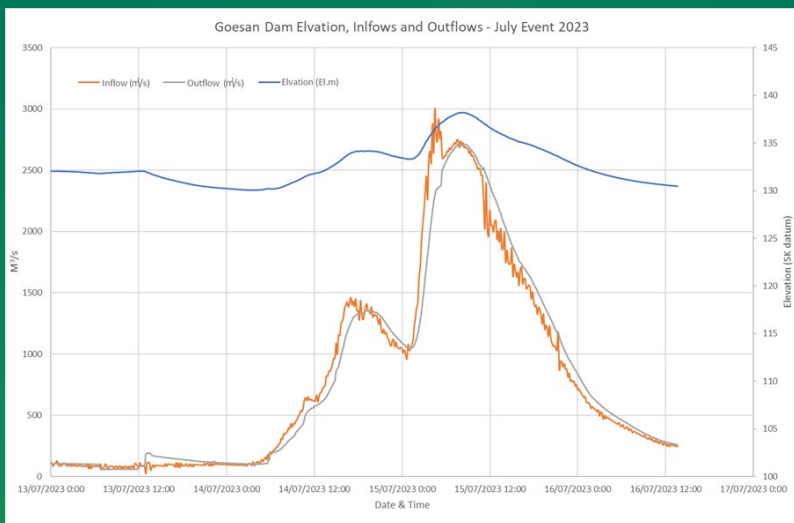


South Korea Infrastructure - July 2023

Goesan Dam is about 15000ML in volume and is in the upper reaches of the Han River catchment that eventually flows through Seoul. It has a catchment area of 671 km². The issue for the dam was that the calculated inflows exceeded the design outflow capacity of the gates by some margin (10.5%), with warnings of potential dam failure conveyed in the media, and picked up internationally as the flood level exceeded the maximum planned. *Data provided by Han River Flood Control Office.*

In Osang, a levee at the Miho River collapsed allowing rapid inundation of a 685-metre-long road tunnel with 14 fatalities. There was significant criticism of emergency managers with the likely failure identified 1 hour prior. A key focus of the police investigation was management and maintenance of the embankment.



Data supplied by Han River Flood Control Office

Event	Impact/Outcome	Learning areas
Significant increase in rainfall intensity when dam already discharging about 50% of capacity (<i>data</i>)	Rapid change in situation at dam from emergency to crisis	Critical infrastructure risk. Dam safety frameworks SFARP and ALARP Emergency plans and testing Hydrological variability
Forecast dam failure based on dam inflow assessments and outflow predictions. (<i>Han River Flood District</i>)	Early assessment allowed evacuation of 6400 people downstream (<i>EBL</i>)	Climate disclosure Due diligence Environmental monitoring Forecasts, warnings and impacts Emergency plans and testing SFARP and ALARP
Significant increase in rainfall intensity when dam already discharging about 50% of capacity (<i>data</i>)	Exceedance of design criteria. Low risk isn't no risk.	Critical infrastructure risk Emergency plans and testing SFARP and ALARP Hydrological variability
Rapid flooding of Gungpyeong No. 2 road tunnel in Osang. (<i>The Guardian</i>)	14 fatalities. Local authorities advised they complied with their emergency plan which didn't require tunnel closure. (<i>Korea Times</i>). The levee, and tunnel risk were managed by separate entities.	Unregulated risk Forecasts, warnings and impacts Disaster frameworks SFARP and ALARP
Rapid flooding of Gungpyeong No. 2 road tunnel in Osang. (<i>YONHAP news agency</i>)	Investigation into those involved in design, construction, and maintenance of levee. Judgement found them liable.	SFARP and ALARP Engineering and construction Due diligence

Resources	Associated Services
<ul style="list-style-type: none"> Rainfall data – unofficial Reservoir data - official Media coverage 	<ul style="list-style-type: none"> Climate Disclosure Flood warning systems SFARP and ALARP Dam safety programs Scenario testing and mocks
Value to managing risk in...	Useful to
<ul style="list-style-type: none"> Community safety Critical Infrastructure Governance, risk, and compliance Climate disclosure Systems and processes SFARP/ALARP Engineering 	<ul style="list-style-type: none"> Regulators Insurance Dam owners Utilities Engineering Disaster & emergency managers Boards

+ 12more