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TASK ACTUARIAL CONVENTION

THE NEXT FRONTIER –
ACTUARIES BEYOND
BOUNDARIES



Proactively Managing Climate Risk: Lessons Beyond Our Borders

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29 SEPT - 2 OCT 2026 · SAROVA WHITESANDS, MOMBASA

#TASKConvention2026

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— Agenda

01

Introductions

Who is in the room, the purpose of the session and how the two sections fit together.

02

SECTION 01

Five insurance and actuarial lessons from North America

What Canada and the United States learned about pricing, data, mitigation, capital and affordability—and what transfers to Kenya and the region.

03

SECTION 02

Three skills countries need to adapt to climate change

The technical, governance and local-integration capabilities that turn climate evidence into decisions communities can act on.



Gloria Asare, FCAS, FCIA, MAAA



David Cummings, FCAS



SECTION 01

5 Insurance and Actuarial Lessons from North America

00 The five lessons at a glance

Five insurance and actuarial lessons from Canada and the United States, ranked by their effect on long-term market sustainability.

01

Price tomorrow's risk—not yesterday's average

Blend experience rating with current hazard data, exposure trends and forward-looking scenarios.

02

Treat exposure and loss data as infrastructure

Geocode risks, standardise attributes and sharpen peril-specific claims coding.

03

Use insurance to reduce risk before the loss

Link underwriting terms and financial incentives to verified resilience measures.

04

Integrate accumulation, capital and reinsurance

Manage catastrophe risk at portfolio level and reconcile gross, net and ceded views.

05

Preserve risk signals while targeting affordability

Separate the technical risk price from transparent, targeted public support.



Data, pricing, mitigation, capital and policy work as one system.

Sources: Insurance Bureau of Canada; U.S. Treasury Federal Insurance Office (2025); NAIC; OSFI (2025); Canadian Institute of Actuaries (2025).

01 Price tomorrow's risk—not yesterday's average

Historical averages age quickly when hazard, exposure and rebuild costs move together.

01

North American signal

Canadian catastrophe losses roughly tripled between 2006–2015 and 2016–2025. U.S. households in the highest-risk ZIP codes face non-renewal rates about 80% higher.

