

Policy instruments for managing flood risk

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Foley Restoration via Twitter



Ashley Burke, CBC News

2017 floods in Bradford, Ottawa-Gatineau



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Canadian Coastal Resilience Forum



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What should we do?

- FRM policy instruments
 - Tools of governance to influence behavior
 - share responsibility and costs
 - reduce risk (exposure, vulnerability in addition to hazard)



land use planning	restrictions on development in flood risk areas
development criteria	conditions on building permits to minimize flood risk
green infrastructure / LID	retaining water on site (swales, permeable surfaces, etc)
stakeholder engagement	collaboration with stakeholders affected by decisions or who have capacity to implement
flood mapping	graphic illustration of at-risk areas
flood warning system	alerting residents about impending flood threats
flood hazard disclosure	informing buyers about a property's flood risk
corrective tax	tax that discourages risky behavior
stormwater charge	fee proportionate to property's contribution to flood risk
subsidies	financial support for property level flood protection
credits	reduction of financial obligation in exchange for risk mitigation
compassionate grants	financial support for victims
property buy-outs	public purchase of properties in flood-prone areas
special surcharge	fee added to property tax to fund flood mitigation initiatives

Uncertainty about suitability

OBJECTIVE & INSTRUMENT	RISK-BASED	SHARES RESPONSIBILITY
Stakeholder engagement		
Public participation		
Warning systems		
Hazard disclosure		
Subsidies		
Credits		
Land use planning		
Flood mapping		
By-laws		
Corrective tax		
Risk-based charge		
Special surcharge		



Instrument is risk-based and shares responsibility with other stakeholders



Instrument is hazard based and is not employed to share responsibility with other stakeholders

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 DOI: [10.1080/07011784.2017.1364144](https://doi.org/10.1080/07011784.2017.1364144)

What instruments are suitable for coastal risk management?



