



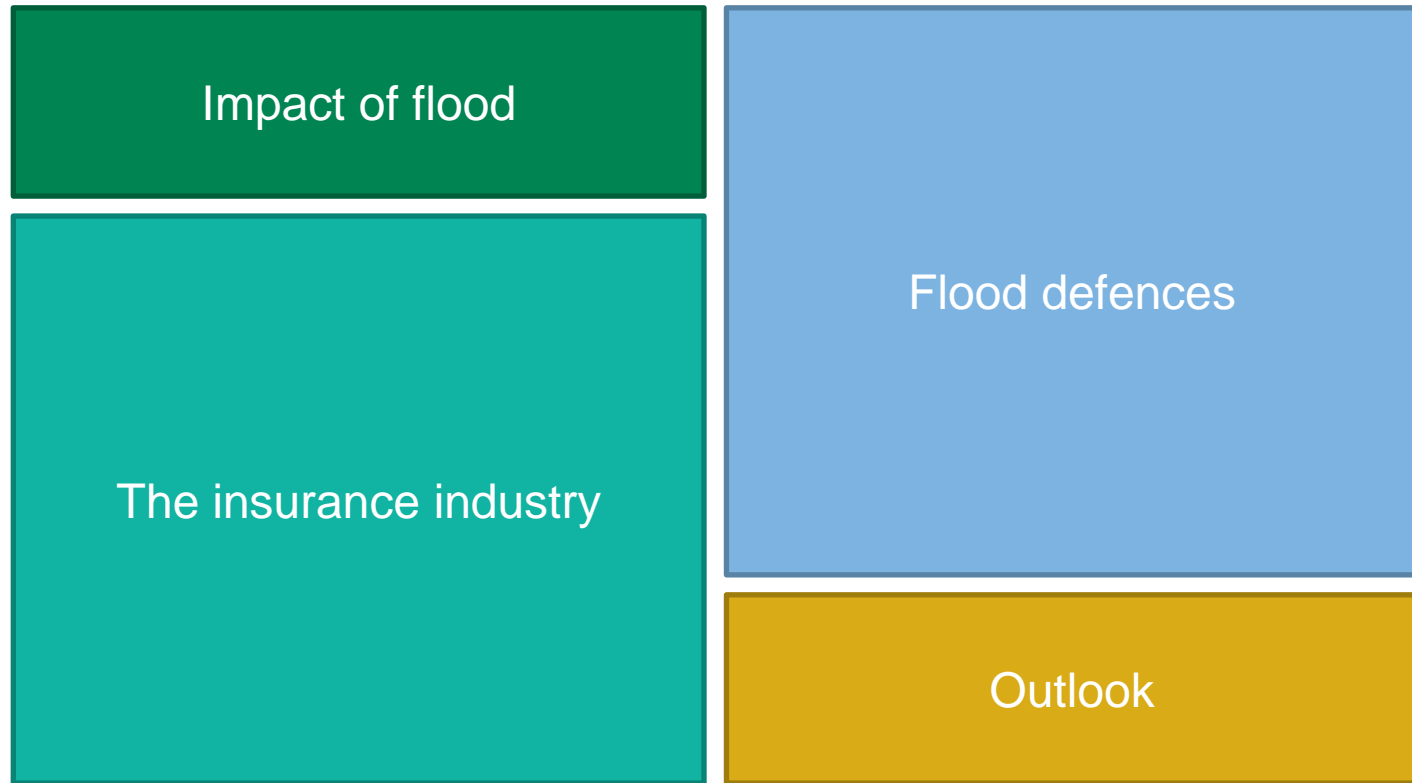
Institute
and Faculty
of Actuaries

How should society choose where to direct flood resources?

Philippa King, LCP
IFoA Flood Working Party



Overview



Impact of flood



Institute
and Faculty
of Actuaries

Impact of flood



Institute
and Faculty
of Actuaries

Impact of flood



Institute
and Faculty
of Actuaries

Impact of flood



© Dave Nelson



Institute
and Faculty
of Actuaries

Impact of Flood: Europe 2000 - 2016

Flood Events
268

People displaced
>1m

Insured losses
>€62bn

Fatalities
1296

Losses insured
30%



Institute
and Faculty
of Actuaries

Impact of Flood UK: Christmas 2015



Institute
and Faculty
of Actuaries

How do we get it right?



LEARN FLOOD DRILLS, LONDON WARNED

NOW THOUSANDS FACING FLOOD MISERY
Riverbanks keep bursting
Even Windsor Castle has got a new moat

FURY AT FLOOD FATCAT BONUSES

£6BN FLOODS SHAMBLES
DAM YOU, CAM
Anger mounting over cuts to : Storm Frank to bring 70mph gales as cost of misery rises : winds & another 80mm of rain

Uninsured flood victims facing billion-pound bill
Anger as delay to cover home families exposed : Cameron accused of failing northern cities

SPEND OUR FOREIGN AID ON BRITISH VICTIMS OF FLOODING

FLOODS SWAMP £48M DEFENCES



Why bother with flood defences?
My insurance will cover it!



New flood insurance scheme to cut bills by hundreds of pounds



Flood victims facing ruin turn on the PM



Prime Minister heckled as he visits northern England
Cameron denies 'North-South divide' in flood spending
Complete rethink needed on UK defences, warn officials
Cost predicted to rise to £5bn, with more rain on way



