

Problems Buried by Solutions

Municipal Action and Forgotten Stakeholders—The Case of Climate Change Response at Local Levels in Sweden

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Regional Planning in Greenland
23-24 January 2008, Nuuk, Greenland



Based on two studies

Turning Point on Climate Change? Emergent Municipal Response in Sweden: Pilot Study

Nordregio and Stockholm University, Dept. of Human Geography

Civil Protection Early Warning: From Weak Signals to Response

EC DG Environment, Community Action Programme in the Field of Civil Protection. Lead partner: Nordregio. Partners: Emergency Services College (EMC), Finland; Hellenberg.org, Finland; ISIG – Institute of International Sociology of Gorizia, Department of Mass Emergencies, Italy

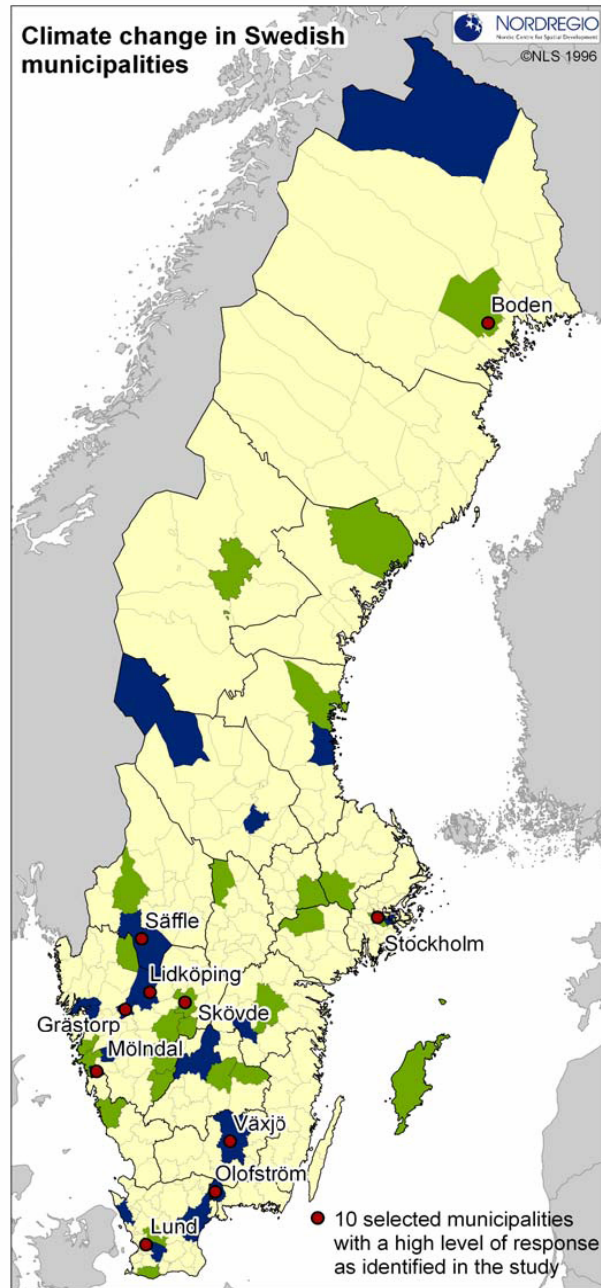


Turning Point Pilot Study

- Cat 1: no special activities 74/290 ~25%
- Cat 2: ambition of some concrete response 45/290 ~16%
- Cat 3: some concrete activities 119/290 ~41%
- Cat 4: *fewer* activities 9/290 ~3%
- Cat 5: wide variety, stable or rising 25/290 ~9%
- Cat 6: wide variety, exceptional engagement 17/290 ~6%