02

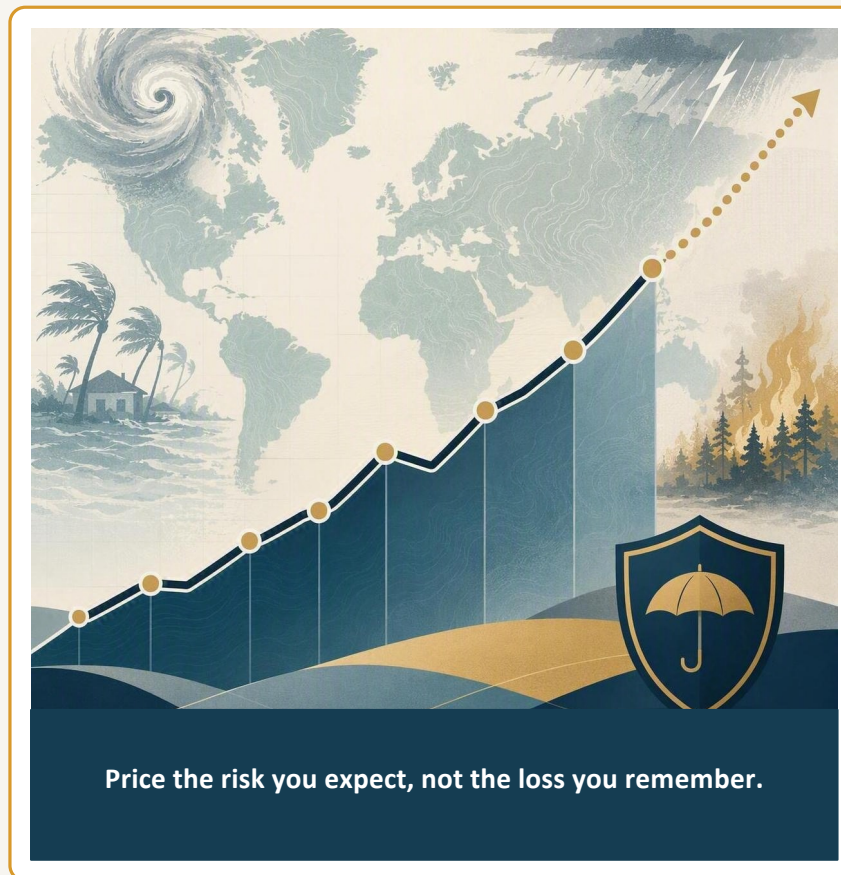
Actuarial implication

Keep experience as an input, not the estimator. Add current hazard data, exposure trends, catastrophe models and climate scenarios—and use them for pricing and capital, not just disclosure.

03

For Kenya and the region

Start with the most material perils: drought and livestock, river and urban flooding, agriculture and coastal infrastructure. Document a current view of risk and refresh it.



Sources: Insurance Bureau of Canada; U.S. Treasury Federal Insurance Office, Homeowners Insurance Report (2025).

02 Treat geocoded exposure and loss data as critical infrastructure

Granular, standardised data turns climate risk from narrative into measurable decisions.

01

North American signal

Canada's scenario exercise geocoded millions of properties and still found material gaps. U.S. regulators compared over 246 million policy records from 330+ insurers against local climate risk.

02

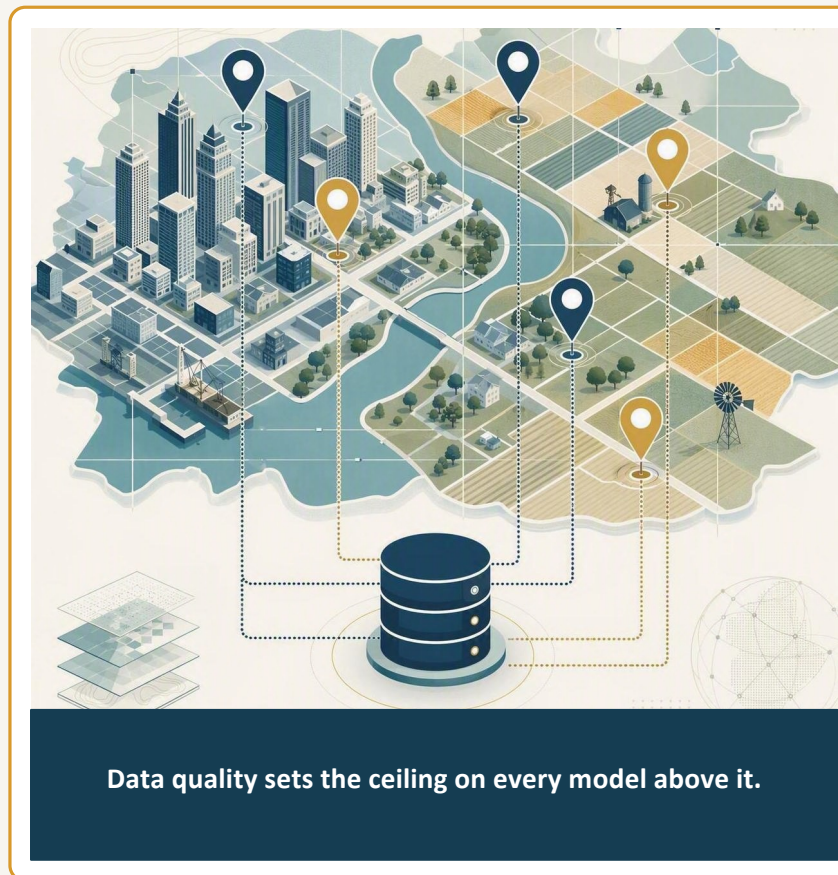
Actuarial implication

A catastrophe model cannot repair poor exposure data. Capture location, construction, values, terms and verified mitigation consistently—and code claims by peril so analyses do not double-count.

03

For Kenya and the region

Do not wait for a perfect commercial model. Build a shared minimum viable data ecosystem across the regulator, meteorological services, insurers, reinsurers and counties.



Sources: OSFI, *Standardized Climate Scenario Exercise insights (2025)*; U.S. Treasury Federal Insurance Office (2025).

