



XTREME LOSS SOLUTIONS



KENYA EARTHQUAKE MODEL



- ▶ **Why model Kenyan Earthquakes?**
- ▶ **Impact of Earthquake risk on your business?**
- ▶ **Why do companies go insolvent?**



Why model Kenyan Earthquakes?

▶ **Threatens solvency**

▶ **Most destructive natural peril**

▶ **Very real risk**

- **18 July 2007 – Magnitude 6 at Arusha Northern Tanzania**
- **6 December 2005 – Magnitude 6.8 at Lake Tanganyika**



Why model Kenyan Earthquakes?

- ▶ **2nd largest asset base in Sub-Saharan Africa**
- ▶ **Quakes in Kenya are rare but severe**
- ▶ **Large Quakes from neighbouring countries**
- ▶ **Vulnerability of buildings**



- ▶ **Too high reinsurance purchase**
 - **Takes money directly off the bottom line**

- ▶ **Too low reinsurance purchase**
 - **Exposes your business to total devastation**

- ▶ **Prudent reinsurance purchase**
 - **Reduces risk of rating agency downgrade**
 - **Good Corporate Governance**
 - ▶ **reflects well on management**
 - ▶ **in favour with regulators**



- ▶ **Poor underwriting (10% expense)**
- ▶ **Too risky investment strategy (2% expense)**
- ▶ **Insufficient Catastrophe Cover (?)**

CATASTROPHE COVER IS ONE OF THE 3 MOST IMPORTANT NUMBERS IN YOUR ORGANISATION!

Aon Re has brought a Catastrophe Model solution to Kenya



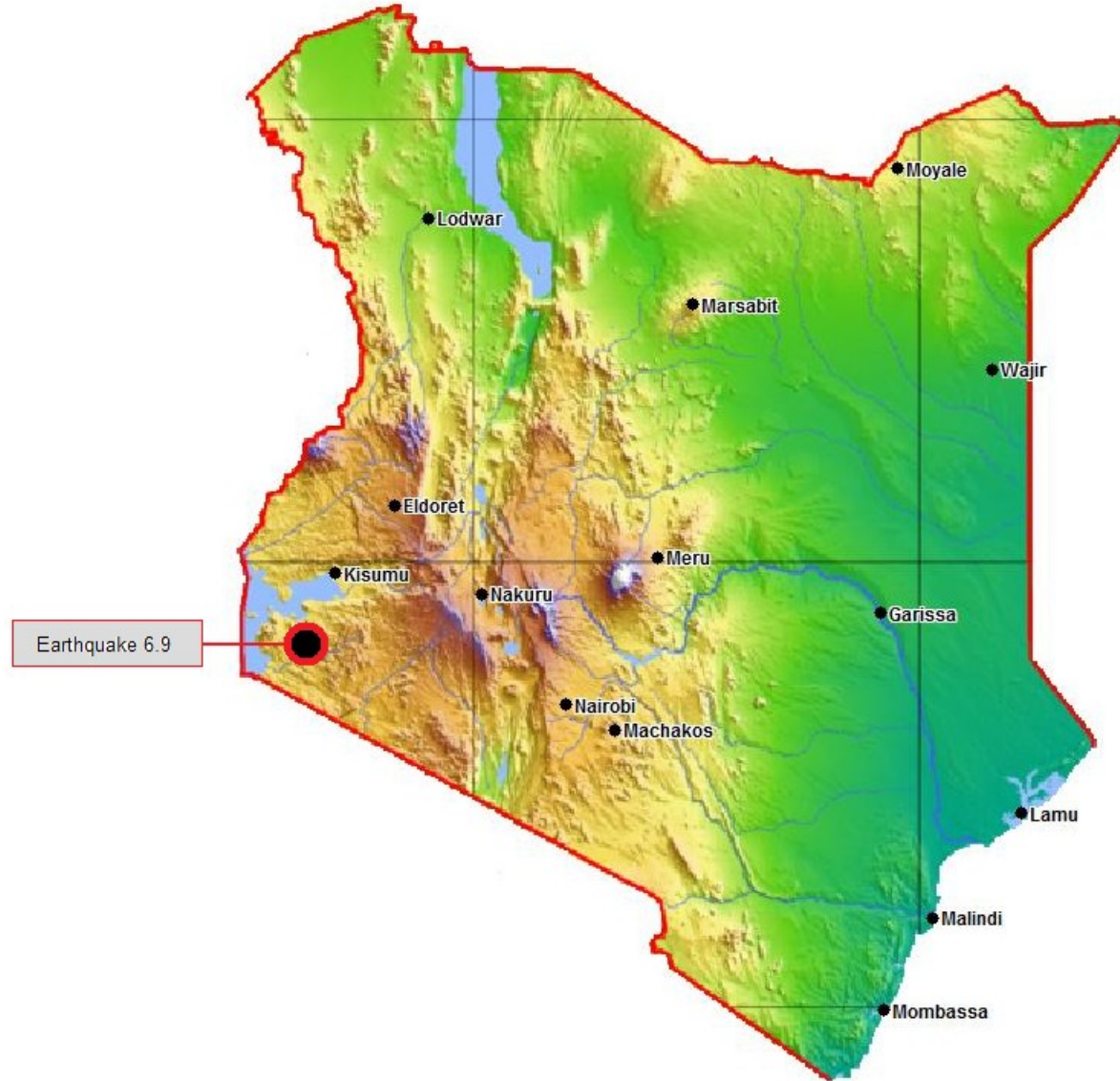
KENYA EARTHQUAKE MODEL



- ▶ **Cutting edge Mathematics on African Seismicity**
- ▶ **Past quakes from Kenya, Uganda and Tanzania**
- ▶ **Meets info requirements from Rating Agencies**
- ▶ **Past quakes – today's exposures**
- ▶ **Reinsurance Contract Pricing**
- ▶ **Market comparisons - retention, coverage, pricing**
- ▶ **Allocate Catastrophe Cost between lines of business**
- ▶ **Independent, unbiased results – peer review and audited**



