Catastrophe Reserves and Special Reserves in Latino America

Atlanta

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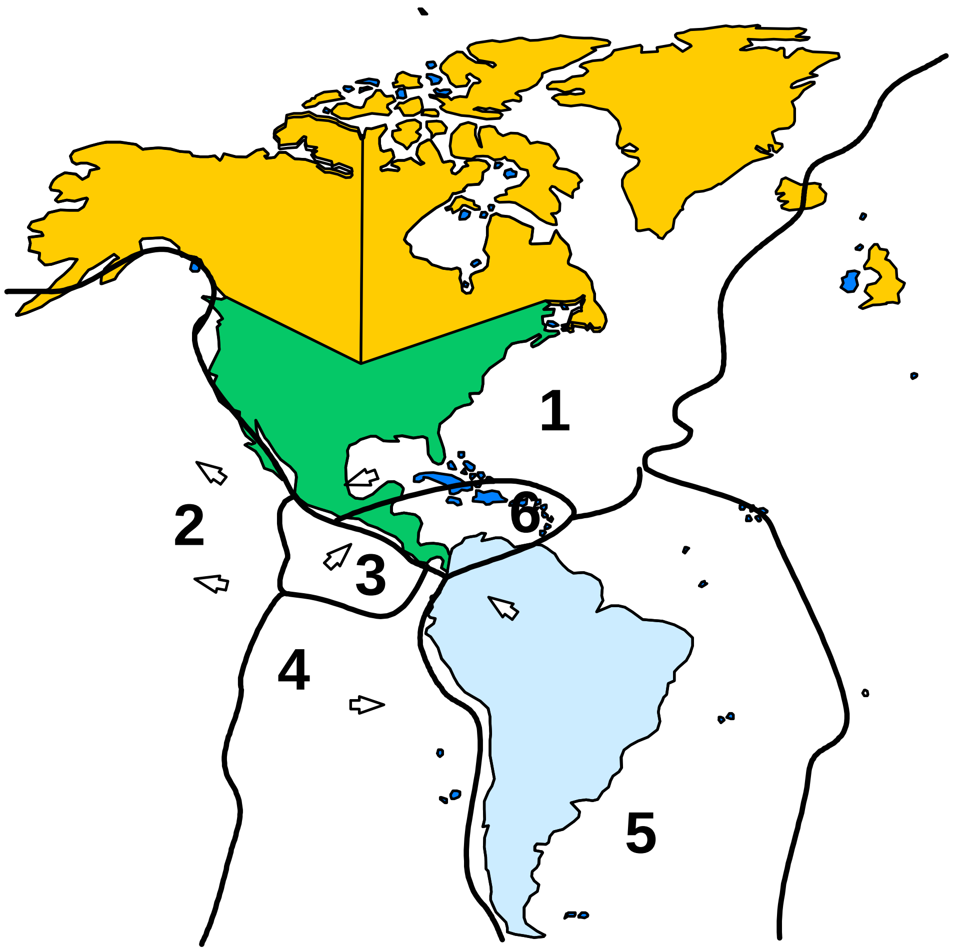
Tectonic Plates in America



1.- NORTH AMERICA PLATE

2.- PACIFIC PLATE

3.- COCOS PLATE

4.- NAZCA PLATE

5.- SOUTH AMERICA PLATE

6.- CARIBE PLATE

Source National Commission of Insurance and Guarantee Mexico

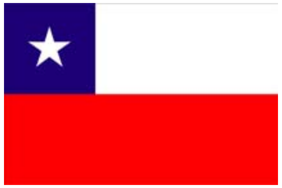
Earthquake Reserve in Chile

- The earthquake reserve is based on the Net Sum Insured amounts
- Catastrophic Reserve for Earthquake =

$$(\text{Priority} + \text{Max}(\text{PML} * \text{MTE} - \text{C XL}\ ,\ 0)\ ) * 1.10$$

  - PML: Probable Maximum Loss
    — For buildings and contents it is 10% of the total amount exposed
    — For the rest of affected risks it is 15%
  - MTE: Total amount exposed. It is the accumulation risk of the natural hazard in the geographic zone with the most exposure
  - C XL: Capacity of the excess of loss catastrophic contract
  - The 1.10 factor is a security margin

