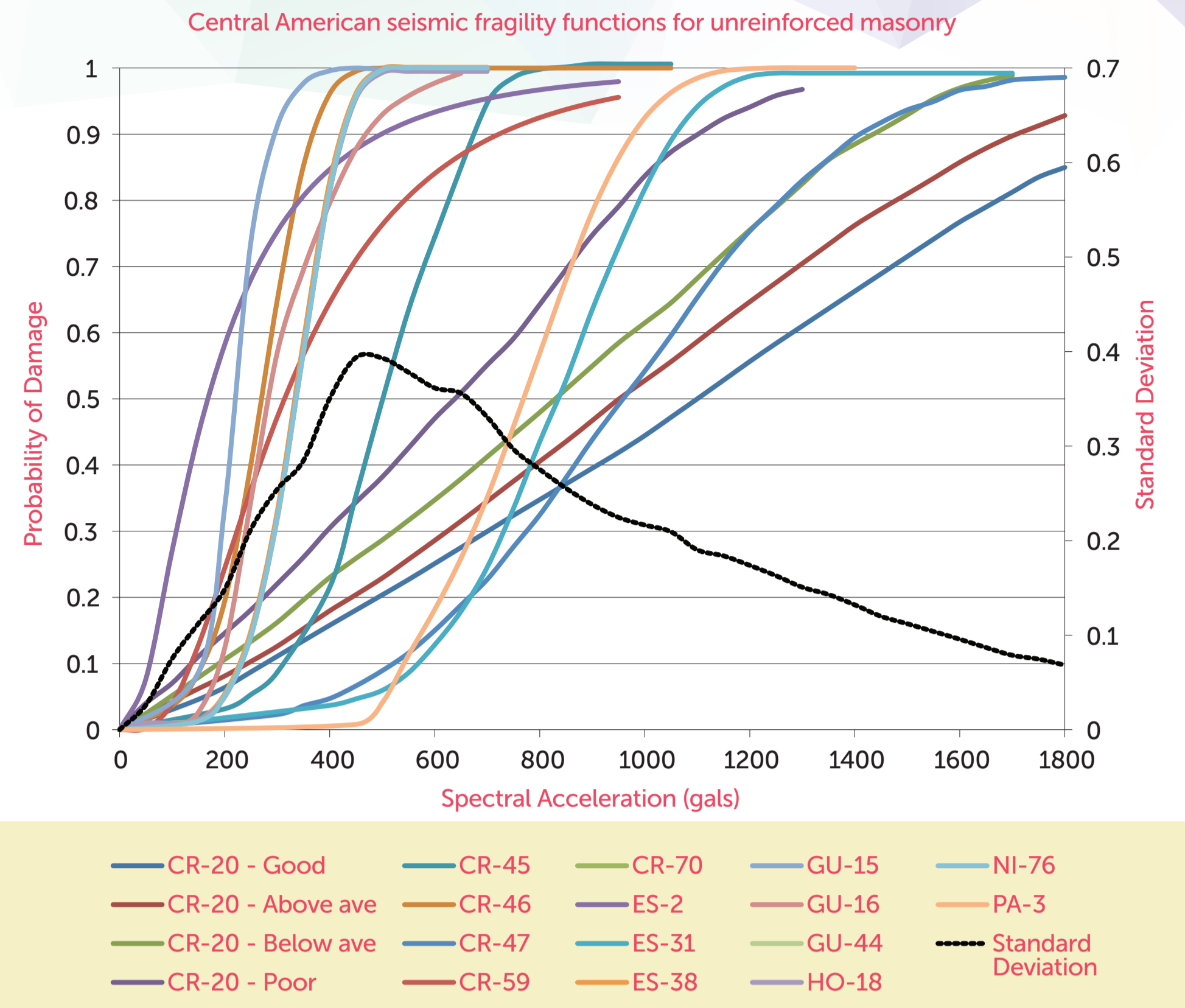


How to select the best vulnerability functions for seismic risk assessments



What is the product?

A tool that helps select the most appropriate vulnerability (aka fragility) functions for use in a seismic risk assessment.