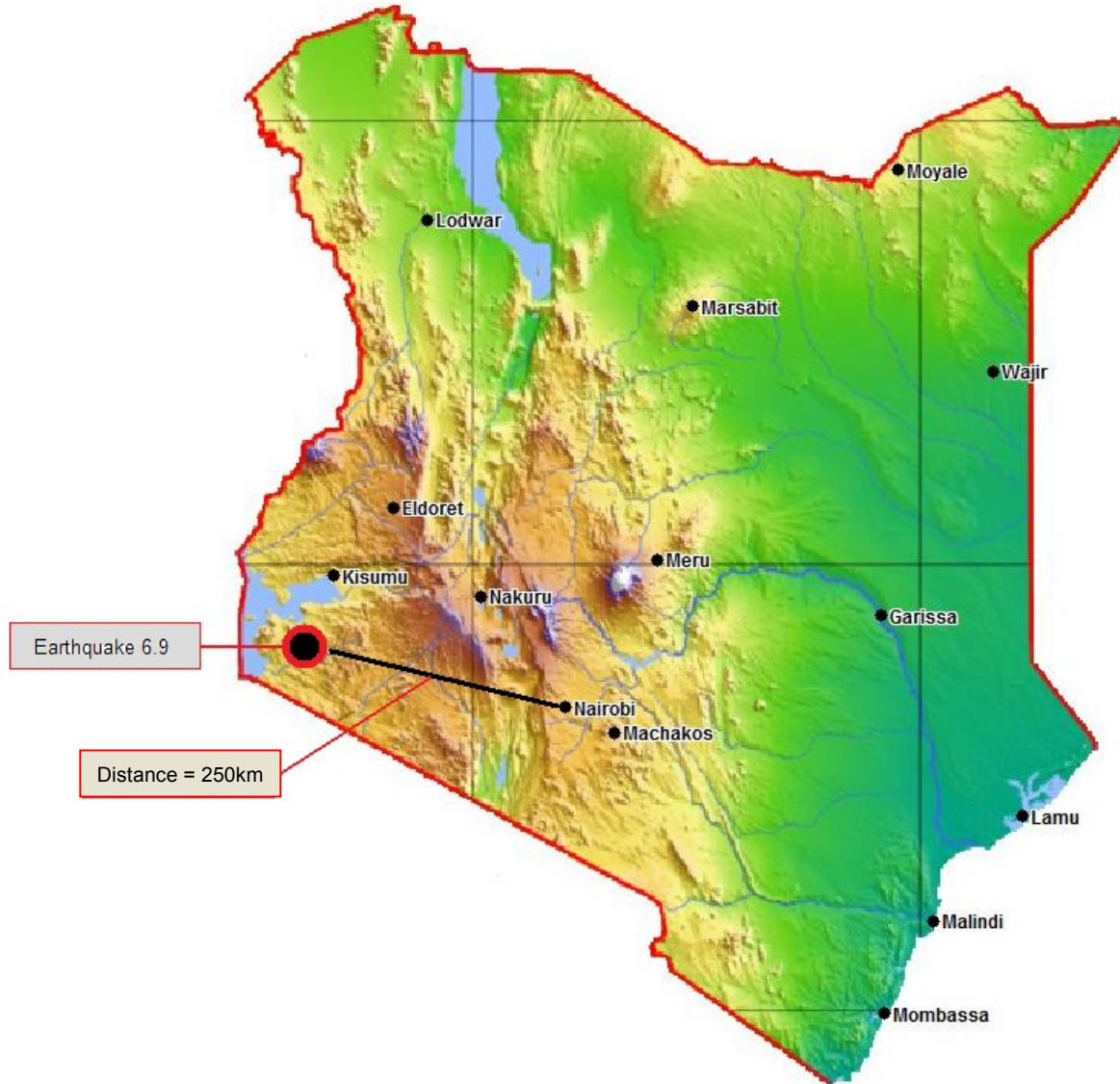
Earthquake Model Process



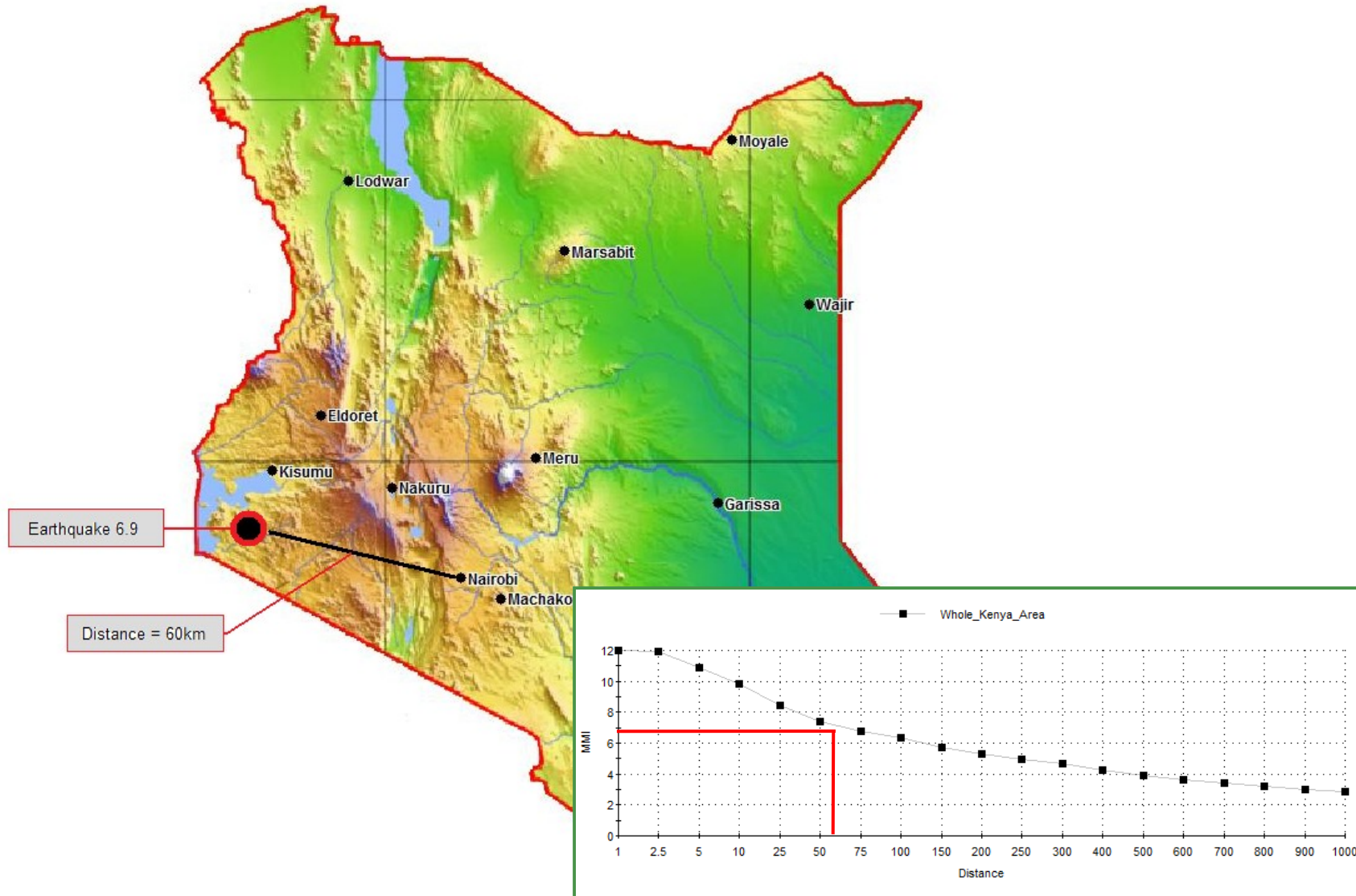
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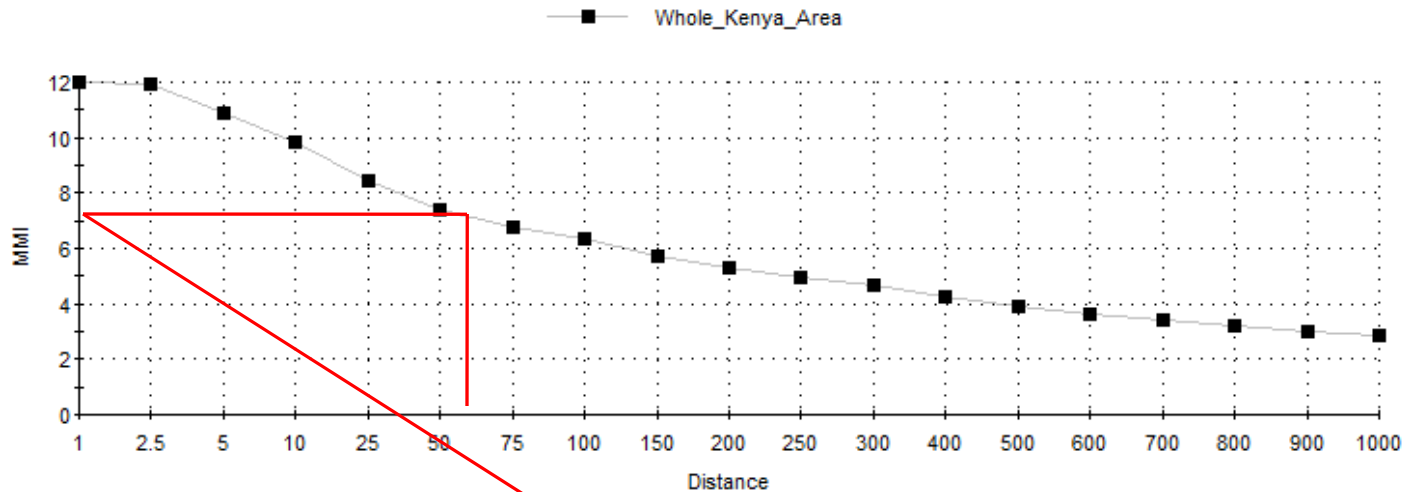
Earthquake Model Process