Climate change in Swedish municipalities



Municipal Categorization

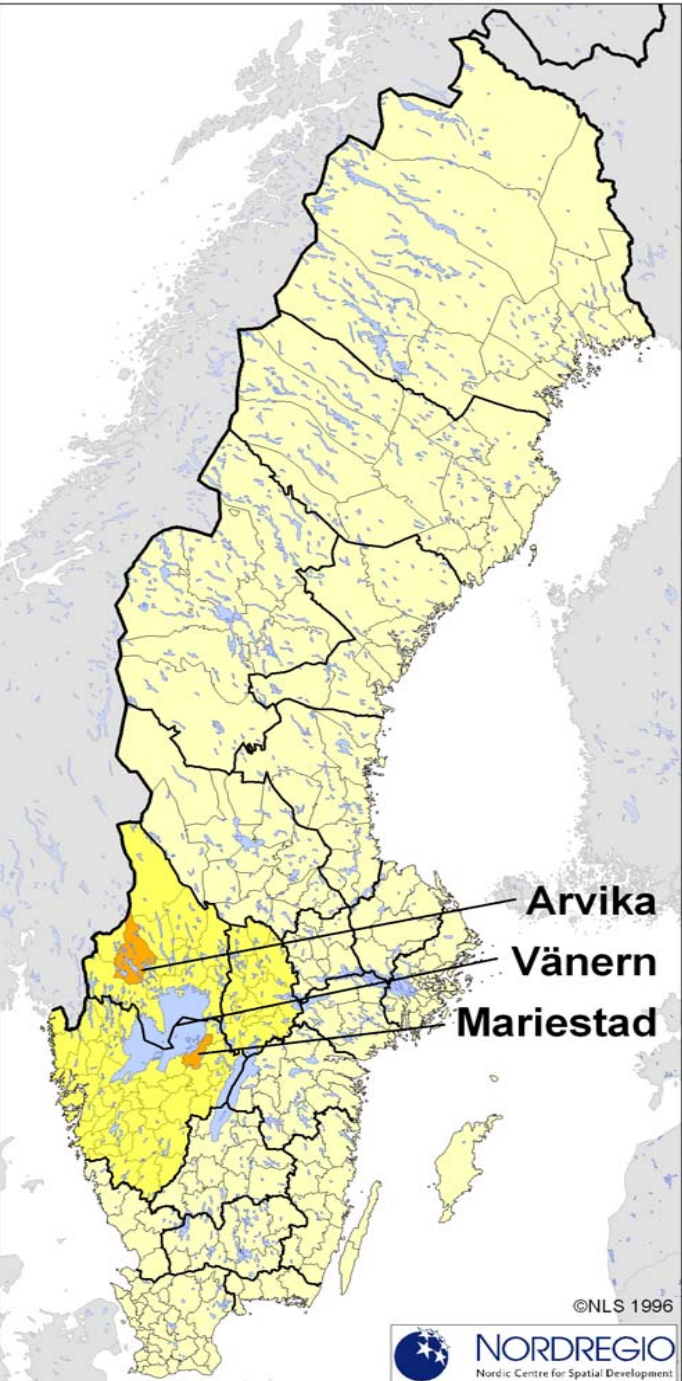
- Yellow: "Normal"/ declining activity level (238/9 municipalities)
