

Field Survey Report of the 28 September Earthquake Tsunami of Sulawesi, Indonesia

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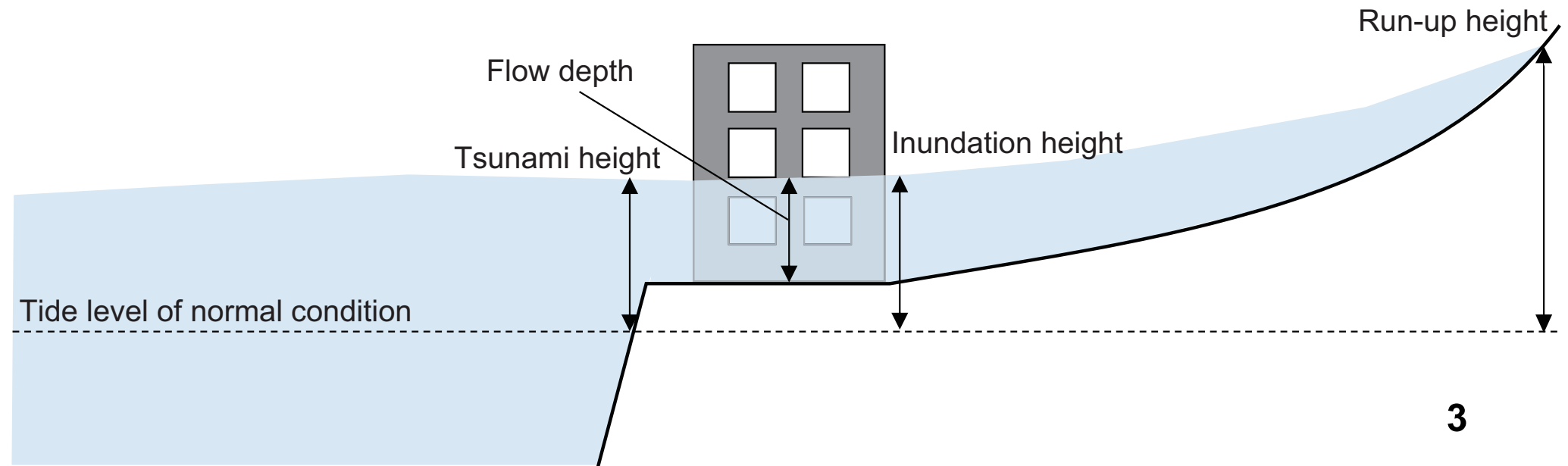
(Ministry of Marine Affairs and Fisheries, Indonesia)





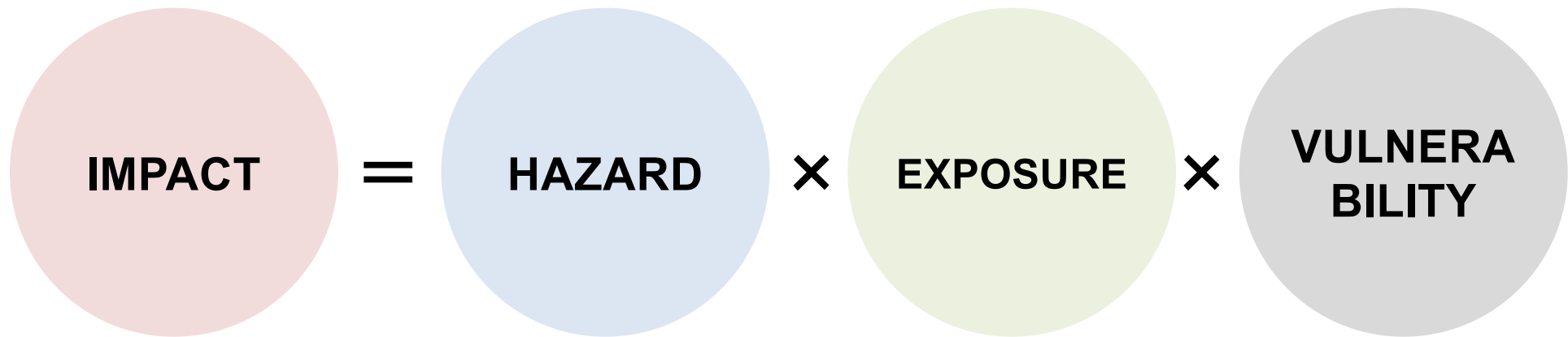
Purpose of the Survey

- Measuring tsunami **flow depth** for understanding **vulnerability** against tsunami in Palu.
- Using the insights for future land use management.



