

# Restoration Insurance Service Company (RISCO)

*LAB MARKET ENTRY ANALYSIS*

*September 2020*

---

## DESCRIPTION & GOAL —

A first-of-its kind social enterprise that conserves and restores mangrove forests by generating insurance-related revenue through property damage risk reduction and blue carbon revenue through the sale of credits.

## SECTOR —

Adaptation, mitigation, land use, forest conservation

## PRIVATE FINANCE TARGET —

Impact investors and concessional capital providers in the short-term. Longer-term, insurance companies and/or associations of insurance companies as well as organizations seeking to meet voluntary or regulatory climate targets through the purchase of blue carbon credits.

## GEOGRAPHY

For pilot phase: East Asia & Pacific and Latin America & Caribbean regions

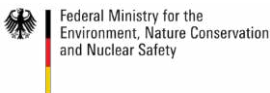
The Lab identifies, develops, and launches sustainable finance instruments that can drive billions to a low-carbon economy.

## AUTHORS AND ACKNOWLEDGEMENTS

The author of this brief is Carla Orrego.

The author would like to acknowledge the following professionals for their cooperation and valued contributions including the proponents *Romas Garbaliuskas*, *Emily Pidgeon*, *Alexandra Goldstein*, *Camilla Sundberg*, *Janice-Renee Yoshioka* (*Conservation International*), and expert *Sarah Conway* (*Ecosystem Alpha*).

The Lab's programs have been funded by the Australian, Dutch, German, and UK governments, as well as Bloomberg Philanthropies, GIZ, the International Fund for Agricultural Development (IFAD), the Rockefeller Foundation, and the Shakti Sustainable Energy Foundation. Climate Policy Initiative serves as Secretariat and analytical provider.



# 1. OVERVIEW

RISCO is a social enterprise that invests in mangrove conservation and restoration in areas with high-value coastal assets, protecting blue carbon and reducing flooding and property damage risk. RISCO overcomes existing barriers to financing mangrove protection by connecting the adaptation and mitigation values of mangroves to the beneficiaries of these values, most of whom currently do not have the knowledge or resources needed to protect mangroves. RISCO's model proposes two revenue streams: (1) sale of blue carbon credits, and (2) insurance savings that come from mangrove risk reduction benefits.

Following an Instrument Analysis in 2019<sup>1</sup> that outlined the mechanisms of a RISCO pilot project in the Philippines and compared the global replication potential of the instrument in 15 countries, RISCO is continuing to look beyond the Philippines for possible pilots across countries in the East Asia & Pacific and Latin America & Caribbean regions. There are several enabling conditions that collectively would indicate whether RISCO would be feasible in a country. These conditions fall into four categories: (1) insurance sector, (2) hazard risk, (3) mangroves and blue carbon, and (4) political landscape.

From the initial analysis of 15 countries, we chose seven strong candidates (aside from the Philippines) for which we did a deeper analysis of RISCO's potential, particularly in terms of the insurance market. These were: Indonesia, Malaysia, Vietnam and Fiji in East Asia & Pacific, and Colombia, Costa Rica, and Mexico in Latin America & Caribbean. After a thorough assessment of each country, the ones that stood out for conducting a pilot were Costa Rica, Indonesia, and Vietnam. Even though the seven countries feature highly to implement RISCO pilots, on aggregate, these three have better enabling conditions and are deemed more feasible in the current context.

## 2. METHODOLOGY

The approach for selecting the countries with more replication potential for RISCO involved two phases. The first one included deep market research about the insurance sector, natural catastrophes hazards, mangroves presence, and political environment in each country and a market landscape assessment of the insurance industry configuration and dynamics, focused in the non-life insurance segment. The second phase consisted of identifying the countries with the best set of critical enabling conditions and the ones with the highest replication potential. Both phases encompassed research from public sources and private sources, proprietary knowledge from Conservation International, and personal interviews with industry experts across the different fields covered.

## 3. REGIONAL OUTLOOK

### 3.1 EAST ASIA & PACIFIC

East Asia has an underdeveloped private disaster risk insurance market with significant opportunities for innovation to increase coverage. Even though the region is characterized by a limited offering of products, awareness, and penetration, many countries are taking initiatives to improve and strengthen their disaster risk insurance market. For instance, Indonesia has a national strategy in place on Disaster Risk Financing and a State Assets Insurance Pilot Project, the Philippines has a new catastrophe parametric insurance program, and Vietnam and Malaysia are in the process of designing new disaster insurance programs.<sup>2</sup> Countries are prioritizing and committing resources to address environmental risks generated by climate change and there is a favorable environment for developing new solutions.

---

<sup>1</sup> The complete report can be found on the following link: <https://www.climatefinancelab.org/wp-content/uploads/2019/03/RISCO-Instrument-analysis-1.pdf>

<sup>2</sup> OECD, 2020.

The Pacific islands faces a different situation. The region is highly dependent on aid and donor funding, and usually cannot afford the premiums for disaster risk coverage. Although some of the most vulnerable countries to natural catastrophes are here, insurance coverage is very expensive or even nonexistent. For instance, Fiji is highly exposed to flooding from tropical cyclones and rainfalls, but flood cover is almost always excluded from Property and Casualty (P&C) insurance policies.

