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consultants architects engineers

VULNERABILITY ASSESSMENT

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ASSESS vulnerability – erosion versus flooding

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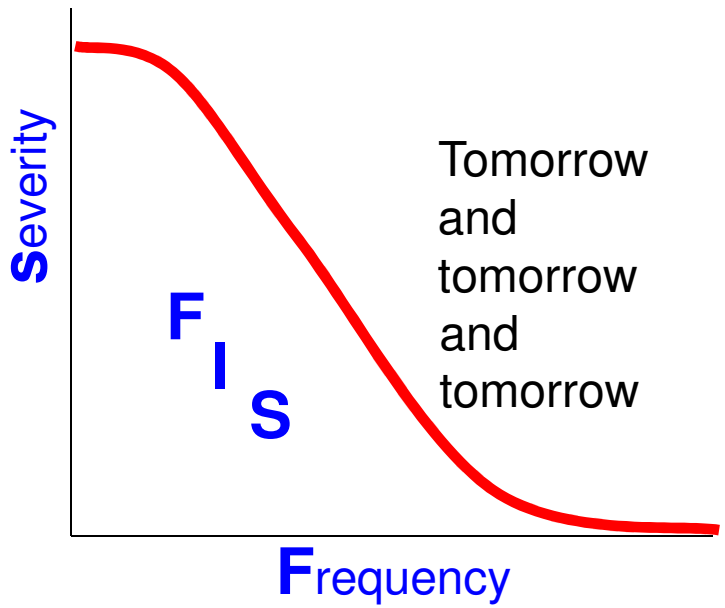
Flooding

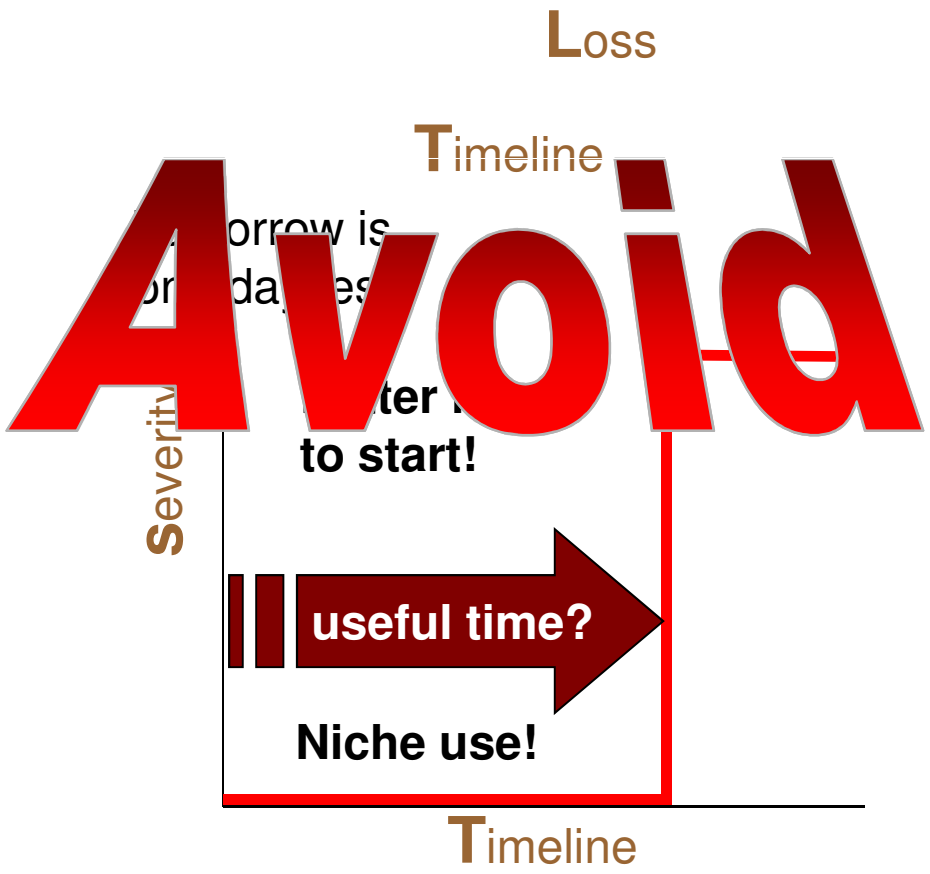
Frequency

Impact

Severity



Erosion & Coastal Change



AVOID – It should be simple, shouldn't it?

Baseline situation.

