Risk-informed urban infrastructure planning

Applying climate and disaster risk information

February 2021

Planning

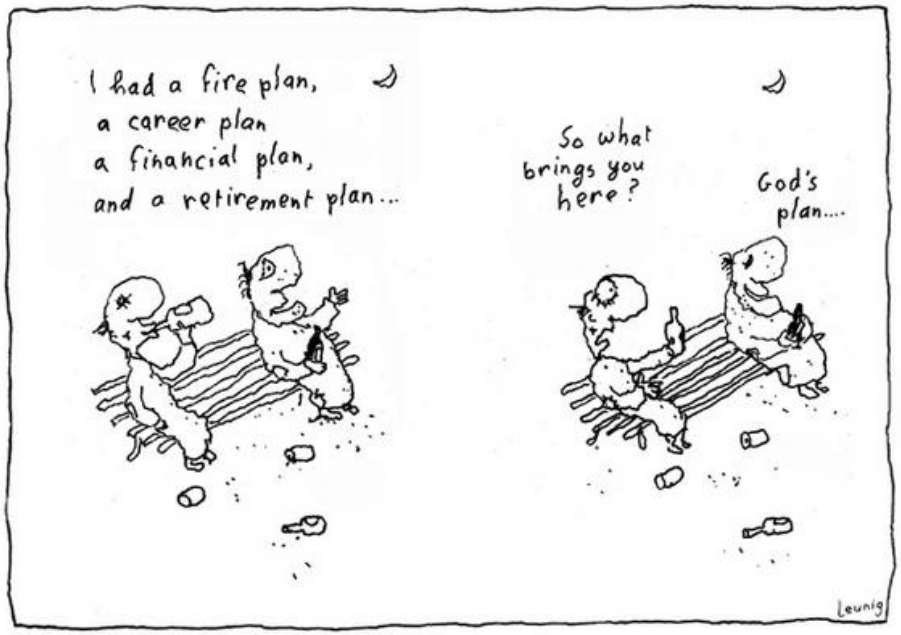
Popular wisdom about planning …

- On one hand, plans *do not survive contact with the enemy*
- On the other *failing to plan, is planning to fail*

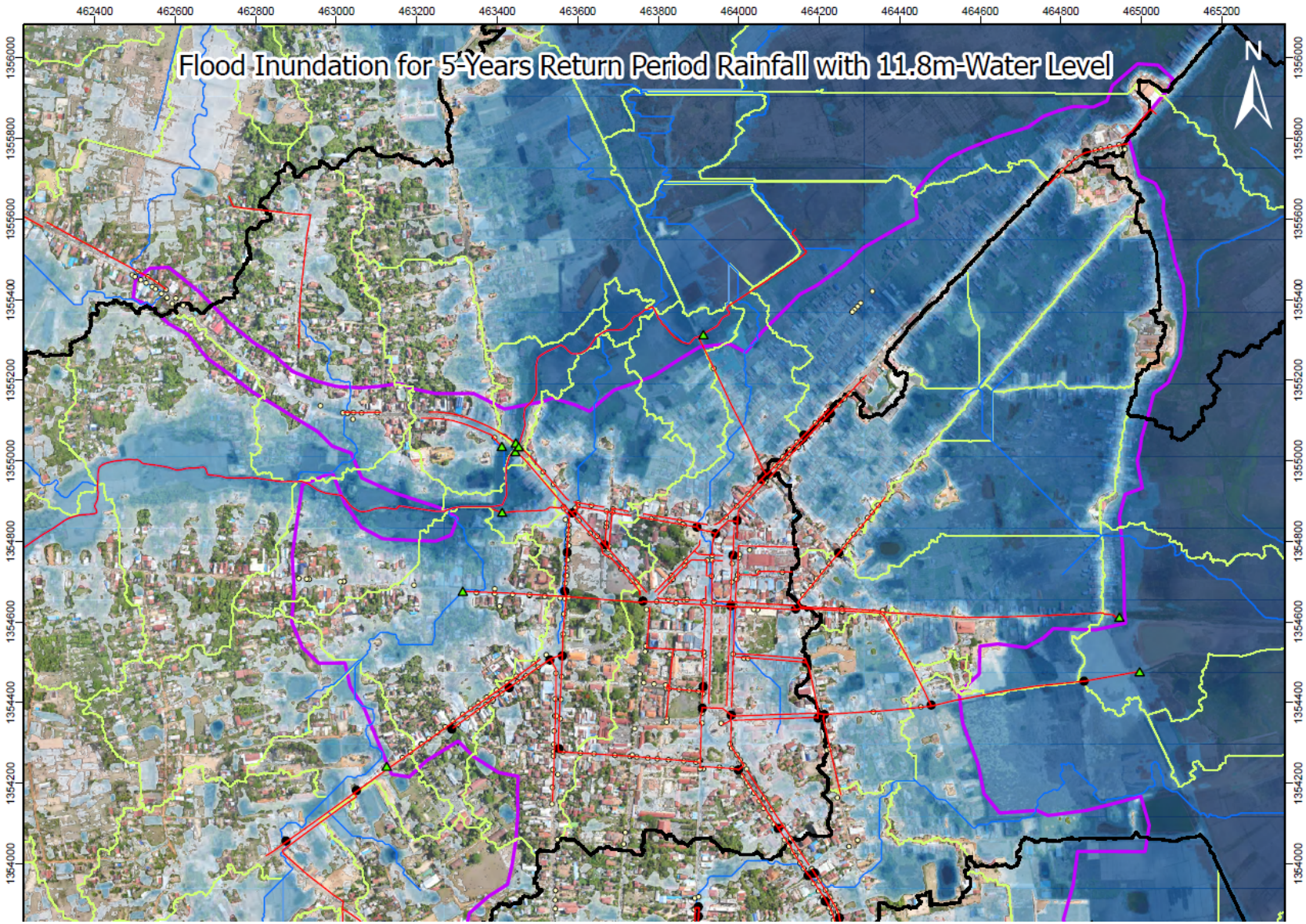
These two insights can be reconciled if we understanding that plans are less about the destination (the "plan"), more about the journey ("the planning process")