## 3.2 LATIN AMERICA AND CARIBBEAN

The Latin America and Caribbean region experiences a similar situation to that in East Asia. There is an underdeveloped private disaster risk insurance market, with a lack of attractive products, limited distribution channels, lack of technical capacity, and poor insurance education. However, unlike in East Asia, there are not many local efforts underway because focus on environmental hazards is not a priority. There is a huge dependence on the international reinsurance market, local insurance companies lack resources to do proper assessments of catastrophic risks and set an adequate pricing.

# 4. FEASIBILITY ANALYSIS

## 4.1 INSURANCE SECTOR

Since one of RISCO's envisioned revenue streams is derived from insurance payments, understanding the insurance ecosystem in each country is important to build relationships with key stakeholders, such as insurance companies, insurance regulators, and modeling companies, in order to start developing RISCO pilots. We analyzed the market dynamics of the non-life insurance segment and assessed the characteristics that would indicate RISCO's feasibility. In general, there is a low level of market penetration in every country but with varying degrees of market concentration.

Table 1: Market Configuration of the Non-Life Insurance Segment

Country	Market Configuration			
	Penetration <sup>1</sup>	Concentration	Players <sup>2</sup>	Description
<b>Colombia</b>	2.87%	Medium	24 insurers (5-dc, 8-fc, 1-s) 18 reinsurers (f)	Competitive market and attractive for foreign capital. Many new entrants operating through subsidiaries or acquiring local insurers.
<b>Costa Rica</b>	2.26%	Very High	13 insurers (2-d&s, 9-f, 2-m)	INS, state owned insurer and reinsurer, dominates the market with over 70% market share.
<b>Mexico</b>	2.31%	Medium	63 insurers (1-s)	Highly competitive market but not very profitable. Few foreign players, not many incentives to attract more.
<b>Indonesia</b>	1.65%	Low	~75 insurers (4-s) 6 reinsurers (2-s)	Highly competitive market in a relatively small market. Strong presence of domestic players.
<b>Malaysia</b>	4.05%	High	21 insurers (1-s) 6 reinsurers (5-f, 1-d)	Strong presence of foreign players, but no new players allowed (licenses in freeze). Focus on developing the takaful (Islamic insurance) market.
<b>Vietnam</b>	1.94%	High	29 insurers (18-d, 11-f) 2 reinsurers (f)	Strong presence of domestic players, but companies lack access to capital to fund growth. Attractive market for foreign capital.
<b>Fiji</b>	3.09%	Very High	7 insurers (2-d, 5-f)	Unattractive market, likely to have hardening conditions as premiums increase (adjustments for reinsurance costs).

(1) Non-life insurance penetration measured as the ratio of premium underwritten in a given year to GDP

(2) Players legend: d = domestic, f = foreign, s = state-owned, m = mixed, dc = domestic conglomerate, fc = foreign conglomerate

There are two potential approaches for RISCO to generate revenue from the disaster risk reduction that mangroves provide. The first is to work with an insurance company to offer a product that reduces premiums for coastal asset owners, reflecting the risk reduction value of mangroves, and contract with coastal asset owners to share a percentage of the premium cost savings with RISCO to enable continued protection and enhancement of the mangroves. Asset owners can be public or private entities. This approach will work better in situations where insurance premium rates are higher, insurance markets and models are more developed, and there are areas with a high insurable asset base (e.g.,

>US\$ 500 million). The second option for RISCO is to contract directly with insurance companies or associations of insurance companies to model the risk reduction value provided by the mangroves and secure an annual fee for conservation and restoration activities. This approach is preferable in situations where premiums are low (e.g., <0.20% of the asset value) and inflexible (e.g., are already set at or close to the government-mandated minimum rates).

Whether to contract with asset owners or directly with insurance companies in each country would depend on the maturity of the non-life insurance segment, the market configuration, and the regulatory environment, particularly on setting insurance premiums. The level of development of the insurance sector, the level of competition and the level of premium regulation would be indicative of the premium rates environment and therefore the potential for RISCO to reduce premiums paid by asset owners. In countries with a limited regulatory framework and a highly competitive market, RISCO would be deemed more feasible by contracting with asset owners. In the case of countries with strong state presence and high market concentration contracting with insurance companies could be a better approach.

Table 2: RISCO Feasibility of Contracting and Regulatory Environment

Country	Recommended Partner to Contract		Regulatory Environment
	Partner	Rationale	
<b>Colombia</b>	Asset owners	Lack of incentives for insurers due to high competition. Asset owners could be interested but not a priority.	Regulation is very limited, no enforced requirements to have insurance
<b>Costa Rica</b>	Insurance companies	Contracting with INS – full state guarantee and less free rider possibility.	Solid regulatory and supervisory regime. Regulation is flexible and promotes new product development
<b>Mexico</b>	Asset owners	Lack of incentives for insurers due to high competition. Asset owners could be interested to reduce catastrophic exposure.	Regulation is very limited, no enforced requirements to have insurance. High degree of standardization and transparency
<b>Indonesia</b>	Asset owners or insurance companies	New regulation and initiatives requiring environmental insurance and natural disaster-risk financing.	Highly regulated market. Statutory tariffs regulate maximum and minimum premiums
<b>Malaysia</b>	Asset owners	Lack of incentives for insurers due to high competition and uncertain effects of changes in regulation.	Highly regulated market. Tariff structure, but looking to moderate approach
<b>Vietnam</b>	Asset owners or insurance companies	High market concentration with strong state presence along international players.	Ongoing refinement of mechanisms and policies
<b>Fiji</b>	Not feasible	Insurance sector is highly subsidized.	Regulation plague of irregularities – many consumer complaints and concerns

**Latin America & Caribbean.** Colombia and Mexico have highly competitive markets dominated by local players. Insurances companies compete by price and the market operates mainly through brokers, which gives a lot of price transparency and sets pricing dynamics. However, this leads to an unhealthy price competition and, since most policies are reinsured, insurers are not incentivized to do proper underwritings and risk assessments. The low rates environment results in negative profits from technical operations, so insurers rely on their investment operations for profitability. The pandemic has exacerbated this situation, pushing the sector towards an economic crisis and potential contraction.