- Green: Wide variety of activities on a rising/stable level (25)
- Blue: Wide variety of activities with exceptional engagement (18)

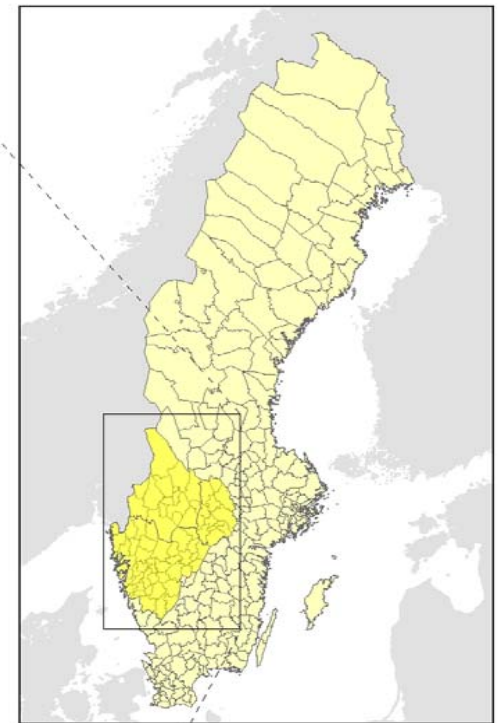
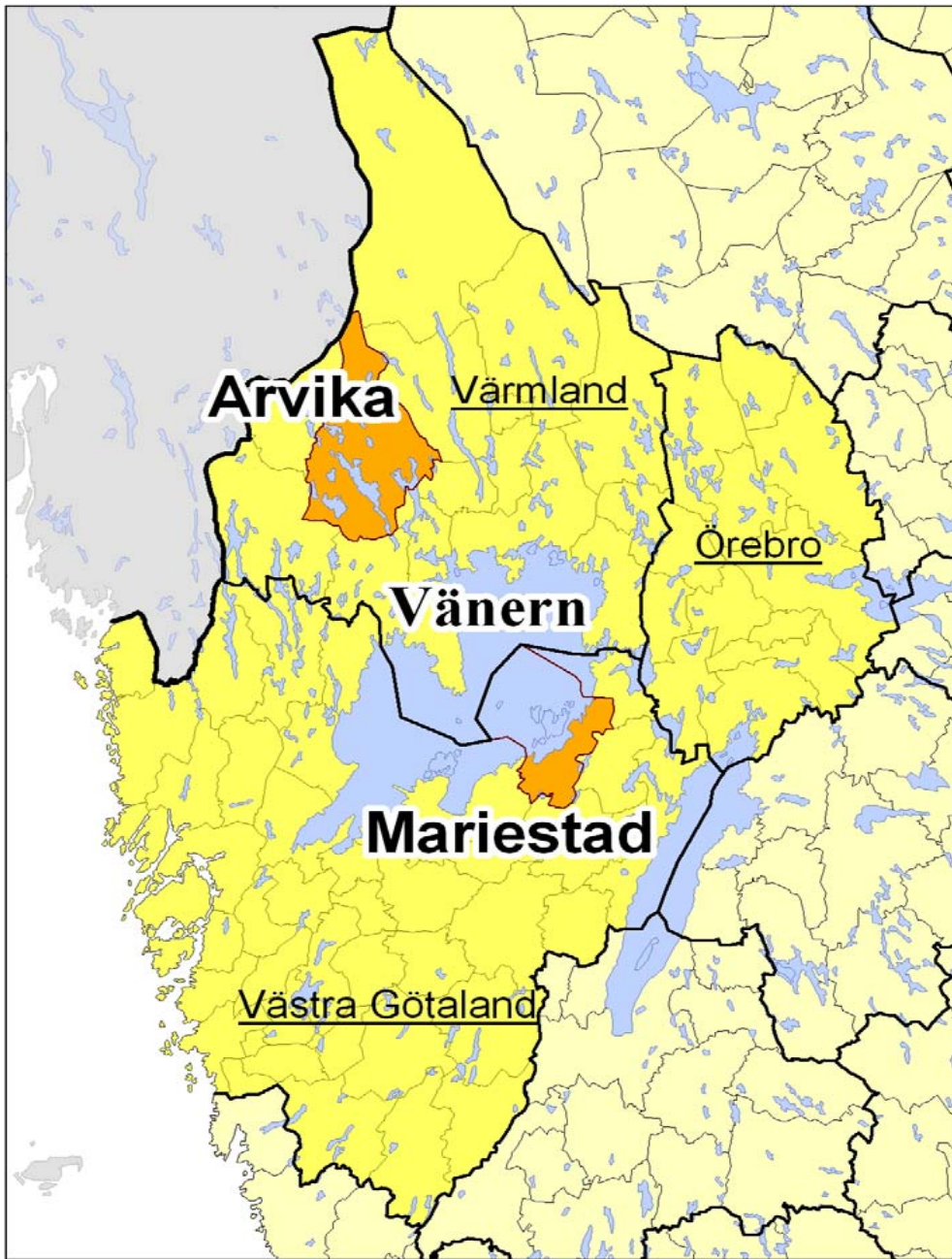