Institute and Faculty of Actuaries



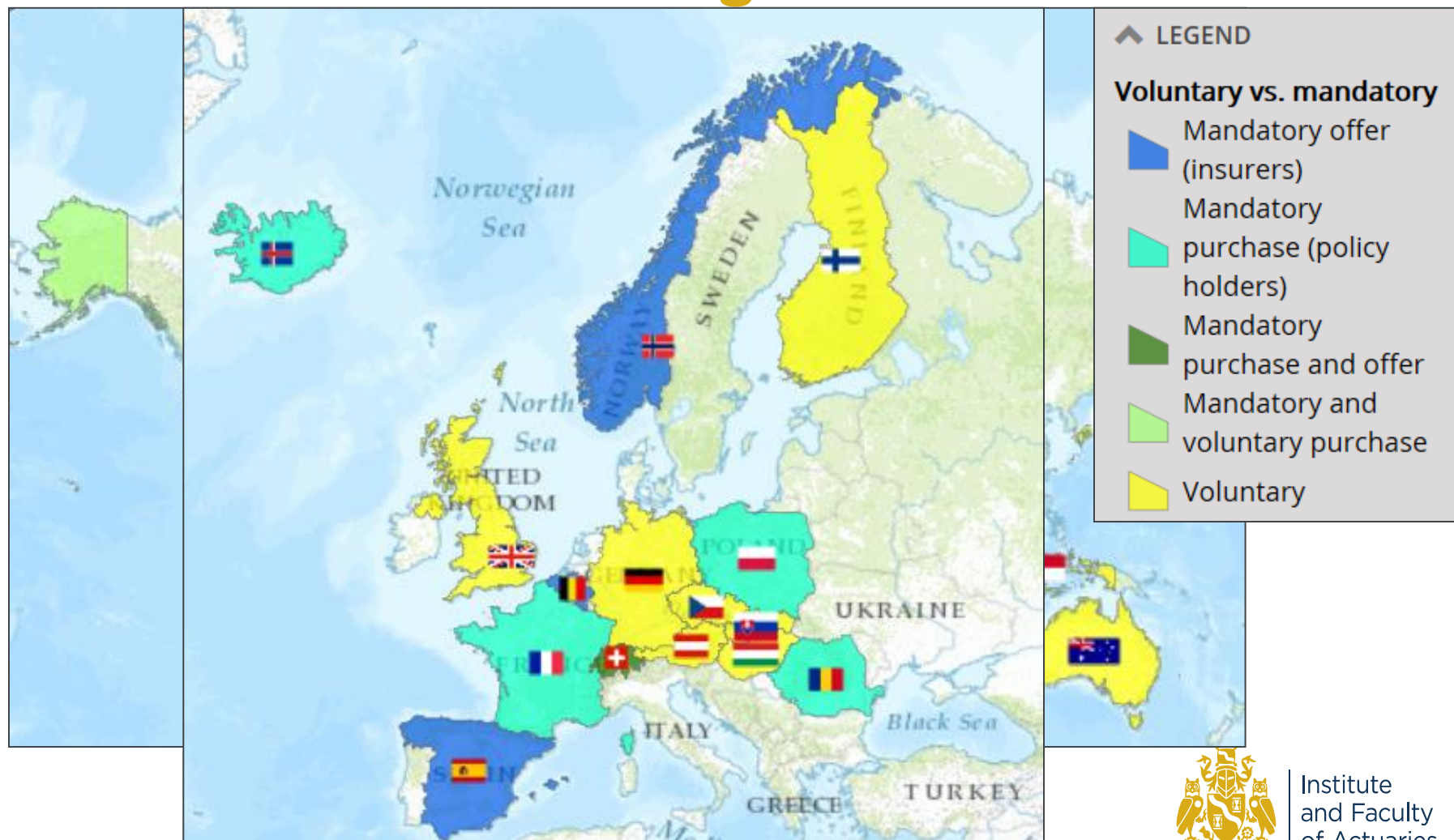
Institute
and Faculty
of Actuaries

The insurance industry

25 May 2016

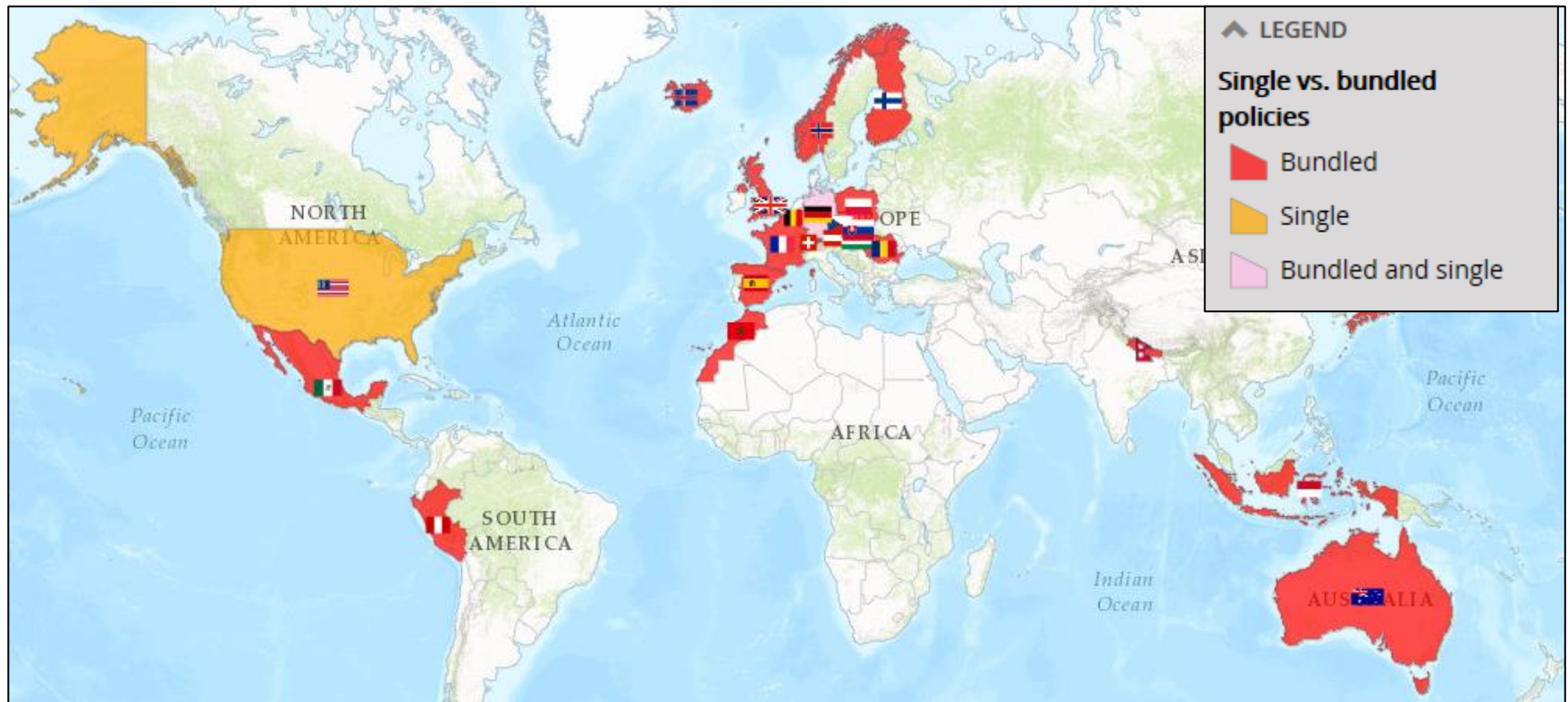
ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