The tool:

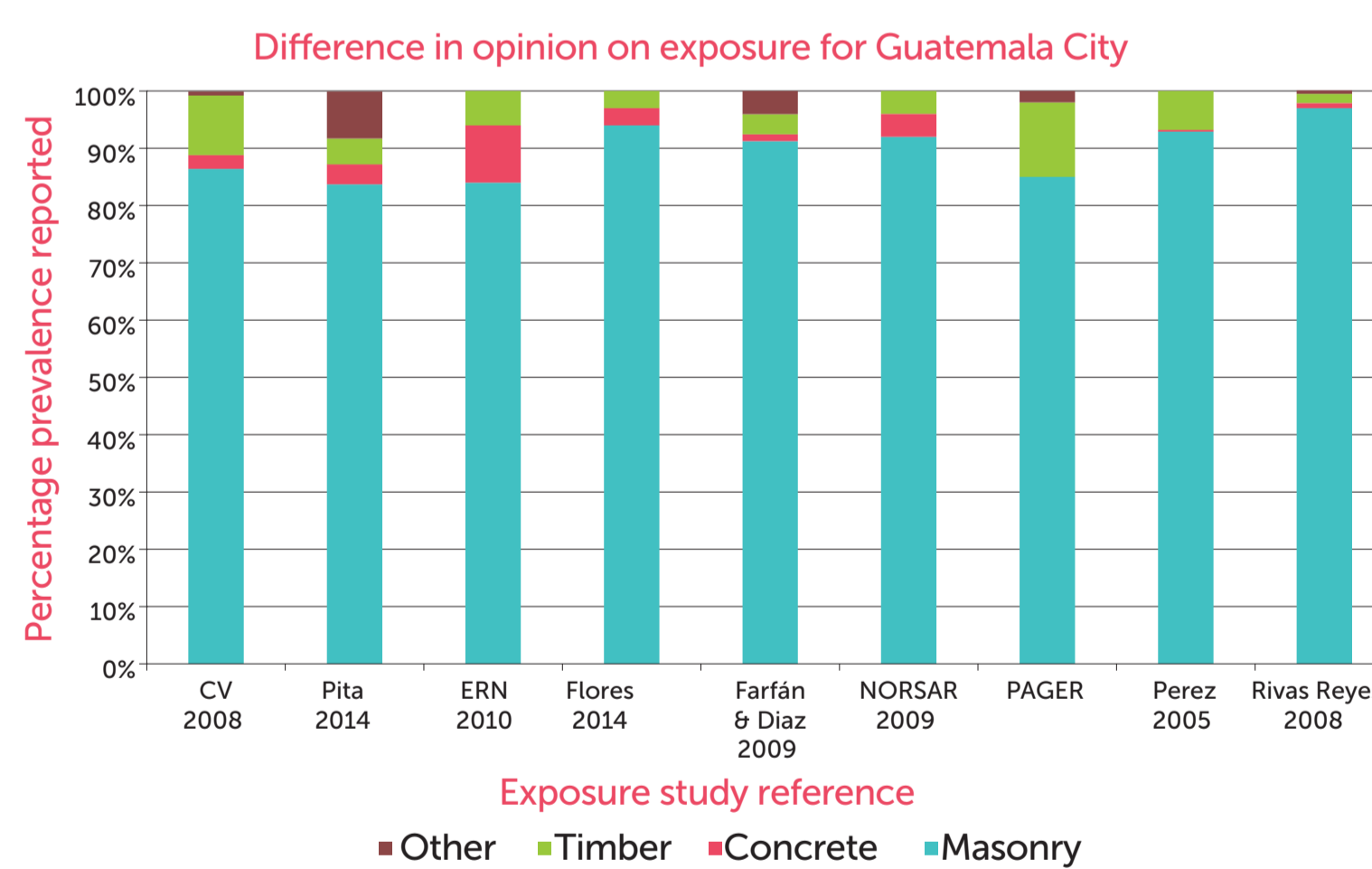
- Identifies the **range** of different vulnerability functions available and their **uncertainties** to be used in a seismic risk assessment.
- Ranks** seismic vulnerability functions and then identifies the most appropriate functions for users' needs including when little information is known.
- Helps users to understand the **variation in losses** of the seismic risk assessment.

How could the product be used?

