

ASEAN AUSTRALIA SMART CITIES TRUST FUND Asian Development Bank

#### **Improving sustainable design of cities through flood adaptation modelling using C-FAST**

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## **Motivation**

- City (especially coastal) flooding is complex
- Determining adaptation options is challenging
- Modelling studies are (currently) quite limited in their value from an adaptation perspective
- The limitation is brought about by a focus on the modelling itself rather than the outcome it needs to achieve in an adaptation context
- So how does one change this situation.....



### **Adaptation effectiveness evaluation**





#### **City of Port Philip Adaptation summary – present day**



**Retention time** 

- Focus area Elwood canal
- **Outcome** Flooding at intersection of Barkly and Meredith street completely stopped



#### **City of Port Philip Adaptation summary – SLR 0.4 m**



**Retention time** 

- Focus area Elwood canal
- Outcome Significant flooding around Elwood canal (> 2 hrs) stopped with only nuisance flooding remaining in some locations



#### **City of Port Philip Adaptation summary – SLR 0.8 m**



- Focus area Elwood canal
- Outcome Adaptation not effective for SLR of 0.8 m and beyond



## **The Future**

Coastal Flooding is typically accompanied by:

- Erosion hazards
- Groundwater hazards and
- Catchment events

From a planning perspective we need to take into account all these impacts jointly and start building digital environmental twins of cities to address these planning issues







# **Thank you!**

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