Civil Protection Early Warning

- Original concept was simple:
 - What explains the different responses to signals? What is the role of “intervening variables,” such as:
 - “Bottlenecks”?
 - Knowledge
 - Money?
 - Power?
 - Tradition?
 - Complexity?
 - “Factor X”?





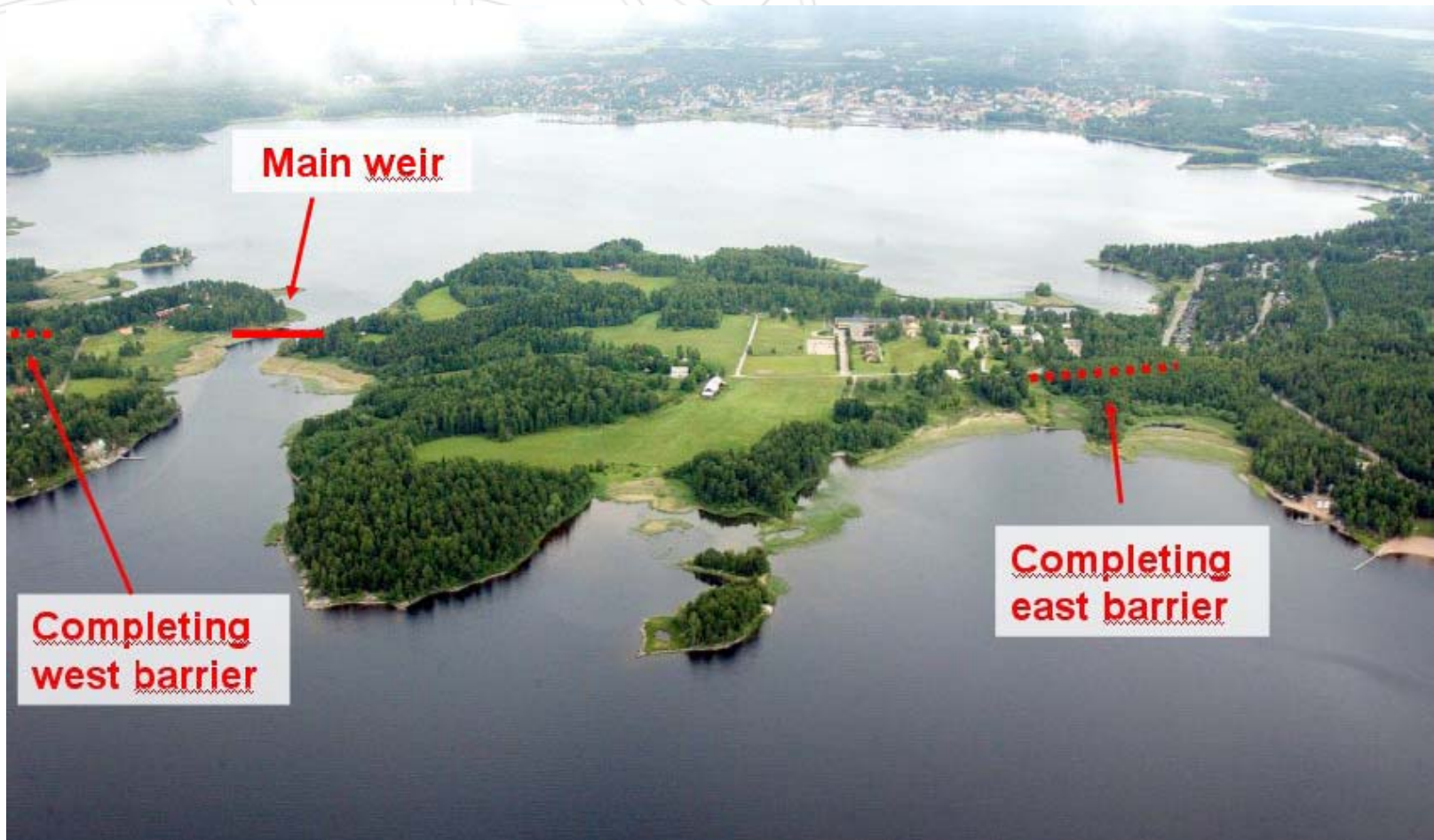


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Arvika



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Main weir

**Completing
west barrier**

**Completing
east barrier**



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November 2000



3,14 m above normal



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Mariestad





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Case comparisons

- Local, municipal level
- Connects to other studies, both in-process and proposed
- “Turning Point” studies
 - Sustainable development transitions to climate change (not even “global” change)
 - Why some respond concretely, but not others?
 - Pilot study completed



Case comparisons

- The questions, “What do we compare?” and “What are the relevant values of comparison?” become a question of methodology, since they affect whether we study, or look for explanations, in the role of:
 - Knowledge
 - Money
 - Power
 - Tradition
 - Complexity
 - “Factor X”



Early Warning

- How early is early?
 - Involves notions of:
 - Risk, especially “How acceptable is the risk?”
 - Costs
 - E.g., two 100-year floods in the last ten years, in a situation where floods are increasing



Early Warning

- What is “warning”?
 - An occurrence (that is, an event)?
 - A political recommendation?
 - An expert assessment?
 - A law?
 - For example, not of the type, “a flood is coming in ten days,” but “within the next X years, with increasing probability, you will be faced with a warning, perhaps a few days in advance, if you’re lucky, that is, if the micro-signal sensing system is working properly”



Our surprise!

- In the administrations, due to earlier reports, we expected to find a lesser degree of awareness of threats
- But the degree of knowledge and awareness is actually very high



“Mariestads kommun anser att den övre dämningegränsen enligt gällande vattendomar skall gälla och att staten får ansvara för åtgärder som innebär att den i vattendom fastställda dämningegränsen kan hållas. Sådana åtgärder är av stor betydelse för kommunens befintliga strandnära bebyggelseområden inte bara i tätorten utan inom hela kommunen och för tillkommande områden som t ex Sjöstaden. Kommunen har därför inte för avsikt att ändra översiktsplanens rekommendation för lägsta grundläggningsnivå.”

Från miljöbedömningen



Kommuner struntar i klimatvarningar

Dagens Nyheter 26 jul 2007

“Två av tre kommuner i Västra Götaland struntar i risken för översvämningar när de bygger nya bostäder. Men nästa år kan lagen tvinga dem att ta klimathänsyn i stadsplaneringen.”



Our surprise!