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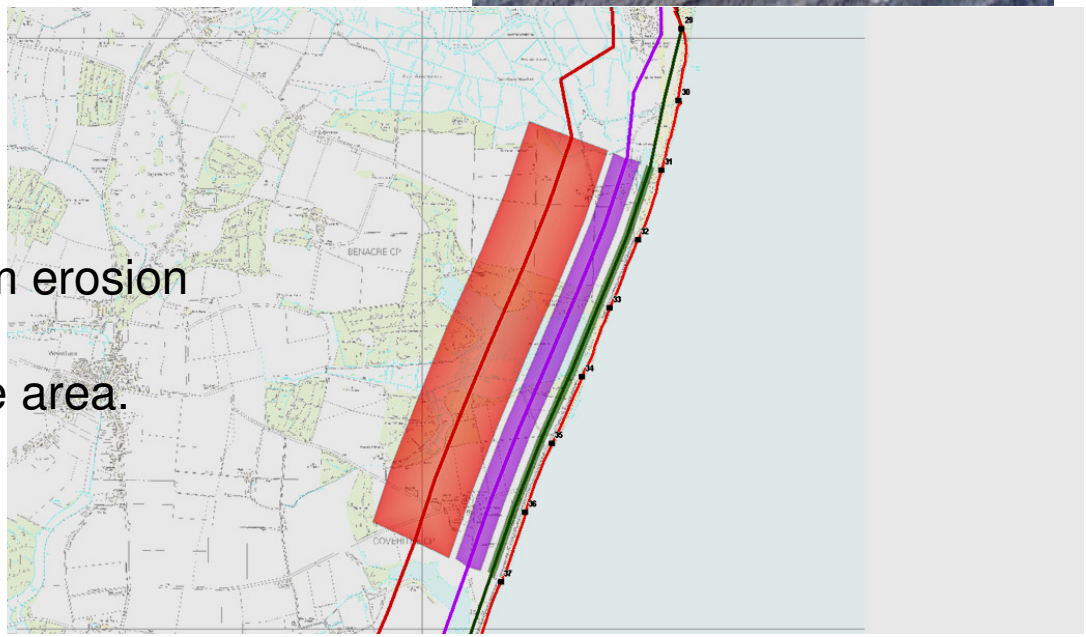
Avoid adding to the problem

Maintain width

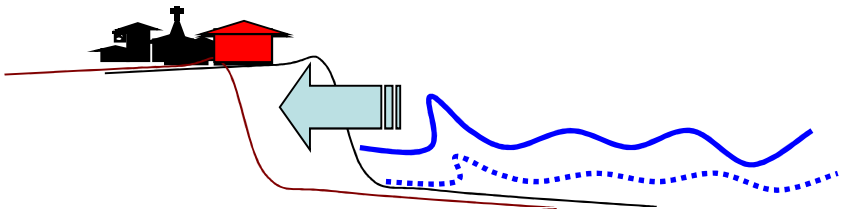
Simple definition from erosion lines defining coastal management change area.



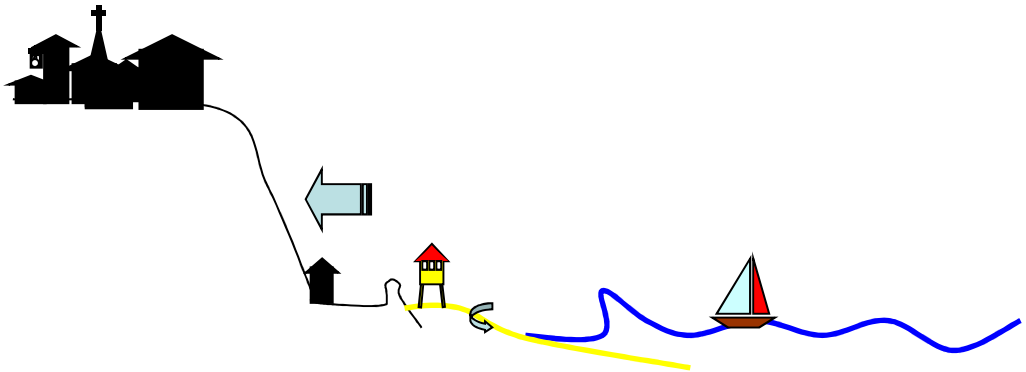
But its not always that simple. If so, PPG 20 would have worked

If everything were so simple

Function of the coastal system.



We can just roll back, can't we - This may be acceptable in terms of the system



Considered in terms of local and regional context. Development needing a coastal situation.

If everything were so simple

Adding adaptation.

