

# Long-term investment scenarios and an opportunity to collaborate

Mike Steel  
Environment Agency, UK  
11 May 2016

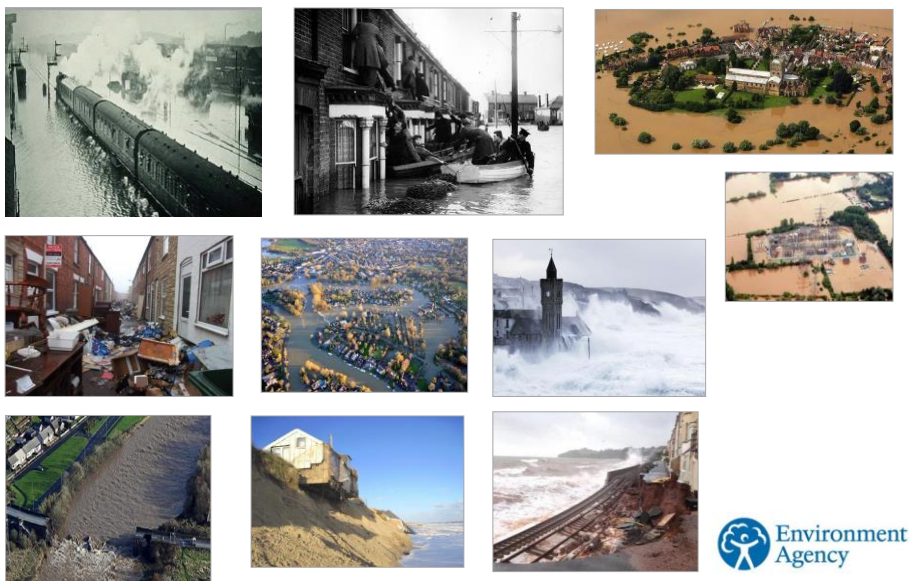


## Question: What are the future costs of managing flood and coastal erosion risk in England?

- ⇒ Risk information and economic optimisation
- ⇒ The optimal investment profile for different scenarios
- ⇒ Constraints and challenges
- ⇒ Open and collaborative development

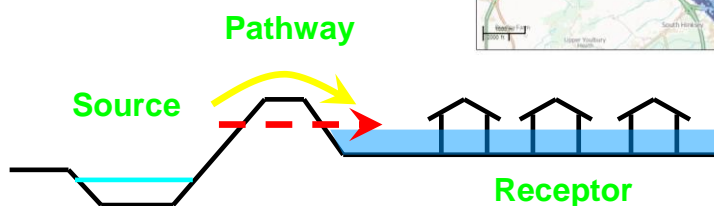
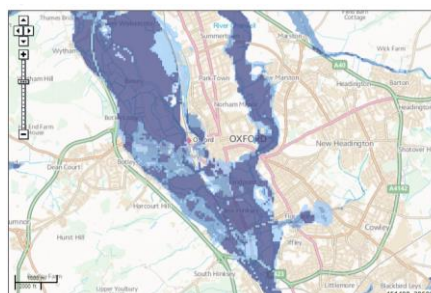


