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INNOVATIVE FINANCE FOR RESILIENT COASTS AND COMMUNITIES

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This paper was written by Andrew Deutz at The Nature Conservancy (TNC), Jan Kellett and Tenke Zoltani at the United Nations Development Programme (UNDP).


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Coastal zones are critical to life and livelihoods, people and planet.

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INTRODUCTION

Coastal Zones, Resilience and Development

Coastal zones are critical to life and livelihoods, people and planet. They are conduits to trade, to communications, they provide resources and livelihoods, they are often centers of economic growth. Critical coastal ecosystems underpin a number of key economic sectors, including tourism, fisheries, mineral extraction, oil and construction. The ocean-economy, covering broad categories of employment and ecosystem services is estimated at between USD 3-6 trillion a year.¹ And these areas are, of course, centers of population; already, half of the world's population lives within 60 kilometers of a coast,² and more than 600 million people (10% of the world's population) live in coastal areas that are less than 10 meters above sea level.³

These critical zones are under intense threat. Our changing climate is making sea levels rise and flooding more frequent, with storms intensifying in severity, while water-tables are increasingly tainted by sea-water intrusion and coastal waters are increasing in temperature and acidity. This is having a significant impact on coastal lives and livelihoods, undermining fishing, tourism, biodiversity and much more.

These increasing climate effects and their corresponding consequences for countries, communities and households (especially the most vulnerable), necessitates a new level of understanding of risk and awareness about resilience.⁴ The World Bank recently identified for example the impact of extreme disasters as equivalent to a global USD 520b loss in annual consumption, forcing some 26 million people into poverty each year.⁵

¹ <https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Ocean-fact-sheet-package.pdf>

² http://staging.unep.org/urban_environment/issues/coastal_zones.asp

³ <https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Ocean-fact-sheet-package.pdf>

⁴ "Resilience" is often defined as the ability to adapt to changing conditions and withstand - and rapidly recover from - disruption due to emergencies. In other words, it means bouncing back after something bad happens. This ability to overcome, or bounce back, is a concept that applies to individuals, to communities large and small, to our infrastructure, and to the environment. As applied to coastal areas in particular, see: <https://oceanservice.noaa.gov/ecosystems/resilience>.

⁵ <http://www.worldbank.org/en/news/press-release/2016/11/14/natural-disasters-force-26-million-people-into-poverty-and-cost-520bn-in-losses-every-year-new-world-bank-analysis-finds>

But government coffers have not kept pace with the growth in need in both reducing the risk and building resilience. Public budgets are limited in ability to finance post-disaster cleanup or rebuilding, and important ex-ante measures to build the resilience measures that could help prevent the scale of destruction are all but missing. Fortunately, as the World Bank report points out, the benefits of resilience-building interventions in the countries studied (including insurance policies), would help countries and communities save USD 100b a year and reduce the overall impact of disasters on well-being by 20 percent.

Under Canada's leadership this year, G7 members have taken important steps to address the issue of innovative finance for coastal resilience by adopting the Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities.⁶ The Charlevoix Blueprint specifically encourages the development of coastal management strategies that "integrate investments in natural and physical infrastructure, reduce risk, transfer risk and prepare for recovery, with a strong focus on not only countries but communities." It further encourages governments to mobilize greater support for increasing financial resources available to build coastal resilience, particularly in developing

countries, and to explore new and innovative financing with national and international public and private sector partners.

This paper considers how new and scaled up investments in coastal areas can build the resilience of countries and communities, combating the threat of climate change and its impact, reducing the threat of hazards, increasing coping capacity and reducing vulnerability. It examines some of the most innovative approaches to the mobilization of private capital for coastal resilience - particularly in SIDS (Small Island Developing States) - namely: insurance for natural capital, regional risk pools, bond structures and debt restructuring. None of these mechanisms are yet operating at scale. This paper draws on the discussions from a Roundtable convened at the Canadian Mission to the UN, drawing together public and private sector experts on innovative finance, climate risk insurance, and coastal resilience to present a set of recommendations for the G7 Environment Ministers to bring these innovations to scale.⁷



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⁶ <https://g7.gc.ca/en/official-documents/charlevoix-blueprint-healthy-oceans-seas-resilient-coastal-communities/>

⁷ Note that the recommendations presented are not meant to be comprehensive; they are a set of innovations in coastal financing that are seen to have the most potential to increase in size and widen their geographic reach. Other financial mechanisms for coastal resilience that we have not included in this paper in depth include blended finance, regional trust funds, carbon and resilience offsets. These all see various degrees of scale and success to date, while further work is needed to establish the best metrics to measure coastal resiliency and impact.

Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities

Support innovative financing for coastal resilience: Mobilize greater support for increasing financial resources available to build coastal resilience, particularly in developing countries, and exploring new and innovative financing with national and international public and private sector partners. To explore these innovative financing approaches and tools, we will build on existing platforms for governments, industry, philanthropists and institutional investors. We will explore broadening disaster risk insurance coverage, including through global and regional facilities, such as the InsuResilience Global Partnership, to extend high

quality insurance coverage to vulnerable developing countries and beneficiaries in need and to encourage new types of insurance products for emerging risks. We welcome research, monitoring and gender analysis to increase both the range of insurance products and women's access to financial resources for disaster risk management and recovery.

(Please see this link for the full text of the Charlevoix Blueprint for Oceans, Seas and Coastal Communities: <https://g7.gc.ca/en/official-documents/charlevoix-blueprint-healthy-oceans-seas-resilient-coastal-communities/>)

SUMMARY OF KEY FINANCING MECHANISMS EXPLORED

INNOVATION	PROBLEM ADDRESSED	KEY STAKEHOLDERS	POTENTIAL SCALABILITY
Nature-based insurance	Provides immediate funding for post-storm restoration of the protective functions of coral reefs.	Local governments, local private sector, insurance companies.	Based on Mexico pilot, scalable to at least 10 countries providing coverage protecting millions of people and billions of dollars in built assets; scalable to other forms of natural capital beyond coral reefs.
Regional Risk Pools for SIDS and vulnerable coastal states	Reduces the insurance premium costs for sovereign risk insurance against catastrophes.	SIDS governments, multilateral agencies, insurance industry.	Expand the number of countries: currently cover 18 out of 37 SIDS. Expand the model of "Contingency Plans" to facilitate disaster recovery and risk reduction in the case of exceptional risks. Develop more sector-specific products, esp. for fisheries and utilities.
Green / Blue Bonds	Provides up-front capital for investment in coastal resilience, contingent on some cash flow to repay private investors.	Large and small project developers, large and small financial institutions and insurance companies, backstopping governments and donors.	Green bond issuances have reached a USD 156b in 2017 but very little use of proceeds tied to coastal resilience. Blue bonds and resilience bonds are still nascent. Opportunity for growth by: having a clear use of proceeds agreed from development finance institutions for blended finance for coastal resilience; development of pay-for-performance impact bond structures linked to disaster insurance.
Resilience Bonds	Provides an investible debt instrument for resilience, offsetting municipal or national budget shortfalls.	Local governments (municipalities), private sector (infrastructure investors).	Scalability is significant but tied to local circumstances: these target infrastructure shortfalls in a given geography that lack public funding but provide resilience for the community against disasters (i.e. a seawall) and whose cost savings accrued (from less damage due to the building of the infrastructure) can be modelled before investment.
Debt Restructuring	Provides annual cash flow through a trust fund mechanism for investments in coastal resilience, and provides additional fiscal space for indebted countries.	National governments (mainly SIDS), public and/or private lenders, local stakeholders.	Scalable from a USD 22m innovation in the Seychelles to, potentially, approx. USD 2b in restructurable debt across perhaps a dozen SIDS, and then billions more for developing coastal states. Seychelles experience also shows the potential to link debt restructuring, sovereign bonds, and trust funds.



Under Canada's leadership this year, the G7 members have taken important steps to address the issue of innovative finance for coastal resilience.