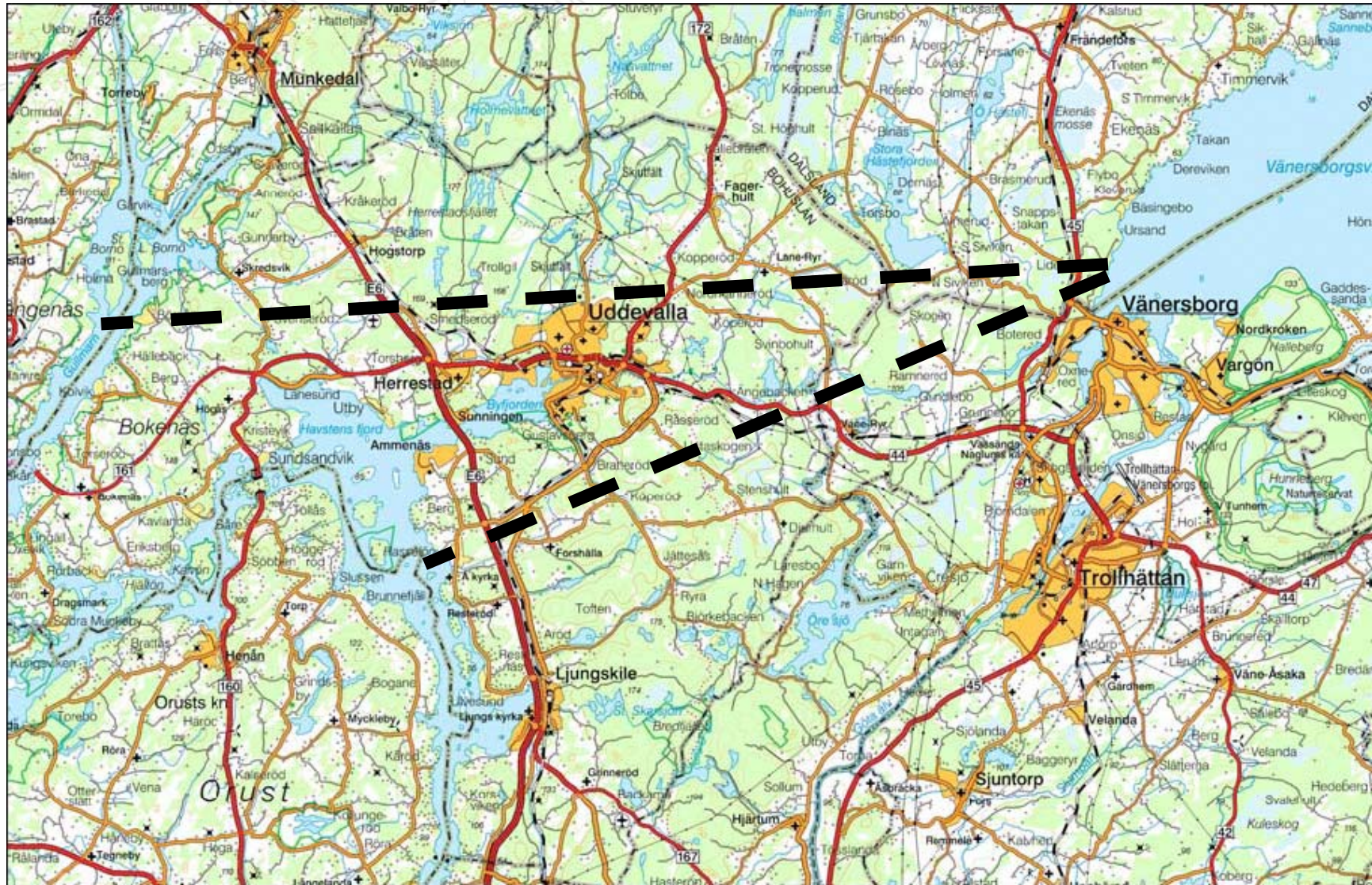
- Mariestad: “get state to pay” backfires as political strategy, because the state moves to legislate compliance instead
- What was *first* a situation that they hoped would be win-win (for them)—they build the attractive site, AND the state pays for mitigation—*becomes* lose-lose (possibly): illegal building, halt in further plans, forced to pay for local “assurance of security for the citizens”



Our surprise!

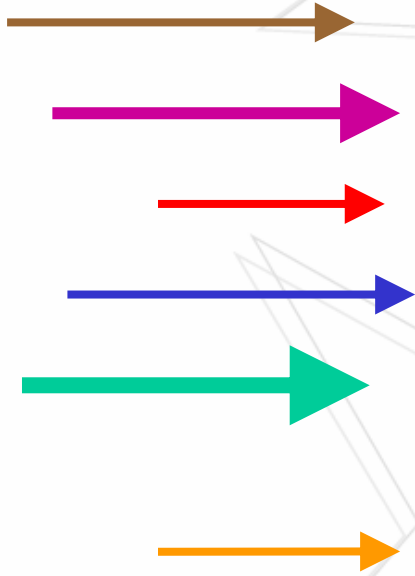
- Arvika: win-win is the hope, since both alternatives (barrier and tunnel) depend on expensive tech-based fixes, and still with the question of “Who pays?” meaning, “Someone else”
- Both based on knowledge of signals, one responds, one is passive
- Both feel that solutions to the situations require heavy state intervention
- Does an occurrence, where the threat has been actualized, mean a kind of “Doppler shift” in the signal, altering it as it recedes?