Earthquake Reserve in Chile



- Release of the Reserve
  - The company can release the excess of the Catastrophic Reserve for Earthquake when the excess exists for more than one year

Extraordinary Reserve for Guaranty and Liability in Chile

- There is an extraordinary reserve set equal to 5% of the net premium during the in force period
- The limit is 50% of the Unearned Premium Reserve
- The reserve can be used when there is an excess loss during the last 12 months
  - the excess loss is defined as losses in excess of a 70% net loss ratio
- The company has two ways to set the Reserve:
  - If the reserve was at a 100% level before it is used, the company has 2 years to create the reserve, or
  - the company needs to get a program approved by the Superintendent with the time to get the reserve before it is used

Earthquake Reserve in Colombia

- For Earthquake, the reserve will be created quarterly. The increase of the reserve is equal to 40% of the net premium
- The Limit of the reserve is two times the estimated PML for the company in the net accumulation risk of natural hazard in the seismic zone with the most exposures
- PML is 15% of the net accumulation risk of natural hazard

Workers Compensation Reserve in Colombia

- The reserve has the following attributes
  - It is for deviation in loss
  - It is set equal to 4% of the premium earned

- The limit of the reserve is 25% of the premium written of the last twelve months

Earthquake Reserve in Puerto Rico

- The Reserve is created using a percentage defined by the Commissioner
- The limit is four times the annual average of the net direct premiums for the last three years
- The amount needs to be deposited not later than January 31 of each year in a trust and is recorded as a loss not paid

