



02 July 2024

Select Committee on the Impact of Climate Risk on Insurance Premiums and Availability
PO Box 6100
Parliament House
Canberra ACT 2600

To Whom it May Concern

WollemAI Submission – Impact of Climate Risk on Insurance Premiums and Availability

About WollemAI

Wollemi.io (WollemAI) is a climate reporting and management platform for land and agriculture and the built environment. We calculate emissions, carbon and physical climate risks for large portfolios. Our management and reporting platform assists industry to manage and disclose climate risks as required by Australia Government's proposed new climate-related financial disclosure regime.¹

The WollemAI platform uses cutting-edge AI, data science and machine learning to produce climate calculations at scale for large portfolios. The calculations include emissions (including insurance-associated emissions), carbon stocks, physical risks, and stress tested results. Our methodology has been independently validated as complying with global and national regulatory and climate financial risk disclosure frameworks such as the ISSB and APRA CPG229.

¹On 27 March 2024, the Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Bill 2024, was tabled in the House of Representatives, with Schedule 4 dedicated to amending the Corporations Act 2001 (Cth) (Corporations Act) to introduce Australia's new climate-related financial disclosure regime.



WollemAI response

Executive Summary

1. A strong re/insurance sector (insurance sector) is one of the foundational pillars of a resilient economy. Where mature and sustainable insurance sectors are in place, the benefits are distributed across industry and communities through the financial stability and resilience that insurance helps to provide through transferring risks from customer balance sheet to insurers balance sheet. This is particularly relevant in the case of the threat of climate changes and the impact of extreme weather events on consumers, businesses and the general economy.

2. The Insurance Council of Australia (ICA) reports there are 90 general insurance companies, 87.9 million policies, insuring 31 million home and motor assets alone.² Beyond physical climate risk transfer, the re/insurance sector can play an important role in supporting the transition to a low-emission economy as an institutional investor (invest in zero- and low-emission technologies and engage with their investee companies on their decarbonization pathways); as risk professionals (thought leaders in climate resilience, help communities, businesses and public entities to understand, prevent, and reduce climate risk); and managing their own operations (climate / sustainability reporting including their Insured Emissions, set their own climate target and policies)³.

3. For the insurance sector to play an optimally constructive role (including for climate risk) key foundational principles must be in place, they include (not exclusively): an efficient market which matches supply to demand for risk transfer policies and results in diversified customer (risk pools) portfolios; transparent historical loss data for calculating risk, calculating premiums, and quantifying claims; climate risk peril data per location, per asset class.

² The Insurance Council of Australia (ICA) reports that insurance customers in New South Wales are levied on average an additional charge of \$305 on home and contents policies to pay the Emergency Services Levy (ESL). \$6.8 billion of stamp duty on premiums is taken by state governments which can fund mitigation measures and resilient industry and communities.

³ Insurance-Associated Emissions The GLOBAL GHG ACCOUNTING & REPORTING Standard PART C, November 2022



4. Climate technology that uses machine learning and artificial intelligence to optimise climate measurement and climate data sets are critical to facilitate the provision of climate insurance services. Platforms including WollemAI can quantify the positive or negative climate impact and climate vulnerabilities of insurance portfolios and their individual parts and build on the work of the The Task Force on Climate-Related Financial Disclosures (TCFD), which was created to develop appropriate measurements, information and metrics to support the pricing of climate-related risks by investors, lenders, and insurance underwriters.

5. To this end, national standardised methodologies for measuring and disclosing GHG emissions associated with re/insurance underwriting (Insurance-associated Emissions) should be considered critical to building a resilient insurance sector. Frameworks such as the Partnership for Carbon Accounting Financials (PCAF)⁴ are already in existence to provide encouraging signposts for how Insurance-Associated Emissions can be calculated by the insurance sector.

WollemAI responses to the matters raised :

(a) the unaffordability of insurance in some regions due to climate-driven disasters;

- In theory premiums for each region and each climate peril should be appropriately priced according to the relative frequency and severity of each peril in those regions. In general, unaffordability is a function of higher volatility of risk as opposed to increased profit margins.
- While underlying construction cost escalation - 8.2% y/y in 2023⁵ - is a contributing factor to premium costs, in some cases, affordability is affected because the risk is 'technical' to underwrite, meaning there is inadequate peril data and loss history to fully understand and quantify the risk.
- Accurate data and measurement technology facilitates the provision of climate insurance and the affordability.
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⁴ Per footnote 3

⁵ [Cost escalation pressures are easing but key risks remain - Oxford Economics Australia](#), sourced 2 July 2024



- Costs of insurance premiums in Australia are also related to the underlying cost of inflation, evident in rising costs in the construction sector, for example.

