



United Nations
Climate Change

The Ocean and Climate Change Dialogue 2024
11-14 June 2024, Bonn

Technology needs for the ocean and coastal extreme weather event

Needs for Extreme Coastal Water Level Projection for Coastal Zones

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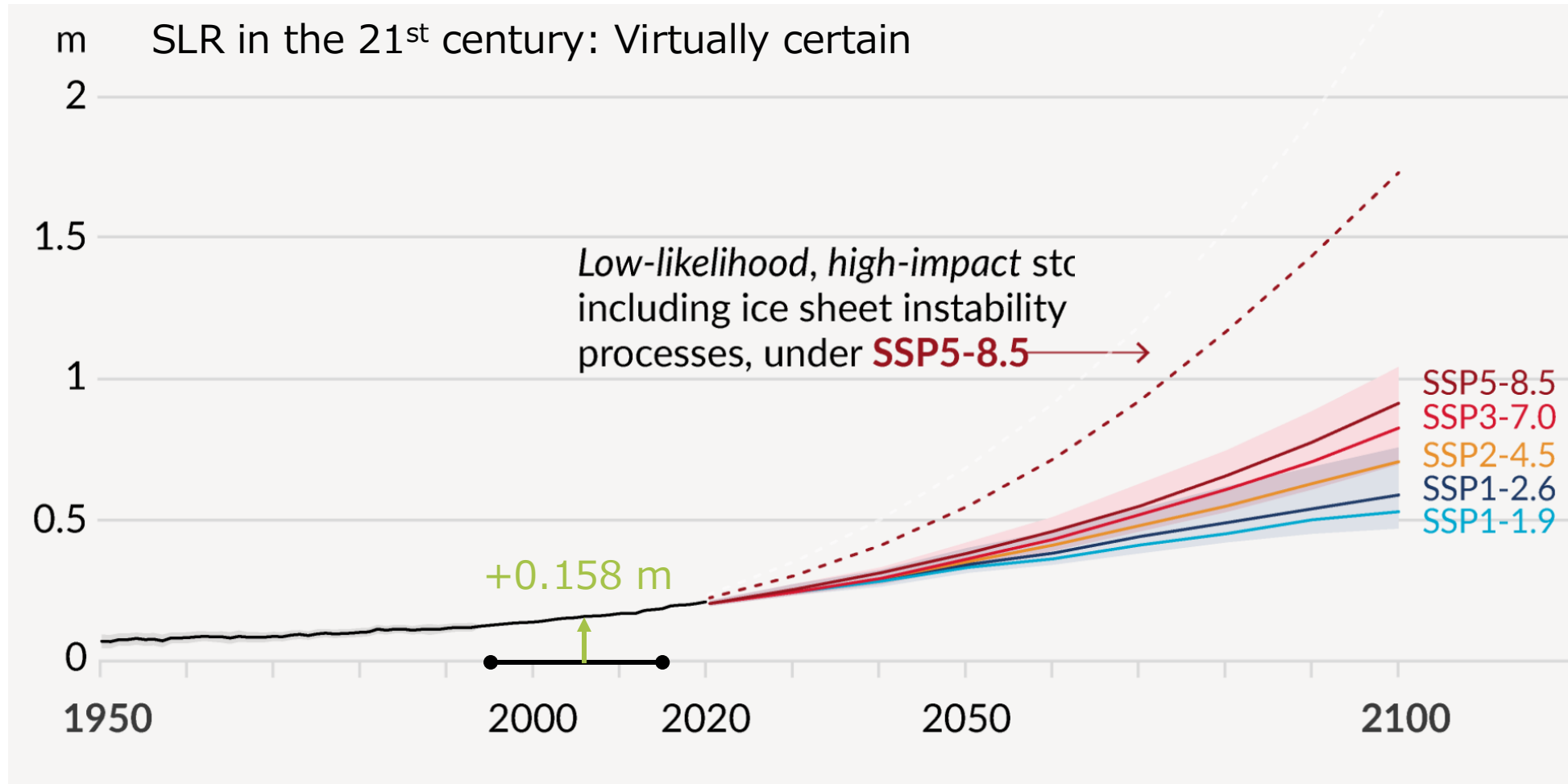
**MEXT-Program for The Advanced Studies
of Climate Change Projection (SENTAN)**



