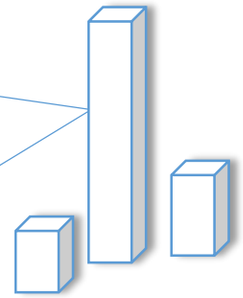
NatCatDAX Platform

BLDGID	1000157152
Latitude	-6.19
Longitude	106.82
Post Code	100
CRESTA	IDN_3173
District	Central Jakarta
Province	DKI Jakarta
Country	Indonesia
Building Height	50 m
Number of Storeys	12
Floor Area	22,023 m^2
Building Area	264,278 m^2
Occupancy Type	Commercial
Construction Type	Reinforced concrete



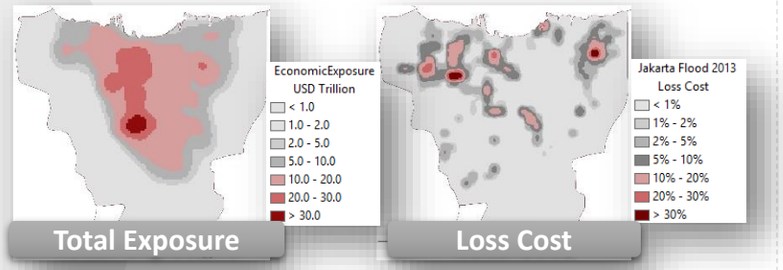
Building Attributes for Capital Regions
in South East Asia
Portfolio Benchmarking
Portfolio Enhancement

Underwriter

Re/Insurance Company

Actuary

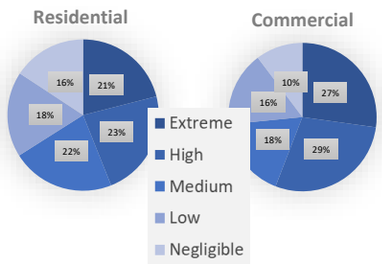
Risk Based Pricing through HotSpot Analysis



Portfolio

Accumulation
- Predefined Zones
- Hazard Zones

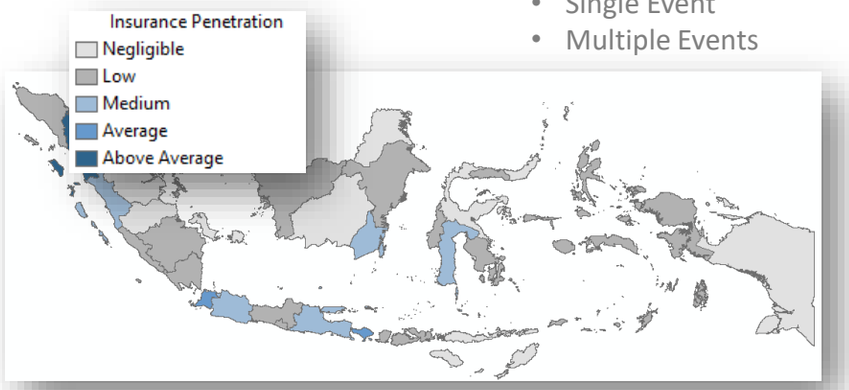
Deterministic Scenarios
- Single Event
- Multiple Events



Accumulation by EQ Hazard Zones

Reinsurance

Company Profiling
Portfolio Disaggregation



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NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE | Institute of Catastrophe Risk Management

NatCatDAX

Natural Catastrophe Data Analytics Exchange

NatCatDAX Consortium Partners

PERILS

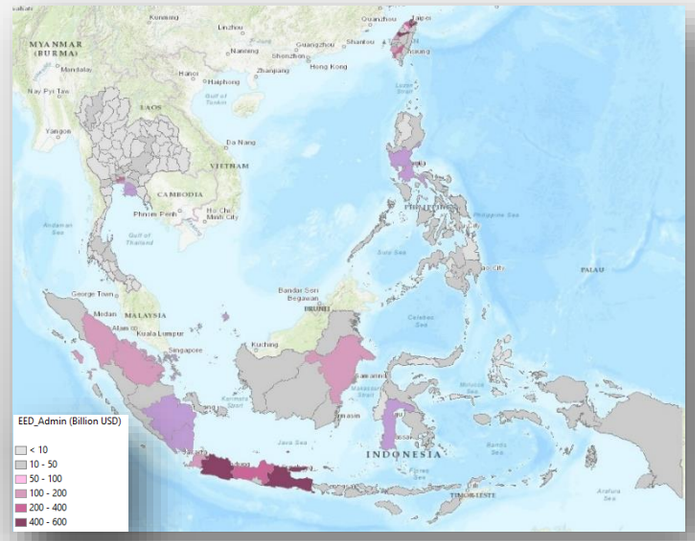
SINOTECH ENGINEERING CONSULTANTS, INC.