Flood insurance obligations



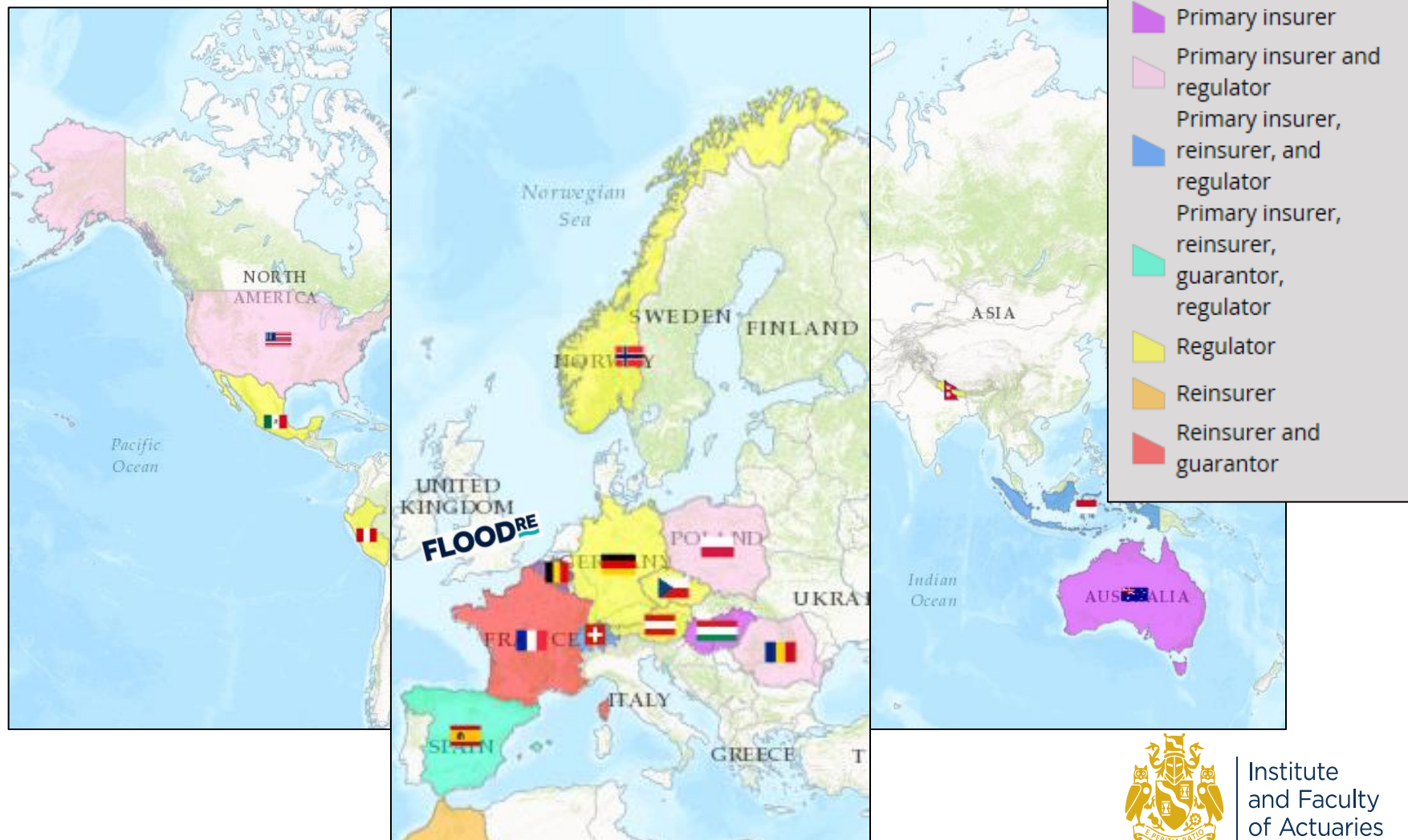
Institute
and Faculty
of Actuaries

Flood policies single vs bundled



Institute
and Faculty
of Actuaries

Government in flood insurance



Institute
and Faculty
of Actuaries

What is Flood Re?