03 Make insurance a mechanism for reducing risk before the loss

Insurance creates the most resilience value when it changes behaviour, not only when it pays.

01

North American signal

U.S. regulators increasingly pair grants and premium incentives with verified home hardening; Canadian insurers push building codes, hazard mapping and keeping development out of high-risk areas.

02

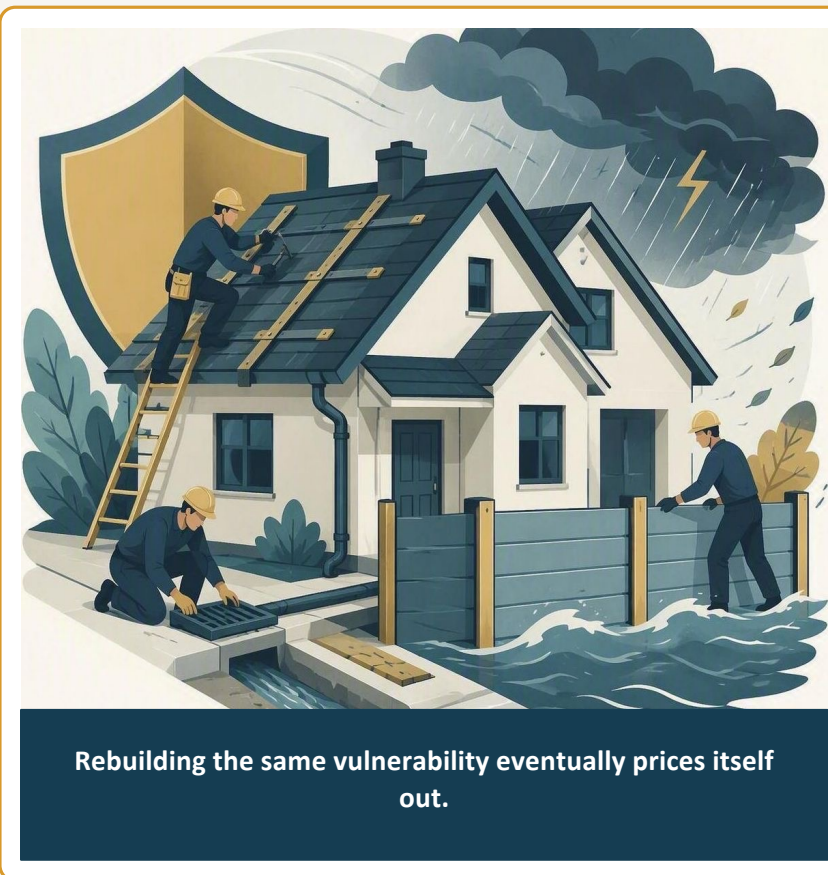
Actuarial implication

Move underwriting beyond accept-or-decline: identify the measurable intervention that changes the risk class, price the expected loss reduction, and monitor it against later claims.

03

For Kenya and the region

Set locally appropriate, verifiable standards—drainage and siting, strengthened roofing, early-warning participation, climate-smart agriculture—calibrated to affordability and enforcement capacity.



Sources: NAIC, National Climate Resilience Strategy for Insurance; Insurance Bureau of Canada.

04 Manage accumulation, capital and reinsurance as one integrated system

Capital and reinsurance are not separate from pricing—together they define retained risk.

01

North American signal

U.S. capital rules require modelled losses split into direct, net and ceded across return periods. Canadian supervisors flag concentration and heavy reliance on annually renewed protection.