INSURING NATURAL CAPITAL

Protecting that which Protects



Research has shown that natural systems such as mangroves, reefs, floodplains and saltwater marshes are not only critical to national and local economies and livelihoods, but can also buffer coastlines, absorb wave energy, reduce erosion and help make coastal communities more resilient. As the insurance, development and conservation sectors move closer together, natural capital has become the new frontier for insurance and development, with insurance products created to protect natural capital. Some 63 million people depend on reefs for coastline protection—those living less than 10m above sea level and 3km from a coral reef.⁸ For these vulnerable coastal communities, coral reefs are literally the first line of defense in a major storm; healthy reefs reduce up to 97% of incoming wave energy.⁹ Reef restoration and maintenance has been shown to often be cost-effective relative to other coastal protection infrastructure. In one analysis, the median project cost of building tropical breakwaters was 15 times greater per meter than restoration of coral reefs.¹⁰ Coral reefs can be damaged by storm events, and losing the top one meter of a healthy reef can double onshore financial losses from major storms. Fortunately, the reefs can also generally be restored relatively quickly after a storm event through active restoration measures. This creates a structural opportunity to deploy insurance mechanisms - particularly parametric insurance¹¹ - to provide immediate cash for restoration activities following a damaging event. The critical enabling factors are to have a willing payer for the insurance – either a public entity seeking to protect vulnerable communities or private entities seeking to protect physical assets as well as the legal authority for some entity to purchase the insurance and then manage the post-event restoration activities.

⁸ https://www.iaea.org/ocean-acidification/act3/Hoegh-Guldberg,%20Pendleton%20&%20Kaup_2017.pdf

⁹ Ferrario, F., Beck, M. W., Storlazzi, C. D., Micheli, F., Shepard, C. C., & Airolidi, L. (2014). The effectiveness of coral reefs for coastal hazard risk reduction and adaptation. *Nature Communications*, 5(May), 1-9. <http://doi.org/10.1038/ncomms4794>

¹⁰ Ferrario, F., Beck, M. W., Storlazzi, C. D., Micheli, F., Shepard, C. C., & Airolidi, L. (2014). The effectiveness of coral reefs for coastal hazard risk reduction and adaptation. *Nature Communications*, 5(May), 1-9. <http://doi.org/10.1038/ncomms4794>

¹¹ Parametric insurance is insurance that pays out a pre-defined sum of money in the case of a pre-defined triggering event or condition, rather than requiring the formal assessment of actual losses involved. In coastal resilience cases, it may be triggered by agreed wind speed or barometric pressure thresholds. It can pay out in a matter of days, which is often critical for immediate post-disaster recovery efforts.

Global Partnerships on Insurance and Development: InsuResilience Global Partnership

The InsuResilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions was launched at the 2017 UN Climate Conference in Bonn. Since its launch, more than 40 members have joined the Partnership. The Partnership aims to strengthen the resilience of developing countries and protect the lives and livelihoods of poor and vulnerable people against the impacts of disasters.

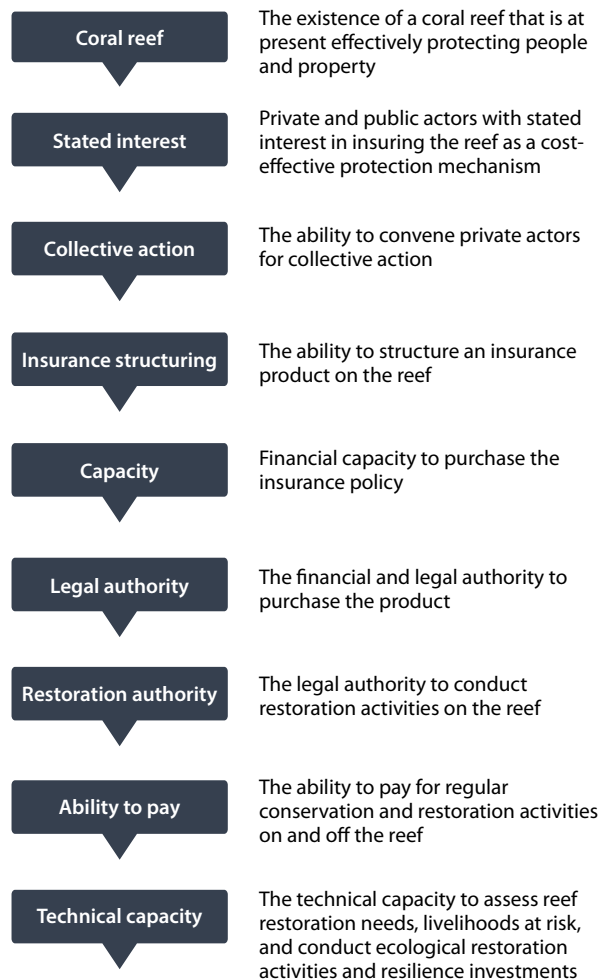
The central objective of the Partnership is to enable more timely and reliable post-disaster response and to better prepare for climate and disaster risk through the use of climate and disaster-risk finance and insurance solutions, reducing humanitarian impacts, helping poor and vulnerable people recover more quickly, increasing local adaptive capacity and strengthening local resilience. This complements ongoing efforts in countries to avert, minimize and address climate and disaster risks.