Earthquake Model Process

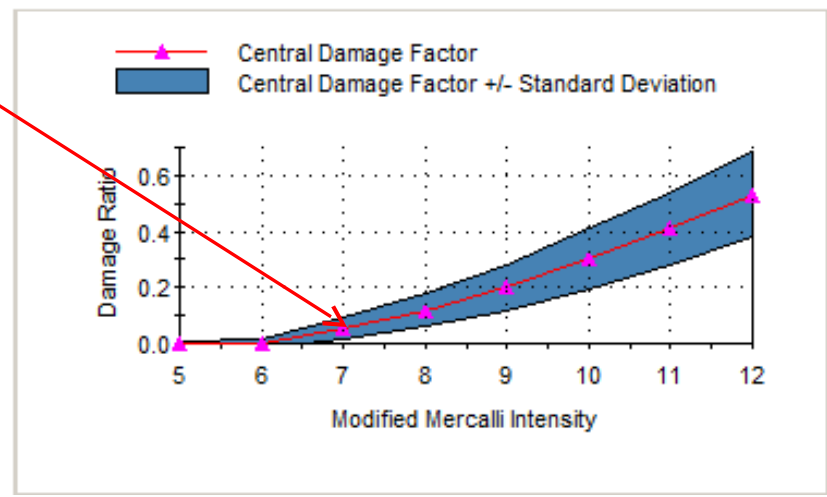


Earthquake Model Process



| MMI | MU |
|-----|----------|
| 5 | 0.000000 |
| 6 | 0.000000 |
| 7 | 0.054500 |
| 8 | 0.118200 |
| 9 | 0.200000 |
| 10 | 0.300000 |
| 11 | 0.409100 |
| 12 | 0.531800 |

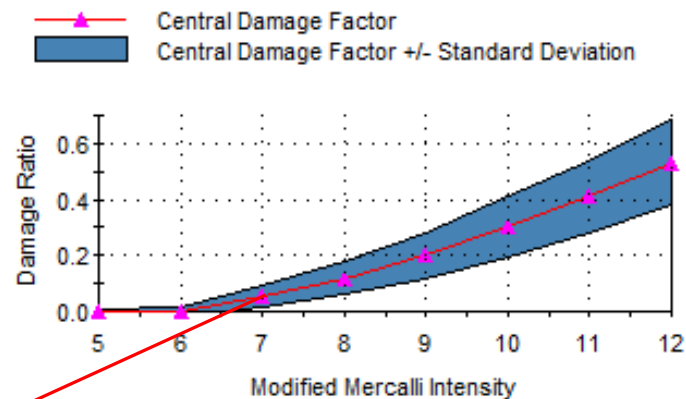
Class of Business: Fire
 Source of Business: XYZ Brokers
 Type of Risk: Commercial Property



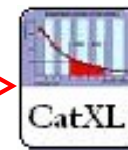
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XLS - Xtreme Loss Solutions Earthquake 2.0150

XTREME LOSS SOLUTIONS
Earthquake

X L S

Simulations

Reinsurance Contracts

Exposure Lists

Define Attenuation Equations

Define Variable Distributions

Define Seismic Zones

Upload list of Earthquakes

Command1

Backup

Maintain DB

Define Users



▶ (A) Installation of XLS Model on client's premises

- ▶ Installation includes 1 days training
- ▶ 24 hour access and internal parameterisation
- ▶ More empowered to make decisions on Cat Cover
- ▶ Exclusive Reinsurance Broker License for 5 years
- ▶ Discount for Aon clients
- ▶ Non-clients welcome
- ▶ Contact Simon Chikumbu or Victor Mushaya