Economic Exposure Database

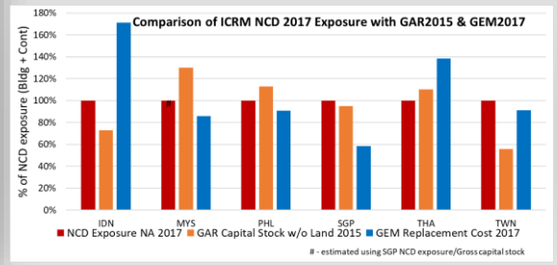
Satellite Imagery used to generate **Building Geometry**

- Satellite Imagery used to generate the Building Geometry: Building footprint and height for 2.5 million buildings
- Segmentation and filtering algorithms coupled with local/survey data applied to estimate Building Attributes: Occupancy, Structural Characteristics, Number of Storeys, Basement and Year Built

Gross Capital Stock (GCS) used to estimate the **Exposure Values**

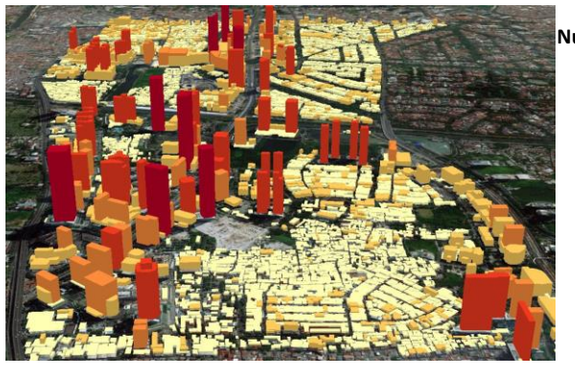


- National exposure via GCS is downscaled to **administrative (provincial) level**
- Exposure is **disaggregated by LoB: residential, commercial, industrial, primary and public**
- Estimated total exposure values consistent with GAR and GEM



Building Replacement Value

- Replacement Value of each building is estimated using GCS and Construction Cost approaches
- Satellite Imagery represents building level census information for the National Capital Regions
- 1.2 Million Buildings across Jakarta show comparable results between GCS and Construction Cost

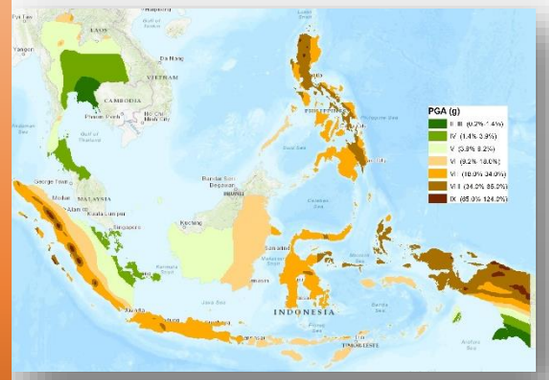


Jakarta subset 535 km²

Number of Buildings	775,584	119,425	30,631	67,066	992,706
	Residential	Commercial	Industrial	Public	Total
<-2.0	0%	0%	0%	0%	0%
-2.0 to -1.5	0%	0%	0%	0%	0%
-1.5 to -1.0	0%	0%	0%	0%	0%
-1.0 to 0.75	3%	2%	6%	2%	3%
-0.75 to 0.75	**97%**	**93%**	**88%**	**93%**	**96%**
0.75 to 1.0	0%	1%	2%	1%	0%
1.0 to 1.5	0%	1%	2%	1%	0%
1.5 to 2.0	0%	0%	0%	1%	0%
> 2.0	0%	2%	1%	2%	0%

Economic Loss Database

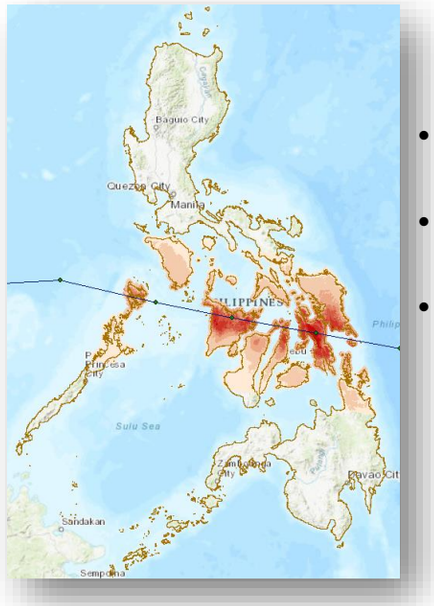
Earthquake



- Return Period of 475 and 2,475 years hazard maps for SE Asia
- PGA Hazard layers for EQ in Aceh 2004 and Bohol 2013

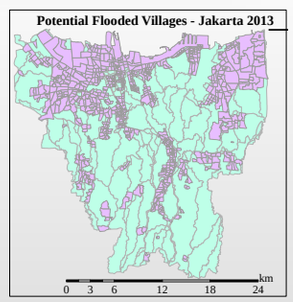
- Catalogue of Earthquake Events for 1900 - 2019
- Reported and Normalized Economic Loss for significant events in S.E. Asia

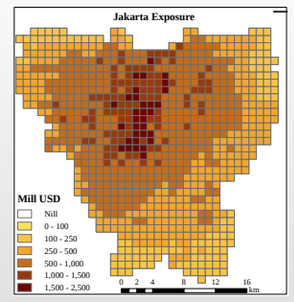
Typhoon

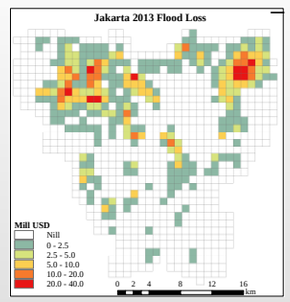


- Best Track Catalogue of Typhoon Events 1951 - 2019
- Reported and Normalized Economic Loss for significant events for S.E. Asia
- Typhoon Haiyan/Yolanda 2013 peak gust and storm surge maps

Flood







- Flood extents for major Flood Events:
  - Jakarta 2013 flood and Thailand 2011 flood
- Reported and Normalized Economic Loss for significant events in S.E. Asia