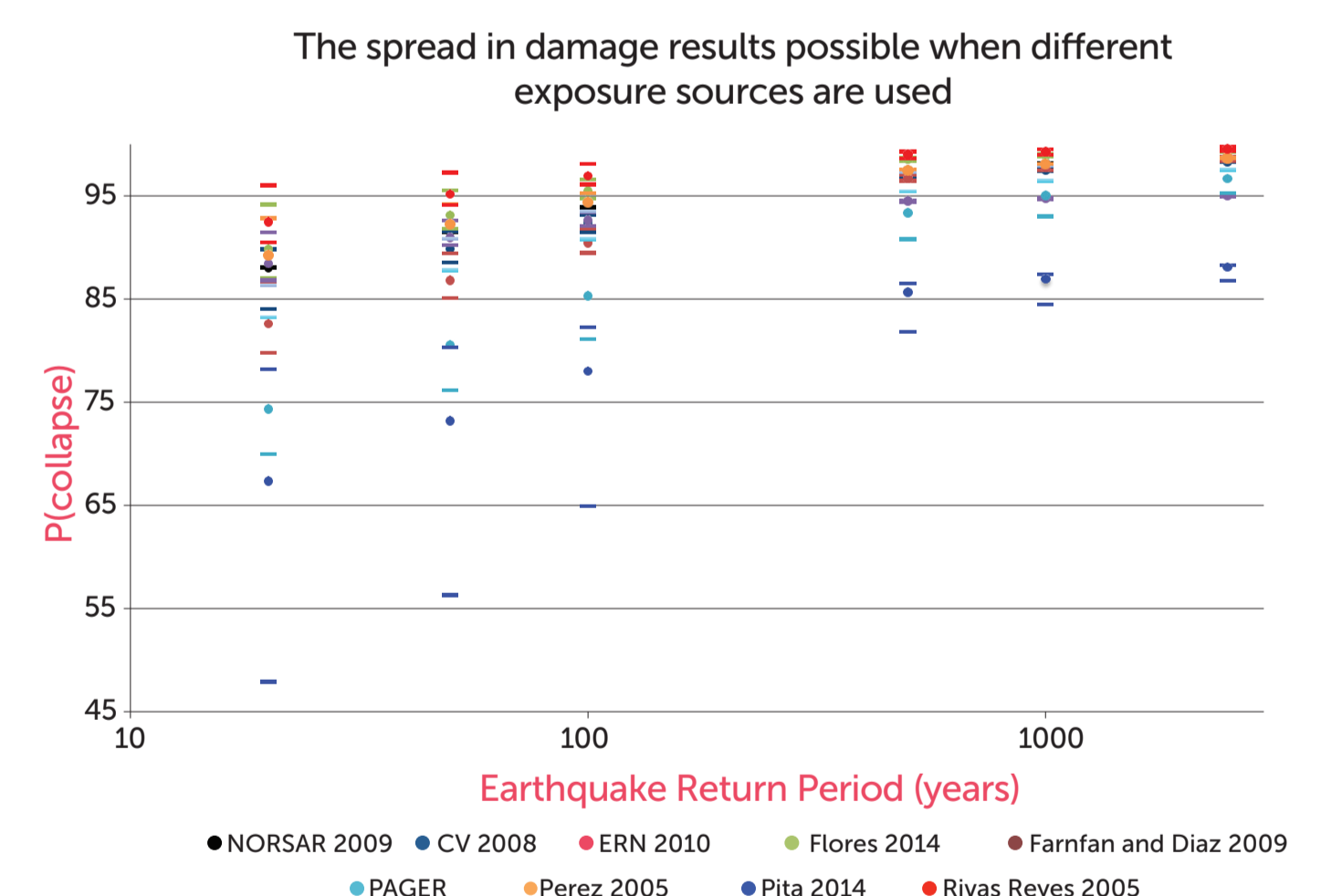
SNAPSHOT **Guatemala City:**

- Nine different sources** of structural exposure and vulnerability information for Guatemala City compared. **Masonry buildings** account for the vast majority of structures.
- Large uncertainty in exposure results: 47% to 96%** probability of collapse depending on which function is selected.
- Uncertainty in results decreased with increasing earthquake return period (RPs).**

Range of possible vulnerability sources



Varying uncertainty and impact for different RPs



Why is it important?

This tool helps to:

- Identify the **most appropriate** vulnerability functions to use for seismic risk assessments.
- Communicate and quantify range and uncertainty of EP curves to facilitate discussions with MoF and re/insurance sector.

Potential uncertainties observed	Minimum damage/loss	Maximum damage/loss	Uncertainty
Exposure	47%	96%	~200%
Vulnerability	12%	89%	~700%