Early Warning as a <i>process</i>	Intervening variables	The “bottle-neck” problems	Cases/ Issue areas		
Risk assessment (mapping, analysis)	Type of risk	<p style="text-align: center;"><i>No signals</i> <i>“Weak signals”</i></p> <p style="text-align: center;">↓</p> <ul style="list-style-type: none"> * Why sometimes are the early warning signals “lost” in the surrounding “noise”? * Why sometimes are the early warning signals misunderstood or misinterpreted? * Why is the network of sensors or detectors sometimes “unconnected” and uncoordinated? * Why sometimes year after year same hazards end up to become disasters even if one could anticipate them and take them into account in, for instance, legislation, spatial planning, technological solutions and response systems? * How it comes that sometimes all the necessary information for early warning exists but for one reason or another, the warning is not executed? * Why sometimes there is a lot of research-based knowledge and sophisticated risk models, which however are not taken into account in policy planning, investment decisions, institutional decisions, spatial planning and land use, preparatory actions? * Why even recognised and forwarded signals sometimes lead to wrong or untimely response? * Why sometimes the information within one organisation is not passed at all or is not in a usable form to the emergency responders i.e. the information value chain is not functioning? * How to avoid in complex and dynamic situations that information overload, task complexity, and multiple tasks would not exceed a person’s limited attention capacity? * How to emphasize the so-called situation awareness in the early warning systems? In other words, why some computerized early warning systems may lead the user to focus too heavily on the computer and loose touch with the human and physical world, loose the initiative, and how to avoid this? <p style="text-align: center;"><i>Response</i></p>	Floods (NR, Hellenberg)		
Preventative measures and solutions (legal, planning, technological, institutional, socio-economic etc.)	Historical factors			Critical Infrastructure , especially cross-border energy networks (ESC, Hellenberg)	
Monitoring and forecasting the risks in order to detect possible signals of a forthcoming crisis, disaster, catastrophe etc	Safety culture				
Dissemination of warnings to the authorities (operative, decision-makers etc.) and to the public	Institutional/organisational factors (routines, cooperation)				
Responding to the early warning signals timely by <i>preventive</i> or <i>preparatory</i> measures	Legal factors				Maritime Safety (ISIG & NR)
	Economic factors (incentives, priorities)				
	Political factors (incl. media, public opinion, agenda setting etc.)				
	Technological factors				
	Human factor (psychological, stress related, information treatment etc.)				





Early Warning as a process	Intervening variables	The "bottlenecked" problems	Cases/ Issue areas
Risk assessment (mapping, analysis)	Type of risk: Historical factors	<p style="text-align: center;">No signals "Weak signals" ↓</p> <p style="text-align: center;">Response</p> <p><small>* Why institutions do not identify signals? * Why institutions do not act on signals? * Why is the response to signals inadequate? * Why do institutions not act on signals? * How to overcome the "bottlenecked" problems? * Why do institutions do not act on signals? * How to overcome the "bottlenecked" problems? * Why do institutions do not act on signals? * How to overcome the "bottlenecked" problems? * Why do institutions do not act on signals? * How to overcome the "bottlenecked" problems?</small></p>	Floods (NR, Hollerberg)
Preventative measures and solutions (legal, planning, technological, institutional, socio-economic etc.)	Safety culture		Critical Infrastructure, especially cross-border energy networks (ES C, Hollerberg)
Monitoring and forecasting the risks in order to detect possible signals of a forthcoming crisis, disaster, catastrophe etc.	Institutional/organisational factors (routines, cooperation)		
Dissemination of warnings to the authorities (operative, decision-makers etc.) and to the public	Legal factors		
Responding to the early warning signals timely by preventive or preparatory measures	Economic factors (incentives, priorities)		
	Political factors (incl. media, public opinion, agenda setting etc.)		
	Technological factors		Maritime Safety (IS1G & NR)
	Human factor (psychological, stress related, information treatment etc.)		

- Why are the early warning signals sometimes “lost” in the surrounding “noise”?
- Why are the early warning signals sometimes misunderstood or misinterpreted?
- Why is the network of sensors or detectors sometimes “unconnected” and uncoordinated?
- Why is the link between detection systems and alert mechanisms sometimes broken?
- Why is it that sometimes all the necessary information for early warning exists but, for one reason or another, the warning is not executed?
- Why is it that sometimes, even though there is lots of research-based knowledge and sophisticated risk models, they are not taken into account in policy planning, investment decisions, institutional decisions, spatial planning and land use, preparatory actions?
- Why is it that even well-recognised and properly forwarded signals sometimes lead to wrong or untimely responses?
- Why does the information within one organisation sometimes not get passed on at all and, when it does, it’s not in usable form for those who must respond? In other words, why isn’t the information value chain functioning?



Why sometimes are the early warning signals “lost” in the surrounding “noise”?

Why sometimes are the early warning signals misunderstood or misinterpreted?

Why is the network of sensors or detectors sometimes “unconnected” and uncoordinated?

Why is the link between detection systems and alert mechanisms sometimes cut off?

How it comes that sometimes all the necessary information for early warning exists but for one reason or another, the warning is not executed?

Why is that sometimes, even though there is a surplus of research-based knowledge and sophisticated risk models, they are not taken into account in policy planning, investment and institutional decisions, spatial planning, land use and preparatory

a c t i o n s ?

Why do even recognised and forwarded signals sometimes lead to wrong or untimely response?

Why sometimes the information within one organisation is not passed at all or is not in a usable form to the emergency responders i.e. the information value chain is not functioning?

