Catastrophe Modelling
MSME Insurance Webinar
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About KatRisk

- Cat Modelling Company in Berkeley, CA and Freiburg, DE
- Global Models For Atmospheric Perils
- Customers include some of the biggest insurers, reinsurers and insurance brokers
- Modelling agent for FEMA cat bonds
- IKI-Project “A Flood Model for the Philippines” with OASIS and Nat Re
- Scoping work with GIZ for follow on project
Catastrophe Models

- Estimate the probable losses caused by natural catastrophes
  - How much loss on average per year?
  - How much once every 10, 20, or 100 years?
  - How often do we get losses > 100m Dollars?

- Historical data is usually not sufficient
  - Extreme events are rare
  - Property at risk changes over time
  - Data is poorly tracked
  - Climate Change / Land Use Change / …

- Generate many “synthetic” events and calculate speculative losses
  - Events are realistic but have not happened
  - Extrapolation of observed Event characteristics

EP curve
Why do we need Cat Models?

- Insurance is based on risk sharing and uncorrelated loss.
- Local schemes need external backing if a single catastrophe affects large numbers of insured.
- Large insurers use cat models to price new business:
  - How much premium to charge?
  - How much capital to retain?
  - Where to grow business?

KatRisk
Data For Flood Models

- Precipitation, Wind, SST, DTM, Discharge, Flood, Damage and Loss Data
- High quality local data exists, but access can be challenging
Enhancing Cat Models’ Usefulness

- Traditionally only insurance users
- Wide group of stakeholders could use it, different in-house knowledge
- Changing climate and new knowledge
- Update Models with user data:
  - Keep large scale event characteristics
  - Change Vulnerability and Hazard
  - Cat Models as complicated “Copula”