Disaster Impact

Consequences of the interaction among hazards and exposure



Survey Team Track

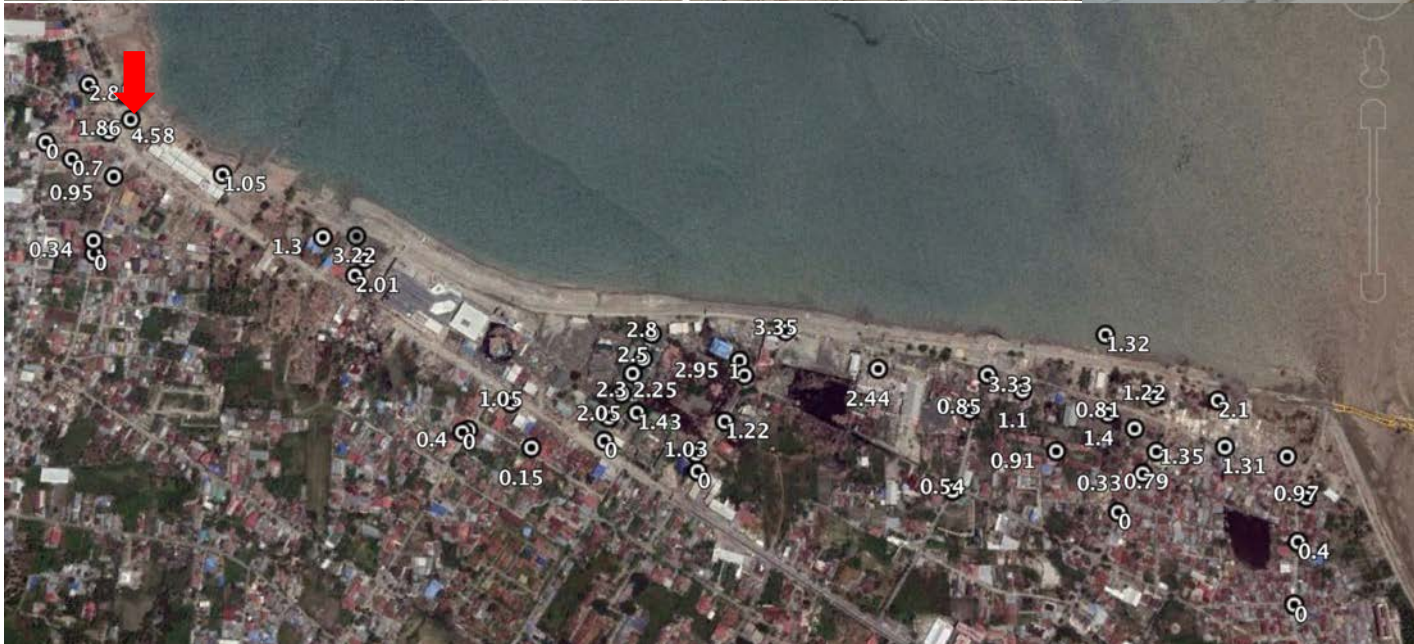


Image © 2018 DigitalGlobe

Google Earth

Measurement of Flow Depth

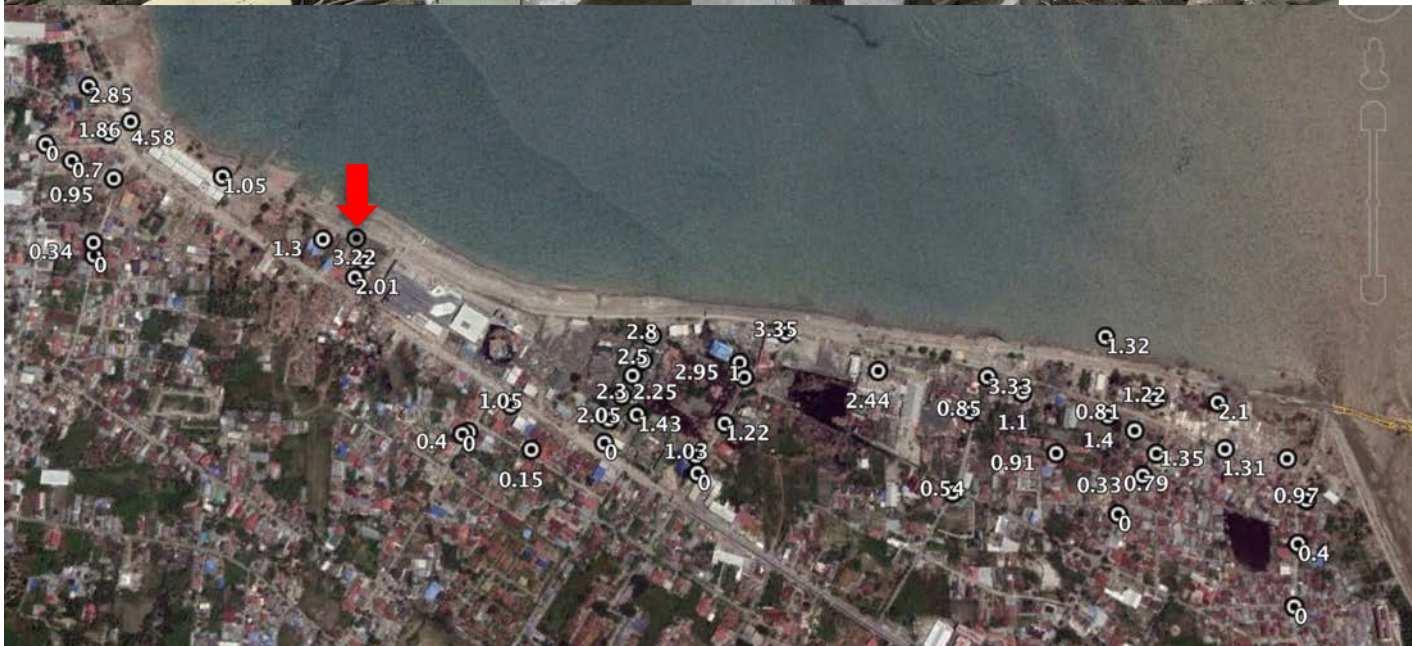








Flow depth : 3.22 m



0 125 250 500
m

Field survey