How to avoid in complex and dynamic situations that information overload, task complexity, and multiple tasks would not exceed a person's limited attention capacity?

How could the early warning system support a variety of user knowledge, skills and experiences?

How to emphasise the so-called situation awareness in the early warning systems?

In other words, why some computerized early warning systems may lead to the user to focus too heavily on the computer and loose touch with the human and physical world, loose the initiative, and how to avoid this?

How to avoid too automatic updating of the situation model, thus leading to the fact that the decision maker will not necessarily notice an important factor that he or she should consider?

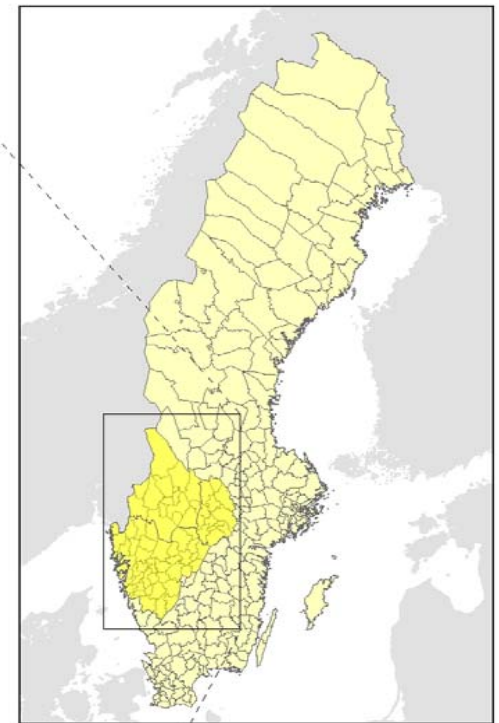
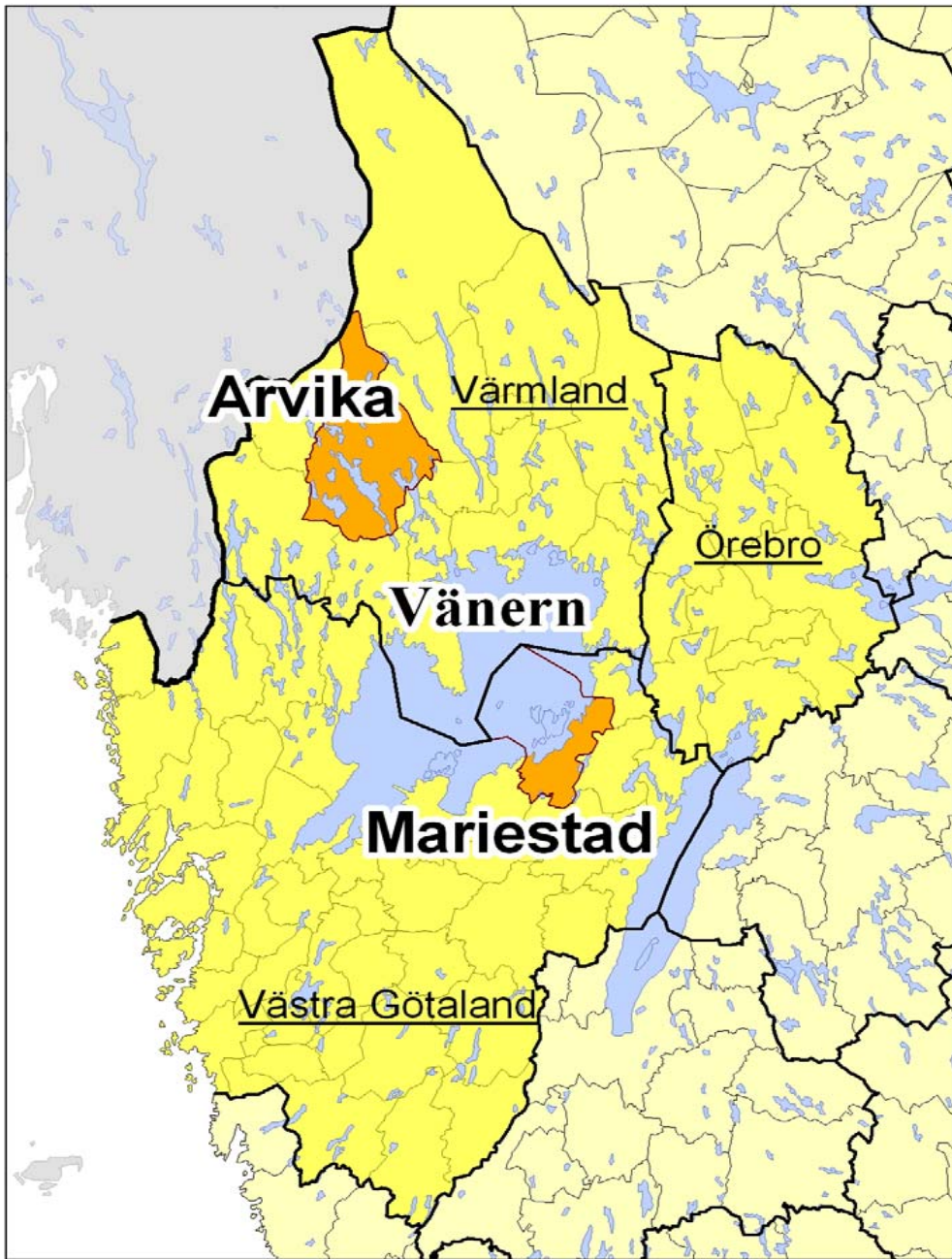
Why sometimes year after year same hazards end up to become disasters even if one could anticipate them and take them into account in, for instance, legislation, spatial planning, technological solutions and response systems?