In both countries, insurance is an elastic good and low penetration rates are the result of a lack of awareness. Nevertheless, Colombia is increasingly seen as an attractive location for foreign investments. It has one of the highest P&C market penetrations in the region, with underwritten gross premiums showing consistent growth rates since 2014.<sup>3</sup> Mexico, on the other hand, has high barriers to entry for new competitors and has been experiencing a decrease in gross premiums, especially in the catastrophic risk segment, even before the pandemic.<sup>4</sup>

<sup>3</sup> AXCO. Colombia - Non-Life (P&C), 2020.

<sup>4</sup> National Insurance and Bonding Commission (CNSF), 2019.

Costa Rica's insurance market was a state monopoly of the Instituto Nacional de Seguros (INS) for 84 years until 2008. After liberalization, the sector has seen consistent growth driven by increased price competition by new foreign entrants. There are no reinsurers established and only INS is authorized to undertake reinsurance activities. Thus, the use of reinsurance in the market is very low.

**East Asia & Pacific.** Indonesia and Vietnam have a strong domestic and state presence in the insurance and reinsurance markets and have been experiencing consistent growth rates of gross premiums. In Indonesia, private local players tend to focus their efforts on maintaining a predominant position in property and motor personal lines, while state-owned insurers focus on commercial lines.<sup>5</sup> In Vietnam, insurers are looking to harness banks' capacity and develop the bancassurance<sup>6</sup> segment as a new distribution channel. However, both countries experienced low penetration rates as a result of the lack of awareness. In both countries the state is the major shareholder of the dominant insurers and reinsurers, and the regulator has a strong influence in the market dynamics. Also, the government has considerable ownership over coastal assets.

Malaysia's insurance sector is focused on developing the takaful (Islamic insurance) market and the government is keen to develop Malaysia as a worldwide center for takaful. While there has been a freeze on conventional insurance licenses for many years, the regulator is prepared to authorize new takaful players. Even though there are set tariffs reviewed periodically, the regulator has started a phased liberalization in some segments before transitioning to a fully liberalized market. Also, it is encouraging consolidation of the non-life market into fewer but stronger players.<sup>7</sup>

## 4.2 HAZARD RISKS

Since RISCO's revenue model is partially focused on the coastal risk reduction value that mangroves provide, the company would need to operate in a country that not only has mangroves but also faces significant hazard risks for which insurance is needed. The key factors to assess are the exposure to flooding and tropical cyclones and the availability of natural catastrophe models to gauge the existence and attractiveness of the market for modelling companies. In general, all countries have high exposure to flooding but not necessarily due to tropical cyclones.<sup>8</sup>

Table 3: Hazards

Country	Exposure to flooding		Exposure to tropical cyclones		Cat Models <sup>1</sup>
<b>Colombia</b>	High	Heavy rains affecting low-lying areas	Low	No cyclones	TC: CoreLogic
<b>Costa Rica</b>	High	Heavy rains, hurricanes' tails and cyclonic rains affecting coastal areas	Low	Not in the hurricane belt	TC: AIR, CoreLogic, ERN
<b>Mexico</b>	High	Hurricanes affecting northern half and coastal areas. Heavy rains	High	North Atlantic Ocean basin	TC: AIR, ERN, RMS, KAC, CoreLogic / F: IF
<b>Indonesia</b>	High	Monsoon rains affecting mostly cities	Low	Not in the windstorm or typhoon belt	F: IF
<b>Malaysia</b>	High	Monsoon rains. Sea inundations	Low	No cyclones	TC: CoreLogic / F: JBA, IF
<b>Vietnam</b>	High	Typhoons and tropical storms affecting deltas, central highlands, coastal areas	High	Northwestern Pacific Ocean	TC: AIR, IF, CoreLogic F: IF, JBA
<b>Fiji</b>	High	Heavy, continuous rain, and catastrophic rainfalls from tropical cyclones	High	Multiple showings – 7 cyclones/season (average)	TC: IF

Mexico, Vietnam, and Fiji are the most vulnerable countries to tropical cyclones, affecting high-value coastal assets. In Mexico, asset owners with properties in coastal areas typically have catastrophic coverages for hurricane and earthquakes but very limited ones, and in Vietnam most insurance companies offer typhoon coverage. In Fiji, despite the high exposure, access to property coverage is very challenging and expensive.

<sup>5</sup> KMPG, April 2016.

<sup>6</sup> Arrangement between a bank and an insurance company allowing the insurance company to sell its products to the bank's client base.

<sup>7</sup> AXCO. Malaysia - Non-Life (P&C), 2020.

<sup>8</sup> Mangroves provide great coastal protection benefits from flooding generated by tropical cyclones.