Extreme tropical cyclones caused catastrophic damages



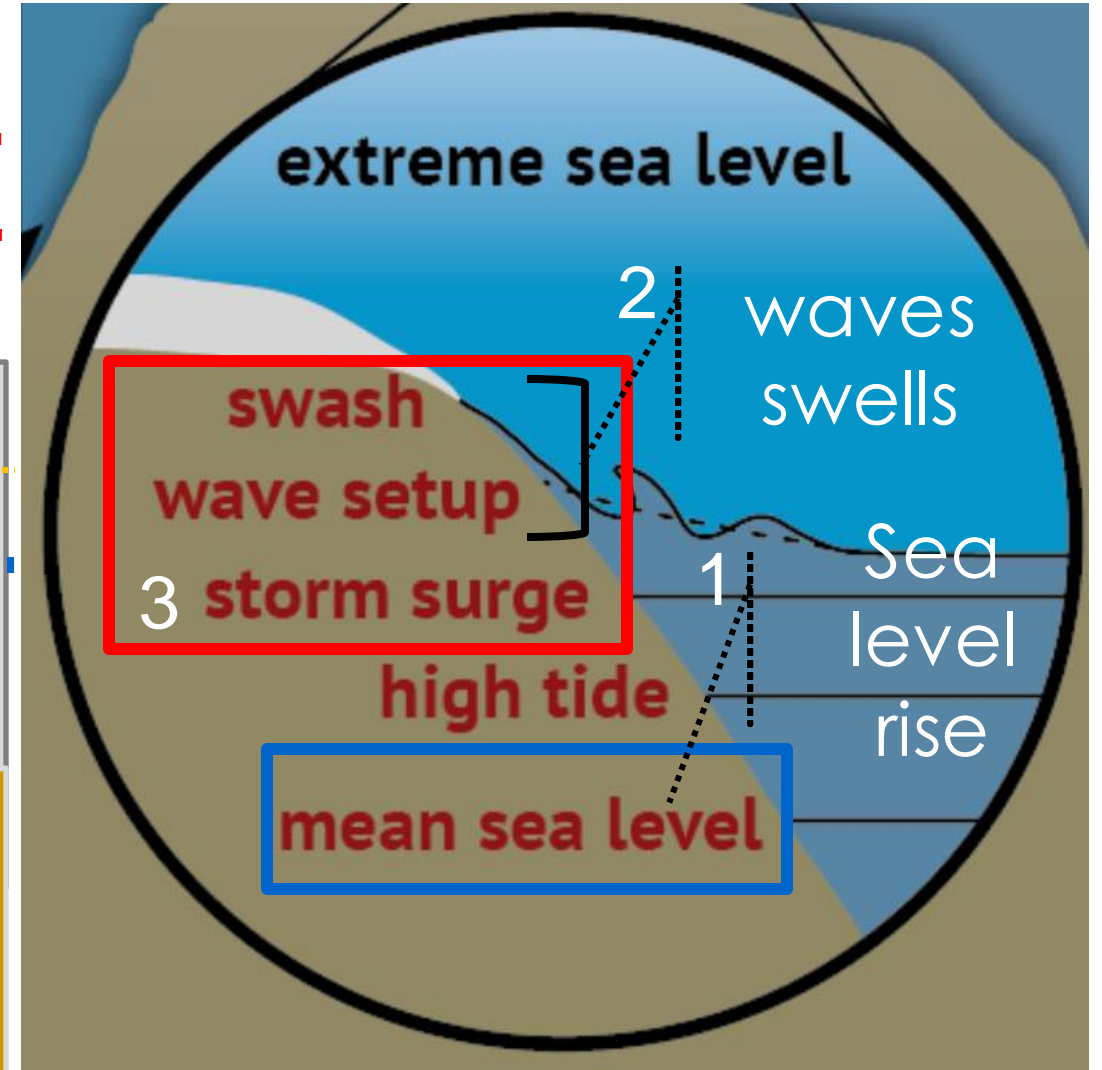