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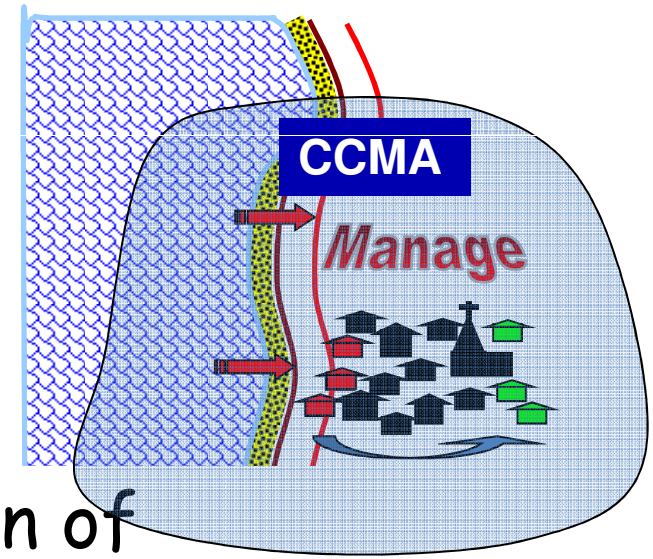
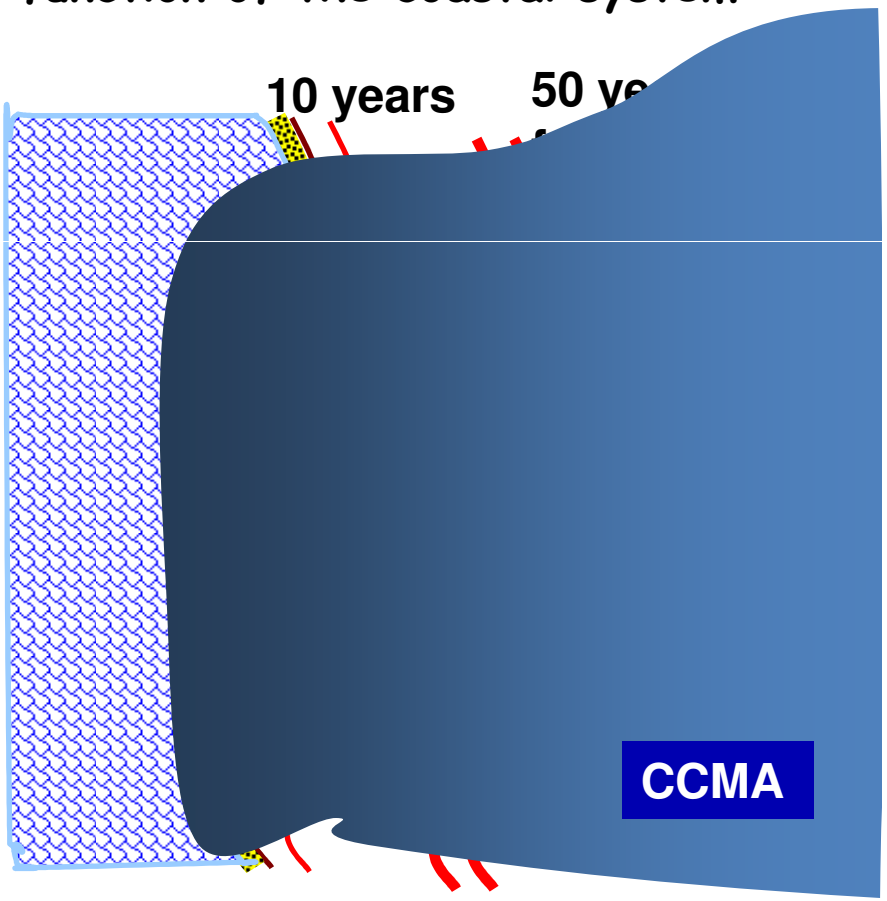
When we need to adapt



Function of

- erosion rate
- persistence

Maintaining function of the coastal system



If everything were so simple

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Starting to think in terms of **coastal change management areas**

Impact on the function of the coastal system.