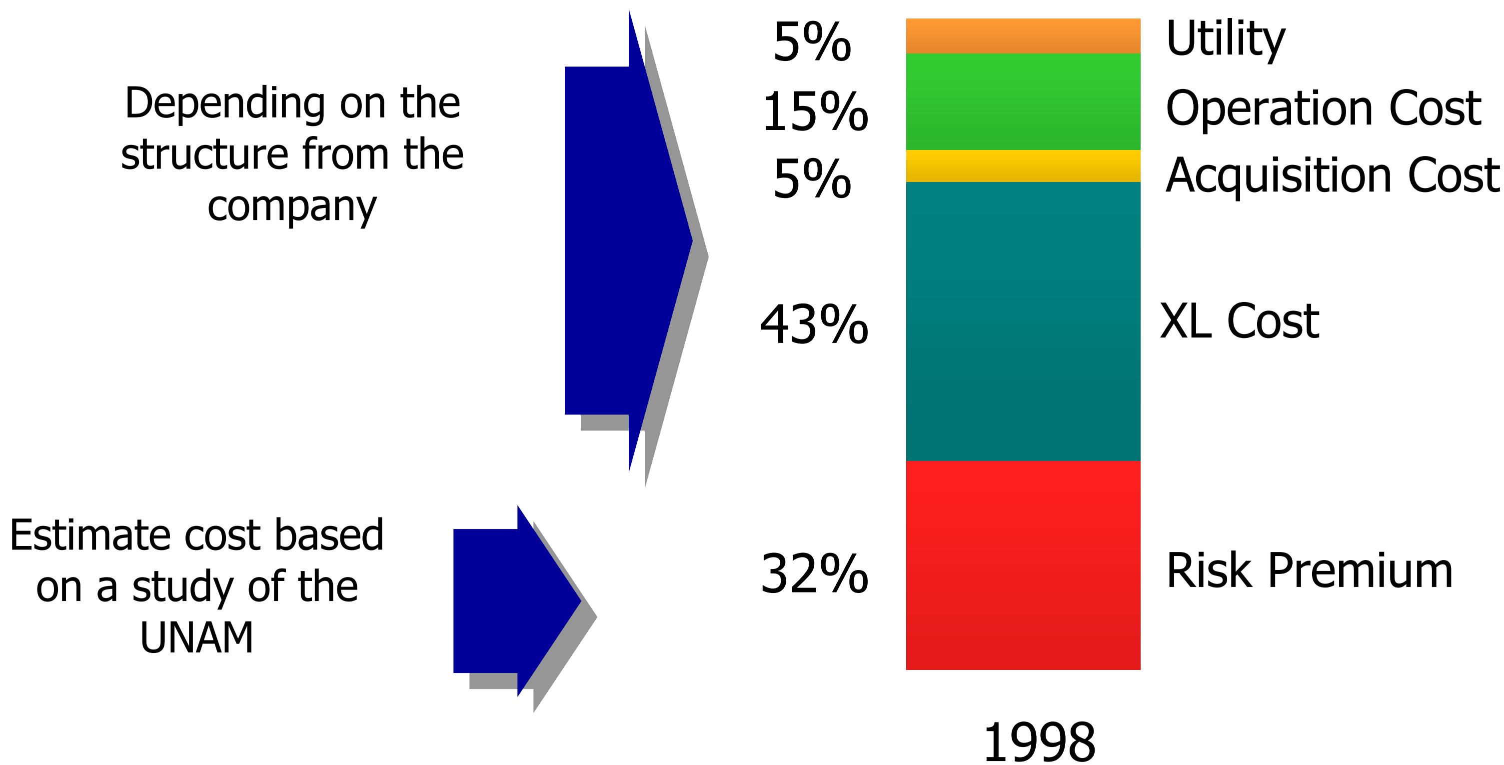
Earthquake Reserve in Mexico

- Mexico created a Catastrophic reserve in two forms. In both cases it is created gradually with the release of the Unearned Premium Reserve plus the investment income earned by the Reserve
- Special Risks
  - Unearned Premium Reserve is equal to 35% of the Net Premium
  - PML is 9% of the Net Sum Insured
- Measured Risks
  - PML value comes from the system used for calculate the unearned premium reserve