A good plan is one that can *adapt to new information.*

A no-regret investment is one that is "resilient" to information being (somewhat) inaccurate



Risk – not unidimensional (consider overlapping events)



Climate

Increasing amounts of geospatial data is available.

Various climate change scenario models are available.

Flood modeling in Cambodia showed that our Pursat wastewater treatment plant site was *at risk.*

Climate adaptation funding can help make the case for additional expenditure

Infrastructure

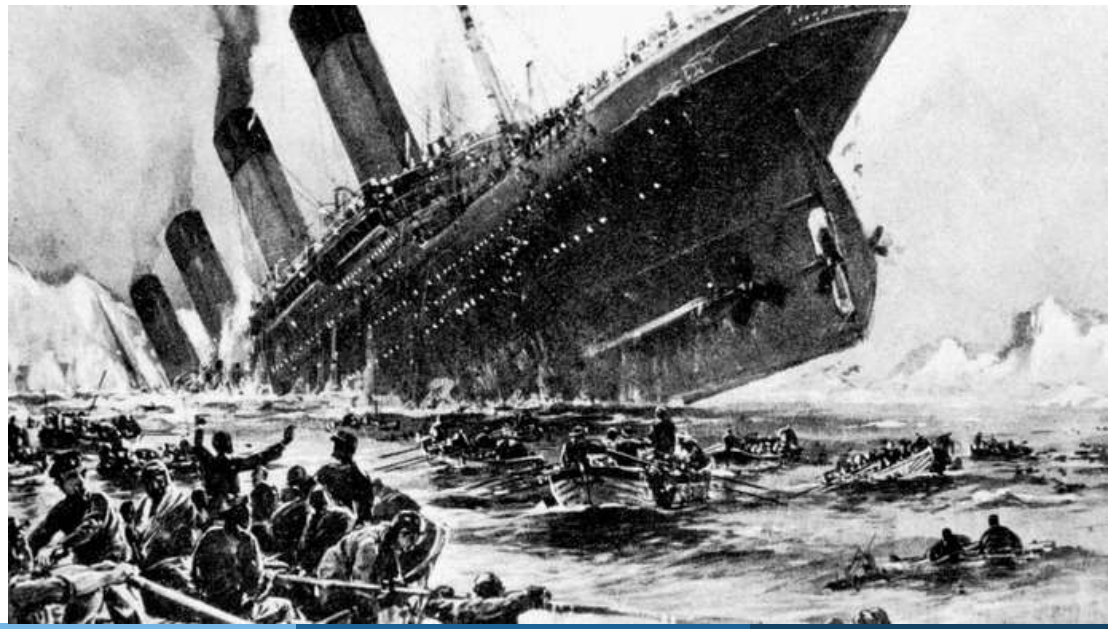
However, a narrow focus on infrastructure is a mistake

We can always build a bigger pipe, or a higher embankment – but these highly specialized solutions *increase* fragility rather than decrease it.

An asset that is viewed as "infallible" allows us to let our guard down, and other redundancies or "slack" are then seen as inefficient.

It is inefficient, after all, to put lifeboats on an unsinkable ship.

"*I don't think anybody anticipated the breach of the levees*"
George W Bush
1 September 2005



Resilience

Is derived from:

- Slack / redundancy (accept a smaller *belt*, and buy *braces* with the savings)

e.g. we can provide infrastructure to respond to floods, boats to supply / rescue people, raised disaster response centers, radios, generators, raised gathering / camping areas - flood *adaptation* rather than *prevention*.

- Multifunctionality (e.g. Nature based solutions) rather than specialization

e.g. using wetlands and reedbeds wastewater treatment systems, permeable surfaces and bioswales to reduce runoff

- And perhaps most importantly, but often forgotten, *social capital*

e.g. In times of disaster, we rely on one another, so city infrastructure which increases social capital (reduces insecurity / inequality / marginalization, creates public spaces, public goods and a sense of community) *increases* resilience. Also – infrastructure only *works* with high levels of social capital (litter in stormwater drains will cause failure, etc)