- **Community function (cohesion)**
- **Regional function**

Adaptation at a spatial planning scale

But at the coast, still in two dimensions. Width and Time

Impact on the management of the shoreline

environment
employment
heritage
transport
regeneration

The coast acts in 3D:

Longshore, Width and Time

Vulnerability in 3 dimensions

Well, no one said coasts were easy

Adding a third dimension

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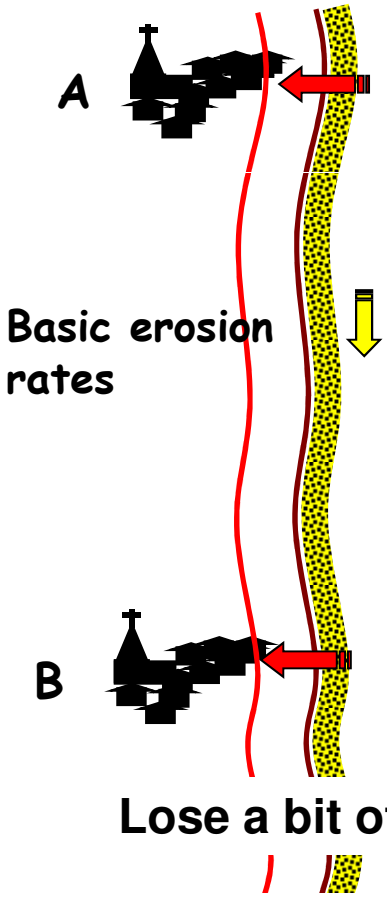
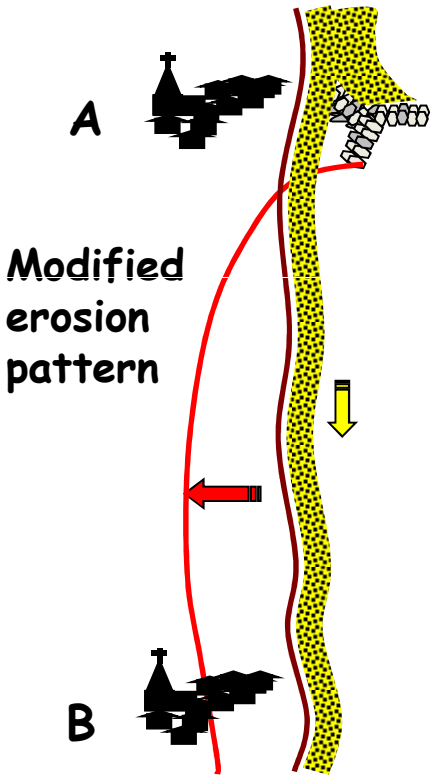
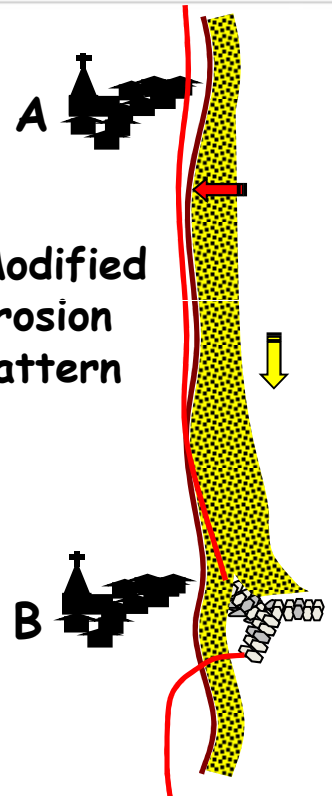
Understanding consequence of options



Lose a bit of A & B



Keep A, lose B



Keep B, lose a bit of A

Strategic scale vulnerability assessment.

Vulnerability Assessment

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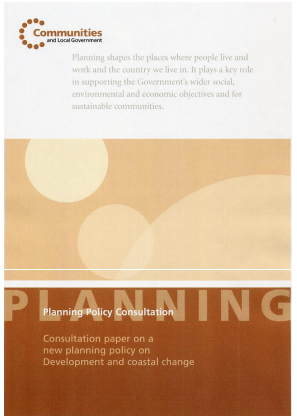

- **If development is needed within a CCMA, a Vulnerability Assessment is needed to show that it:**
  - **provides wider sustainability benefits that outweigh the predicted coastal change impact;**
  - **will be safe through its planned lifetime, without increasing risk, or requiring new or improved coastal defences;**
  - **does not affect the natural balance and stability of the coastline or cause changes to the coastline somewhere else**
  - **can be managed at the end of its planned life - including its removal**

We can build on PPS 25

Risk based approach:

Assess
(SMP / CCMA)
↓
Avoid
↓
substitute
↓
control
(niche use)
↓
Mitigate
(resilience?
(safety/end of life)