Earthquake Reserve in Mexico

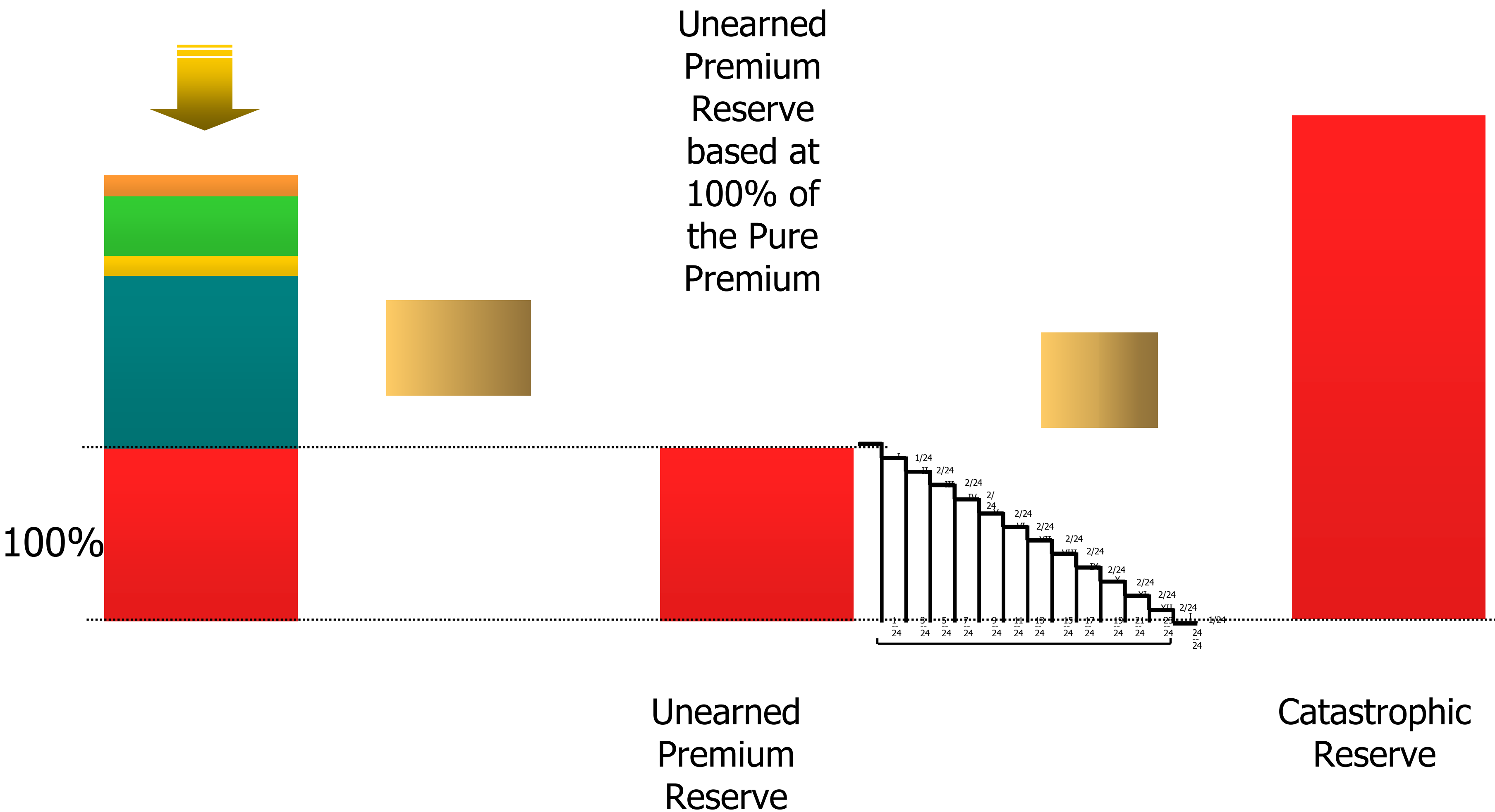
- The earthquake reserve is based on the Net Risk Premium
  - The Net Risk Premium considers the geographic location of the building and the characteristics of the building
- Characteristics of the estimation:
  - For each building, the estimation is conservative if the company enters less detailed information
  - The system would produce a more precise estimation through the risk premium and PML