## What are the future costs of managing flood and coastal erosion risk?

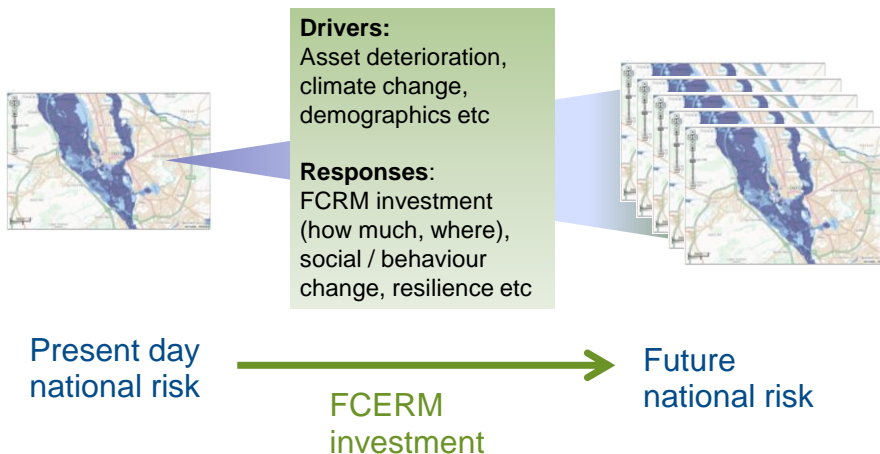


## National flood risk assessment (NaFRA)

- ⇒ Assesses present day flood risk from rivers and the sea
- ⇒ Considers sources - pathways - receptors of flood risk
- ⇒ Calculates the probability of inundation from the overtopping or failure of flood defences

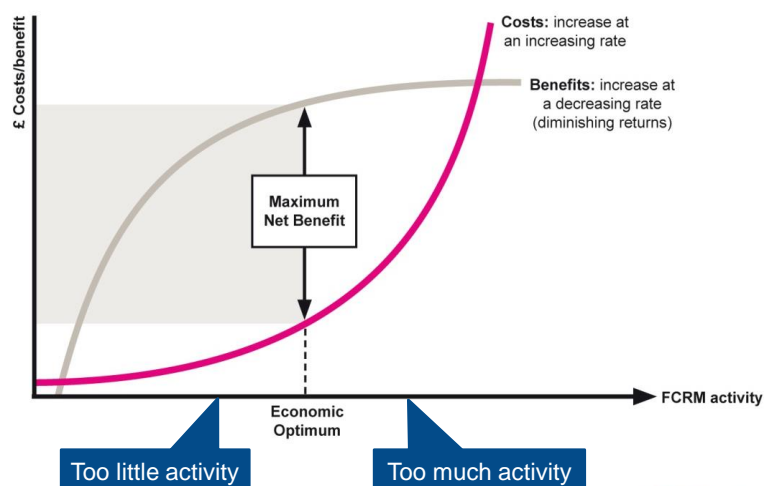


## Future flood risk scenarios



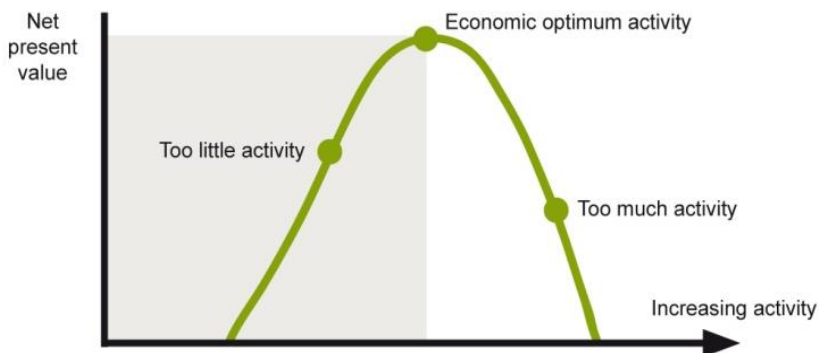
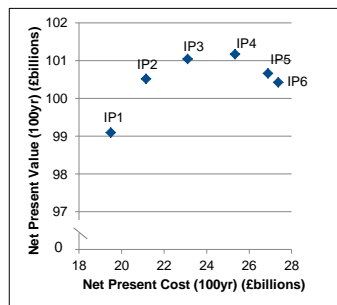
## Economic optimisation