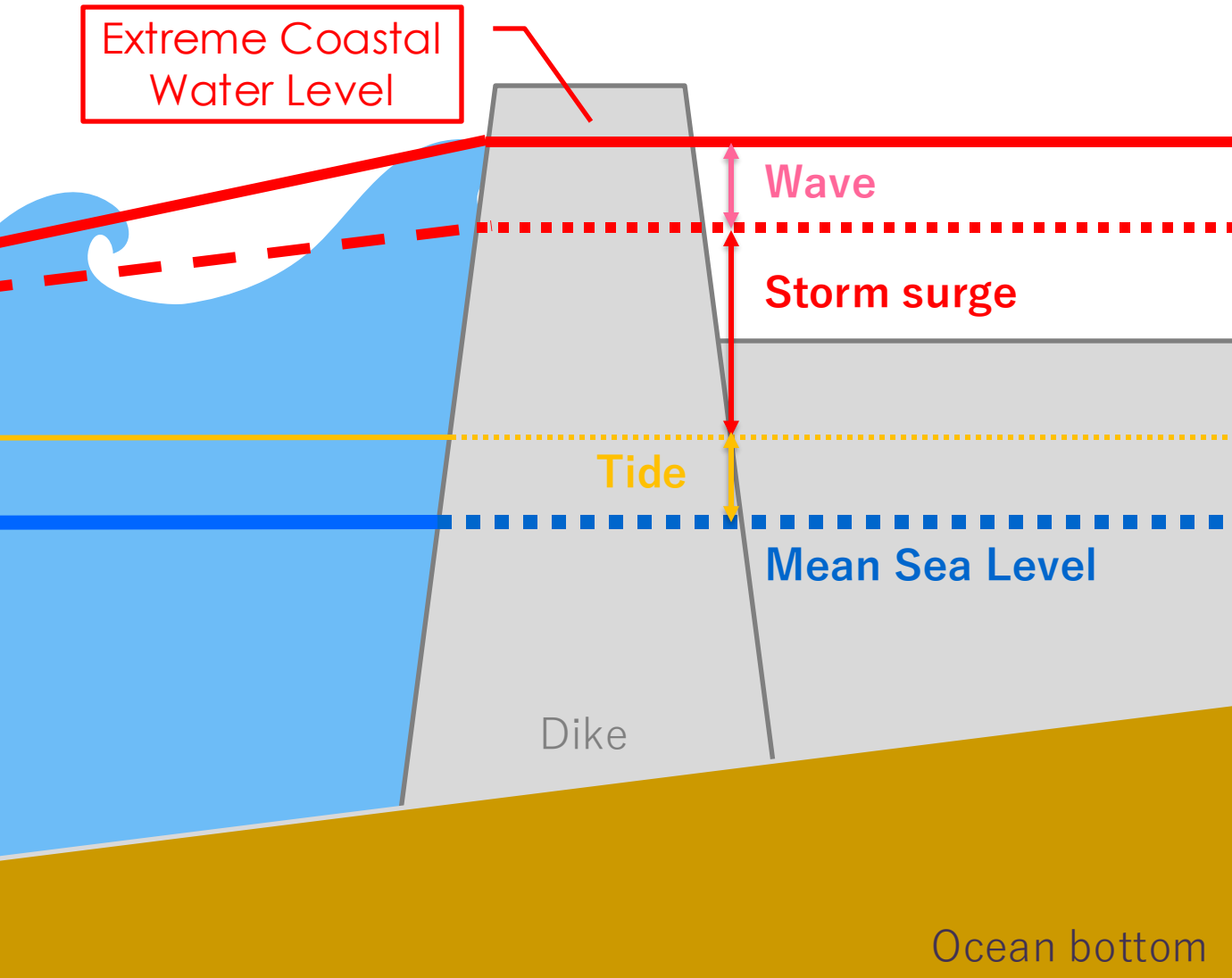
and Sea-level is rising



