Typhoon Hagibis - October 2019

Credit : Reuters

Typhoon Hagibis impacted Japan in October 2019 with significant infrastructure damage, flooding and disruption to the hosting of the Rugby World Cup. Hagibis is estimated by EM-DAT to be the 3rd costliest (inflation adjusted) on record in the Pacific region since 1991. The event occurred whilst Japan was hosting the Rugby World Cup and preparing for the Japanese Grand Prix. Significant rainfall resulted with over 922mm (36.2 inches) at Hakone, near Tokyo. 99 fatalities occurred with 73% of those greater than 65 years of age.

An indication of the subject matter covered is shown below with over 15 learnings identified.

Event	Impact	Learning areas
Critical Infrastructure: Flooding of railway depot with rare frequency flood.	Loss (scrapped) of 10 Shinkansen, (Bullet trains) of the Hokuriku Shinkansen Line in Nagano City yard. (SA) (US$300 million write off) (BBC)	Risk appetite Critical Infrastructure risk Engineering Emergency plans and testing Hydrological risk sensitivity
Compound risk: Earthquake during Typhoon (BBC)	Resourcing / response of Low likelihood, high consequence, credible planning	Climate disclosure Policy and planning
Economic impacts	3rd, post inflation adjustment typhoon costs in Pacific. Four of top ten costliest typhoons in Pacific have been since 2019 (record since 1991) (Statista)	Climate disclosure Policy and planning
Meteorological: Data from JMA shows 942mm in any 24 hours and 922mm in a calendar day at Hakone, a 24 record for Japan since 1974.	Flash flooding, record flooding.	Climate disclosure Policy and planning Engineering Emergency plans and testing Hydrological risk sensitivity
Social: 73% of fatalities were older than 65 years according to Cambridge University Press (2021)	Ability to respond was linked to age	Public safety Policy and planning

Resources	Associated Services
• Timeline • Rainfall data – official & extreme • Photographic evidence • Media articles • Economic assessment Academic papers	• Climate Disclosure • Flood warning systems • SFARP and ALARP • Dam safety programs • Emergency Action Plans • Community education • Operation and maintenance risk
Value to managing risk in…	**Useful to**
• Public Safety • Critical Infrastructure • Governance, risk, and compliance • Climate disclosure • Critical Infrastructure • Systems and processes • SFARP/ALARP • Engineering	• Regulators • Insurance • Dam owners • Critical Infrastructure owners • Engineering • Disaster & emergency managers • Boards

Climate Resilience