02

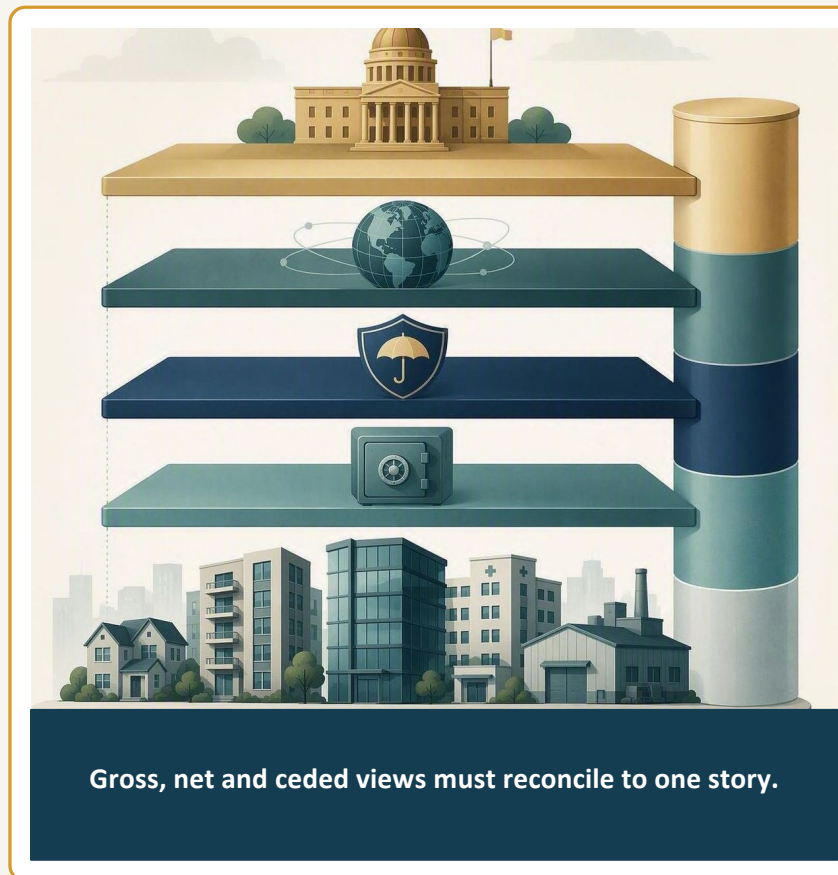
Actuarial implication

Manage catastrophe risk at portfolio level: exceedance probabilities, PMLs, peril and geographic accumulations, attachment and exhaustion, reinstatements and counterparty exposure.

03

For Kenya and the region

Layer the risk—reserves for frequent losses, insurance and reinsurance for the middle, sovereign or regional cover for systemic events—and test it under multiple events and tighter capacity.



Sources: NAIC catastrophe risk and capital requirements; OSFI (2025); Kenya National Treasury, Disaster Risk Financing Strategy 2026–2030.

05 Preserve risk signals—but address affordability through targeted mechanisms

Protect vulnerable customers without erasing the price signal that reveals the risk.

01

North American signal

California shows what happens when pricing, models, reinsurance costs and mitigation fall out of alignment: insurers withdraw and residual markets grow. Canada has explored a national flood scheme.

