is a continuous process and it is possible that some climate disasters could make it impossible to return to the previous normality. Floating cities are built to last and sustain humans for about a century. If climate change cannot be reversed, then the norm for the next generation of humans on earth could be new nations on mobile islands with blue technology that produces little waste.

In the author's opinion, the seasteading project has shown itself to be bold and innovative, and it has the numbers to make it manifest. It is slowly coming together and offering a glimmer of hope in the dark horizon of climate change. However, there are some questions and concerns that do drive thoughts of what may go wrong. These revolve around cost, resources, ethics, the state of nature and rights.

Only millionaires and governments could afford such property and the ability to maintain it. If one looks at the spreadsheets on the seasteading website, the costs for clean water, electricity and sewage are in the millions.

Furthermore, the concept does little to address how people are going to prosper. In a major climate disaster, the global economy might become fractured; many people would be left with nothing and have very little to trade with. A universal basic income might be the solution.

With this proposal, every citizen would be entitled to a survivable wage or, perhaps, a ration of food. If this were the case, how would one incentivise people to work? Would the new powers in charge do this by limiting or guaranteeing rations?

One must also consider the resource intensive process of seasteading. It is likely that the engineering process would be sold to vendors to speed up the process. Currently, with crowdfunding and small governmental partnerships, it takes two years to build floating island that is big enough to sustain a small city.

Warfare would not cease to exist simply because the world is flooded and humanity is in crisis. Resources would be limited as the seas rise and history has shown us wars are fought over two primary things – religion and resources. It can be assumed that nations, or semblance of nations, would go to war with each other if they did not have – or were to run out of – resources. The complexities in this thought experiment are endless.

Ethical considerations

Turning to ethics, it is generally supposed that seasteading would advance science and technology. But how to guarantee that human rights would be respected, if nations and individuals are autonomous and not signed up to international laws? And how would international legislation be enforced within a fractured system after a major global climate event?

While seasteading is still an experimental concept, it does show promise in that it could be a tool that can be utilised throughout the crisis cycle.

A potential crisis of this nature may be far in the future, but planning now is essential and some of the projections with regard to sea level rises cannot be simplified, there is no quick fix. If governments and private sector influencers want to ensure the survivability of humanity, this concept might be a good investment. It could allow humans to survive and learn from the mistakes of the past and take on a new world, to learn new sciences that are symbiotic with the planet. One day the post generation of humanity might see the tides recede and return to the land. Perhaps the future is not so bleak, it is just a cycle. C-RJ

Author

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