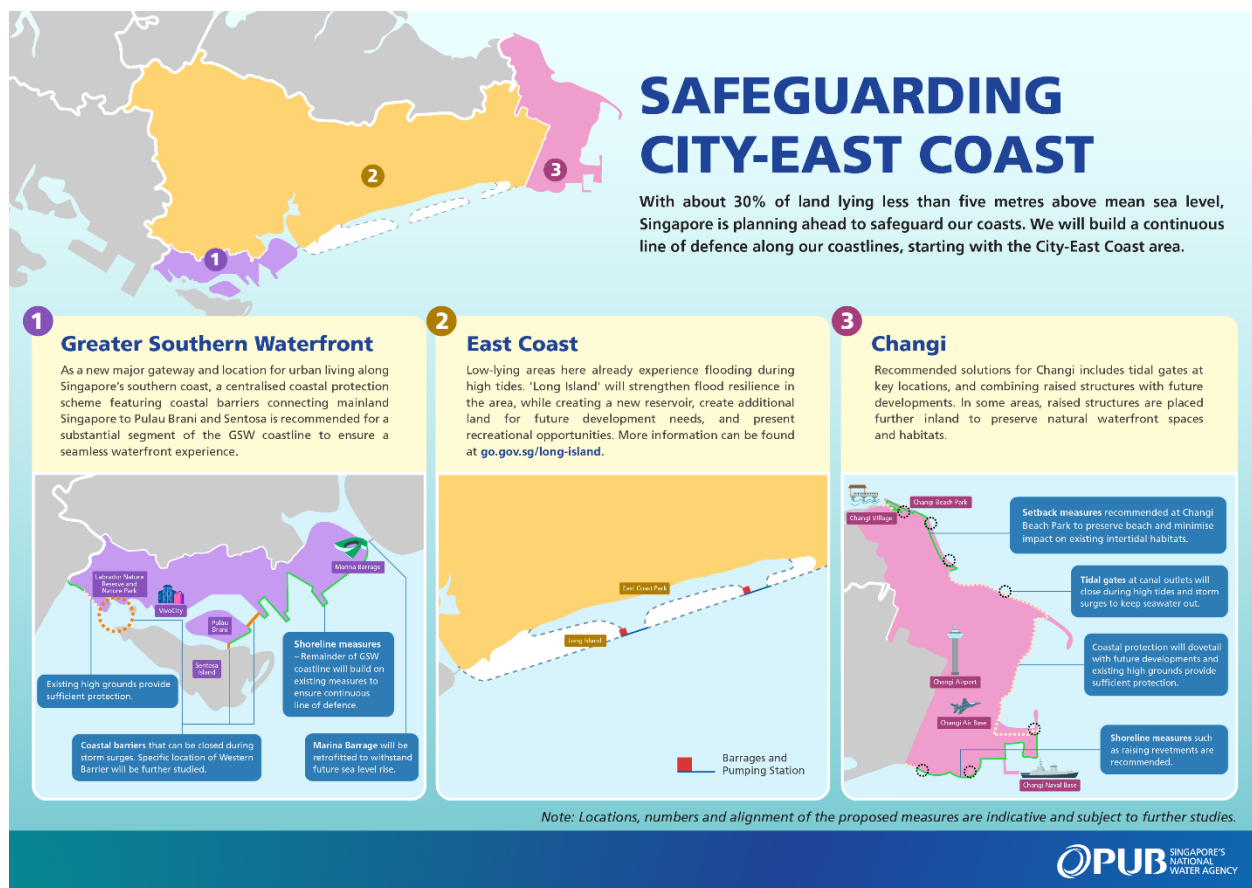


ANNEX

Infographic:



Coastal Protection Measures

Background information on proposed coastal protection measures:

Raised structures (eg. revetment, bunds, and seawalls)

Bunds

An earth bund is a raised structure constructed from compacted soil, clay or sand that can serve as a coastal defence structure to protect inland areas from flooding and erosion.



Overseas example: Earth bund in Huddersfield, England

Image source: KDSconstruction

(www.kdsconstruction.co.uk/project/flood-defense-earth-bund/)

Seawalls

A seawall is a barrier that is typically vertical and built of concrete, rocks and rubble to protect coastal areas from waves and tides. It is usually difficult to raise the height of a seawall post-construction, unless it is designed for upgrades.

Around 70% of Singapore's coastlines are protected currently by raised structures like seawalls.



Singapore example: Existing seawall along the coast along Keppel Bay
 Image source: Mgcon
 (www.mgcon.sg/commericalHTML/project04.html), 2007.

Revetments

A revetment is a sloped protective structure built along shorelines. It is designed with an angled face that can dissipate wave energy, preventing erosion of the coast behind it.



Singapore example: Existing revetment along the coast of Labrador Park
 Credit: PUB

<p>Tidal gates</p>	<p>A tidal gate consists of barriers that can be lifted or lowered to control the flow of water in and out of water bodies. It is placed across a water channel, such as a canal or a large outlet drain. Once installed, it is difficult to increase the height of the gate.</p> <div> </div> <p><i>Singapore Example: Seletar Tidal Gate</i> <i>Credit: PUB</i></p>
<p>Coastal barriers</p>	<p>A coastal barrier is a large infrastructure consisting of movable gates that can either open or close, depending on weather conditions. Once built, it is difficult to change the dimensions unless it is rebuilt.</p>



*Overseas Example: Thames barrier, United Kingdom
Image source: Solico Engineering B.V. (www.solico.nl)*



*Overseas Example: Maeslant Barrier, The Netherlands
Image source: ViscountCruises (www.viscountcruises.com), 2020*