

Resilient Coastal Infrastructure





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The United Nations General Assembly (UNGA) has been at the forefront of global efforts to address the pressing challenges of climate change and its disproportionate impacts on vulnerable coastal communities. This white paper, presented by Resilienture (RESI), outlines our strategic approach to building resilience in coastal regions through innovative, sustainable, and scalable infrastructure projects. Our mission is to ensure that coastal populations, particularly those in Small Island Developing States (SIDS) and other vulnerable regions, can thrive despite the increasing threats posed by climate change and natural disasters.

A healthy ocean is essential for our planet, society, and the global economy. The Ocean covers almost three-quarters of the Earth’s surface. Three billion people rely on the Ocean for their livelihoods¹ and more than 350 million jobs are linked to the Ocean worldwide². Marine fisheries provide 57 million jobs globally and provide the primary source of protein to over half of the population in the least developed countries³.

The impact of climate change, biodiversity loss, and pollution on the Ocean is severe. Global sea levels are rising. Last year surface sea temperature broke previous records⁴ and the Ocean is around 30 per cent more acidic than in pre-industrial times⁵. Each year millions of tonnes of plastic pollution are dumped in the Ocean which, together with overfishing and ecosystem degradation, is putting marine life and the livelihoods of those reliant on it at risk. Despite its importance the Ocean continues to be exploited through overuse.

The World Economic Forum estimates that US\$175 billion of blue finance will be required to achieve SDG 14, ‘Life Below Water’, by 2030⁶. But, of the 17 Goals⁷, Life Below Water has seen the least investment to date. It is estimated that less than two per cent of funding provided by the UN’s Green Climate Fund has gone to projects with ocean-related elements⁸.

Immediate investment of USD\$800 — USD\$850 billion annually is required to address biodiversity loss and safeguard critical infrastructure. The cost of inaction, over the next 5 years, could exceed USD\$10 — USD\$15 trillion, alongside catastrophic environmental and social impacts. Addressing this issue now is essential for ensuring global stability, economic prosperity, and environmental sustainability.

Much greater private sector action is needed to turn the tide on ocean health and conservation. Almost all industries contribute to ocean health decline through stressors including climate change, pollution, land and sea use, and direct exploitation. Achieving lasting and transformative change requires holistic action and greater collaboration between governments, business and financial institutions. Key to this is unlocking private sector finance, including through blended finance, ensuring blue finance can flow to the parts of the ocean economy that most need investment and, in so doing, support an emerging blue economy and encourage greater innovation and impact.

footnotes

① UN

② UN Trade and Development

③ UN

④ Carbon Brief

⑤ European Environment Agency

⑥ World Economic Forum

⑦ UN SDGs



⑧ commonwealth.org

Small Island Developing States (SIDS) are most at risk from rising sea levels and Ocean degradation, which pose an existential threat to their future. In regions as disparate as the Caribbean and the Pacific, the SIDS — which can also be large Ocean states - face a range of challenges, often exacerbated by their unique geographical, economic, and environmental contexts. Here are some of the key challenges:

1. climate change and environmental vulnerability

→ **rising sea levels**

Many SIDS are low-lying and highly susceptible to sea-level rise, which threatens to submerge coastal areas, contaminate freshwater sources, and displace populations.

→ **extreme weather events**

SIDS are prone to hurricanes, cyclones, and typhoons, which are becoming more intense and frequent due to climate change. These events cause widespread damage to infrastructure, homes, and economies.

→ **coral reef degradation:**

Coral reefs, vital for tourism and fishing industries, are being damaged by ocean acidification and warming, leading to biodiversity loss and economic decline.

2. economic vulnerabilities

→ **dependence on limited industries:**

Many SIDS rely heavily on a few sectors, such as tourism, agriculture, and fisheries. This lack of diversification makes their economies highly vulnerable to external shocks, such as natural disasters or global economic downturns.

→ **health challenges:**

The limited size of domestic markets in SIDS hampers economies of scale, making it difficult to produce goods and services competitively.

→ **high debt levels:**

Many SIDS face high levels of public debt, often due to the costs of rebuilding after natural disasters or financing development projects. This limits their fiscal space and ability to invest in resilience and development.

→ **sustainable tourism:**

While tourism is a key economic driver, it also poses environmental challenges.

3. limited natural resources

→ **water scarcity:**

Freshwater resources are often limited, with many SIDS relying on rainfall or desalination, making them vulnerable to droughts and water contamination.