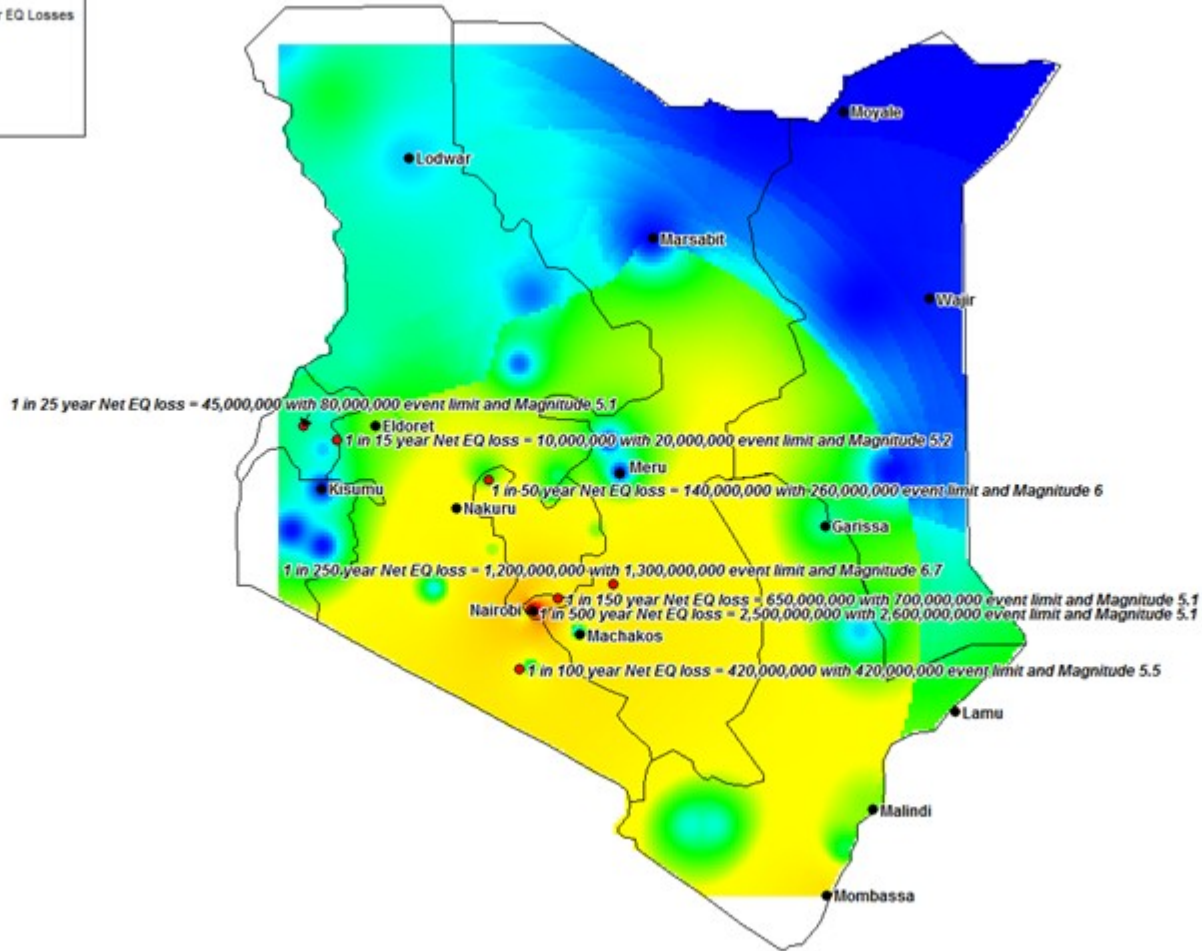
▶ (B) Annual report

- ▶ Clients provide data
- ▶ Aon Re - XLS run model
- ▶ Annual Report of results
- ▶ Cheaper than Option A
- ▶ Less benefits than A



Insurance Company Kenya
Net Retained Sums Insured and Return Periods for EQ Losses

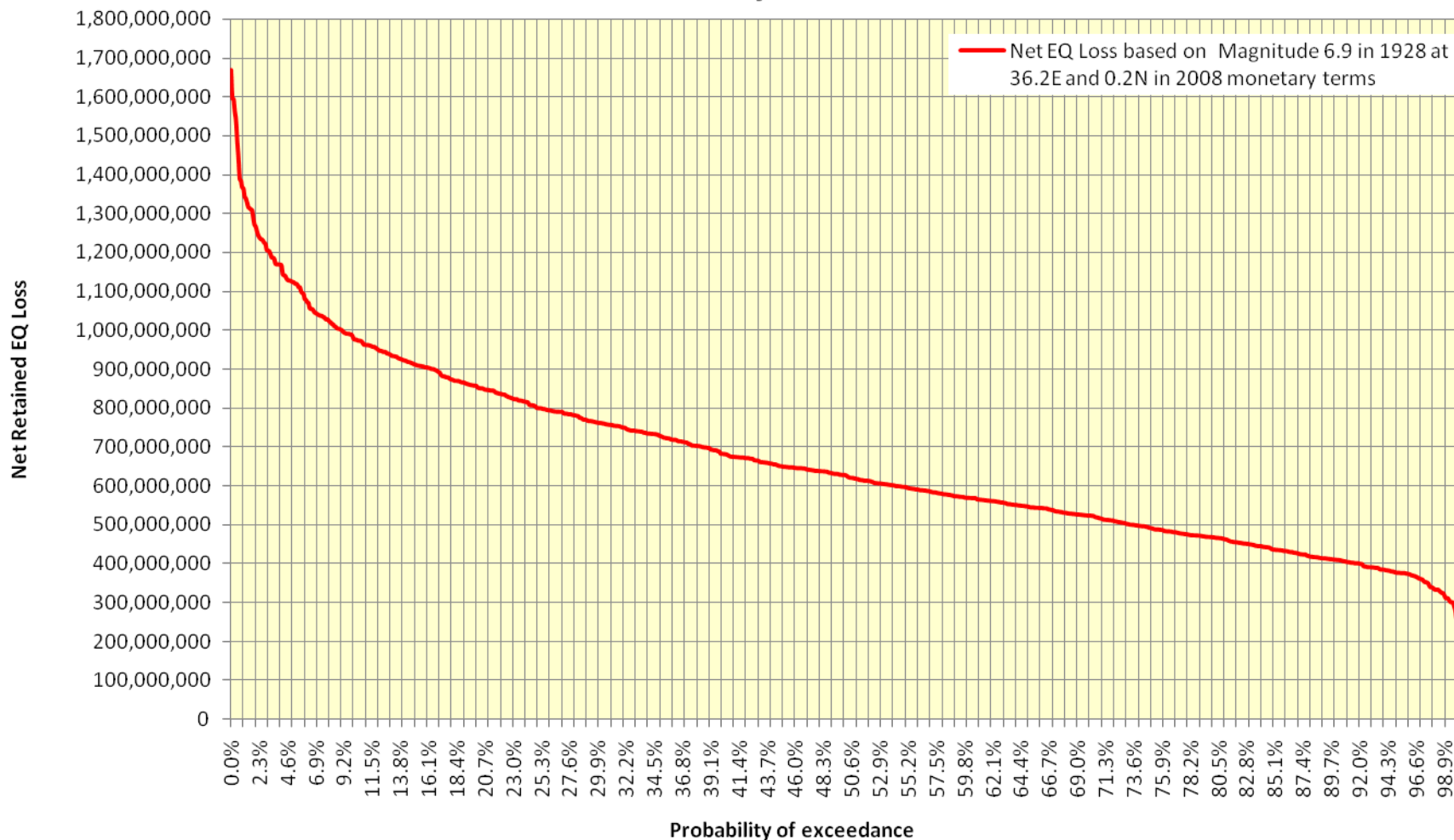
| |
|----------------|
| 23,900,000,000 |
| 1,000,000,000 |
| 500,000,000 |
| 200,000,000 |
| 0 |