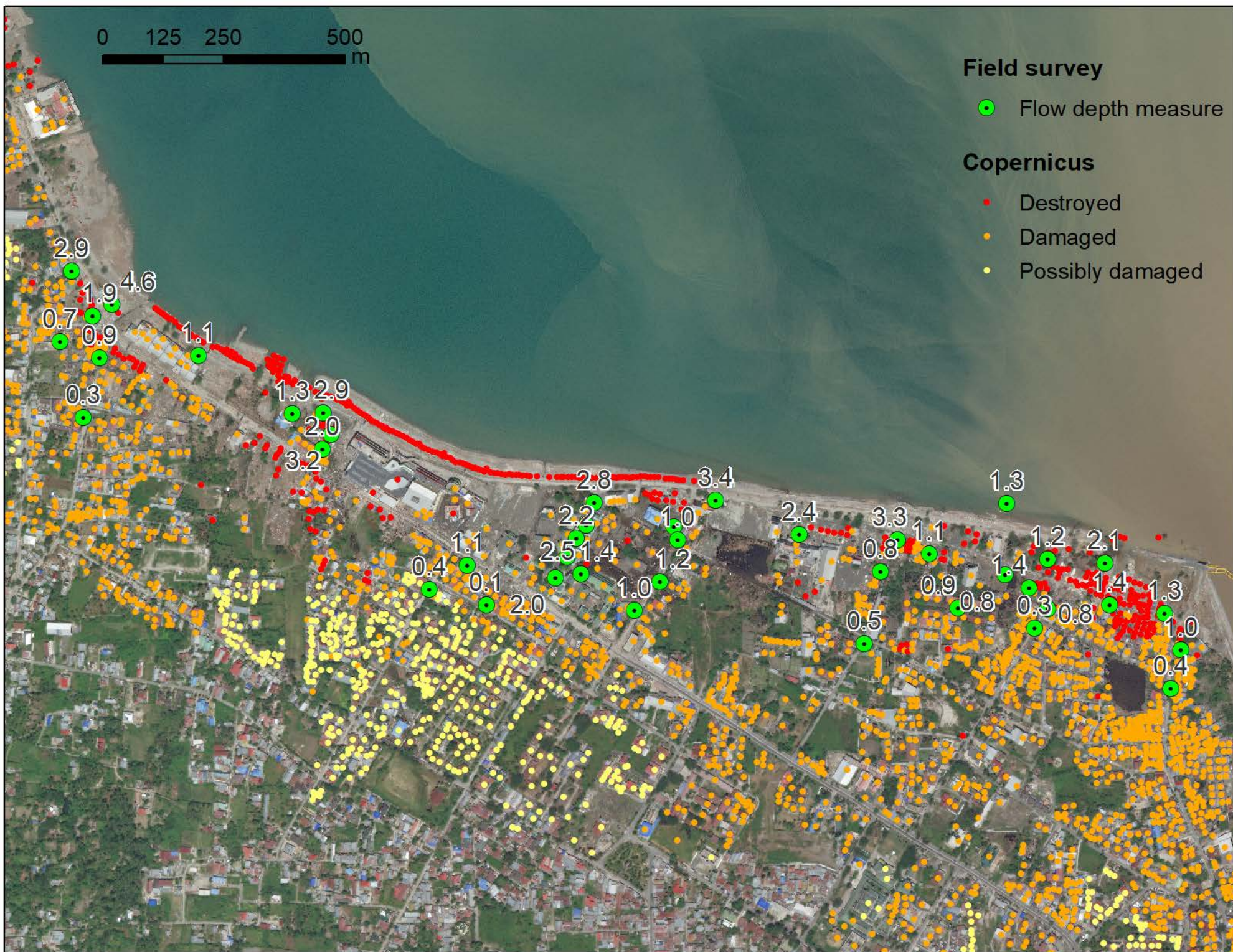
● Flow depth measure

Copernicus

● Destroyed

● Damaged

● Possibly damaged

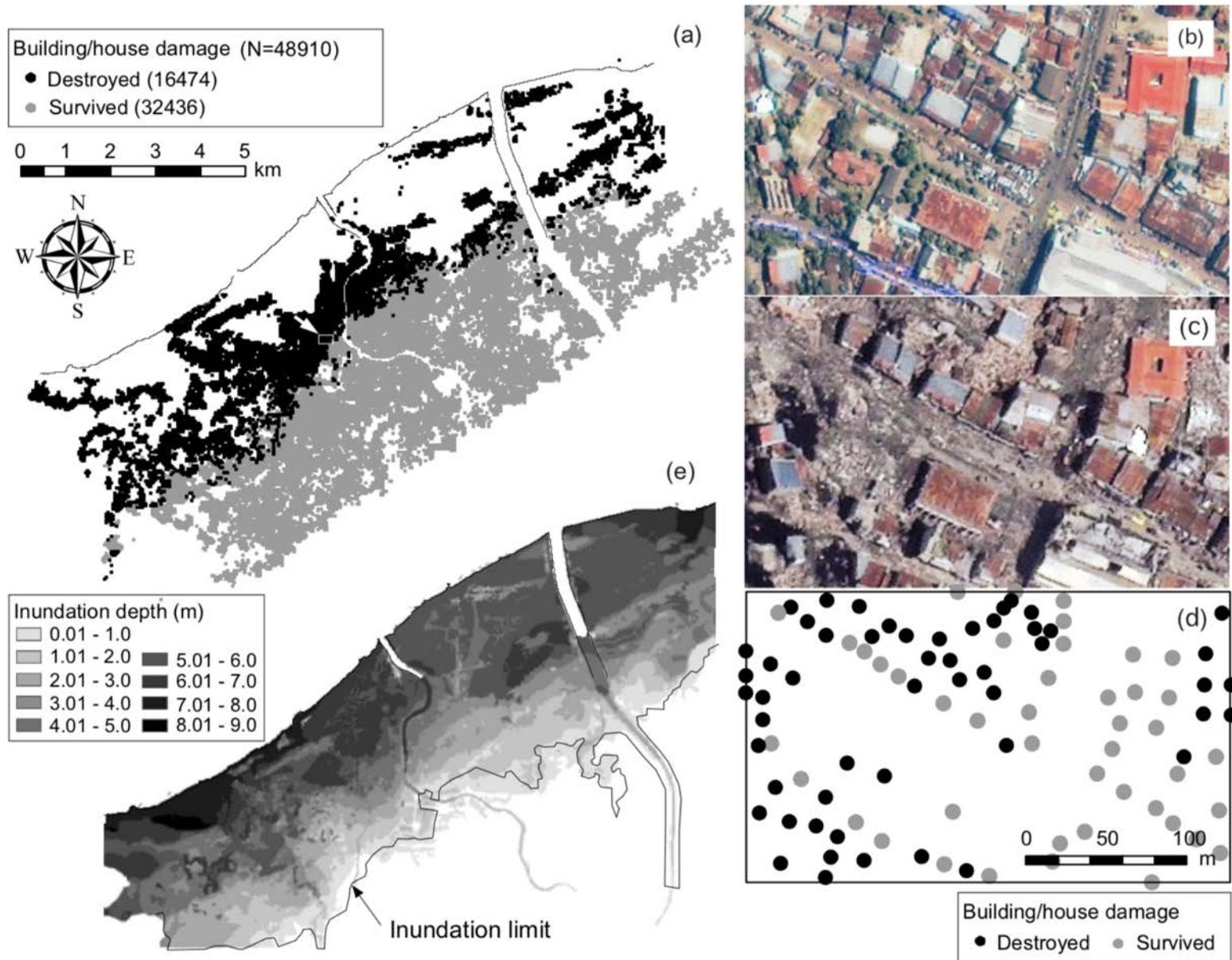


Findings

- 2-3m flow depths were measured in central Palu, maximum flow depth was about 5m at the west.
- The spatial distribution of tsunami flow depths are scattered. This implies that the tsunami effect was very local.
- Major impact was concentrated within about 200 m from the shoreline.
- Relationships between tsunami hydrodynamics and structural damage is likely to be different from Banda Aceh, still unknown. Detailed review of the damage data is necessary.