## 4.3 MANGROVES AND BLUE CARBON

For its blue carbon revenue stream, RISCO would need to find a site where carbon credit generation would be feasible. Carbon credits can be generated through either avoided emissions (by reducing loss against a historic baseline) or sequestration (through restoring mangroves), and RISCO would need to contract with the relevant landowner to transfer revenues from the carbon credits. The table below captures these key enabling conditions, as well as the current efforts being deployed by Conservation International in each country. Although blue carbon potential would need to be assessed at the site level, national data can give us a sense of RISCO's potential in each country. Overall, there is an important cover of mangroves in all the countries and in most cases the states hold the titles and management authority but can license the use of rights.

Table 4: Mangroves and Blue Carbon Potential

Country	Mangroves			Mangrove Property Rights	CI Existing Projects
	Cover (ha)	Restorable <sup>1</sup>	% Loss (1996-2016) <sup>2</sup>		
<b>Colombia</b>	226,598	9.53%	10.0%	State ownership – tied to carbon ownership	Blue carbon
<b>Costa Rica</b>	36,614	3.57%	4.4%	State ownership – use permits/concessions	Blue carbon & Mangrove
<b>Mexico</b>	974,353	14.93%	14.3%	State ownership – specific law and policy	Blue carbon
<b>Indonesia</b>	2,703,410	6.90%	7.5%	State ownership – grant/license use of rights	Blue carbon & Mangrove
<b>Malaysia</b>	468,599	3.58%	4.2%	State ownership	None
<b>Vietnam</b>	159,883	10.89%	11.6%	State ownership – grant/license use of rights	None
<b>Fiji</b>	50,968	1.14%	1.2%	State ownership – property rights regime	None

(1) Calculated by taking the total area loss and subtracting the area not possible to restore because it was converted to either an urbanized area, or it eroded (hectares).

(2) Calculated from Global Mangrove Watch data.

## 4.4 POLITICAL LANDSCAPE

As a for-profit social enterprise, the socioeconomic and political environment in each country for conducting business would affect RISCO's feasibility to incorporate as a company, attract investors, enter into contracts, and operate effectively. Overall, and considering the current health and economic global crisis, most countries rank high in terms of ease of doing business. Nevertheless, the effects of the pandemic have been worse for countries in the Latin America & Caribbean region and affected those economies harder.<sup>9</sup>

Table 5: Political and Economic Landscape

Country	Ease of Doing Business		Political & Economic Environment <sup>3</sup>
	Total <sup>1</sup>	Group <sup>2</sup>	
<b>Colombia</b>	67	3	Not favorable
<b>Costa Rica</b>	74	5	Favorable
<b>Mexico</b>	60	1	Not Favorable
<b>Indonesia</b>	73	9	Favorable
<b>Malaysia</b>	12	3	Regular
<b>Vietnam</b>	70	8	Favorable
<b>Fiji</b>	102	13	Not Favorable

(1) Total: ranking of the country within the 190 countries rated by the World Bank, where 1 is the easiest country to do business and 190 is the hardest. A high rank means the regulatory environment is more conducive to starting new endeavors. (The World Bank).

(2) Group: ranking of the country within its group. Colombia, Costa Rica and Mexico are part of the Latin America & Caribbean group, conformed by 32 countries, and Indonesia, Malaysia, Vietnam and Fiji of the East Asia & Pacific group, conformed by 25 countries.

(3) Designations made based on qualitative assessments.

<sup>9</sup> The New York Times, August 24<sup>th</sup>, 2020.

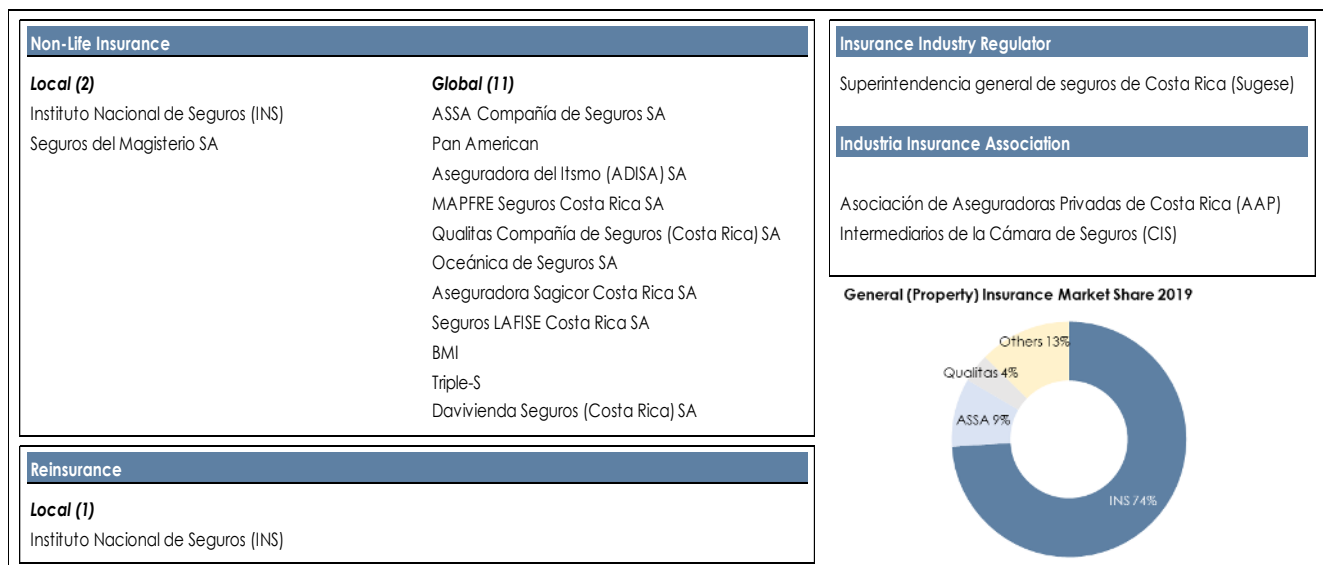
Three countries were deprioritized for RISCO because of their current political and economic landscape; these countries could move back up the list if the situation changes in the future. Even though Mexico and Colombia score high in the ranking, the existing environment is not favorable. Both countries have not been successful at controlling the pandemic, and the economic toll could last a couple of years, especially in sectors like the insurance and tourism industries. In Mexico, the new government has been very controversial, while in Colombia the country is still under lockdown. Fiji is also experiencing a huge negative impact from the pandemic, since tourism is its main driver of economic activity and foreign investment.<sup>10</sup> The economic situation is very weak, and it is unlikely that a market-based solution would work.