⇒ Economic optimum occurs when we maximise net benefits



## Economic optimisation

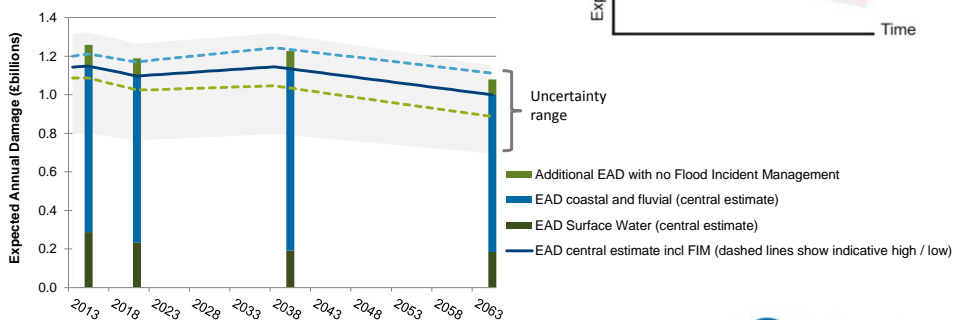
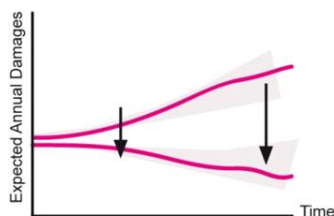
- Identifying the overall value of investment to maximise net benefits over investment levels IP1-IP6



## Long term risk reduction

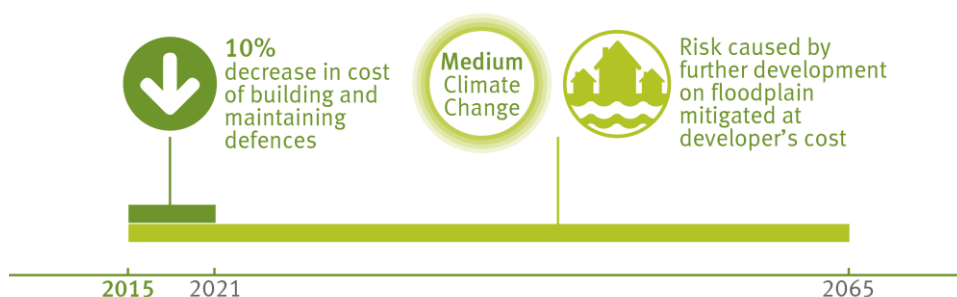
It is possible to reduce risk cost effectively in the long term

