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INNOVATIVE FINANCE FOR RESILIENT COASTS AND COMMUNITIES

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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.

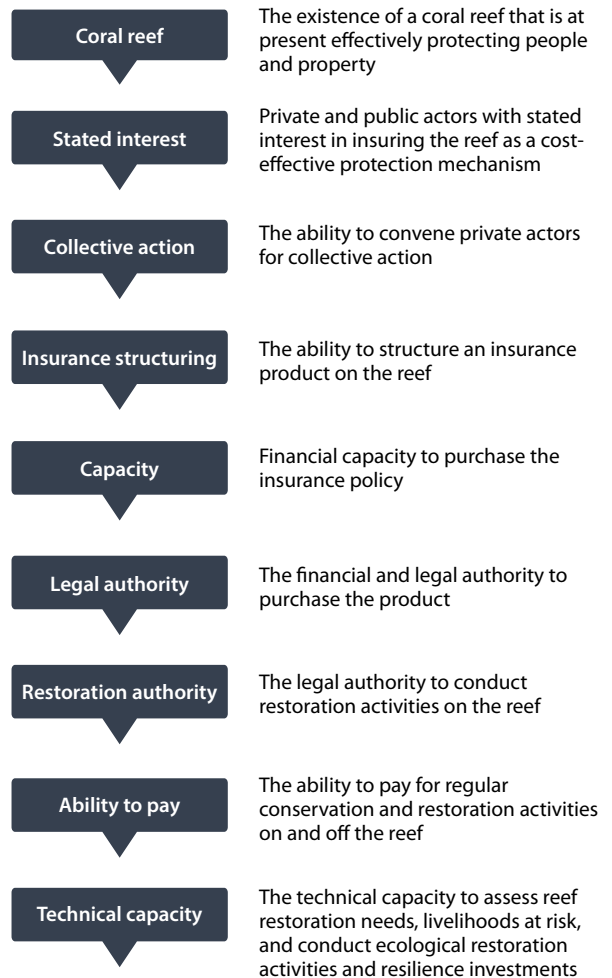
The central objective of the Partnership is to enable more timely and reliable post-disaster response and to better prepare for climate and disaster risk through the use of climate and disaster-risk finance and insurance solutions, reducing humanitarian impacts, helping poor and vulnerable people recover 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 in maximizing the risk reduction outcomes of insurance. However, without specific gender targeting, there is a risk that insurance schemes could shift the balance of decision-making power and resources towards the male head of household. This is likely given that insurance policies tend to be taken out in a single individual's name (with costs for adding additional people), and that some insurance schemes require land ownership or bank accounts, which women disproportionately lack access to.¹³

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.



¹² https://www.unisdr.org/files/globalplatform/591d4f658e046Risk_transfer_and_insurance_for_disaster_risk_management_evidence_and_lessons_learned.pdf

¹³ https://www.unisdr.org/files/globalplatform/591d4f658e046Risk_transfer_and_insurance_for_disaster_risk_management_evidence_and_lessons_learned.pdf



REGIONAL RISK POOLS: Sharing Risk Across Countries

Small Island Developing States are particularly vulnerable to the risks of climate change as well as disasters. The World Bank has estimated that that exposure costs Pacific SIDS an average of up to 6.6% of gross domestic product (GDP) every year, totaling some combined disaster damages of more than USD 280m every year.¹⁴ Insurance can help increase the resilience of these countries, by transferring some of the risks and providing financial resources when disaster strikes. To address this opportunity efficiently, regional risk pools have emerged to support SIDS in the Caribbean and the Pacific. The basic idea of a risk-pooling mechanism is that it allows participating countries to purchase catastrophe coverage as a group at significantly lower cost than the cost of independently purchasing insurance. The World Bank has estimated that risk-pooling mechanisms have resulted in a 50% reduction in premia for SIDS when compared to a country-specific approach.¹⁵