## 5. SELECTED COUNTRIES

### 5.1 COSTA RICA

**Insurance.** Costa Rica has a healthy insurance industry, in which non-life insurance represents the biggest segment in the market and offers insurance coverage for catastrophic risks, and a robust regulatory environment with an active and updated regulator. The state insurer, Instituto Nacional de Seguros (INS), dominates the market, offering the most favorable conditions – almost at cost – and, in many cases, is the only provider of certain types of coverage. INS has a full state guarantee and is allowed to establish other insurance companies in partnership with state banks.<sup>11</sup> Recently, INS has developed a direct sales strategy targeting underdeveloped niche markets with the aim to promote the insurance market. Although there are no state-sponsored insurance schemes or compensation plans for natural disasters, regulation allows for the development of new products based on experimental prices for premiums when there are not enough actuarial assumptions due to the lack of historic data.

Figure 1: Insurance Market Ecosystem in Costa Rica



**Hazards.** Exposure to flooding is mainly caused by rainfall and hurricanes' tails. The most exposed areas are those on and near the Caribbean coast, and damages are likely to affect infrastructure and crops. There is high value public and private touristic infrastructure. However, floods have not been the cause of many insured losses because susceptible areas do not contain much industrial or commercial development.

<sup>10</sup> Asian Development Bank, August 2020.

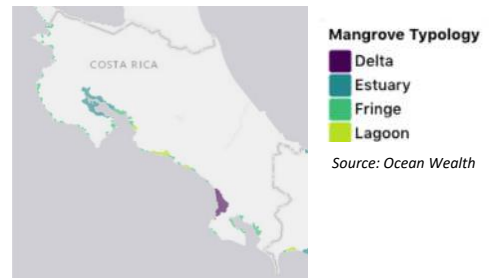
<sup>11</sup> OECD. February 2019



**Mangroves and blue carbon.** The mangrove cover, even though not as extensive as in other countries, is located in many coastal areas and has a significant restorable area. Costa Rica is a strong candidate for conducting a pilot because risks are relatively low and it would be a great place to start and prove the RISCO concept in the Latin America and Caribbean region.

**Political landscape.** There is a favorable political and economic environment, with a government giving special importance to nature preservation and climate initiatives. In February 2019, Costa Rica presented the National Decarbonization Plan 2018-2050, a new plan towards net-zero emissions by 2050.

Figure 2. Mangrove cover in Costa Rica

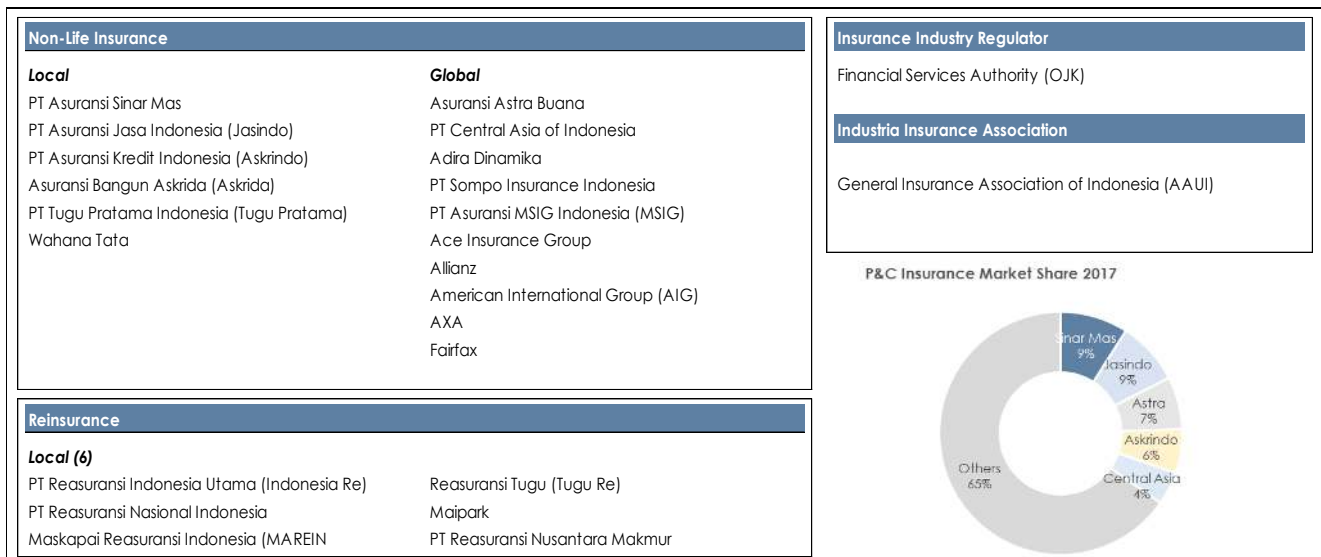


## 5.2 INDONESIA

**Insurance.** The country has high state and regulatory intervention in the insurance industry, geared towards developing local capabilities. The regulator set minimum premium rates for catastrophic coverages due to concerns that excessive competition leads insurers to underprice risks and required that domestic reinsurance be used as far as possible to increase domestic retention – offshore reinsurers may need to acquire local presence. Maximum premiums are also set to control pricing of high flood risks. However, pricing flexibility still exists for firms with demonstrated five years of underwriting profitability. Overall, there is a fast-growing market and although highly competitive, the impact on premiums rates have been limited.