Building on PPS 25 – Sequential test

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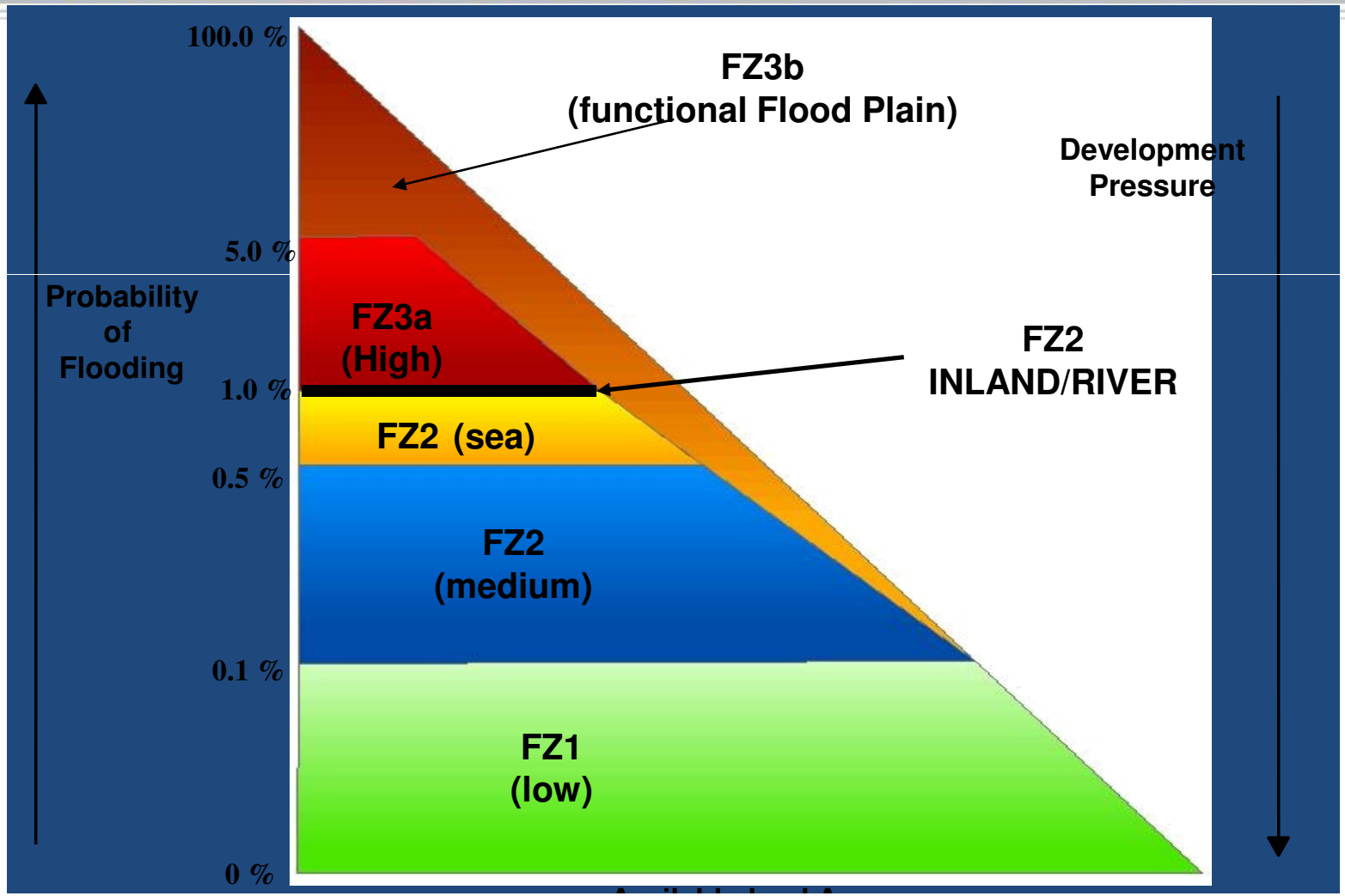

Building on PPS 25 - Risk vulnerability

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Compatibility between impact vulnerability and probability zones

Flood Zone	Probability of Flooding	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible	FRA Required?
1 (Low)	< 0.1%	√	√	√	√	√	Only sites > 1ha
2 (Medium)	1% - 0.1% (river) 0.5% - 0.1% (sea)	√	Exception test required	√	√	√	√
3a (High)	>1% (river) >0.5% (sea)	Exception test required	X	Exception test required	√	√	√
3b (Functional Floodplain)	>5% or designed to flood to 0.1%	Exception test required	X	X	X	√	√

Vulnerability of a coastal system

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Think change

Think avoidance

Think management

Think mitigation

Think 3D

Think options

Think regionally

There is no substitute for competence

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