02

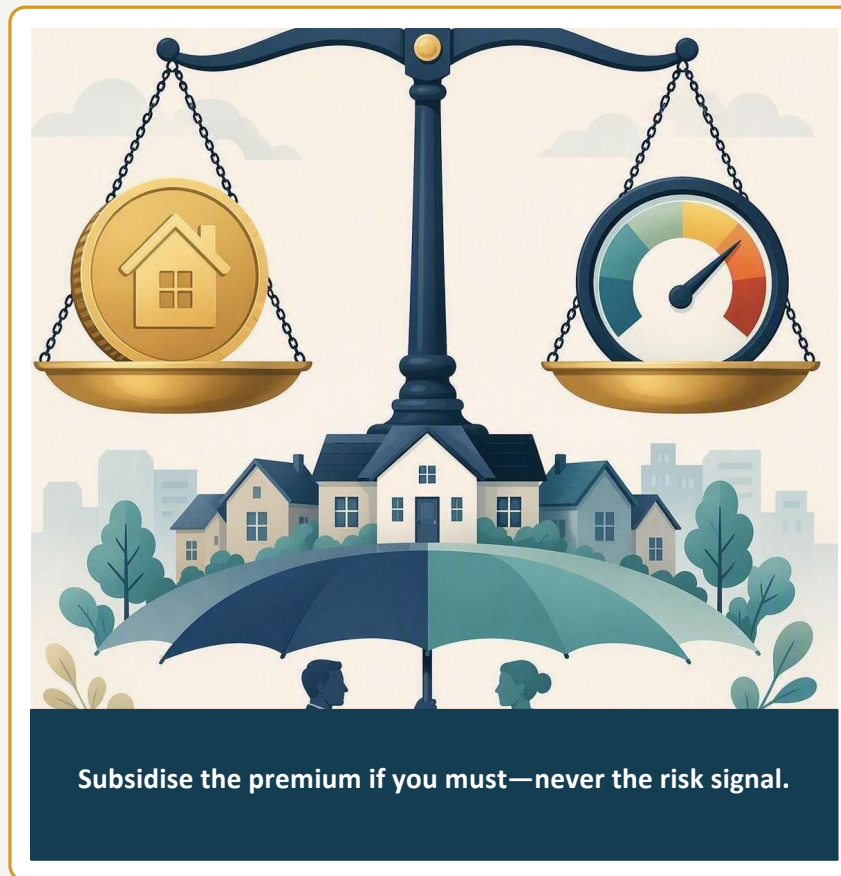
Actuarial implication

Separate the technical risk price from the social intervention: disclose the risk-based premium, target support to defined groups, attach mitigation conditions, and monitor whether exposure falls.

03

For Kenya and the region

Work at micro, meso and sovereign levels through agriculture and livestock schemes, SACCOs, mobile channels and social protection. Keep subsidies transparent and watch parametric basis risk.



Sources: U.S. Treasury Federal Insurance Office (2025); Public Safety Canada; World Bank (2025); African Climate Foundation / Krutham, Kenya (2024).

SECTION 01

3 Skills Countries Need to Adapt to Climate Change

01 Technical & Scientific Skills

Turn climate evidence into decisions about risk, price, capital and resilience.

01

Climate literacy & risk assessment

Interpret local hazard and exposure data; examine compounding risks and plausible future conditions. **ACTUARIAL LINK:** scenarios, catastrophe models, pricing and capital stress tests.

02

Engineering & resilient design

Understand how siting, drainage, building standards and retrofits change vulnerability. **INSURANCE LINK:** risk engineering, underwriting requirements and evidence-based mitigation incentives.

03

Sector-specific knowledge

Combine actuarial methods with agriculture, hydrology, health and urban-planning expertise. **INSURANCE LINK:** products and assumptions that reflect the actual risk drivers in each sector.



Evidence becomes useful when it changes a decision.

Sources: IPCC AR6 WGII, Chs. 9 & 18 (2022); UNDP Climate Promise, capacity-building for adaptation; Kenya National Adaptation Plan 2015–2030.

02 Governance & Planning Skills

Convert risk insight into coordinated, financed and accountable action.

01

Policy & institutional integration

Coordinate national and county plans, regulators, infrastructure owners and private markets.
ACTUARIAL LINK: translate risk evidence into thresholds, standards and measurable resilience outcomes.

02

Financial management & risk layering

Evaluate adaptation economics and match financing tools to the frequency and severity of loss. **INSURANCE LINK:** retention, reserves, insurance, reinsurance and contingent finance.

03

Stakeholder engagement

Facilitate transparent choices across government, communities, insurers and sectors.
ACTUARIAL LINK: communicate uncertainty, affordability and trade-offs so analysis can be implemented.



Strong models matter only when institutions can act on them.

Sources: IPCC AR6 WGII, Ch. 18 (2022); World Bank, *Disaster Risk Finance*; Kenya Climate Change Act (2016) and National Adaptation Plan 2015–2030.

03 Cultural & Local Integration

Build solutions with communities—not merely for them.

01

Locally grounded knowledge

Combine climate science with place-based knowledge of seasons, water, land use and coping practices—without treating communities as homogeneous. **INSURANCE LINK:** better assumptions and locally appropriate mitigation.

02

Participation, trust & communication

Co-design products, triggers and delivery with intended users; communicate benefits, exclusions and uncertainty clearly. **INSURANCE LINK:** relevance, uptake and more credible customer outcomes.

03

Adaptive & social capacity

Strengthen networks, learning and the ability to adjust as conditions change. **INSURANCE LINK:** connect risk transfer with early warning, preparedness and recovery systems.



Local knowledge and technical evidence are complementary.

Sources: IPCC AR6 WGII, Chs. 1, 9 & 18 (2022); Schipper et al., *Climate and Development* (2021); Kenya National Adaptation Plan 2015–2030.

Thank You. Questions?

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