Change in expected flood damages over time



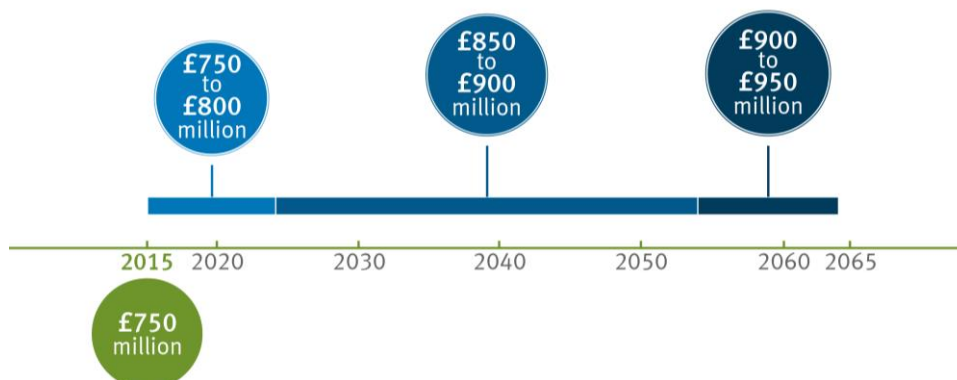
## The baseline scenario

The baseline includes different economic, development and climate change factors



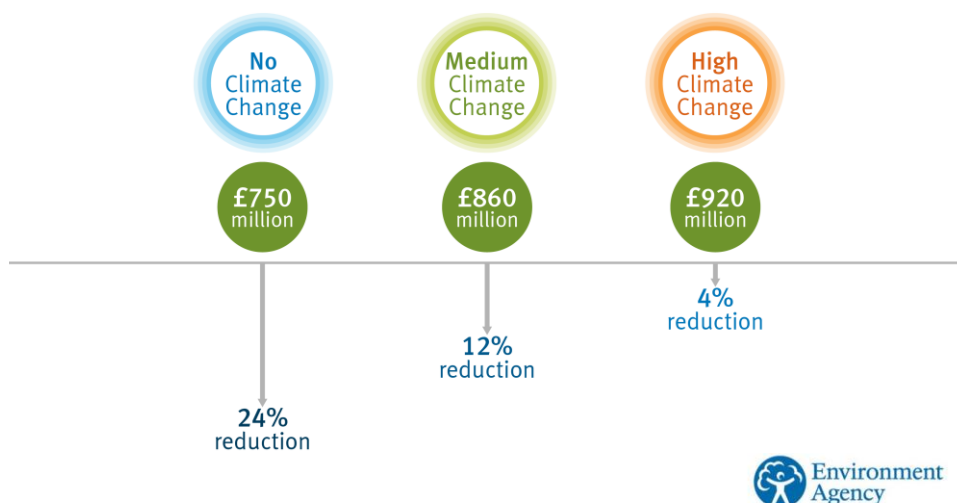
## Future investment level

Investment need will increase over time



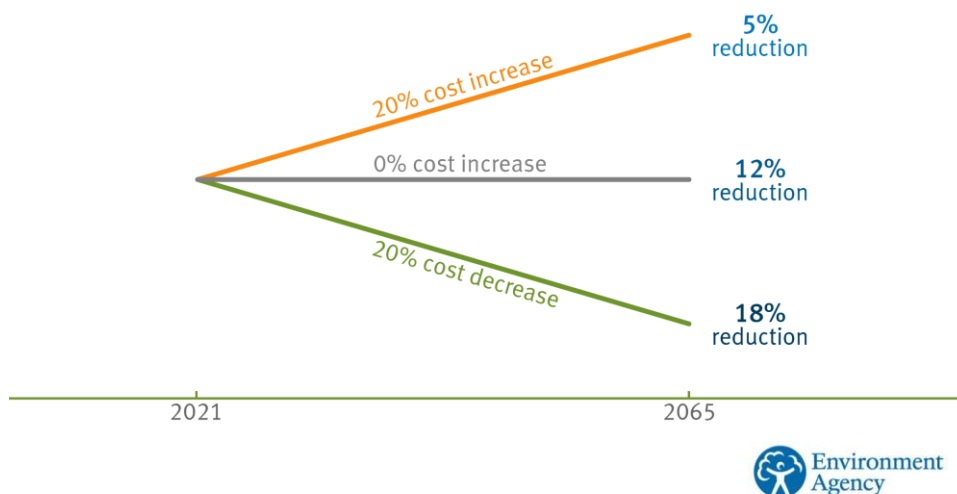
## Climate change costs

Changes in climate change will affect investment and the overall flood and coastal erosion risk in 2065



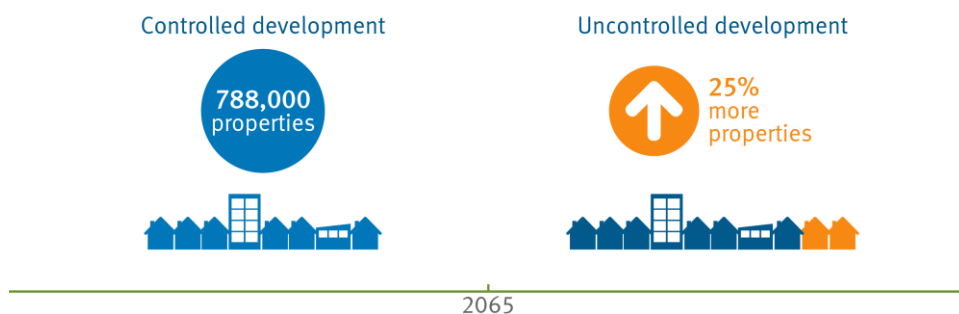
## Changing future costs

Changes in the cost of building and maintaining defences will impact on the overall flood and coastal erosion risk



## Flood plain development

Uncontrolled development on the flood plain will increase the number of properties at risk in the future



## Constraints and challenges

- How flexibility around the timing of investments could affect outcomes
- Reasonably foreseeable worst case climate
- Reducing residual risk with community and property level defences
- The potential of natural flood management (working with natural processes) approaches



## Open and collaborative development

### ⇒ LTIS Development Group

- Group of experts to advise, scrutinise and collaborate on the development of LTIS

### ⇒ Our aim:

- *a more open and collaborative approach to strengthen LTIS further as robust, independently-reviewed, world-leading evidence*