The first such regional risk pool, the Caribbean Catastrophe Risk Insurance Facility (CRRIF) was established in 2007 for the Caribbean, and eventually expanded to Central American states in 2015. It is a multi-donor-backed facility, hosted by the World Bank, which provides parametric insurance to cover earthquake, hurricane and extreme rainfall events to Caribbean

governments. It was capitalized through contributions to a Multi-Donor Trust Fund as well as through membership fees paid by participating governments, and is supported by a range of private sector partners. Since the inception of CCRIF in 2007, the facility has made 36 payouts to 13 member governments on their tropical cyclone, earthquake and excess rainfall policies totaling USD 130.5m. Of that total, USD 60m in payments were just for Hurricanes Irma and Maria in 2017.¹⁶

A key feature of the CCRIF is that, like the coral reef insurance pilot in Mexico, it relies on parametric insurance policies and thus pays out immediately, without the need to assess physical damage or financial loss. These types of policies thus can provide immediate liquidity to governments within a few days of a disaster event to help pay for initial disaster response and maintenance of basic government functions until larger disaster assistance funds can be secured. In the case of Hurricanes Irma and Maria in 2017, the CRRIF was often the first source of external finance for impacted countries.¹⁷

¹⁴ <http://www.worldbank.org/en/results/2014/06/04/strengthening-financial-resilience-pacific>

¹⁵ <http://www.worldbank.org/en/results/2014/06/04/strengthening-financial-resilience-pacific>

¹⁶ <https://www.ccrif.org/content/about-us>

¹⁷ The CRRIF is also exploring ways that the payouts it makes to governments could be transferred directly to affected individuals via mobile banking apps.

Small Island Developing States are particularly vulnerable to the risks of climate change as well as disasters.



A similar function, but with a different institutional structure, exists for Pacific SIDS, the Pacific Catastrophe Risk Assessment and Finance Initiative (PCRAFI). On the technical assistance side, PCRAFI is providing 15 countries in the region with disaster risk assessment tools to help them better understand, model and assess their exposure. On the financial side, it has established the Pacific Catastrophe Risk Insurance Company to provide climate and disaster risk insurance to member countries, offering parametric products similar to the CCRIF.¹⁸ The African Union has established the African Risk Capacity (ARC) to help member states improve their capacities to better plan, prepare and respond to extreme weather events and natural disasters. The ARC focused on drought and food security but has a key innovation relevant to coastal communities: when countries purchase disaster risk insurance, they have to present a contingency plan worked out ahead of time with local communities which explains in detail how the pay-out will be spent in order to immediately benefit affected communities. Thus, the insurance product encourages a structured dialogue with the government on disaster risk recovery, which in turn facilitates government planning around disaster risk management and avoidance, key institutional features of resilience.

Next steps to scale: These regional risk pools offer a suite of key innovations: risk pooling to reduce the costs of insurance premiums, the use of parametric policies to facilitate immediate cash payouts, and contingency planning to ensure that governments have a plan to disburse funds to impacted communities and incentivize risk reduction ahead of time. Currently, 18 countries participate in the Caribbean and Pacific risk pools, and there is potential for much greater uptake by SIDS and other vulnerable coastal countries. Historically though, the funds have not been used for resilience building; one key next step to explore is to incentivise investments

through loan mechanisms or resilience bond structures to improve infrastructure by disaster proofing what exists, and building resilient infrastructure where there is need. Through such a mechanism additional opportunities to expand the product range of the risk pools is possible across sectors, especially utilities such as the power grid and water and wastewater treatment. Additionally, the use of formal contingency planning dialogues should be mainstreamed across all of the facilities and their client governments. Lastly, the CCRIF is expanding its toolbox to include insurance specifically focused on the fisheries sector, with incentives to improve its sustainability and resilience.