FLOODRE

Homes built
after 2009

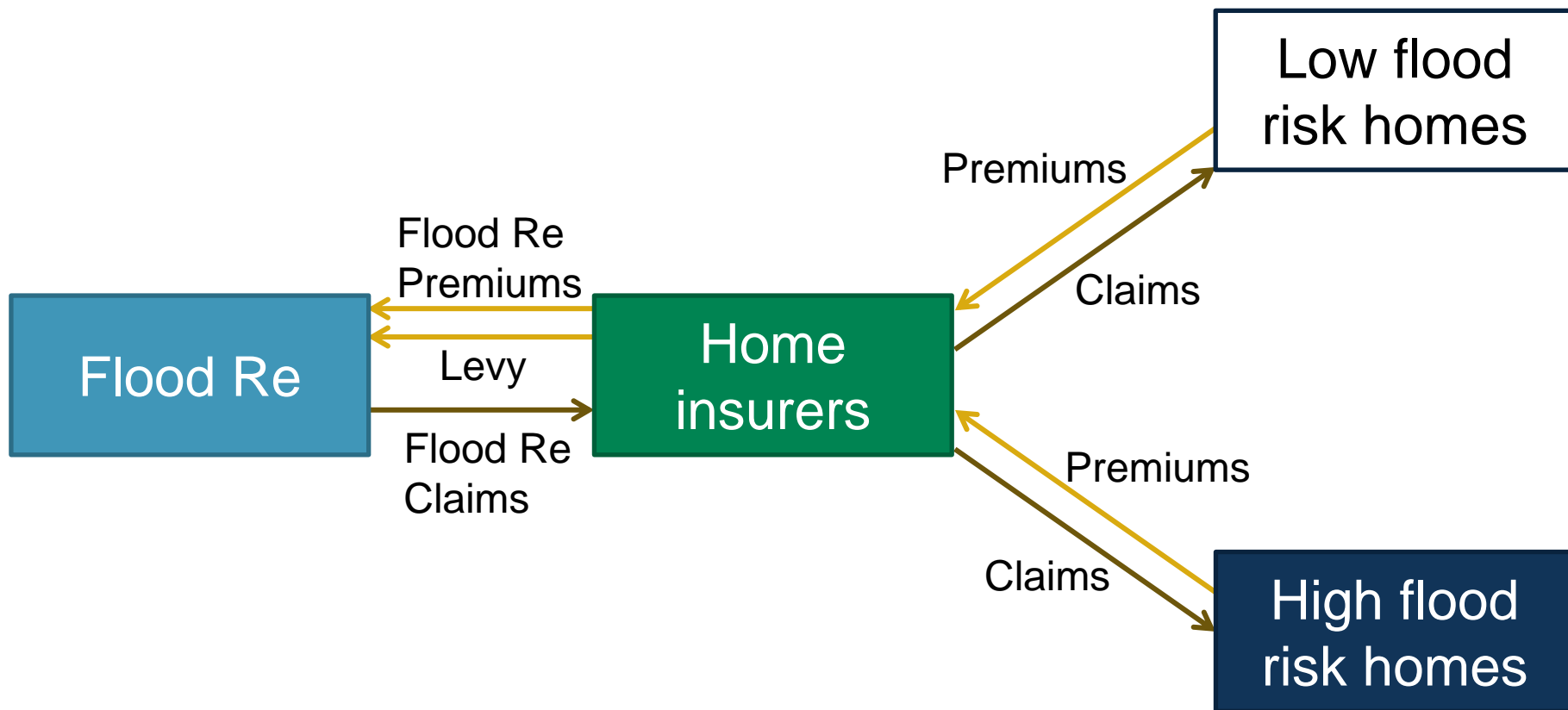
Commercial
properties

Buy to lets



Institute
and Faculty
of Actuaries

How does Flood Re work?

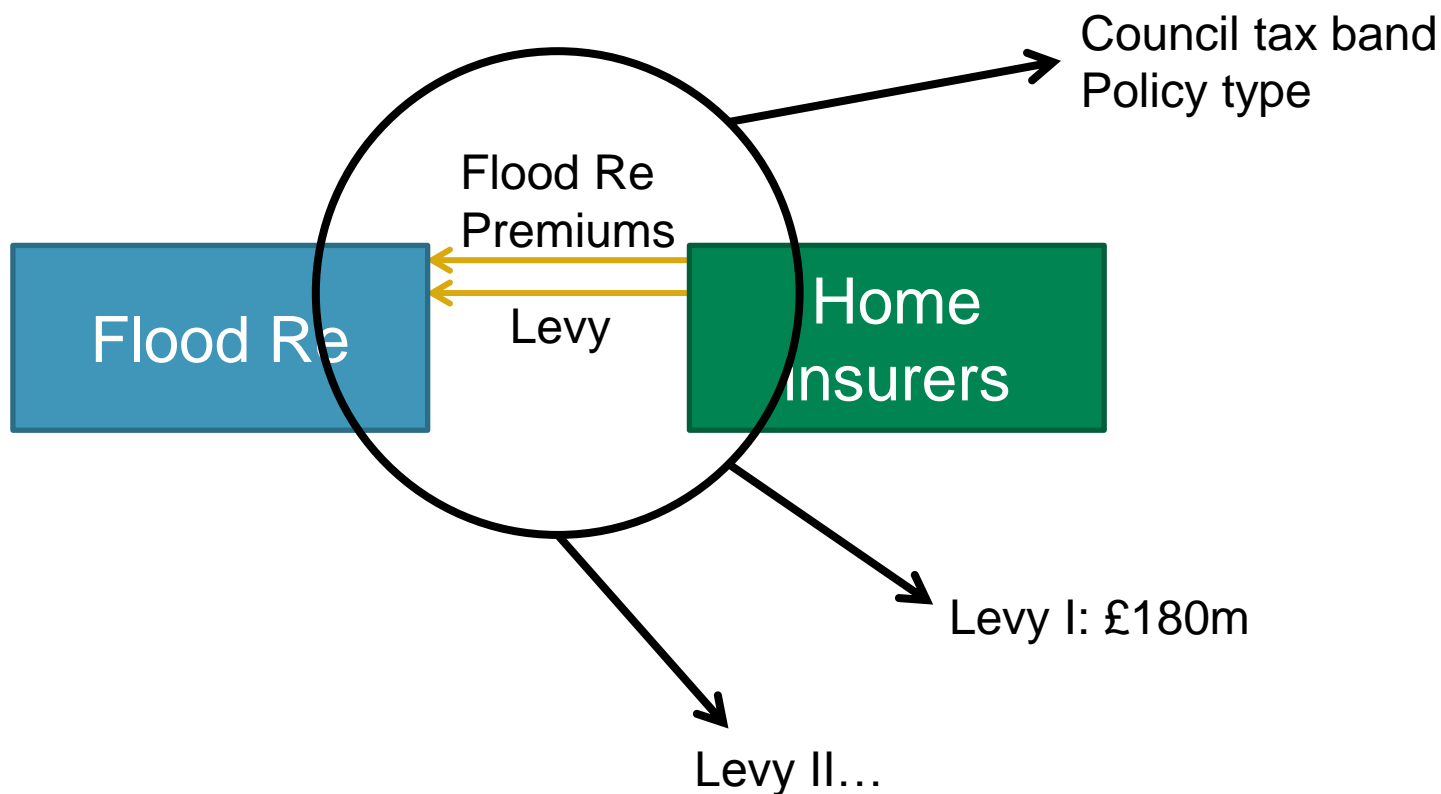


High risk homes: 1-2% highest risk, ~350,000



Institute
and Faculty
of Actuaries

How does Flood Re work?