In October 2019, the government announced its intention to introduce a natural disaster risk-financing scheme to deal with the impact of natural catastrophes and start insuring its own buildings. The initial proposal is that these risks should be covered by a consortium of insurers and managed by the state-owned insurer Jasindo.<sup>12</sup>

Figure 3: Insurance Market Ecosystem in Indonesia



**Hazards.** Flood exposure is located mostly in cities, especially Jakarta, and caused by monsoon rains. High value public and private infrastructure is vulnerable to flooding.

<sup>12</sup> AXCO. Indonesia - Non-Life (P&C), 2020.

**Mangroves and blue carbon.** The largest mangrove cover in the world can be found in Indonesia. However, over the past three decades, Indonesia has lost 40% of its mangroves, having the fastest rate of mangrove destruction in the world.<sup>13</sup> Mangroves in this area are among the most carbon-rich forests in the world and provide high ecosystem services. There are significant opportunities for conservation and restoration activities, alongside climate change mitigation strategies.

Figure 4. Mangrove cover in Indonesia

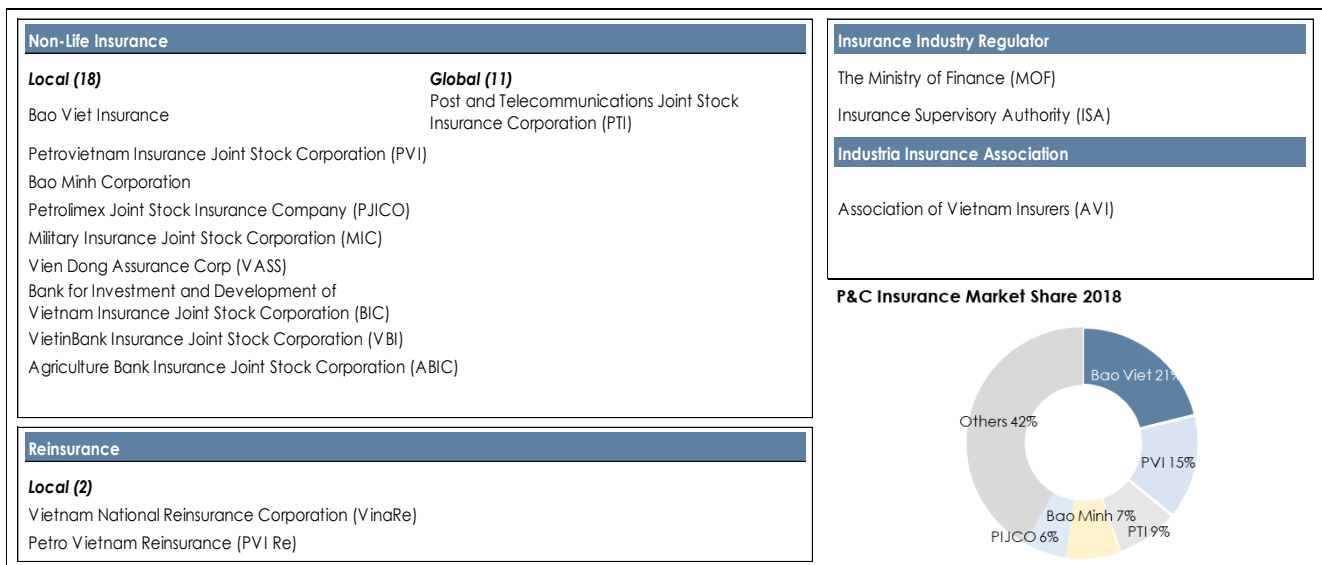


**Political landscape.** Indonesia's government is very committed and proactive regarding climate change. It is undertaking several initiatives to promote local development and gain more resiliency when rebuilding after natural disasters, and it is promoting environmental regulations across different industries. In general, there is a favorable political, economic, and regulatory environment. Government core activities are currently focused on reactivating the tourism industry.

### 5.3 VIETNAM

**Insurance.** The insurance sector has a strong state presence and is undergoing an integral restructuring plan. There is an increased focus to achieve the transparent, safe, and efficient development of the insurance market, and complying with international standards. In February 2019, the prime minister approved a plan up to 2025, which aims to strengthen the financial capacity of insurers and improve their competitiveness both regionally and locally. Insurance premiums are fixed by international reinsurers but there are also government-mandated requirements – e.g. reinsurance contracts have maximum limits. The non-life insurance market has considerable room for expansion and there are many opportunities for the implementation of disaster-risk insurance schemes.