Insurance industry stakeholders have an important role in bringing a women-oriented focus to inclusive insurance, but need guidance, particularly in emerging markets, on how to design these policies and what to measure. Indeed, key findings of an IFC report¹⁹ recommended the provision of technical support to collect and analyze inclusive insurance sex-disaggregated data on both the supply and demand side, engaging in addressing legal and policy constraints which indirectly place constraints on women related to their access to and usage of insurance, and establishing a “good practice coalition” among development cooperation agencies, insurance supervisors and policymakers, the insurance industry and others.²⁰ In the case of sex-disaggregated data for damages and losses, it is recommended to not only focus on losses of productive resources, which tend to be owned by men, but also losses encountered by the informal sector, where women play large roles and are often unaccounted for.

¹⁸ The current member countries include Cook Islands, Marshall Islands, Samoa, Tonga and Vanuatu.

¹⁹ GIZ, IFC, Women's World Banking, “Mainstreaming Gender and Targeting Women in Inclusive Insurance: Perspective and Emerging Lessons” https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/gender+at+ifc/resources/women-in-inclusive-insurance

²⁰ See for example: Gendered vulnerabilities of smallholder farmers to climate change in conflict-prone areas: A case study from Mindanao, Philippines <https://www.sciencedirect.com/science/article/pii/S0743016716307392>





DEBT AND DEBT-LIKE INSTRUMENT: Accessing Capital Markets

There are several different debt instruments that can be used to support investment in coastal resilience as well as insurance. “Green bonds” were first issued a decade ago to fund projects that have positive environmental and climate benefits. Green bond issuance has taken off in the last few years, growing from USD 11b in 2013 to over USD 150b in 2017, with most of the recent growth driven by the Chinese market. Specific environmental performance standards are still under development, so it is difficult to generalize what the environmental impact of these bonds has been. Nevertheless, there is a growing appetite for “green bonds” among institutional investors and the beginnings of differentiation of market niches.²¹

“Blue bonds” have now also started to appear in the marketplace. These are impact bonds where the proceeds are used to invest in ocean and coastal projects. For example, the government of Seychelles issued a “blue bond” in 2017 with support from the World Bank and Global Environment Facility to help finance investments in its fisheries sector as part of a comprehensive oceans governance strategy.

²¹ The taxonomy for identifying these mechanisms and then evaluating the sustainability claims of the financial products is fragmented. However, these broadly fall under the outcomes-based financing taxonomy, which includes pay for performance or pay for results, social and development impact bonds, and other innovative finance mechanisms linking the achievement of non-financial impacts with a financial instrument that provides recurring payments in a loan-type of vehicle.

“Resilience bonds” are, in effect, a variant of catastrophe bonds, designed to help manage the financial risk from catastrophes, while simultaneously promoting investment in infrastructure that mitigates physical risk. Proceeds from resilience bonds are invested in projects that reduce risk. In theory, these risk reduction efforts could lower the risk exposure for insurance rate payers, resulting in cost savings through lower insurance premiums. A proportion of that savings would then be captured to repay the bonds. As cities or utilities invest in protective infrastructure, like seawalls or flood barriers (or in reef enhancements), they could capture savings from the reduction in vulnerability by paying a lower risk premium to investors.

Gender has been a newfound focus of green bonds. For example, the World Bank issued a Sustainable Development Bond this year to raise awareness for how empowering women and girls is one of the most effective ways to accelerate economic development, reduce poverty and build sustainable societies around the world—primarily from Canadian investors. This follows on a 2013 issuance by the IFC of USD 165m in “women’s bonds” specifically aimed at raising money for businesses owned or run by women in emerging markets.²²

The green bond market is growing substantially though this market still accounts for a very small percentage of the overall bond market, and most of the proceeds to date have been invested in renewable energy and energy efficiency projects. Only a small percentage of the green bond funds have gone into resilience investments, and only a small percentage of those into coastal resilience projects. The same is true of impact bonds. While catastrophe bonds are fairly mainstream, at least in the US, blue bonds and resilience bonds are still quite nascent. There is, nevertheless, significant potential for growth in each of these areas, subject to a great deal of experimentation and innovation to find suitable investment deal structures that both enhance resilience of coastal communities and generate a return for investors.