Authority

Legal
Political
legitimacy

Resources

Fiscal capacity

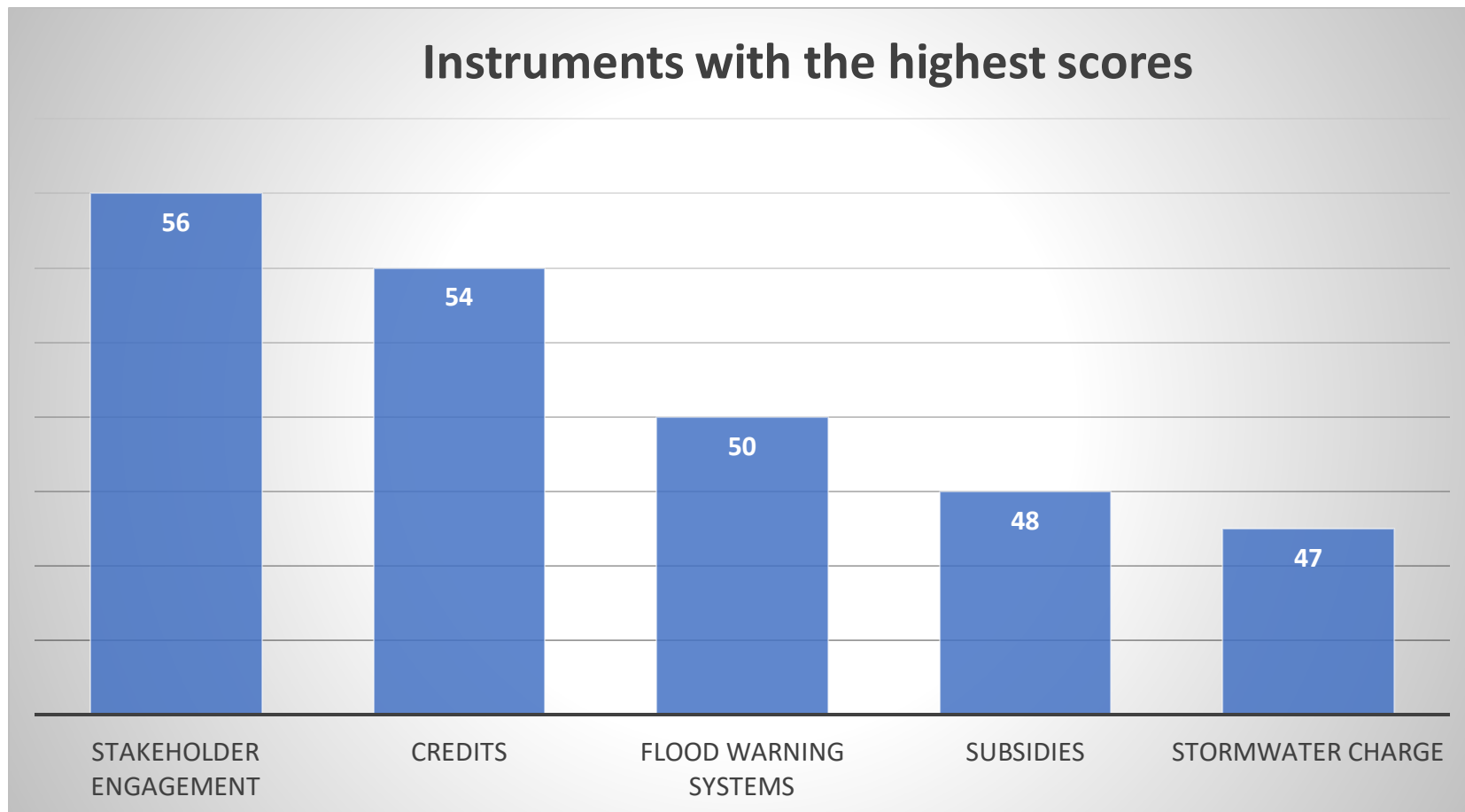
Organization

Administrative
Expertise
Data

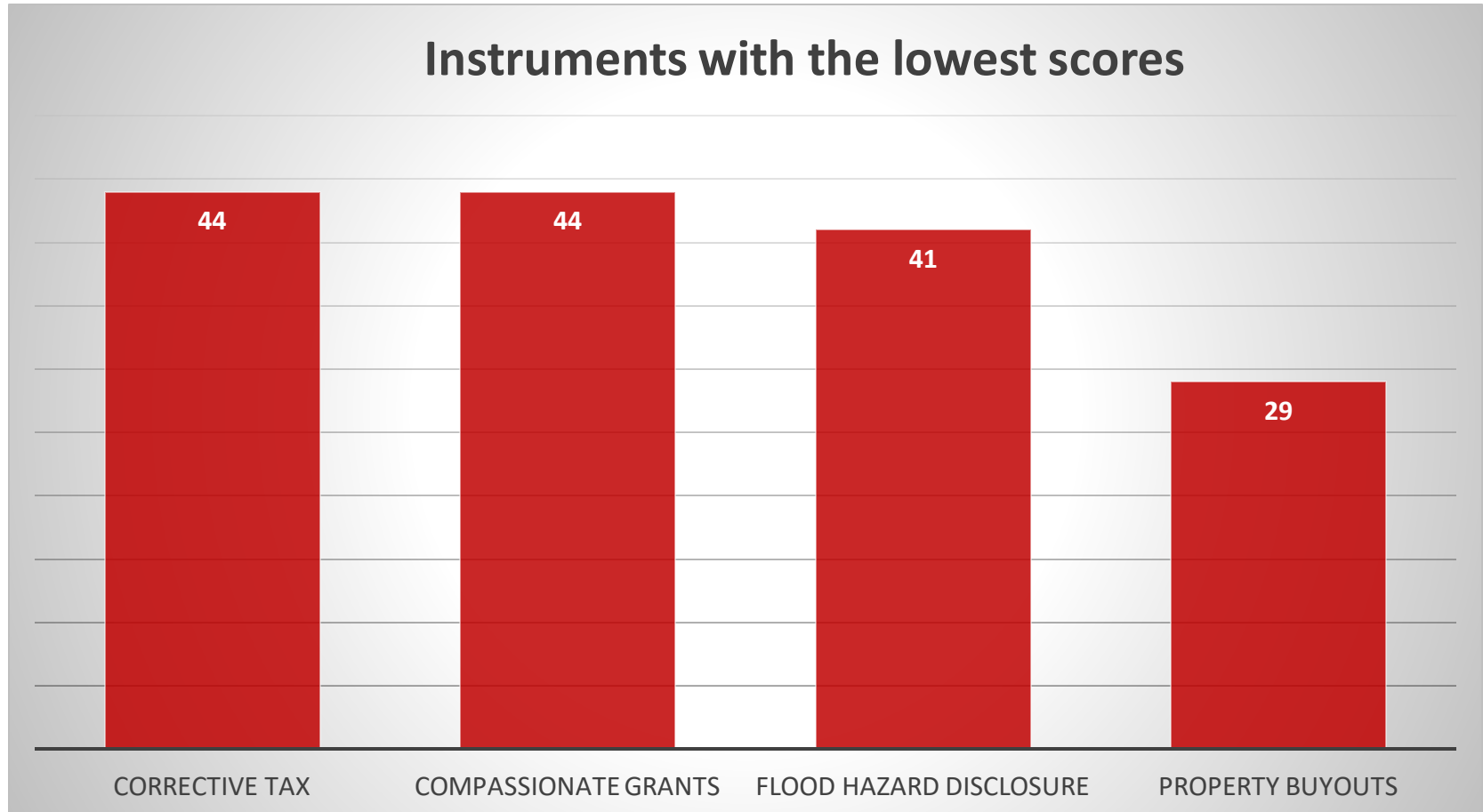
What makes an instrument suitable for coastal risk management?