High risk homes: 1-2% highest risk, ~350,000



Institute
and Faculty
of Actuaries

Flood Re considerations

Strengths	Issues
Consumer benefits	Scope
Infrastructure	Cost
Further reach	Operational





Institute
and Faculty
of Actuaries

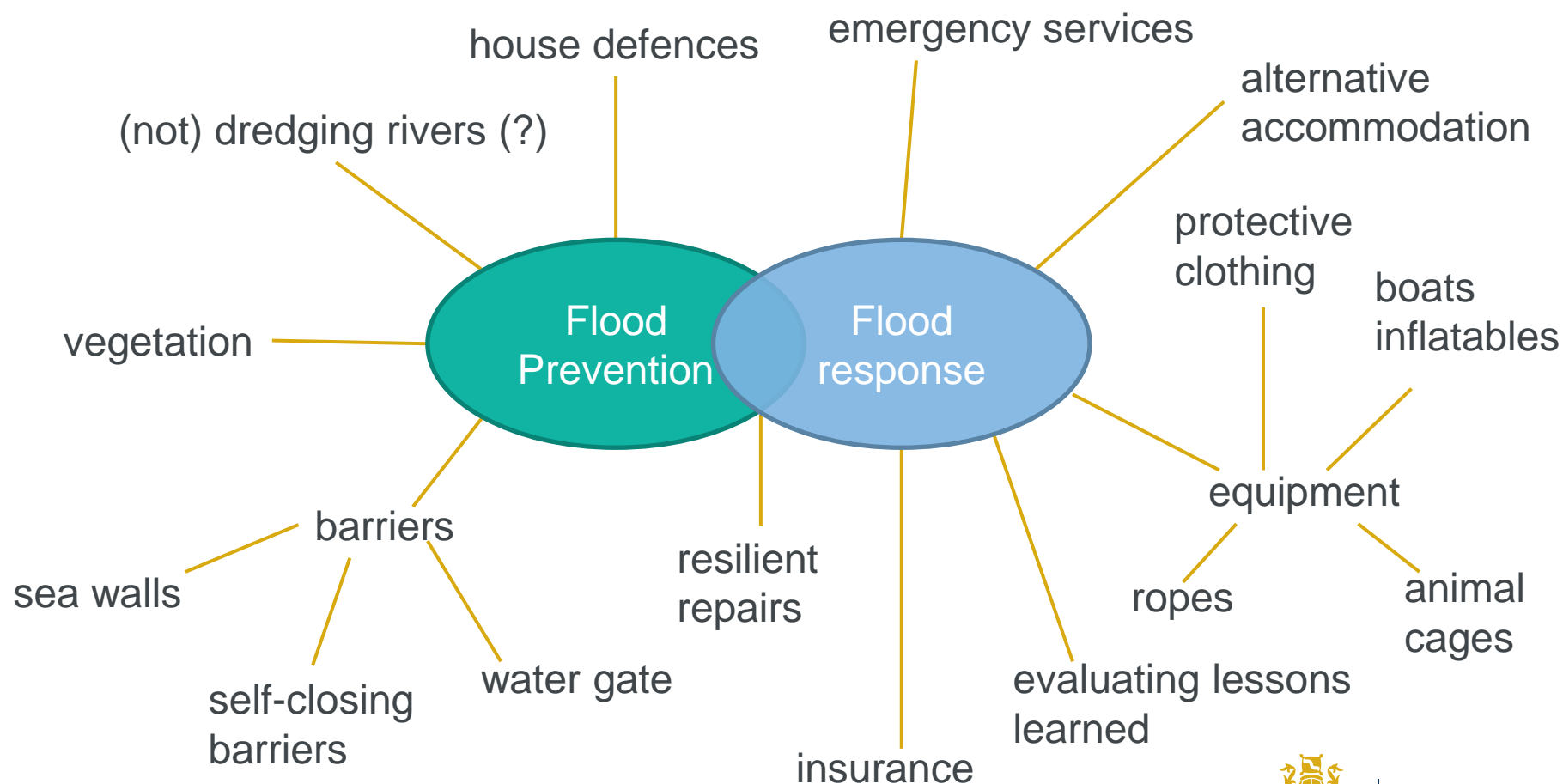
Flood Defences



25 May 2016

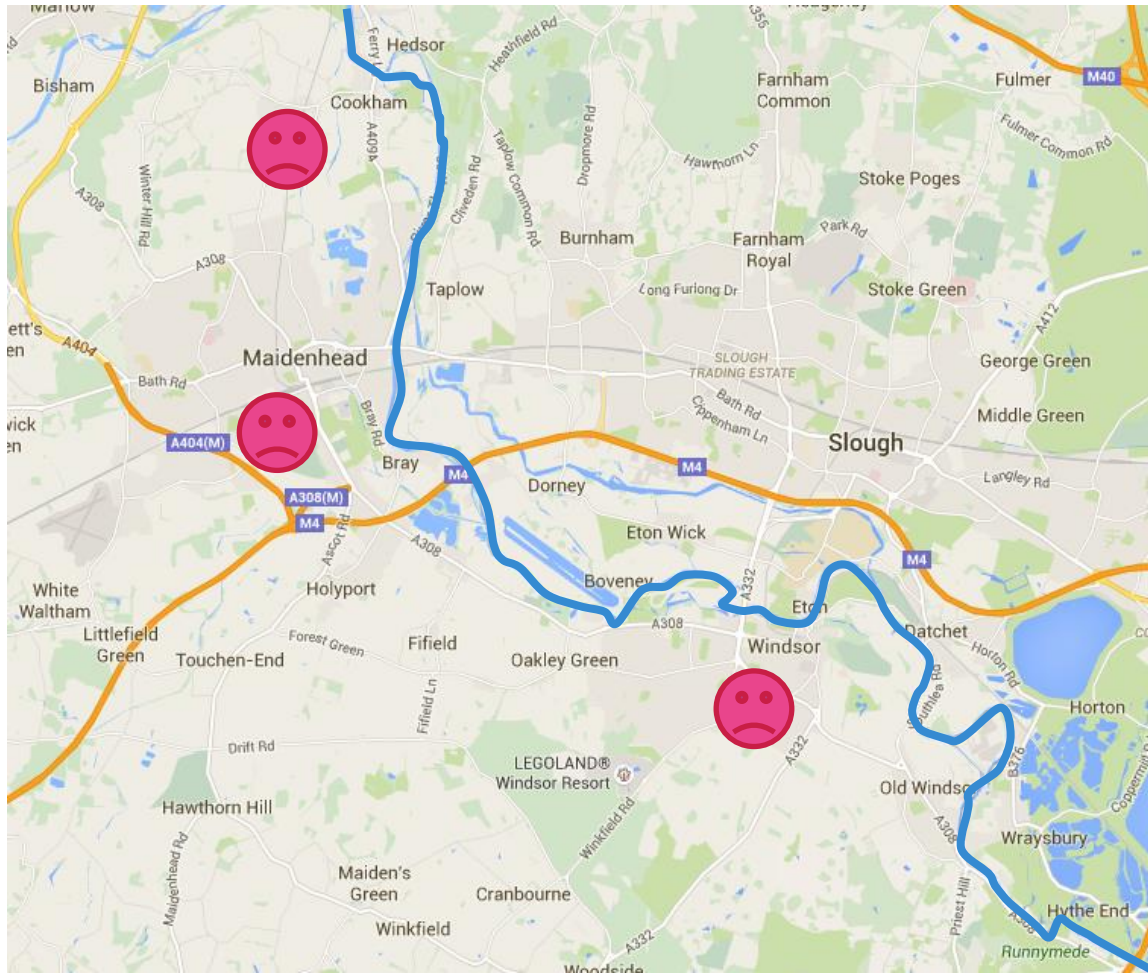
ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