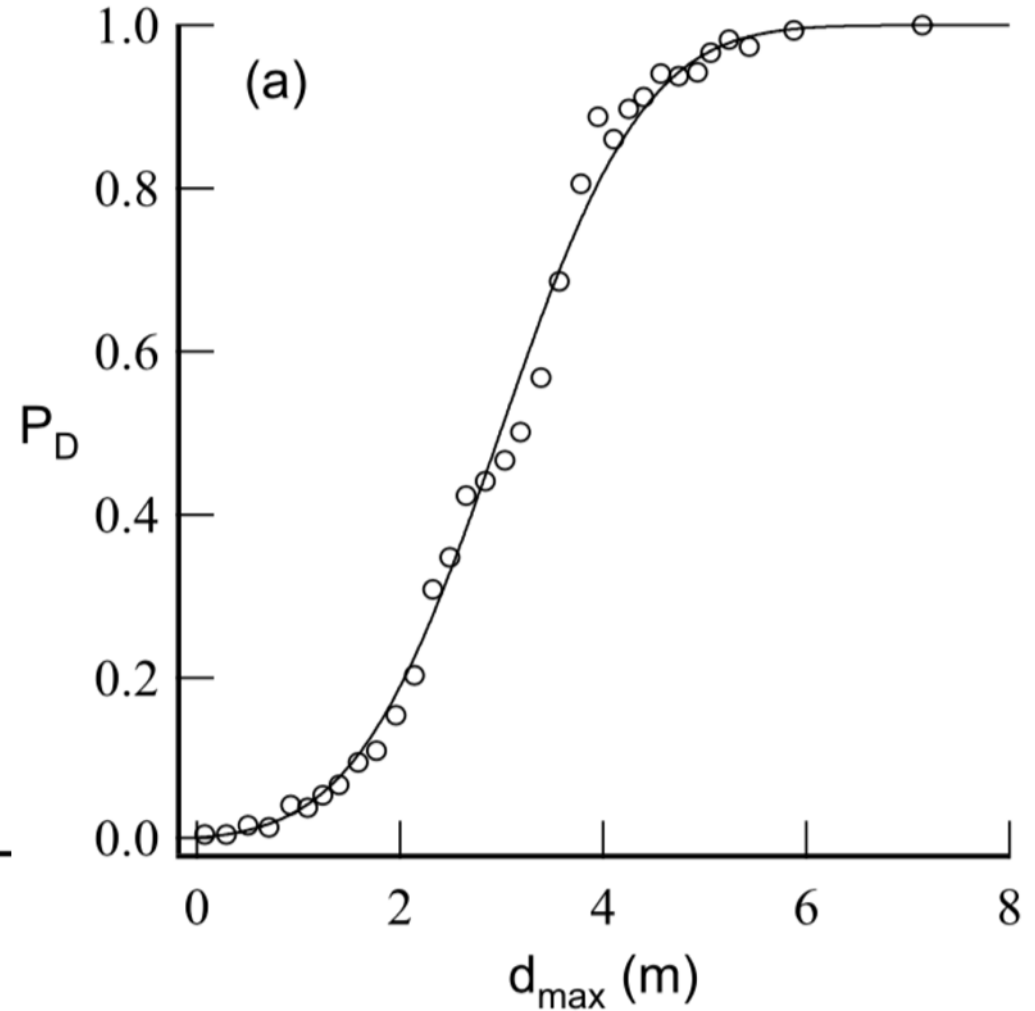