Empowering women and girls is one of the most effective ways to accelerate economic development.

²² <http://www.worldbank.org/en/news/press-release/2018/01/09/world-bank-sustainable-development-bond-raises-awareness-for-women-and-girls-empowerment>

Next steps to scale: There is a need to mobilise support to explore tailoring the results-based payment structures for coastal resilience, tying outcomes to payback of investment, and being gender-smart. Innovative use of proceeds for the green (or blue) bond market should be further explored through sharing standards or best practices. Part of this means investing in data and accountability: being able to measurably show impacts and outcomes tied to specific metrics. Metrics are missing in coastal resilience investments and limited in conservation finance to date. A small consortia of insurance companies, banks and others could explore the potential for developing these kinds of hybrid pay-for-performance/bond/insurance structures.

In a coastal setting, enhancing the adaptive capacities of coastal communities, with a measurable focus on women, can lead to significant improvements to cope with climate change and vulnerability. For example, in Bangladesh's coastal districts that frequently experience cyclones and tidal flooding and experience severe drinking water scarcity due to salinity, UNDP is engaging women as change agents to plan, implement, and manage resilient livelihoods and drinking water solutions. The project promotes a paradigm shift away from a focus on short-term responses and technology-led interventions towards community-centric solutions that build ownership and capacities across multiple stakeholders by empowering women as community leaders, to sustain and scale-up adaptive responses to safeguard livelihoods and water security.²³

²³ <http://adaptation-undp.org/projects/enhancing-women-and-girls-adaptive-capacity-climate-change-bangladesh>

At a glance: UNDP and Results-Based Financing Instruments

Results-based instruments are becoming increasingly important as a useful addition to innovative ways of tackling crisis and delivering development. Being deliberate and accountable for our development outcomes based on specific interventions is a key underpinning of the new Strategic Plan for UNDP. UNDP has a growing footprint in the Results Based Approach space, with experience across nine impact bonds and a growing portfolio of results-based engagements, Challenge Funds, and an increasing focus on resilience (today considering resilience bond structures) based on member states' needs.

Social Impact Bonds: nine in the pipeline, including:

- Rhino Impact Investment Project (multi-country in Africa): execution phase
- Youth Employment in Serbia: preparatory phase (outcome-based budgeting of the government and other results-based financing such as output-based aid)
- Health Financing Pilot in Rwanda: preparatory phase
- Road Safety in Montenegro: preparatory phase
- Transitioning from Tobacco Cultivation (multi-country in Africa): proposal for preparatory phase
- Blue Finance in Grenada: proposal for preparation
- Haitian Cholera Outcomes Fund: under consideration
- Social Impact Bonds formulation in Armenia (education, agriculture): under consideration.

Challenge funds: Malawi Innovation Challenge Fund: performance-based grants to the private sector.

Result Based Finance: Central American Markets for Biodiversity (CAMBio), and a twin energy project: Accelerating Renewable Energy Investments (ARENA) in Central America.



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There is a need to mobilise support to explore tailoring the results-based payment structures for coastal resilience



DEBT RESTRUCTURING:

Turning a Challenge into Coastal Resilience

Debt-for-nature swaps are financial transactions where a portion of a developing country's foreign debt is forgiven in exchange for significant investments in conservation. While explicitly linked to date to preserving habitats or fragile ecosystems, the evolution of these instruments are to tie more clearly to resilience improvements as protecting shorelines, natural storm barriers, mangroves and reefs are innately tied to on-shore protection of communities.