Flood defence and response methods



Institute
and Faculty
of Actuaries

Case study: Thames flooding



- Option 1: Divert water from river in times of flood
- Option 2: Flood proof homes



Institute
and Faculty
of Actuaries

Cost-benefit analysis – divert water

	Cost		Benefit		Total
Construction	Scheme	£100m	Selling minerals from dredging	£5m	- £155m
	Transport disruption	£10m			
	Maintenance	£50m			
Economic			Commercial properties protected	£80m	+ £80m
Environmental		£5m	Parks, boating facilities, wildlife reserves, fish		- £5m + social
Social	Downstream flooding (affects 20,000 people)	£160m	Four floods prevented	£200m	+ £60m
	Reduced property values	£30m	Property values increase	£50m	
		£355m		£335 + social	- £20m + social

Assumptions: Costing over 65 years
Scheme prevents 4 major floods in that time



Institute
and Faculty
of Actuaries

Cost-benefit analysis – flood proof homes

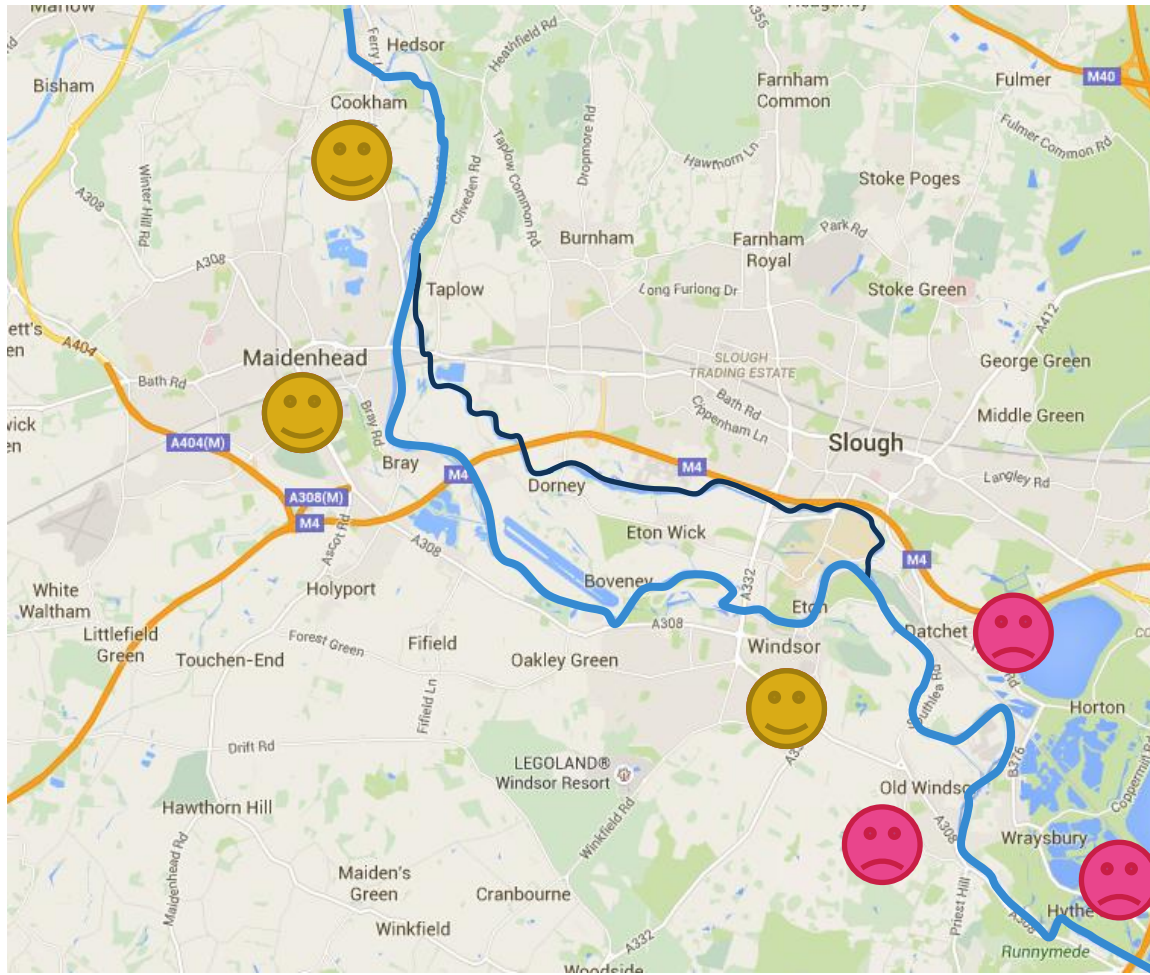
	Cost	Benefit	Total
Construction	3,000 homes £20,000 per home £60m		- £60m
Economic			
Environmental			
Social	Continued flooding Displacement Clean up	70% reduction of repair costs £140m	+ £140m - social
	£60m	£140	+ £80m - social

Assumptions: Assumes 4 major floods over 65 years
Ignores downstream homes



Institute
and Faculty
of Actuaries

Decision time...