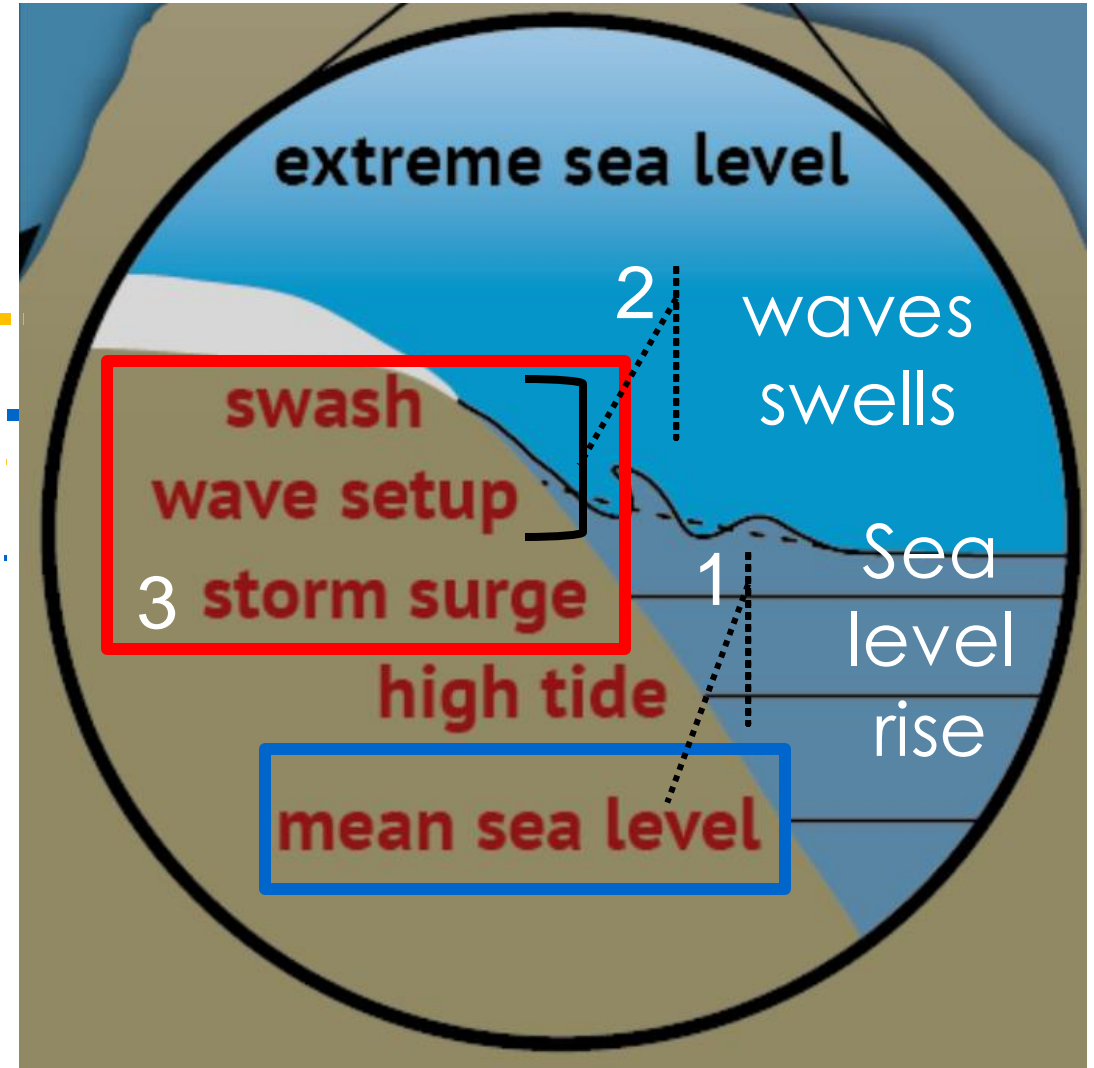
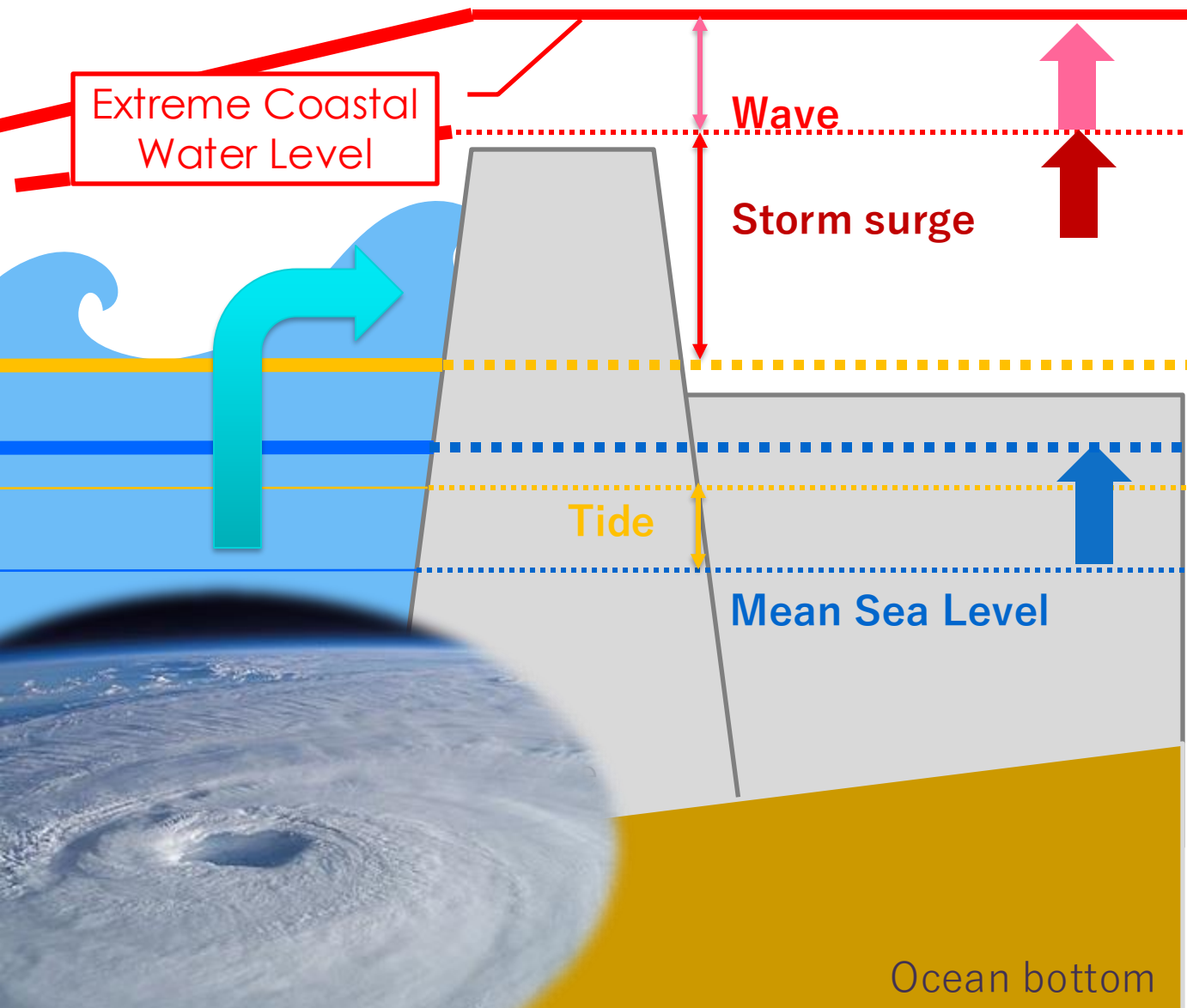
IPCC AR6 WGI Chapter 9 Figure SPM.8 (baseline period: Y1900)