In a debt-for-nature swap, a non-governmental entity (an NGO or private entity) acts as the funder/donor and purchases debt titles from commercial banks. The buyer transfers the debt title to the debtor country or municipality, and in exchange the country agrees to a clear outcome linked to the use of proceeds, for example enacting environmental policies to support the vulnerable area, or funding specific conservation programs. Bilateral debt-for-nature swaps take place between the participating governments, where a creditor country forgives a portion of the public bilateral debt of a debtor nation in exchange for environmental commitments. The proceeds from these swaps are often allocated to local environmental trust funds, which disburse grants to conservation projects or directly fund parks and protected areas systems.²⁴

Next steps to scale: Since 2010 there has been a renewed interest in debt-for-nature swaps, particularly in connection to global pledges on climate finance, and these swaps are seen as a particularly key way in which coastal resilience can be increased, representing an almost untapped potential. The first of its kind, Seychelles debt restructuring represented a USD 22m transaction, but the approach is highly scalable. The Nature Conservancy and KfW are exploring the possibility of bundling multiple transactions in the Caribbean and have a third party, a private financial institution, underwrite the issuance of a blue bond, the proceeds of which would then be used to finance the underlying debt transactions. By bundling multiple transactions into a portfolio and blending that with public sector derisking support, total funds available could reach hundreds of millions of dollars. A preliminary analysis has identified up to USD 2b in potentially transactable debt across multiple SIDS. If this scaling approach works, the transaction model could be further replicated not only across SIDS, but across coastal states throughout the global South.

²⁴ See this link for more details: <http://www.undp.org/content/sdfinance/en/home/solutions/debt-for-nature-swaps.html>

Seychelles Debt for Coastal Conservation and Resilience

The innovative Seychelles debt transaction, negotiated in the Paris Club with support from the French Government, extends the debt-for-nature model into the marine and coastal realm.

At its most basic, this initiative converts a portion of Seychelles' debt held by other countries into more manageable debt held by a local entity; this is accomplished by refinancing it with a mix of investment and grants. The Nature Conservancy provided USD 15.2m in impact capital loans and blended that with USD 5m in grant capital from philanthropic donors to buy-back USD 21.6m of Seychelles debt. The cash flow from the restructured debt is payable to and managed by an independent, nationally-based, public-private trust fund called the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT).

Debt service payments fund three distinct revenue streams: one, for on-the-ground work to reduce risk through improved management of coasts, coral reefs, and mangroves; another, to repay The Nature Conservancy as the investor; and a third, to capitalize SeyCCAT's endowment, which can then support conservation and coastal resilience work into the future. The financing will promote implementation of a Marine Spatial Plan for the entire Seychelles Exclusive Economic Zone, a territory approximately 3,000 times the size of their land mass. The deal will also ensure that approximately 400,000 sq. km (larger than the size of Germany) will be managed for conservation as marine protected areas (MPAs) within five years.



CONCLUSION

Clearly, there is a great deal of innovation underway through the development of new insurance models and products, and around new financial structures and instruments for private investment in resilience coasts and communities. More work is needed to communicate the impacts of these instruments, and through data encourage replication and scaling—showing how resilience is built in environments, communities, and regions broadly. The capacity to link these tools together in turn to create holistic solutions rests on the underlying capacity and willingness of the government and the wider stakeholder community – a critical enabling factor that needs conscious attention and cultivation.

Many of the recent innovations we have focused upon in this paper – from coral reef insurance to debt-for-coastal resilience swaps – are eminently scalable into the billions of dollars, and the innovations in capital markets around new bond instruments are potentially scalable to one or two orders of magnitude beyond that. But how do we achieve scale?

First, an enabling environment is needed for the right policy and financial safeguards across developing contexts. This is the foundational work with local and national institutions to build the right environment in which innovations can thrive and deliver, encompassing policy and legislative framework as well as institutional capacity development. Investments in innovation need to be met with equal investments in this enabling environment.