Earthquake Reserve in Mexico



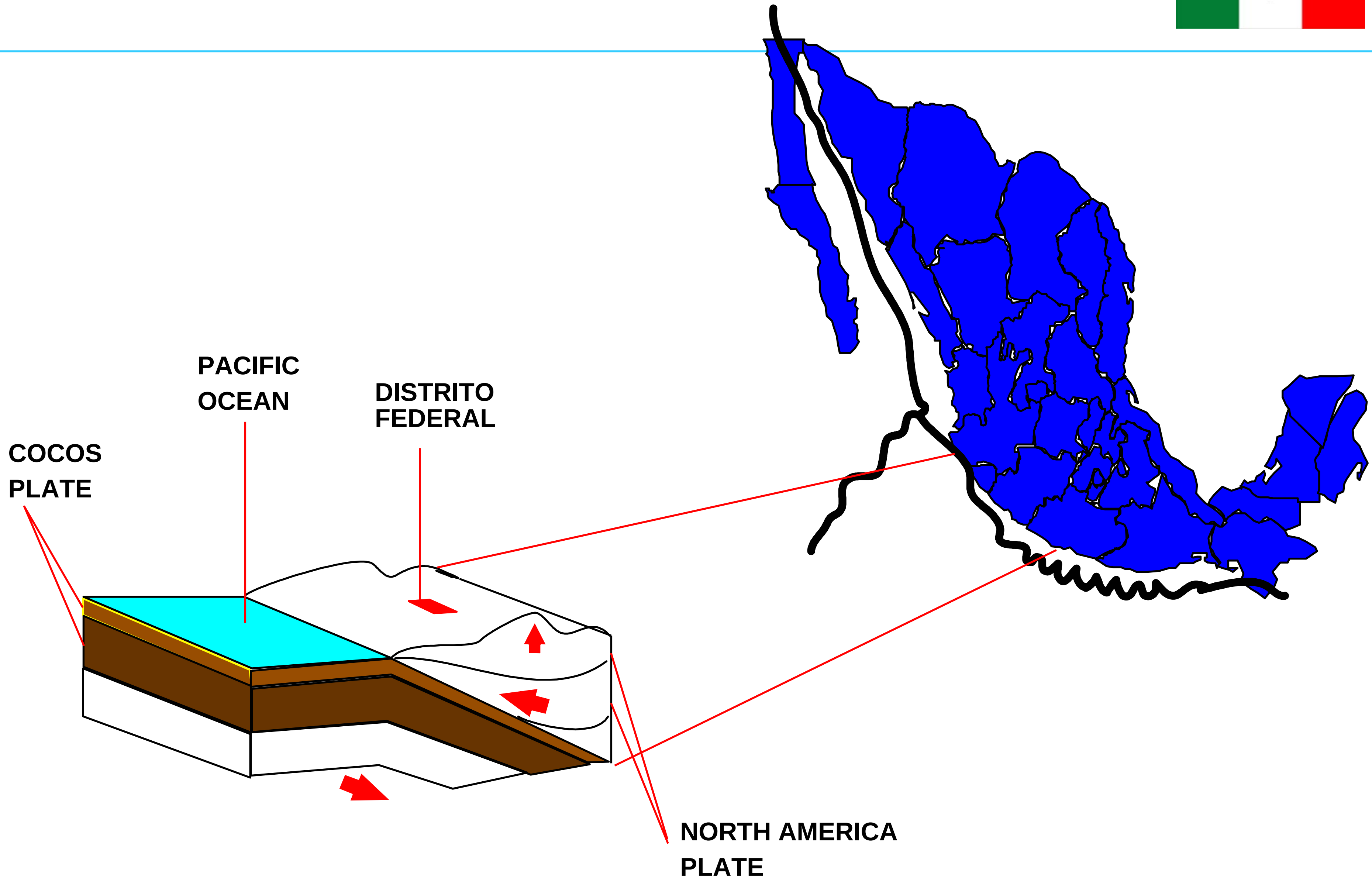
Source National Commission of Insurance and Guarantee Mexico