Insurance Development Forum (IDF)

The IDF is a public/private partnership chaired by the insurance industry and co-chaired by UNDP and the World Bank. The IDF was first announced at the United Nations Conference of the Parties (COP21) Paris Climate summit in 2015 and was officially launched in 2016.

The IDF aims to optimise and extend the use of insurance and its related risk management capabilities, to build greater resilience and protection for people, communities, businesses, and public institutions that are vulnerable to disasters and the associated economic shocks. Through its working groups that draw in more than 200 experts from across public and private sectors, it focuses its work in four key areas: tackling global resilience, addressing the protection gap, advocacy on the role of insurance for development, and issues of innovation, coordination and collaboration across stakeholders.

The first example of this kind of insurance approach to protecting natural assets is underway in the Mexican state of Quintana Roo, along a 60km stretch of coastline in the Cancun and Puerto Morelos region. The coral reef there protects potentially hundreds of thousands of people and billions of dollars in built infrastructure supporting a robust tourism economy in and around Cancun. A coalition including the Governor of the state of Quintana Roo, the Cancun Hotel Owners Association and The Nature Conservancy have come together to solve the legal, technical and financial issues involved which will make the purchase of a parametric coral reef insurance policy possible. The elements of the institutional and financial arrangements supporting this financing innovation are summarized in the figure below.



The approach has significant potential for addressing this critical issue across a set of vulnerable coastlines. UNDP and The Nature Conservancy are working in partnership to take it to scale and have identified a first ten countries where the ecological and economic conditions appear to exist to create self-sustaining markets for nature-based insurance products. The analysis indicates that reef insurance markets may be feasible right now in Indonesia, Philippines, Malaysia, the United States (Hawaii and Puerto Rico), The Bahamas, Mauritius, Taiwan, Vietnam, Saudi Arabia, Dominican Republic, Puerto Rico, UAE, Fiji, Belize, Myanmar, Thailand, Vanuatu, Trinidad & Tobago, Guatemala and Costa Rica. By expanding the geographic scope to ten of the most suitable countries, this coral reef insurance approach has the potential to cover more than 500 kilometers of critically-at-risk coastline, protecting the lives, livelihoods and economic assets millions of people and tens of billions of dollars in construction infrastructure investment. The partnership is also actively examining the potential for other natural capital assets that can be insured, such as coastal marshes and mangroves.

Importantly, there is a specific target of gender outcomes as an impact of this initiative. Today, there is limited research that specifically explores gender dynamics of insurance and risk reduction, and this joint reef programming will attempt to distil the intricacies of these relationships. The available empirical research has found that insurance is indeed a strong enabler of risk reduction as pertaining to women. For example, Oxfam and WFP's HARITA programme found that female-headed households (which were among the poorest evaluated) reported particularly significant impacts when insurance mechanisms were introduced, including some of the greatest productivity gains, increases in agricultural investments and decrease in renting land to tenants for 50% of yield (practiced due to lack of capacity to farm their own land).¹² Evidence is further being built, including through the projects described here, improving the understanding of women as key players

Next steps to scale: The immediate priority is to identify the short list of countries where this mechanism is relevant and appropriate, which will be undertaken through a scientific and livelihoods analysis, assessing reef health and assets (and livelihoods) at risk on shore. A coalition of supporting private and public actors is also being assembled to address the various parts of the mechanism's value chain - risk modelling, impact measurements, financial planning, and capacity building. Financing is now being sought to undertake the shortlisting and to begin the first critical part of the work.

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