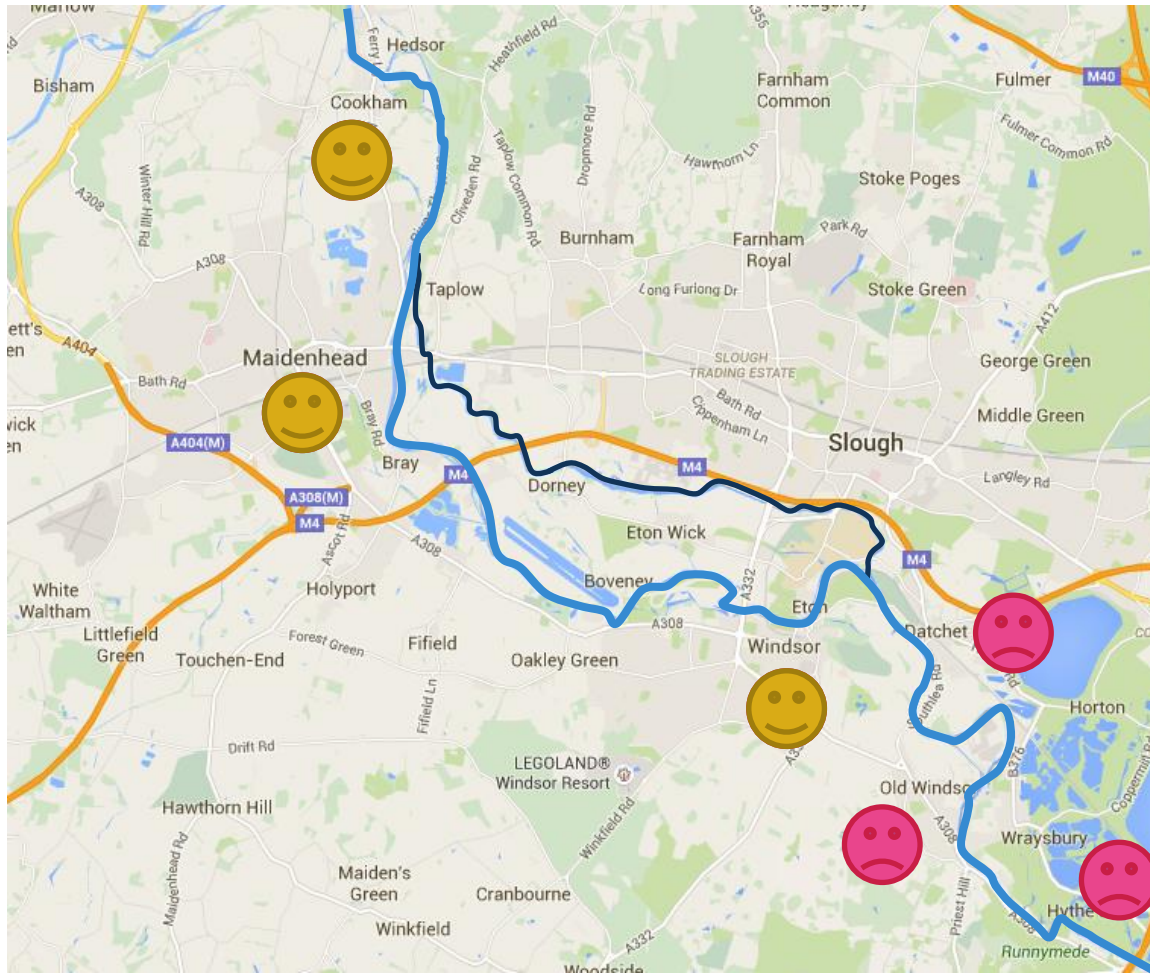


- Option 1: Divert river
 - £160m cost to government
 - £20m net **cost** + social benefit
- Option 2: Flood proof homes
 - £60m cost to government
 - £80m net **benefit** + social cost



Institute
and Faculty
of Actuaries

Decision time...