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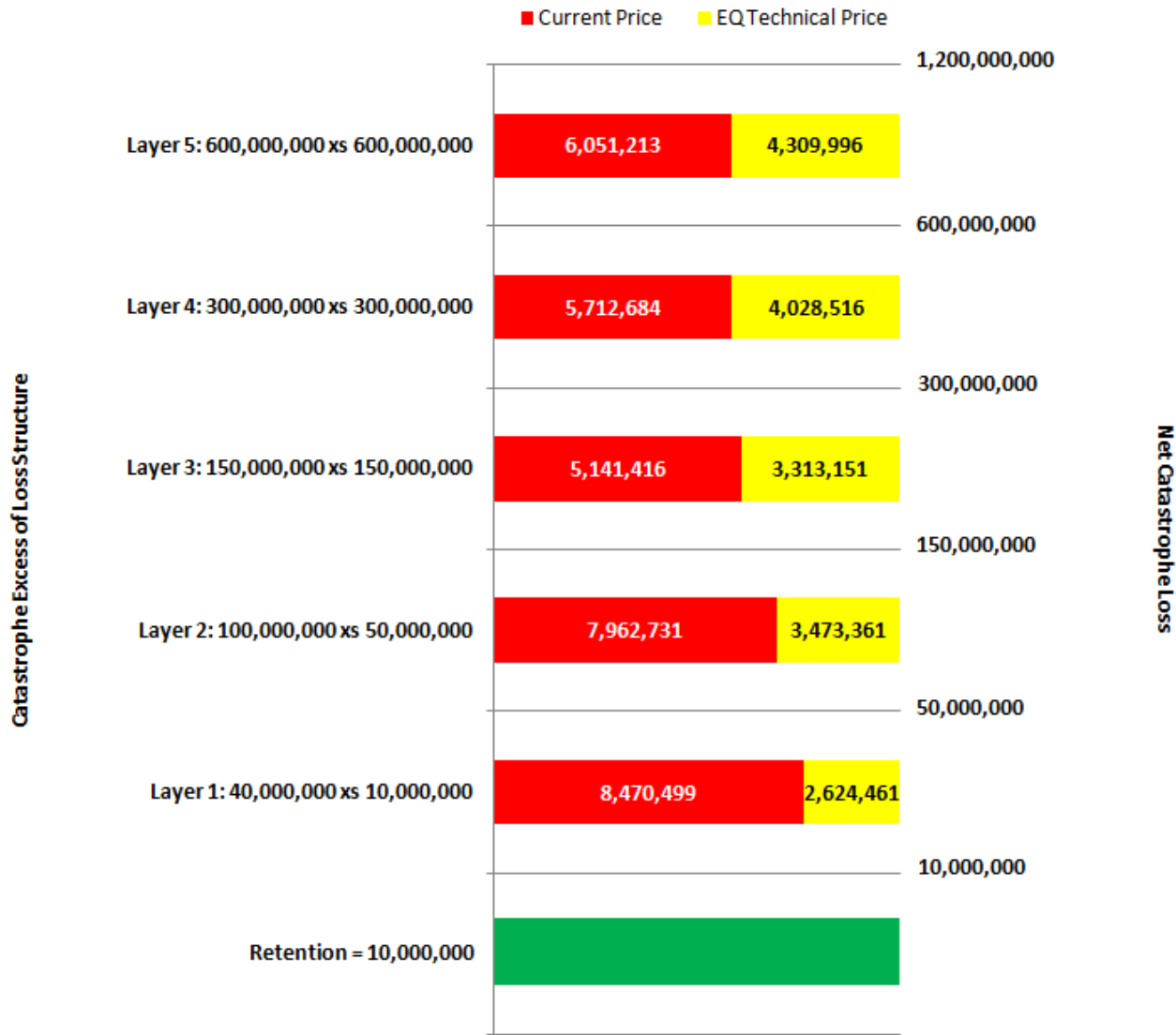


Net EQ Loss based on Magnitude 6.9 in 1928 at 36.2E and 0.2N in 2008 monetary terms



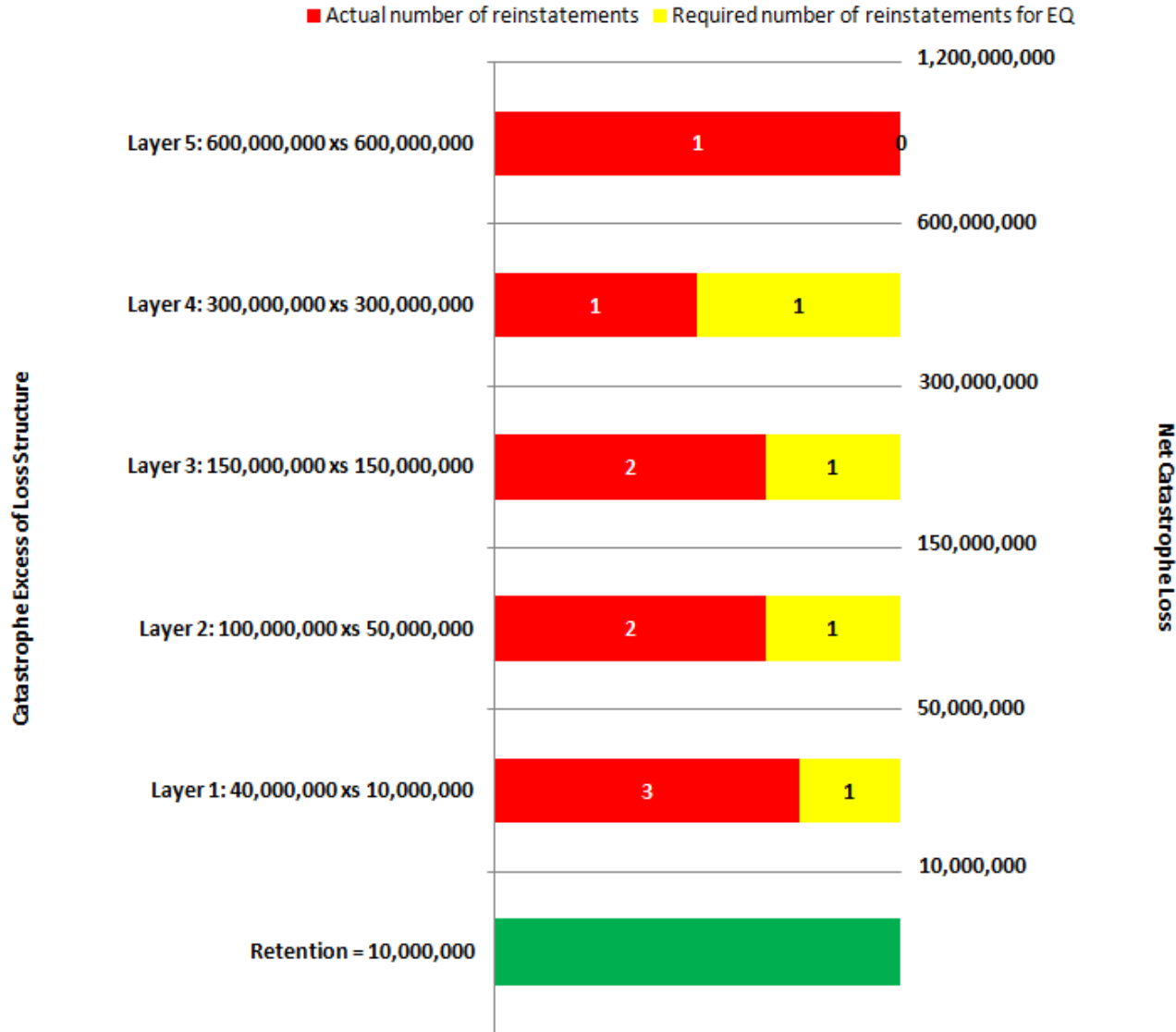
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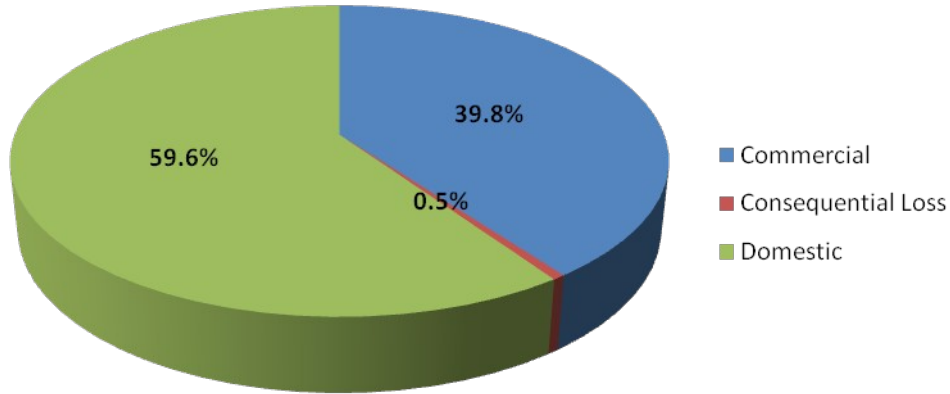