→ **agricultural constraints:**

The small land area and poor soil quality in many SIDS restrict agricultural production, leading to a heavy reliance on food imports and vulnerability to food price fluctuations.

4. social and demographic issues

→ **population pressures:**

High population density in some SIDS leads to overcrowding, strain on resources, and increased waste management challenges.

→ **health challenges:**

Limited healthcare infrastructure and resources make it difficult to address both chronic diseases and emerging health threats, such as pandemics.

→ **migration and brain drain:**

Many skilled workers migrate in search of better opportunities, leading to a brain drain that weakens local capacities in critical sectors like healthcare, education, and governance.

5. geopolitical and strategic issues

→ **isolation and remoteness**

The geographic isolation of many SIDS results in high transportation and communication costs, making trade and connectivity with global partners difficult.

→ **dependency on aid:**

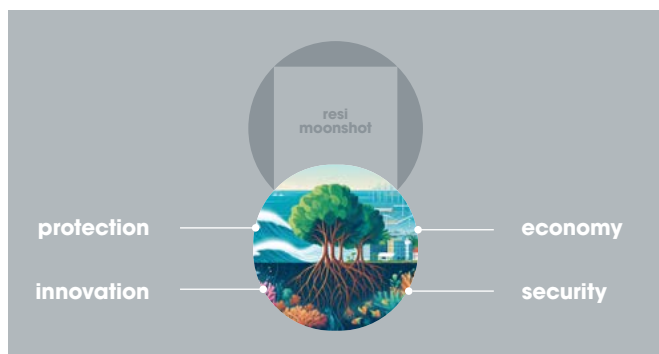
Many SIDS rely on international aid for development and disaster recovery, which can create dependencies.

→ **political influence:**

SIDS often have limited influence in international forums, despite being disproportionately affected by global issues such as climate change.

→ **security vulnerabilities:**

Small size and limited resources make SIDS vulnerable to issues such as illegal fishing, trafficking, and maritime security challenges.



Addressing these challenges requires a combination of local initiatives and international support, with a focus on sustainable development, resilience-building, and climate adaptation. International cooperation and innovative approaches are essential to ensure a sustainable future for SIDS.

And this is where the moonshot comes in.

Against the backdrop of some of the seemingly insurmountable challenges, how do we respond? By putting our heads in the sand? Or by putting our heads together and taking action, driven by purpose and entrepreneurialism.

florian kemmerich

Last year, Florian's family in Acapulco experienced the full force of Hurricane Otis, a Category 5 storm that intensified from a tropical storm in just 12 hours, catching over a million people off guard. This event underscored for Florian the urgent need to enhance our resilience against such sudden and devastating natural disasters. It's clear that we cannot rely solely on governments and businesses to act; each of us must embrace a resilience mindset and actively contribute to creating stronger, safer communities.

ramon "quique" riancho

Hailing from Puerto Rico, the urgency of climate change is not lost on Quique, as he witnessed firsthand the devastation of Puerto Rico in the aftermath of hurricane Maria, which left 3,000+ dead in its path and accounted for over US\$90 billion in damages, the third costliest in US history. Quique wanted to help the island recover economically. He knew there was a need for better infrastructure and sustainable development. After six months without electricity, he dreamed of new projects. He hoped these projects would be seen differently, with a focus on resilience.

rishi bhattacharya

And it stemmed from a third co-founder Rishi Bhattacharya, who was increasingly involved in the regenerative and sustainable blue economy space who, years before, was seeking to develop a blue green fund to protect and preserve mangroves.

This is how Resilienture was born, underneath the alignment of the stars.



Resilienture envisions a world where humanity can thrive in the face of climate change. Our mission is to protect coastal communities by designing and financing resilient infrastructure projects that safeguard ecosystems and promote sustainable development. We focus on integrating nature-based solutions (NbS) with cutting-edge engineering to enhance coastal resilience, ensuring long-term sustainability and community empowerment.

A key differentiator of Resilienture’s approach is our ability to bring together large, private-sector expert partners to tackle the complex challenges of coastal resilience. These partnerships are instrumental in scaling our impact and ensuring the technical excellence and financial viability of our projects. Our partners include leaders in infrastructure engineering, financial services, environmental science, and technology, each contributing unique expertise to our initiatives.