• Option 1: Divert river

- £160m cost to government
- £20m net **cost** + social benefit

Actual benefit:
£230m

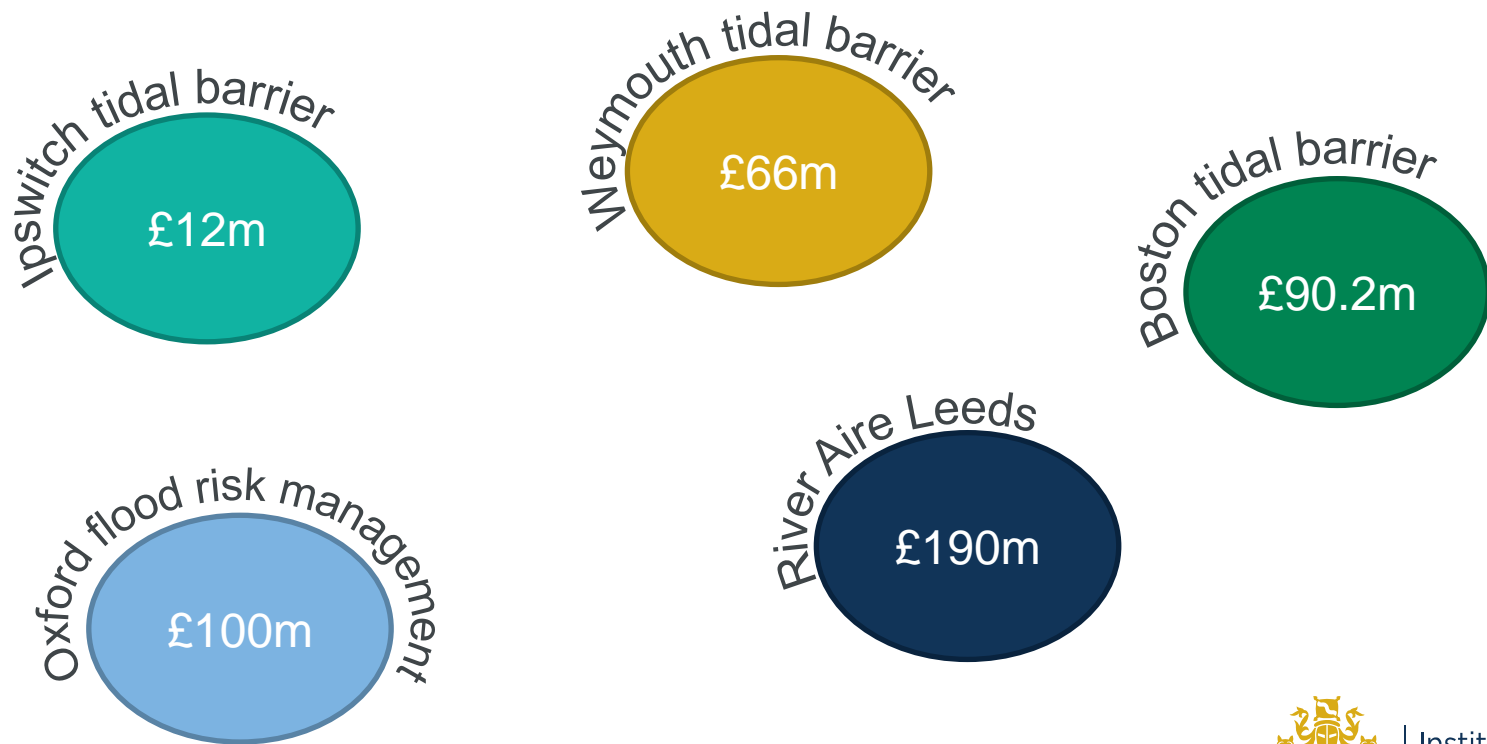
Cost of extension:
£256m



Institute
and Faculty
of Actuaries

Limited resources

- 8 to 1 requirement for return on flood spending



Institute
and Faculty
of Actuaries

Flood Defences – EU directive



Preliminary flood
risk assessment

Flood risk maps
for these zones

Flood risk management
plans:
Prevention, protection and
preparedness

Overview report based
on members' flood risk
management plans



Institute
and Faculty
of Actuaries

Netherlands

- Ten of billions of euros over 40 years
- €1bn per year maintenance



Institute
and Faculty
of Actuaries

Netherlands

- Ten of billions of euros over 40 years
- €1bn per year maintenance

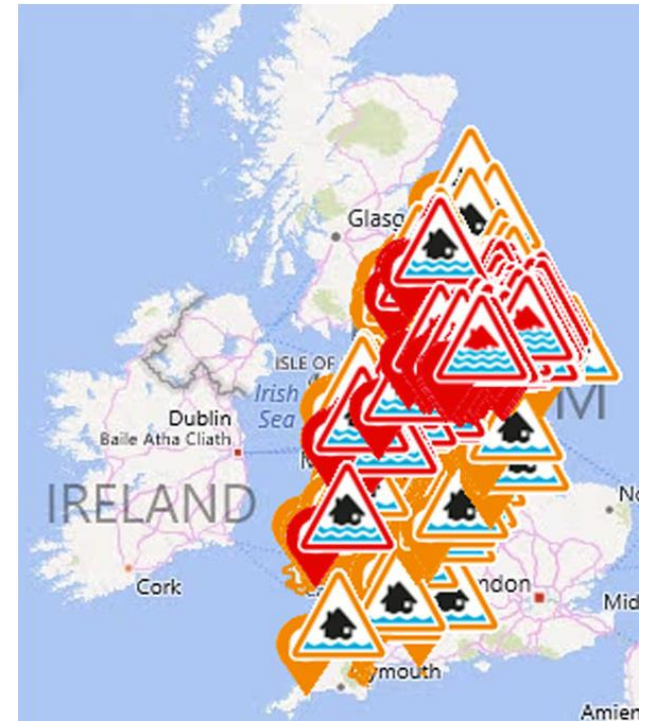


Institute
and Faculty
of Actuaries



Institute
and Faculty
of Actuaries

Outlook



ertise
ponsorship
Thought leadership
Progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

25 May 2016

Funding increase

- Budget 2016 – IPT increased from 9.5% to 10%



Institute
and Faculty
of Actuaries

National flood resilience review

Modelling

Resilience of
infrastructure

Temporary
defences

Investment
strategy



Institute
and Faculty
of Actuaries

Flood Re transition plan



Institute
and Faculty
of Actuaries

Shhhhhh (climate change)



Institute
and Faculty
of Actuaries

Questions

Comments



The views expressed in this presentation are those of invited contributors and not necessarily those of the IFoA. The IFoA do not endorse any of the views stated, nor any claims or representations made in this presentation and accept no responsibility or liability to any person for loss or damage suffered as a consequence of their placing reliance upon any view, claim or representation made in this presentation.

The information and expressions of opinion contained in this publication are not intended to be a comprehensive study, nor to provide actuarial advice or advice of any nature and should not be treated as a substitute for specific advice concerning individual situations. On no account may any part of this presentation be reproduced without the written permission of the IFoA.



Institute
and Faculty
of Actuaries

Premium by council tax band

Cover Type		Property Council Tax Band							
		A	B	C	D	E	F	G	H
	Wales:	A/B/C		D	E	F	G	H	I
Buildings only		£132	£132	£148	£168	£199	£260	£334	£800
Contents only		£78	£78	£98	£108	£131	£148	£206	£400
Buildings and Contents combined		£210	£210	£246	£276	£330	£408	£540	£1,200



How to flood protect a home

- Flood-proof doors £750 – 2,500+ (or demountable door guards £2,380)
- Airbrick covers £180 – 1,680
- Resilient plaster £6,300 – 8,200
- Concrete/sealed floors £7,600 – 12,500
- Raise appliances £700 – 1,100
- Periphery wall/free standing barriers £5,000 - 12,000
- Additional external layer (render, bricks etc) £2,500 – 4,000 per property
- Automatic door guards £8,000
- Sump and pump £50 – 2,500
- Raise floor levels £28,200 – 44,700



How to flood protect a home

Property type	Option	Description	Low cost	Medium cost	High cost
Residential	Standard resilience	Resilient plaster, removable doors, internal wall rendering, resilient kitchen, raised electrics and appliances	£6,210	£7,830	£9,450
	Premium resilience	Concrete/sealed floors, resilient plaster, removable doors, internal wall rendering, resilient kitchen, raised electrics and appliances	£9,620	£11,870	£14,130