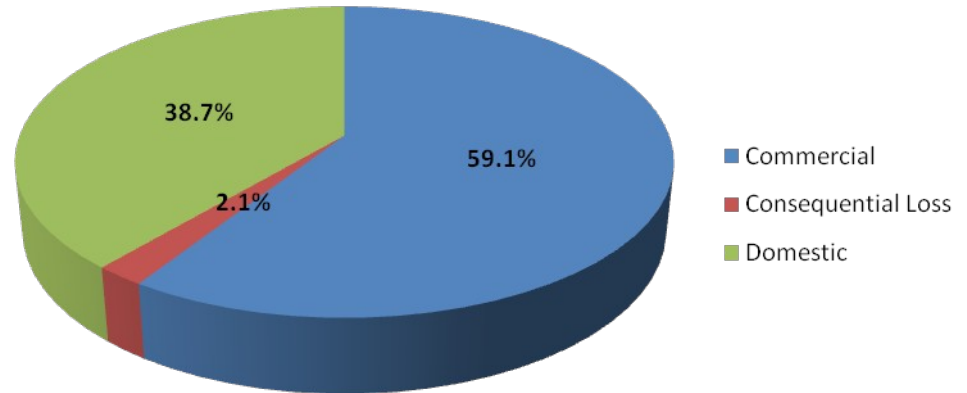
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Contribution to Catastrophe XOL Cost