(b) the unavailability of insurance for some people due to climate-driven disasters;

- Where there is high frequency and/or severity of risk events, the premium cost and the loss ratios go up (unless there are subsidies)
- Climate-driven disasters are estimated to cost the Australian economy \$35bn a year by 2050, placing upward pressure on the insurance sector⁶.
- A key principle of underwriting any risk is having accurate historic and forecast peril and loss data. For climate risks, insurers require data that provides a comprehensive understanding of climate risks across different sectors and locations. Further, underwriting requires models for the relationship between climate risks and the insured subjects (eg. residential property vs agricultural crops). The more that the insurer understands about the correlation between climate peril and the insured subject the more likely the provision of insurance and risk adequate pricing.
- ML powered platforms, such as WollemAI, provide climate risk measurement for emissions, carbon and physical risks at national scale. Technology including AI and ML enable the critically required downscaling of climate risk model resolution to local asset / risk level.

(c) the underlying causes and impacts of increases in insurance premiums;

- The main cause of increases to premiums for risk pools is due to relatively high occurrence of risk events or forecasted risk events.
- In the case of climate risk, better loss data and modelled loss data for perils is critical.
- The more accurate the loss data for modelling risk the more efficiently priced risk premium. Climate physical risk measurement such as WollemAI's provides high resolution Australia-wide risk scores that are essential to pricing climate based risks to different assets. Accurate data leads to the provision of products and rate adequate premiums.

⁶ Analysis published by the Insurance Council in 2022 found that the economy-wide costs from extreme weather events are expected to grow by five per cent each year (before inflation) and reach a total of \$35 billion annually (2022 dollars) by 2050



(d) the extent to which increased climate risk is being priced into insurance products not exposed to climate-driven risks;

- Climate risks are being mis-priced because of the lack of information. This is to the insurer's (or other financial services company) detriment and to the detriment of the economy because this basis risk results in unforeseen losses. The TCFD has made recommendations on appropriate measurements and information to support the pricing of climate-related risks by investors, lenders, and insurance underwriters⁷.

(f) the role of governments to implement climate adaptation and resilience measures to reduce risks and the cost of insurance;

- Governments are not faced with a binary choice of insurance sector subsidies or not. There are other effective ways to underpin self-sufficient and resilient industry:
 - From a Government perspective schemes such as natural disaster support schemes are an example of risk intervention⁸. These schemes could be enhanced instruments by transferring scheme risks to the insurance or financial sector.
 - Farm Management Deposits are an example of risk management by smoothening the impact volatile climatic influence on revenues whereby lumpy year deposits can be used as self insurance in lean years.

⁷ Recommendations of the Task Force on Climate-Related Financial Disclosures
<https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf>

⁸ The National Flood Insurance Program (NFIP) in the United States provides insurance coverage for flood-related damages. The programme is subsidized by the federal government, making it affordable for homeowners in flood prone areas to purchase insurance. The Crop Insurance Scheme in India provides subsidised insurance for farmers against climate-related risks.



(g) how the pricing of risk from climate-driven disasters can be better redistributed across the economy;

- Regardless of how risks are pooled, and whether they are redistributed through public sector or private, they firstly need to be measured.
- Technology has a key role to play in accurate climate risk measurement. AI powered platforms that utilise ML are essential for the spatial temporal coverage of nations like Australia. WollemAI ML approach intelligently scales climatic measurements across data sparse geographies. For example, WollemAI can provide Australia-wide climate scores for tens of thousands of customers / assets including simulated forecasts and stress tested understand different climate scenarios.

Summary

- Australia's insurance sector can be a significant contributor to building resilience to increasing climate-related risk events via effective risk transfer and insurance-related emissions leadership.
- The sector should lean into existing frameworks such as the Partnership for Carbon Accounting Financials to develop consistent industry-wide methodologies.
- Climate technology platforms such as WollemAI provide the sector with the tools required to measure and manage insurance-associated emissions and to accelerate climate resilience at scale.

John Mottram

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