Earthquake Reserve in Mexico



Source National Commission of Insurance and Guarantee Mexico

Earthquake Reserve in Mexico



Source National Commission of Insurance and Guarantee Mexico

Earthquake Reserve in Mexico

- The “Instituto de Ingeniería” from the UNAM models the seismic activity as
  - The activity:

    Earthquake with magnitudes that follow a Poisson process (without memory): scale 6 or less in Richter
  - Typical Earthquakes:

    Continue Earthquakes, the magnitude depends of the elapsed time since the last earthquake and the energy accumulation in the epicenter: scale 6 or more in Richter

Earthquake Reserve in Mexico

- Limit of the Reserve:
  - 90% of the average net PML (ceded proportional reinsurance) updated with inflation from the last five years

Hurricane and Flood Reserve in Mexico

- The hurricane and flood reserve is primarily based on the Net Sum Insured Amount and on a factor that reflects the type of building and the height of the building above the sea level
- Hurricane and Flood Reserve =

  NSA * Factor1 * Factor2

  - NSA: Net Sum Insured Amount
  - Factor1: Earned Factor

    This factor is calculated as of the number of days during which the policy was in force divided by the total length of the policy (in days)

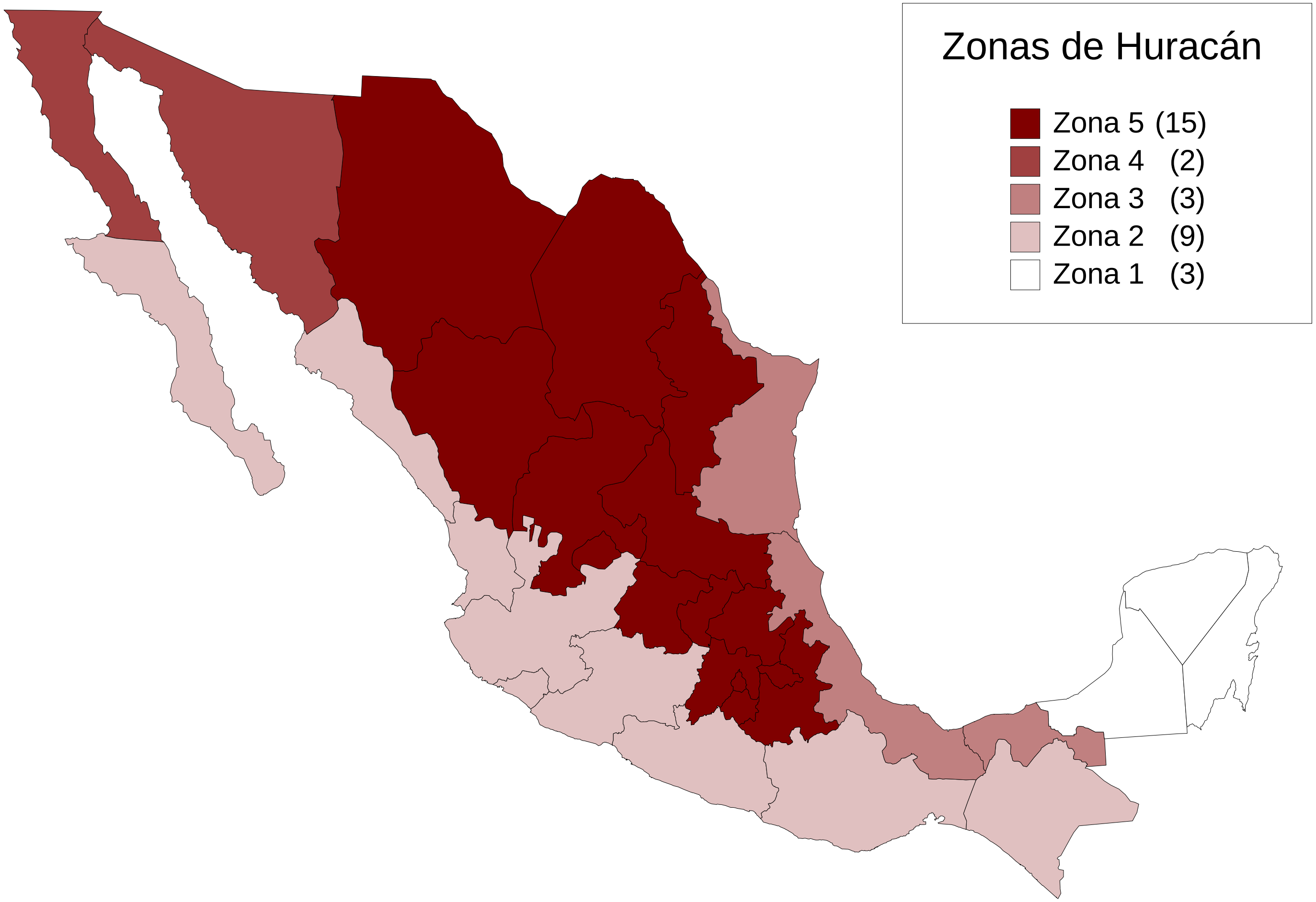
Hurricane and Flood Reserve in Mexico

- Factor2:

  Factor depending of the type of building and the height above the sea level as follows:

Type of building	Height above the sea level		
	< 500 mts.	500 – 1000 mts.	> 1000 mts.
Houses	0.000863	0.000165	0.000070
Buildings of walls and solid ceilings	0.000637	0.000295	0.000205
Buildings of light ceilings, industrial ships and other buildings not classify	0.001210	0.000446	0.000280

Hurricane and Flood Reserve in Mexico



Source Mexican Association of Insurance Companies AMIS

Crop and Live Stock Reserve in Mexico

- The crop and live stock reserve is based on the Net Premium and on an Earned Factor

  Catastrophic Reserve = Net Premium * Factor * 0.35

  - Factor: Earned Factor

    This factor is calculated as of the number of days during which the policy was in force divided by the total length of the policy (in days)

  - Up to now there is not a PML estimation for the reserve

Liability travel

- Liability Travel Reserve = Average Net Premium of the last two months * 1/12 * 0.71 + (FP + RC – NL – XLP)

  - FP: Financial Product
  - RC: Reinsurance commissions
  - NL: Net losses
  - XLP: Excess of loss premiums

Liability travel

- Limit of the Reserve is the Maximum of:
  - 800,000 UDIs, UDI=3.6 pesos
  - From the last 36 months, the Total Sum Insured of the largest 80 policies