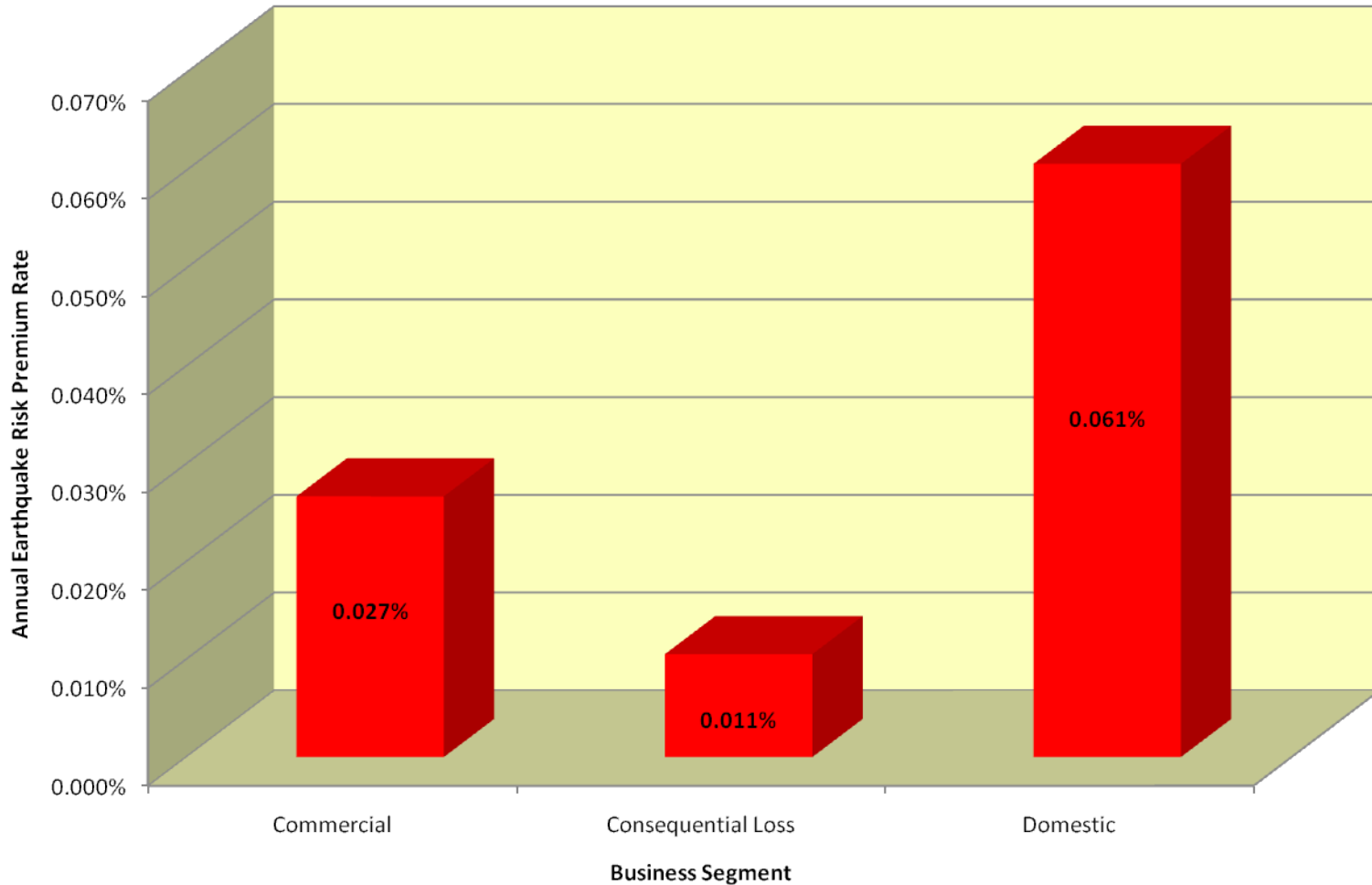
Percentage of Total Net Exposure



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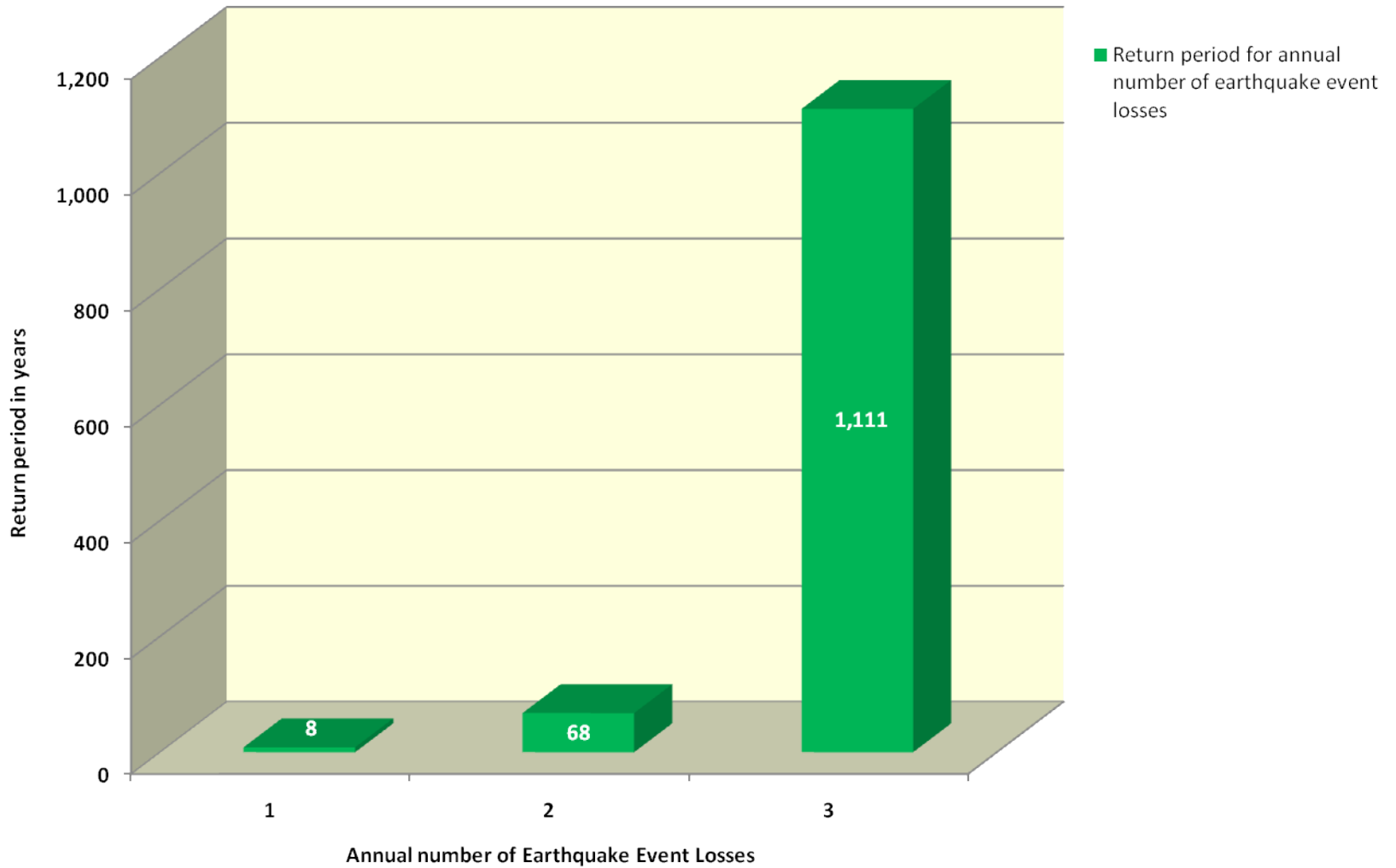
Annual Earthquake Risk Premium rate (Long-term average Earthquake Loss Ratio = 16.8%)



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Return period for annual number of earthquake event losses