Next, better data and metrics are needed to identify what programmes work and why, quantifying the results and outcomes across environment and livelihoods. This will emerge in part thanks to innovative finance instruments and blended finance arrangements which necessitated and predicated improved data—as outcomes and results needed to be auditable, verifiable and replicable to reach financing milestones and payouts. More work on these instruments, such as testing, deploying, communicating about and advocating for, will allow for sustainable scaling.

Thirdly, in some countries, financing itself is only part of the equation. As the Ambassador from the Seychelles indicated during the Roundtable discussions, emerging market countries like Seychelles need access to intellectual capital and operational partners as much as they do to financial capital.

Achieving the necessary scaling of financial resources requires, however, require further action by the critical group of stakeholders that must work in partnership to deliver long-term resilience:

And finally, critically, the role of women must underpin investments in innovative financing and investment. Whether through building physical structures, social networks or financial assets, there is a range of efforts women employ that can ensure these initiatives are more likely to succeed.²⁵ Better engaging women in the decisionmaking process enables women to claim power and resources that contribute not only to building resilient communities, but also to sustaining their involvement in long-term development.²⁷ This is not a periphery concern but central to the success of scaling up investments in innovative financing.

²⁵ http://www.undp.org/content/dam/aplaws/publication/en/publications/womens-empowerment/leading-resilient-development---grassroots-women-priorities-practices-and-innovations/f2_GROOTS_Web.pdf

²⁷ http://www.undp.org/content/dam/aplaws/publication/en/publications/womens-empowerment/leading-resilient-development---grassroots-women-priorities-practices-and-innovations/f2_GROOTS_Web.pdf

- **National governments** have a critical role to play in financing and supporting coastal resilience. While international climate funding is important and can be catalytic, national governments will provide the most immediate and usually largest sources of public funding for protecting people and property at risk in coastal zones. For example, by engaging in dialogue with insurance companies and the regional risk pools like CCRIF and ARC to improve both risk reduction before events and effective action afterwards. National governments have the critical role in ensuring the necessary enabling conditions to facilitate private investment in coastal resilience.
- **Local governments**, like national governments, have a critical role to play in creating enabling frameworks for both risk reduction measures and for facilitating private investment. The State of Quintana Roo and its support for the creation of a trust fund that will redirect tax revenues leading to the purchase of insurance, and its ability to partner with the local hotel owners to mobilize collective action, is a good example. Local governments, indeed all governments, also need to ensure the voices of women and differentiated concerns are fully engaged in consultation and decision-making around resilience.
- The **insurance industry** needs to keep innovating the types of gender-sensitive product offerings it can make to help transfer risk, building on examples like coral reef insurance in Mexico. Gender-based differences in risk perception and adaptation capacity are vital to disaster response in all settings and for are now beginning to underpin programming for coastal hazards resilience—and indeed affecting how we originate and structure insurance products. Additionally, insurance companies can take on an expanded role in advisory services to national and, increasingly, to local governments, helping government clients adopt a risk management approach to coastal resilience and ultimately encouraging risk reduction measures. An immediate step underway is to form alliances to work on risk mapping and risk modelling, transferring development knowledge from organizations like UNDP and TNC to the industry to better understand the types of vulnerabilities and potential solutions, and then work together to quantify the outcomes and feasibility of financial instruments.
- **Investors** need to increase their awareness of the risks they face in investing in unsustainable coastal infrastructure – risks that Moody's is already warning about – and also recognize the opportunities to invest in the resilient coastal communities and infrastructure of the future. The field is ripe for financial innovation to develop new deal structures, financial instruments and business models that can scale, as happened previously for renewables and energy efficiency.
- Lastly, the **international community** has a critical role to play to support developing countries to build the capacity they need to ensure effective enabling environments for resilience planning and recovery and to encourage private finance flows. Additionally, aid donors should recognize the critical role of grant capital to build the financial ecosystem that will allow private finance to flourish, in addition to the use of de-risking instruments to crowd-in private finance.

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