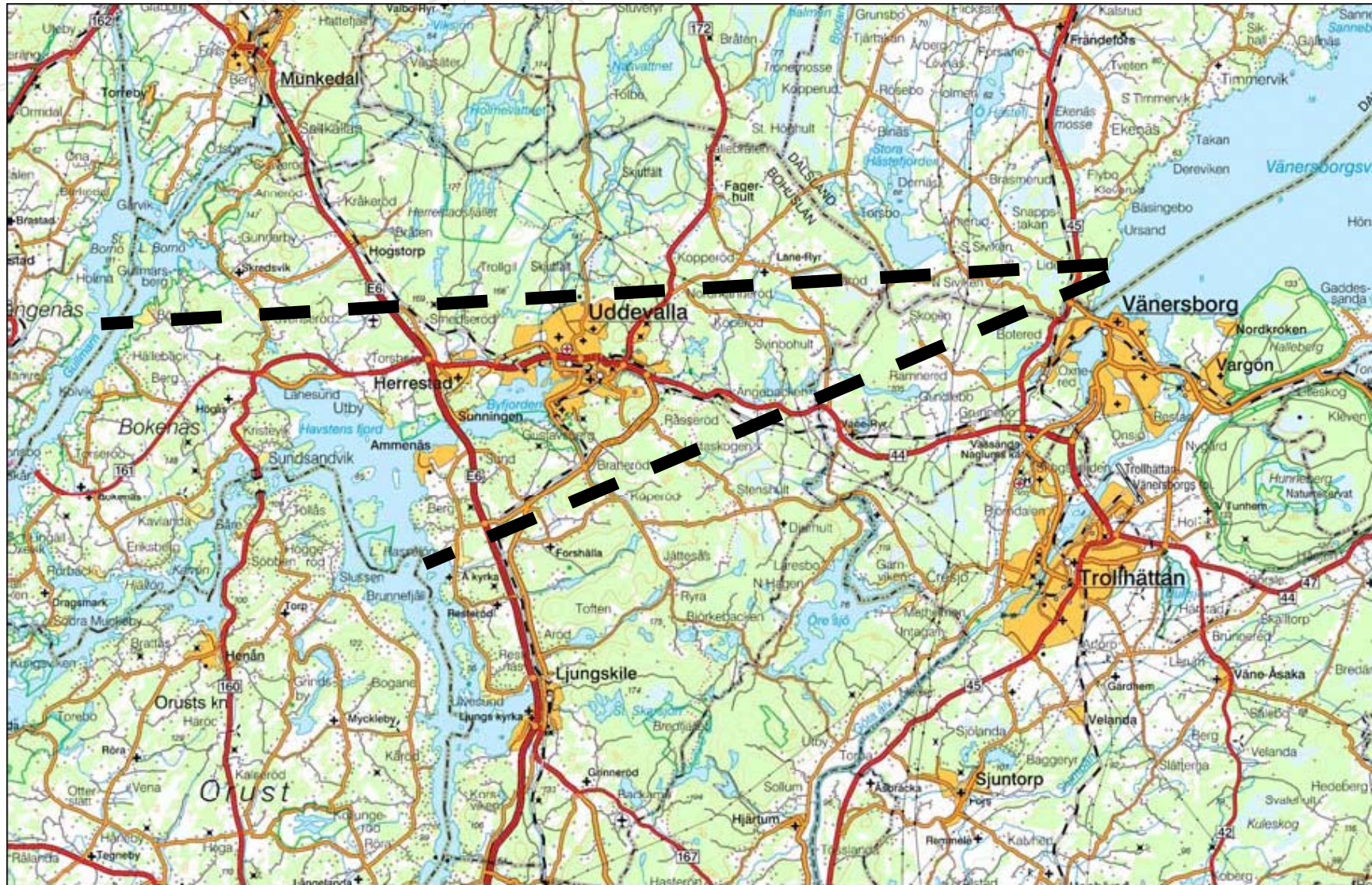
One key insight from thinking about
early warning from the perspective
of climate change:

the notions of short-term and long-
term timescales are being radically
altered





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