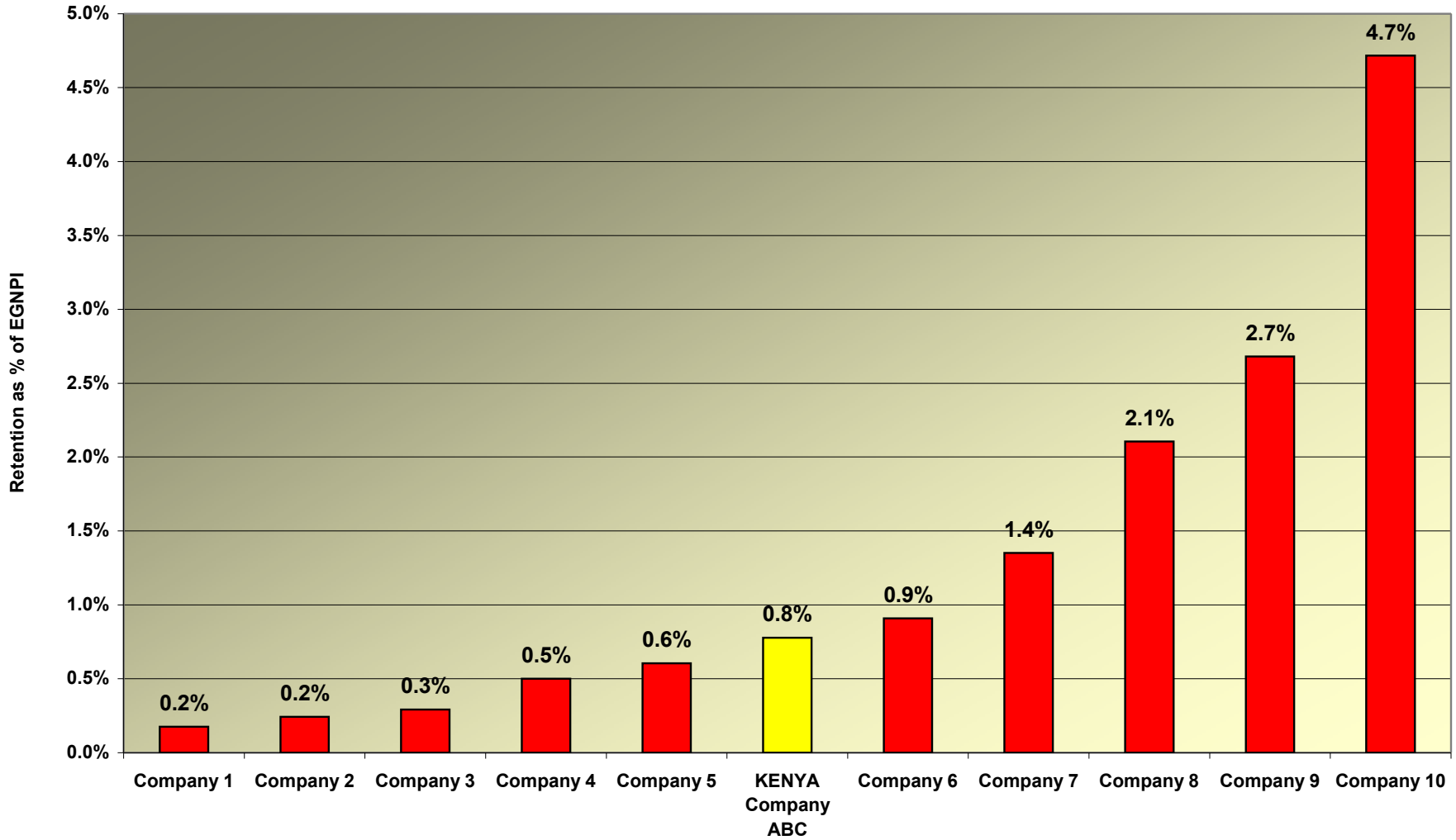


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Benchmarking

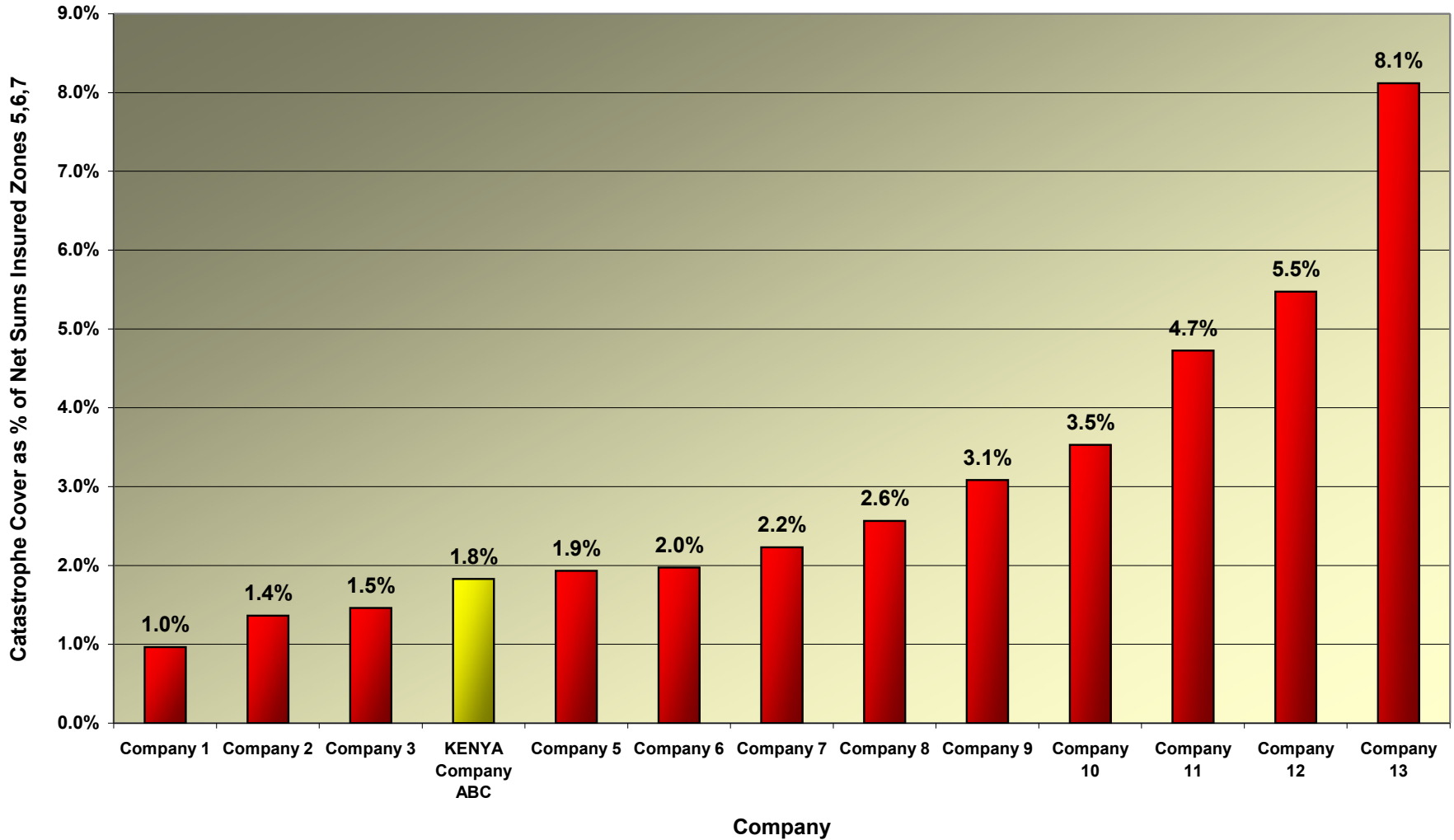
Catastrophe Retention as % of EGNPI



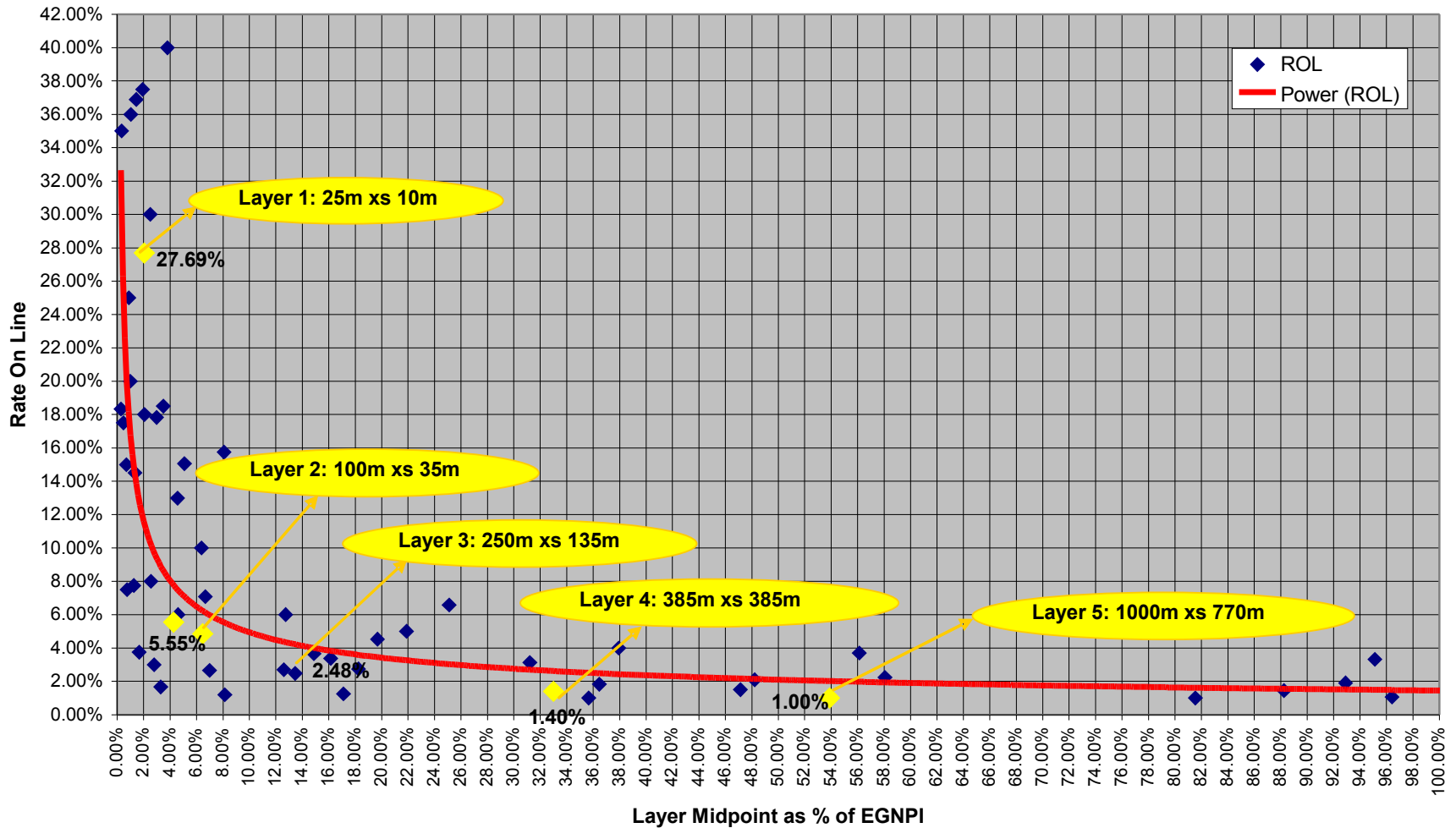
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Catastrophe Cover as % of Total Net Sums Insured



Catastrophe Market Rate on Line versus layer midpoint as percentage of EGNPI



- ▶ **Aon Re – Market leader**
- ▶ **Scientific proof**
- ▶ **XLS Independence – www.xtremeloss.co.za**
- ▶ **Purchase Model or Annual Report**
- ▶ **Kenya Data**
- ▶ **Peer reviewed**
- ▶ **Software Audit**
- ▶ **Transparency, Empowerment**