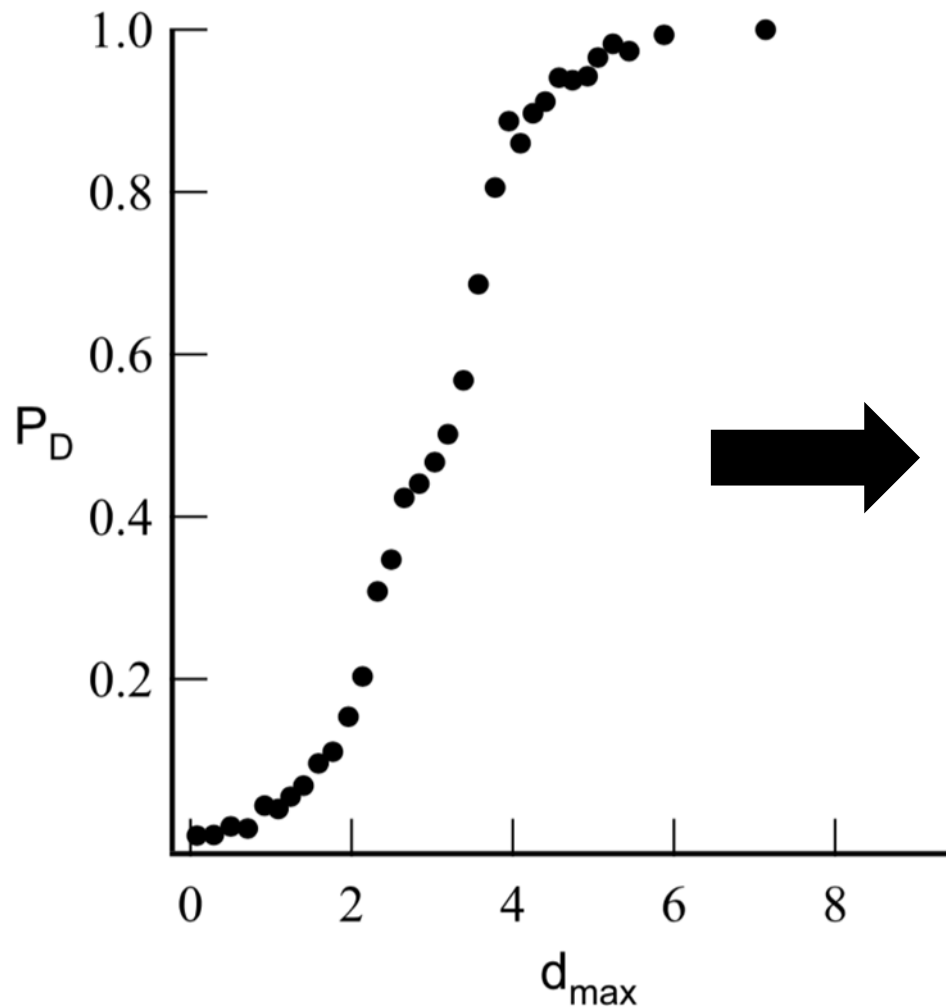
From Banda Aceh, Sumatra