Figure 5: Insurance Market Ecosystem in Vietnam



**Hazards.** High exposure to flooding caused both by typhoons and tropical storms. Flooding has become more frequent and more severe in recent years, and at least one flood as a result of a typhoon is now expected every year. The areas of greater exposure are the Mekong delta, Hanoi, central highlands

<sup>13</sup> Forests News. July 2015

and coastal areas from Binh Thuan to Thanh Hoa. Despite this vulnerability, Vietnam's disaster risk insurance market is one of the most underdeveloped in Southeast Asia.

**Mangroves and blue carbon.** Vietnam has one of the largest mangroves covers in the world, with extensive areas in the Red River Delta in the North and the Mekong River Delta in the south. However, the country also has one of the largest areas of degraded mangroves in the world, mostly driven by pollutants from the Vietnam war and land conversion to aquaculture and coastal development.<sup>14</sup> Since degraded areas have the best restoration potential, Vietnam presents great opportunities for conservation and restoration of mangrove ecosystems in coastal areas with high value infrastructure vulnerable to hazard risks.

Figure 6. Mangrove cover in Vietnam



**Political landscape.** Vietnam has experienced great growth in the last years and has become a destination of interest for foreign investments. The political and economic environment is favorable and there is strong government leadership. Even though there is critically insufficient climate action and limited policy plans<sup>15</sup>, the government is exploring innovative approaches for implementing payment for ecosystem services programs to protect the natural landscape.

<sup>14</sup> KOZHIKKODAN, Bijeesh, et. al.

<sup>15</sup> Climate Action Tracker. August 2020

## 6. REFERENCES

- Asia Capital Reinsurance Group. (December 2013). A Closer Look at the Non-Life Insurance Market in Vietnam. Retrieved from: <https://www.asiacapitalre.com/news/a-closer-look-at-the-non-life-insurance-market-in-vietnam/>
- Asian Development Bank. (August 2020). Fiji and ADB. Retrieved from: <https://www.adb.org/countries/fiji/overview>
- Axco. (2020). Colombia - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Costa Rica - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Fiji - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Indonesia - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Malaysia - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Mexico - Non-Life (P&C), Insurance Market Report.
- Axco. (2020). Vietnam - Non-Life (P&C), Insurance Market Report.
- Center for Global Development. (September 2019). Are the Pacific Islands Insurable? Challenges and Opportunities for Disaster Risk Finance. Retrieved from: [https://www.cgdev.org/sites/default/files/WP516-Ramachandran-Are-The-Pacific-Islands-Insurable\\_0.pdf](https://www.cgdev.org/sites/default/files/WP516-Ramachandran-Are-The-Pacific-Islands-Insurable_0.pdf)
- Climate Action Tracker. (August 2020). Retrieved from: <https://climateactiontracker.org/>
- EY. (2020). 2020 Asia-Pacific Insurance Outlook. Retrieved from: [https://assets.ey.com/content/dam/ey-sites/ey-com/en\\_gl/topics/insurance/insurance-outlook-pdfs/ey-global-insurance-outlook-asia-pacific.pdf](https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/insurance/insurance-outlook-pdfs/ey-global-insurance-outlook-asia-pacific.pdf)
- Food and Agriculture Organization of the United Nations. (October 2006). Mangrove Description – Malaysia. Retrieved from: <http://www.fao.org/forestry/mangrove/vegetation/en/mys/>
- Forests News. (March 2020). Bringing back mangroves: Scientists in Mexico restore degraded ecosystems. Retrieved from: <https://forestsnews.cifor.org/64339/bringing-back-mangroves-scientists-in-mexico-restore-degraded-ecosystems?fnl=>
- Forests News. (July 2015). Mangroves: A global treasure under threat. Retrieved from: <https://forestsnews.cifor.org/31178/indonesian-mangroves-special-fact-file-a-global-treasure-under-threat?fnl=>
- Forest Trends. (2010). Roots in the Water: Legal Frameworks for Mangrove PES in Vietnam". Katoomba Group's Legal Initiative Country Study Series. Retrieved from: [http://www.fao.org/fileadmin/user\\_upload/rome2007/docs/PES%20Mangrove%20Vietnam.pdf](http://www.fao.org/fileadmin/user_upload/rome2007/docs/PES%20Mangrove%20Vietnam.pdf)
- General Insurance Association of Indonesia (AAUI). (2020). Indonesia General Insurance Market Update 2019. Retrieved from: <http://aui.or.id/wp-content/uploads/2019/10/INDONESIA-MARKET-UPDATE-y-2018-2019.pdf>
- General Insurance Association of Malaysia (PIAM). (July 2016). Phased Liberalization of the General Insurance Industry in Malaysia. Retrieved from: <https://www.piam.org.my/news-phased-liberalisation-of-the-general-insurance-industry-in-malaysia/>
- ICLG. (March 2020). Mexico: Insurance & Reinsurance Laws and Regulation 2020. Retrieved from: <https://iclg.com/practice-areas/insurance-and-reinsurance-laws-and-regulations/mexico#:~:text=Yes%2C%20in%20Mexico%20there%20are,of%20hazardous%20waste%20and%20material.>

IUCN Environmental Law Centre. (July 2019). Mangroves for Nature, Humans and Development. Costa Rica – Legal Matrix on Mangroves' Conservation and Use. Retrieved from: [https://www.iucn.org/sites/dev/files/mangroves\\_matrix\\_costa\\_rica\\_july\\_2019.pdf](https://www.iucn.org/sites/dev/files/mangroves_matrix_costa_rica_july_2019.pdf)