Our methodology is Reshore³⁶⁰. The Resilient Shores Infrastructure Project (RESHORE) is a flagship initiative under Resilienture, aimed at safeguarding at-risk populations in island and coastal regions globally. RESHORE proposes a multi-layered defense strategy that includes:

The RESHORE initiative is supported by the Reshore³⁶⁰ Institute, a dedicated not-for-profit entity created to mobilize and deploy grants, technical assistance (TA), and catalytic capital. The Reshore³⁶⁰ Institute serves as the engine for the RESHORE initiative’s public-sector and philanthropic funding strategies.



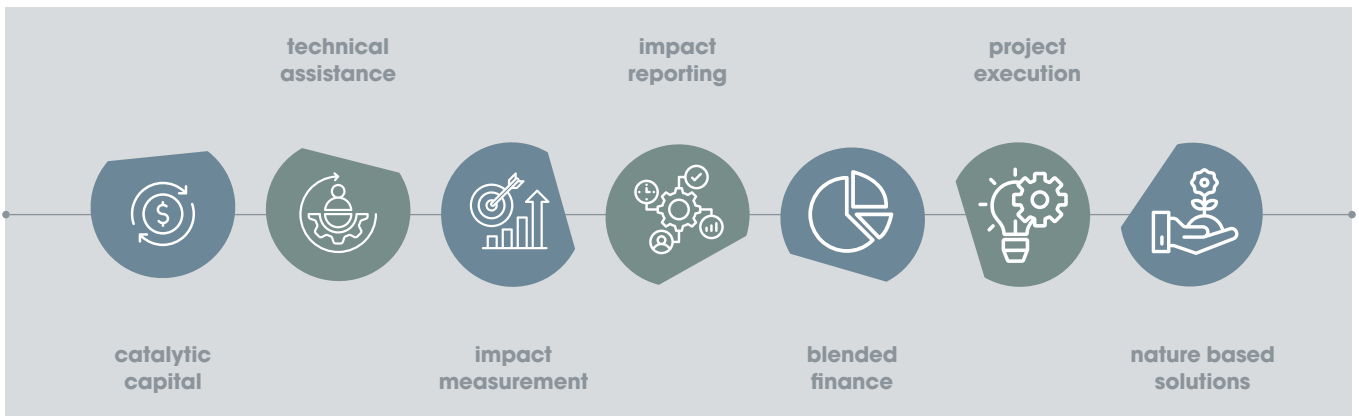
project management & ideation
We collaborate with stakeholders to conceptualize and plan sustainable solutions for coastal protection and resilience.



project deployment
We implement innovative and nature-based solutions to protect shorelines while advocating for and pursuing sustainable economic growth.



project execution
We ensure the practical realization of projects, integrating sustainable housing, energy, food security, and clean water solutions to support coastal communities.



livelihood at the coast is at-risk due to climate change & disasters



→ Livelihoods in coastal populations are historically threatened by natural disasters and climate change, leading to significant damages and deaths.



→ Increasing need for coastal populations to access fresh water, pursue economic activities, and enhance food diversity, especially in tourism-dependent economies.



→ Most community-based organizations, governments, and private entities in these regions lack the capacity to implement scalable and sustainable shoreline protection solutions.

Addressing these challenges requires a unique skillset, private-sector led cutting-edge solutions, and a new holistic approach that provides access to innovative designs, long-term capital, and technical assistance.

We must focus on safeguarding at-risk populations, particularly in vulnerable island and coastal regions world-wide. This can be achieved by deploying Nature-based Solutions (NbS) designed to provide both immediate and sustainable impact.



1st line of defense: coral reefs

Advanced, eco-friendly reefs to protect shorelines.

2nd line of defense: mangroves

Mangroves reduce storm surge, erosion, and enhance habitats and carbon sequestration.

3rd line of defense: dunes

Sand dunes to shield shores from flooding and erosion.

4th line of defense: dikes and levees

Dikes and levees for flood protection and shoreline enhancement.

5th line of defense: coastal forest

Coastal forests to stabilize soil, reduce wind damage, and support biodiversity.

in the years to come

The United Nations General Assembly has the unique ability to mobilize global support for initiatives that protect our most vulnerable populations. We urge UNGA to endorse and support Resilienture's RESHORE initiative and the Reshore³⁶⁰ Institute as a model for global coastal resilience. By investing in innovative solutions and fostering public-private partnerships, we can build a more sustainable and resilient future for coastal communities worldwide.

Resilienture is committed to leading the charge in building resilience in coastal communities. Through strategic investments, innovative financing, and collaborative partnerships, we can protect at-risk populations and promote sustainable development in the face of climate change. We invite UNGA to join us in this critical endeavor, ensuring that coastal regions not only survive but thrive in the years to come.

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