Extreme Coastal Water Level projection is important for coastal zones

ECWL = Mean sea-level + Storm Surge and Waves



Extreme Coastal Water Level projection is important for coastal zones



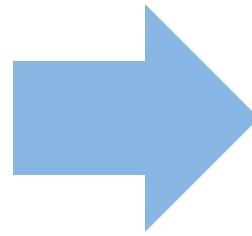
Osaka is protected three storm surge gates Cost: 1.3 billion USD



New storm surge gates considering ECWL in Osaka, Japan started construction



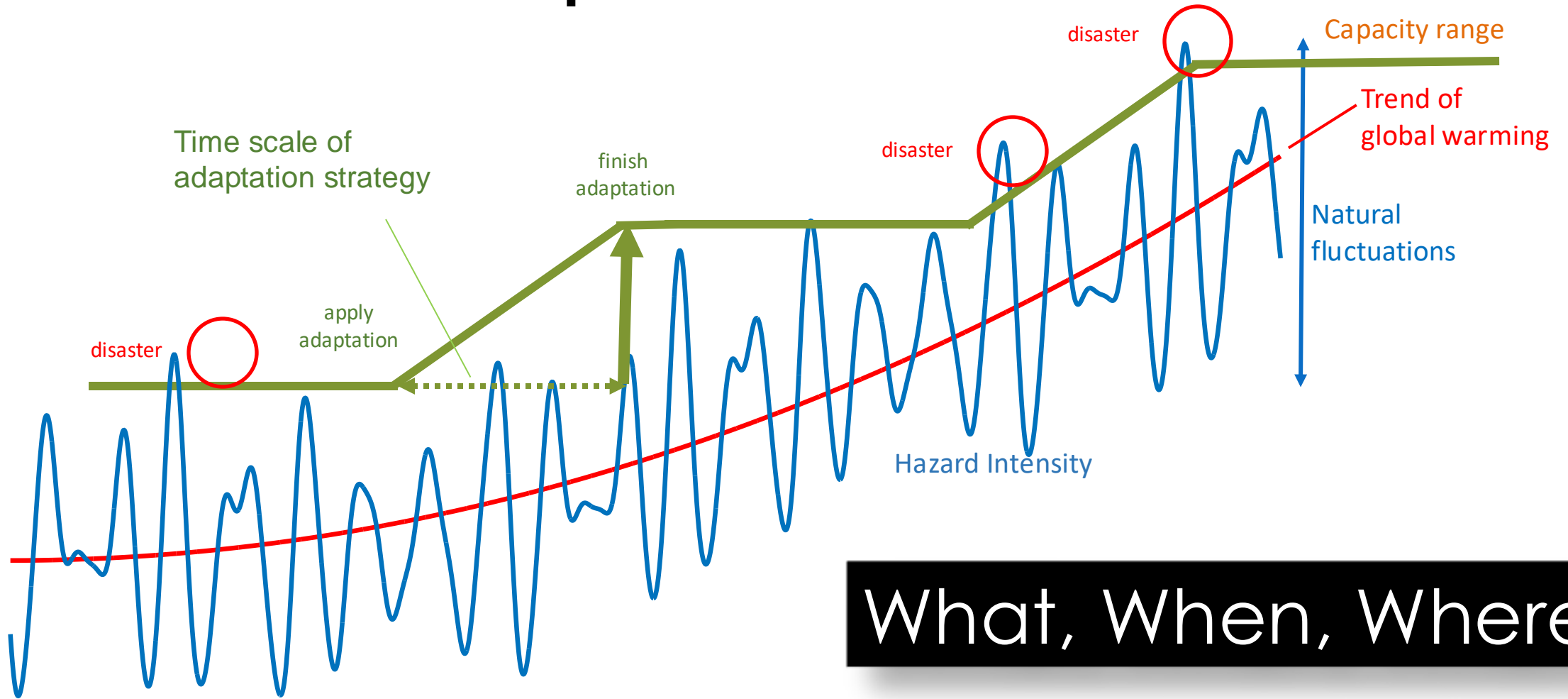
Current



New

Future changes in EWCL by SLR and typhoon are implemented

Ocean extreme climate projection is important for a real adaptation in coastal zone



What, When, Where

Mori and Shimura (2023) Cambridge Prisms

Technology for the ocean extreme weather event will save our life for the East/Southeast Asia, SIDS