Koshimura et al., 2009



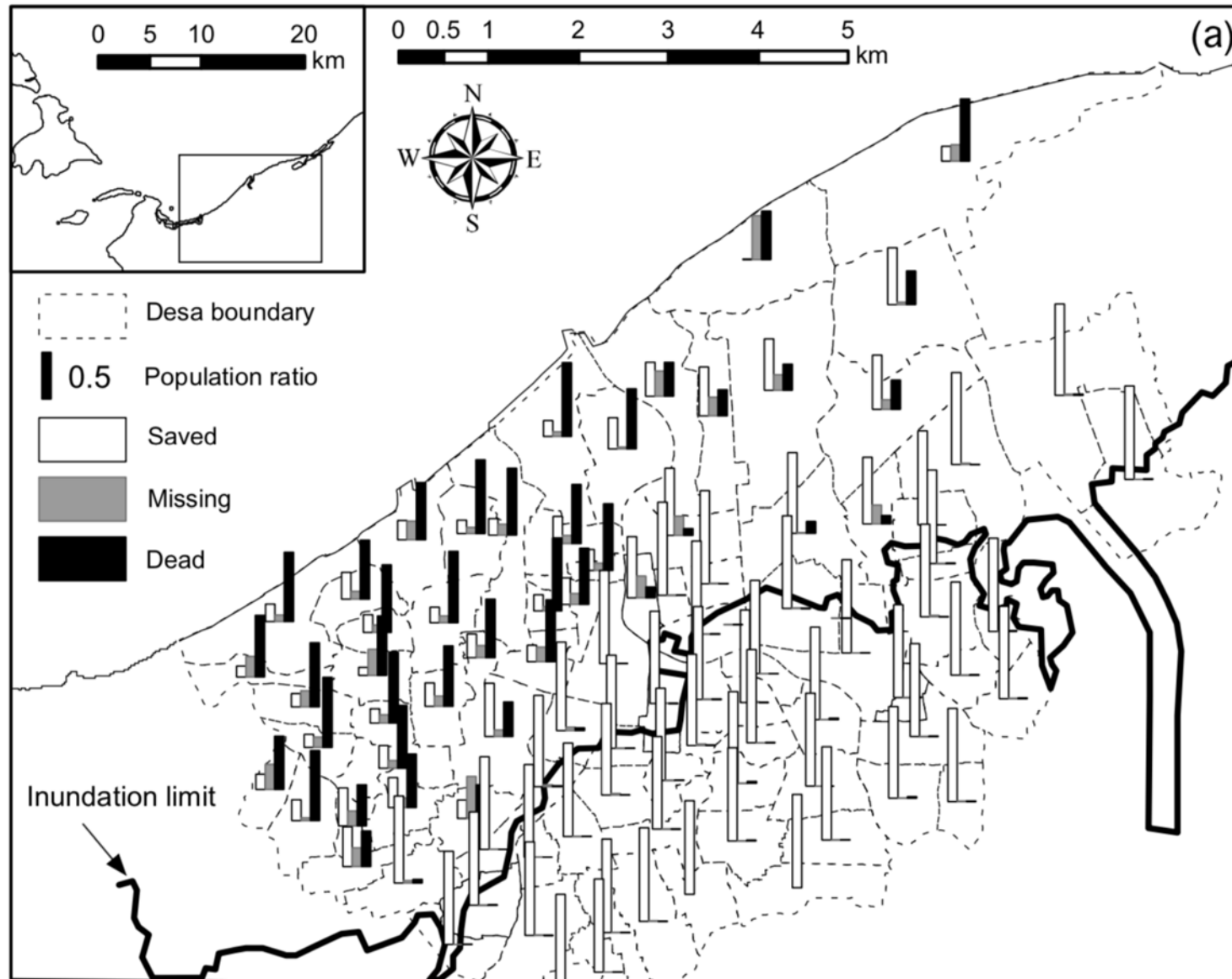
From Banda Aceh, Sumatra

Koshimura et al., 2009



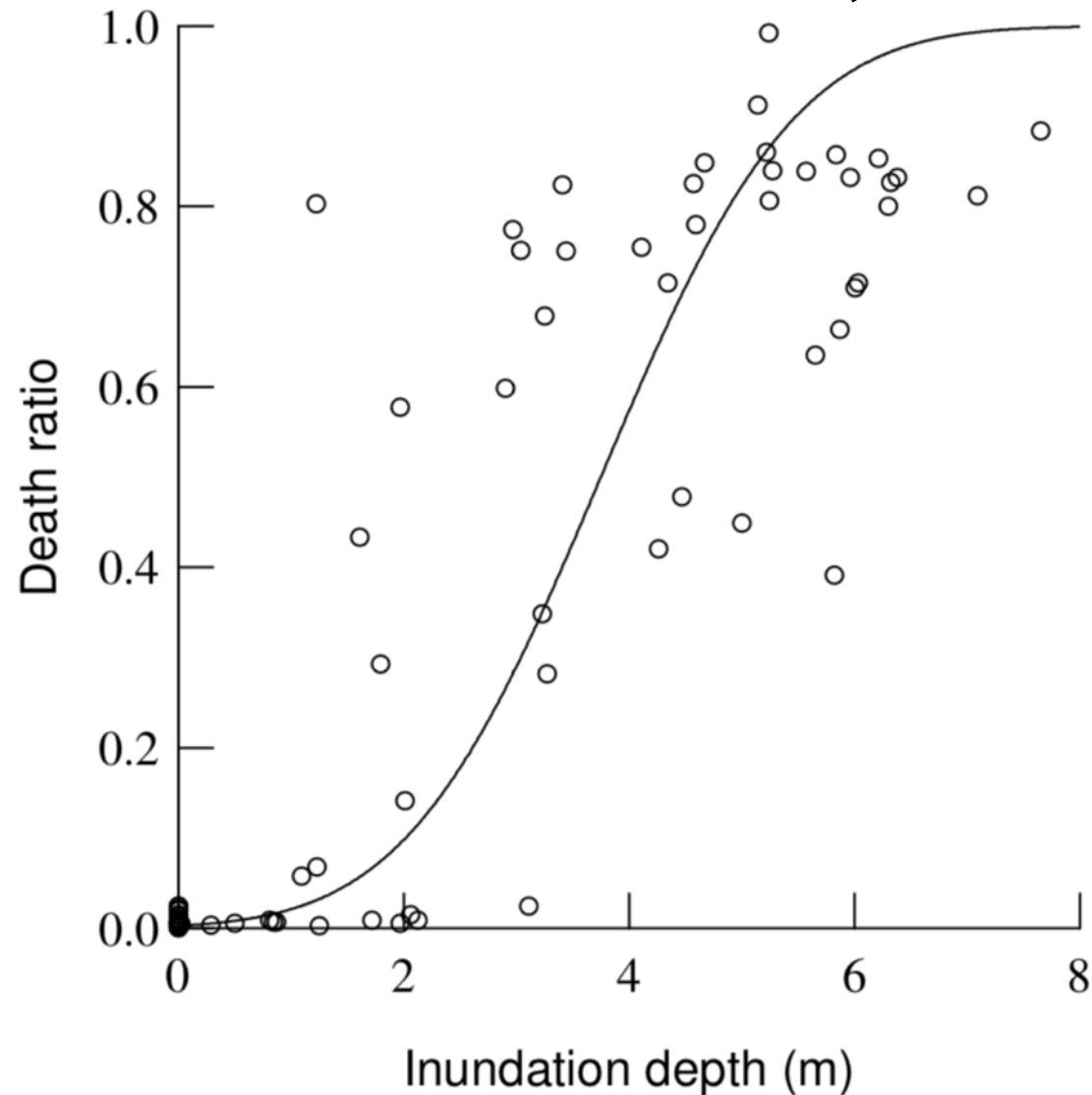
Fatality, Banda Aceh, Sumatra

Surveyed by JICA, Koshimura et al., 2009



Fatality ratio, Banda Aceh, Sumatra

Koshimura et al., 2009



Recommendations

- To complete the survey of tsunami flow depth and structural damage with structural type information (using aerial photo, drones, on-site).
- The results should be compiled as a form of statistical data.
- To construct tsunami fragility curve for understanding tsunami vulnerability and for future land use planning.