

Flood vulnerability assessment: A critical comparison between site derived, national and international depth-damage functions and their use in assessing flood risk in Malaysia

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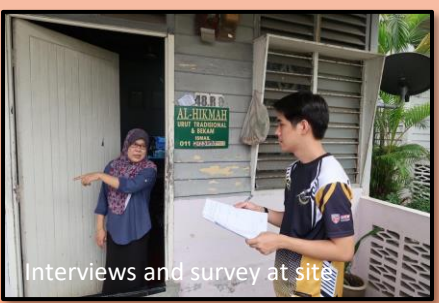
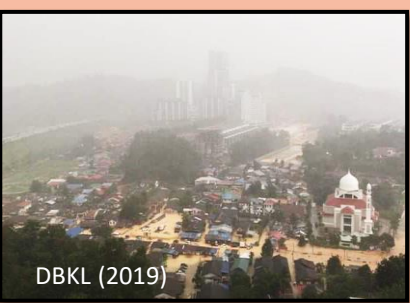
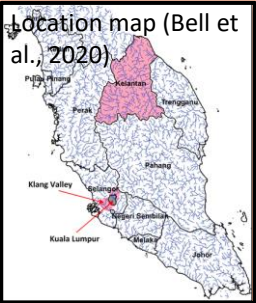
Introduction

National and international damage functions are often used with little scrutiny or validation at local scales; a lack of understanding that adds to uncertainty.

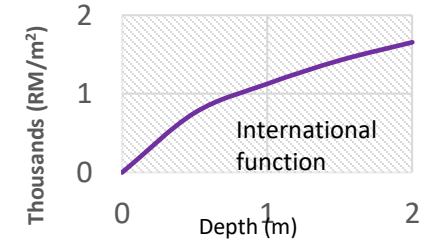
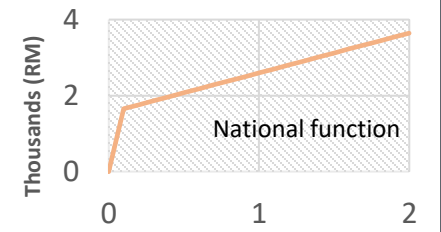
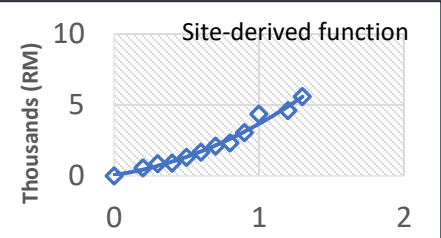
We examine the differences of the functions and their suitable application scale. We look at the direct damage estimates of the functions using planar estimation and building-level aggregated losses.

Characteristics of considered damage functions

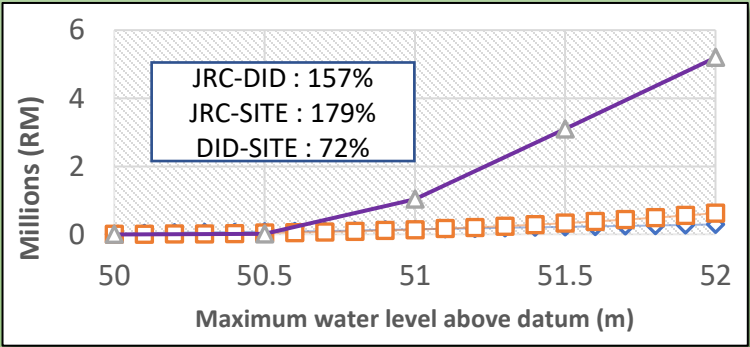
	Site derived function	National function	International function
Derivation approach	Survey and questionnaire of damages from post flood events at the specific site.	Extensive nationwide survey to derive national sector-based damage functions (DID)	Internationally available datasets used to derive damage functions for Malaysia (JRC).
Determinant	Polynomial model fit	Mean damage value	Maximum damage value
Potential application scale and usefulness	Assessment and investment planning of flood measures for local or catchment-wide area	National-level investment and policy planning.	International-level policy planning



Depth-damage functions



Results



International derived function is useful to provide insights on flood risk, but it needs to be conditioned using local or national understanding of flood damages where possible to reduce uncertainty in risk estimates.

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