IUCN. Global Assessments of Mangrove Losses and Degradation. Retrieved from: [https://www.iucn.org/sites/dev/files/content/documents/mangroveloss-brief-4pp-19.10.low\\_.pdf](https://www.iucn.org/sites/dev/files/content/documents/mangroveloss-brief-4pp-19.10.low_.pdf)

KMPG. (April 2016). Insurance in Indonesia: Opportunities in a Dynamic Market. Retrieved from: <https://assets.kpmg/content/dam/kpmg/id/pdf/id-ksa-insurance-in-indonesia.pdf>

KOZHIKKODAN, Bijeesh, et. al. *Mangroves of Vietnam: historical development, current state of research and future threats*. Ton Duc Thank University, Ho Chi Minh City, Vietnam and University of Brighton, Brighton, United Kingdom. Retrieved from: [https://cris.brighton.ac.uk/ws/portalfiles/portal/5456169/Mangroves\\_of\\_Vietnam.pdf](https://cris.brighton.ac.uk/ws/portalfiles/portal/5456169/Mangroves_of_Vietnam.pdf)

National Insurance and Bonding Commission (CNSF). (2019). Anuario Estadístico de Seguros y Fianzas 2018. Retrieved from: [https://www.cnsf.gob.mx/Difusion/Anuario/Anuario\\_2018.pdf](https://www.cnsf.gob.mx/Difusion/Anuario/Anuario_2018.pdf)

National Insurance and Bonding Commission (CNSF). (September 2019). Sector Asegurador y Afianzador. Retrieved from: <https://www.cnsf.gob.mx/Difusion/SintesisCoyuntura/Paginas/Sector.aspx>

OECD. (2020). Latin American Economic Outlook 2019: Development in Transition. Retrieved from: <https://www.oecd-ilibrary.org/sites/g2g9ff18-en/1/2/7/4/index.html?itemId=/content/publication/g2g9ff18-en&csp=a3d530f47f12c9c5eba6edda8b4c06c2&itemlGO=oeecd&itemContentType=book>

OECD. (December 2019). Economic Outlook for Southeast Asia, China and India 2020 Rethinking Education for the Digital Era: Rethinking Education for the Digital Era. Retrieved from: [https://play.google.com/store/books/details?id=UITDDwAAQBAJ&rdid=book-UITDDwAAQBAJ&rdot=1&source=gbs\\_vpt\\_read&pcampaignid=books\\_booksearch\\_viewport](https://play.google.com/store/books/details?id=UITDDwAAQBAJ&rdid=book-UITDDwAAQBAJ&rdot=1&source=gbs_vpt_read&pcampaignid=books_booksearch_viewport)  
<https://play.google.com/books/reader?id=UITDDwAAQBAJ&hl=en&pg=GBS.PA46>

OECD. (February 2019). Costa Rica: Análisis del Sistema de Seguros. Retrieved from: <http://www.comex.go.cr/media/7112/cr-revision-sistema-seguros.pdf>

Oxford Business Group. (2018). The Colombian insurance industry in good position to increase its rate of growth. Retrieved from: <https://oxfordbusinessgroup.com/overview/cover-story-industry-well-placed-step-its-rate-growth>

Rankings Latam. (November 2019). Insurance Market in Colombia - 2019 Q3 Overview. Retrieved from: <https://rankingslatam.com/blogs/industry-news/insurance-market-in-colombia-2019q3-overview>

Reserve Bank of Fiji. (June 2019). Insurance Annual Report 2018. Retrieved from: <http://www.parliament.gov.fj/wp-content/uploads/2019/08/Reserve-Bank-of-Fiji-2018-Insurance-Annual-Report-1.pdf>

Risk Management. (August 2018). Financing Disaster Risk in Latin America. Retrieved from: <http://www.rmmagazine.com/2018/08/01/financing-disaster-risk-in-latin-america/>

The Nature Conservancy and IUCN. Mangrove Restoration Potential Map. Retrieved from: <http://maps.oceanwealth.org/mangrove-restoration/>

The New York Times. (August 24<sup>th</sup>, 2020). Coronavirus Map: Tracking the Global Outbreak. Retrieved from: <https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html>

The World Bank. (2020). Doing Business, Measuring Business Regulations. Retrieved from: <https://www.doingbusiness.org/en/rankings>

The World Bank. (August 2018). PCRAFI: Furthering Disaster Risk Finance in the Pacific. Retrieved from: <https://projects.worldbank.org/en/projects-operations/procurement-detail/OP00056687?id=OP00056687&lang=en&print=Y>

Thomson Reuters Practical Law. (January 2020). Insurance and reinsurance in Mexico: overview. Retrieved from: [https://uk.practicallaw.thomsonreuters.com/2-501-3652?transitionType=Default&contextData=\(sc.Default\)&firstPage=true&bhcp=1](https://uk.practicallaw.thomsonreuters.com/2-501-3652?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1)

USAID. (December 2016). Where Land Meets the Sea. A Global Review of the Governance and Tenure Dimensions of Coastal Mangrove Forests. Retrieved from: [https://www.eenews.net/assets/2017/02/03/document\\_gw\\_02.pdf](https://www.eenews.net/assets/2017/02/03/document_gw_02.pdf)

Willis Tower Watson. (2019). 2019 Asia Market Report. Retrieved from: <https://willistowerwatson.com>

World Bank Group. (2017). Sovereign Climate and Disaster Risk Pooling. Retrieved from: <http://documents1.worldbank.org/curated/en/837001502870999632/pdf/118676-WP-v2-PUBLIC.pdf>