effectiveness	degree to which instrument achieves objectives
technical feasibility	sufficient data and expertise to implement
political feasibility	support from politicians and community interests
economic efficiency	economic benefits outweigh costs
equity / fairness	fairly distributes benefits and burdens
administrative operability	resources required to implement
coherence	aligns with other policy objectives
flexibility	reversibility of instrument and effects

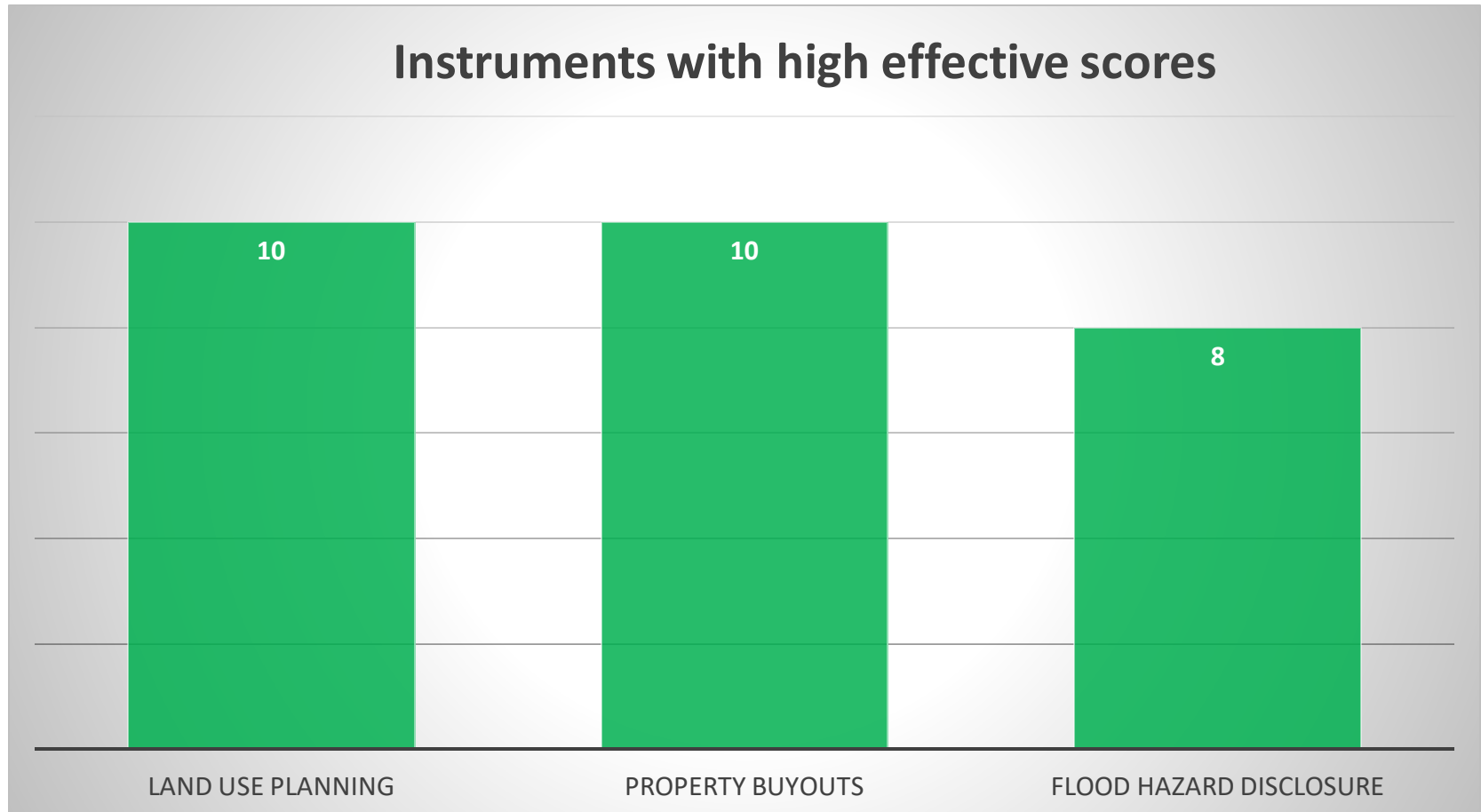
Results: High scores



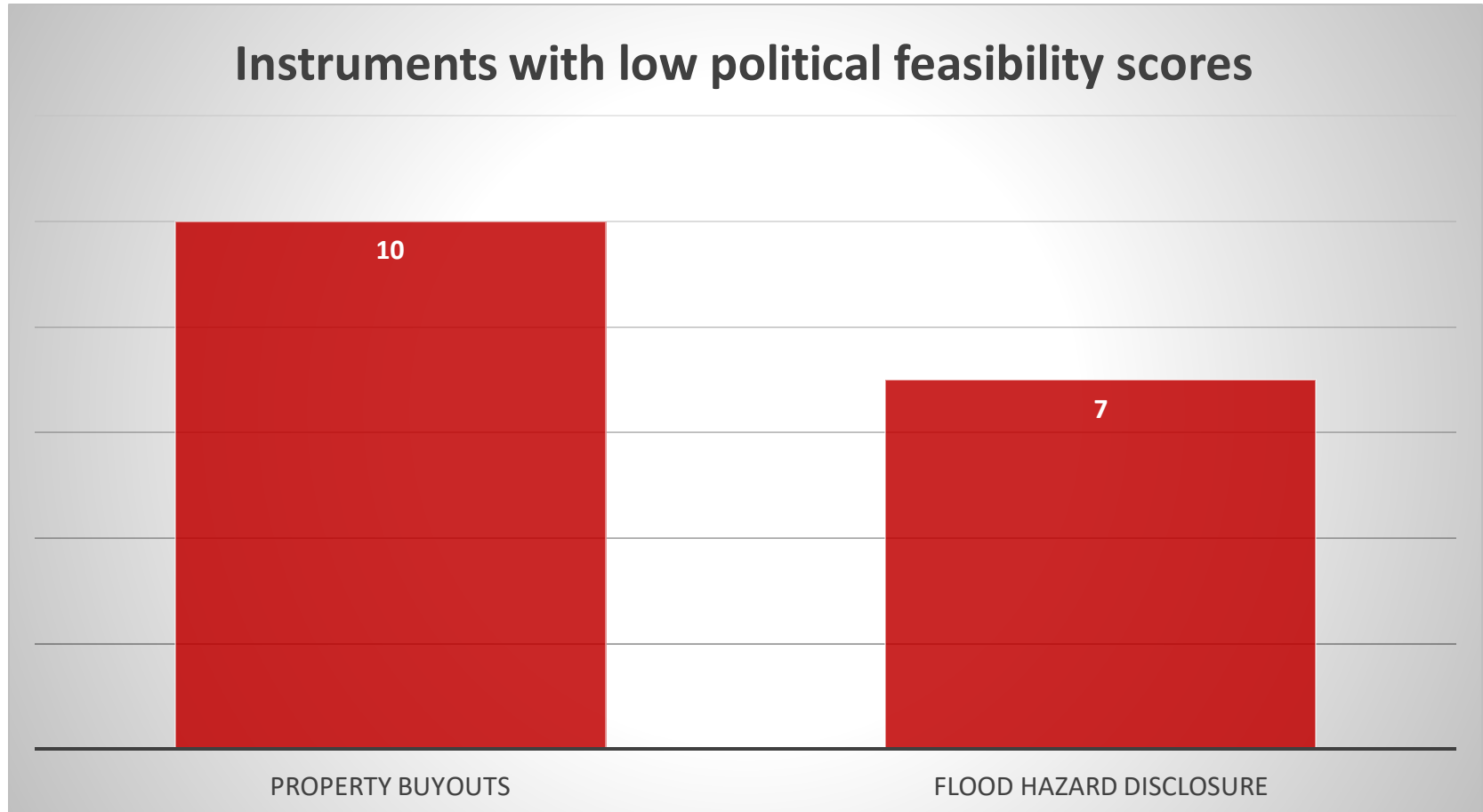
Results: Low scores



Results: Effectiveness



Results: political feasibility



Managing uncertainty

1. Setbacks (land-use)
2. Flood mapping portal
3. Managed retreats (buyouts)
4. Property disclosure



Questions

1. Are the criteria comprehensive?
2. Are we missing instruments?
3. Are some more appropriate for different jurisdictions?

effectiveness

technical feasibility

political feasibility

economic efficiency

equity / fairness

administrative operability

coherence

flexibility



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Marine Environmental Observation
Prediction and Response Network

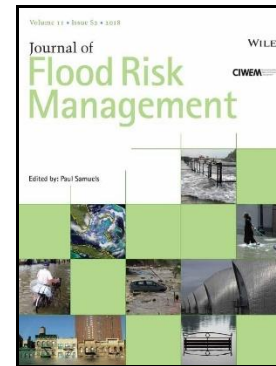
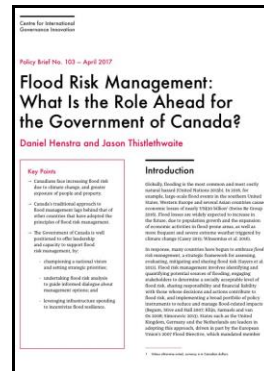
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National Flood Risk Roundtable, 2017/11



CANADIAN WATER NETWORK
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