

Extreme Weather Events

- do we learn from them?



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Does experience with handling extreme weather events lead to a reduction in climate vulnerability?

Structure

- **Background**
- **Part 1:** Do the County Governors and municipalities in Norway **systematically draw lessons** from extreme weather events?
- **Part 2:** What **type of lessons** are drawn?
- **Part 3:** **Examples of learning** at the regional and local levels
- **Conclusion**



BACKGROUND

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The units studied

- **Municipalities**

- 430 in total, populations size ranges from 218 to 587,000
- Responsible for emergency planning, crisis management, and prevention of future damage

- **County Governors**

- Represent the state in 18 counties. Link local & national levels
- Assist and guide municipalities
- Oversee civil protection and emergency planning in the municipalities, including prevention of future damage

Two studies

- **Extreme weather study (Idun A. Husabø)**
 - Regional (+ local): In-depth interviews with heads of emergency planning at all County Governor's Offices (CG)
 - *How have extreme weather events been handled by the public system of civil protection ?*
- **Bergen case study (Kyrre Groven)**
 - Local: In-depth interviews at the Municipality of Bergen
 - *Did extreme weather events lead to institutional changes?*

Status quo – climate adaptation

- **All sectors are responsible for climate adaptation - MoE 2009:**
 - “Adapting to climate change does not involve a new distribution of responsibility. (...) **the individual player must map its own climate vulnerability, make a plan and implement measures**”.
- **Recommendations for a national climate change adaptation policy are due 15 November 2010**

PART 1

Do municipalities and County Governors in Norway **systematically draw lessons** from extreme weather events?

Events are not always evaluated

- **The extent to which the CGs engage in post-event follow-up varies considerably**
 - By and large, this is up to each CG
 - No fixed procedure for learning from extreme weather events
- **Respondents' view: the CG should ensure that all events are evaluated**
 - The initiative ought to come from the affected municipality
 - If there are several municipalities, or no-one takes the initiative, the CG should step in

Why?

- **Documents instructing the CGs are very vague on the details regarding evaluation and follow-up**
 - Evaluation is only required in the case of 'larger crises and events' and 'events of a regional character'
 - This leaves room for interpretation
- **Both CGs and municipalities lack administrative capacity**
 - 62 % of CG respondents say this is a general barrier
 - Civil protection not a top priority in financially pressed municipalities (no legal imperative until 2010)
 - other studies support this finding



PART 2

What **type of lessons** are drawn?

What did the County Governors learn?

- **Crisis management** → **during the event**
 - e.g. "the municipality's switch board must be kept open 24/7 during extreme weather events"
- **Prevention of future damage** → **after the event**
 - e.g. "to prevent traffic jams during heavy snow fall, trailers without spiked tyres should hereafter be waved off the main road"
- **General issues**

Unbalanced learning?

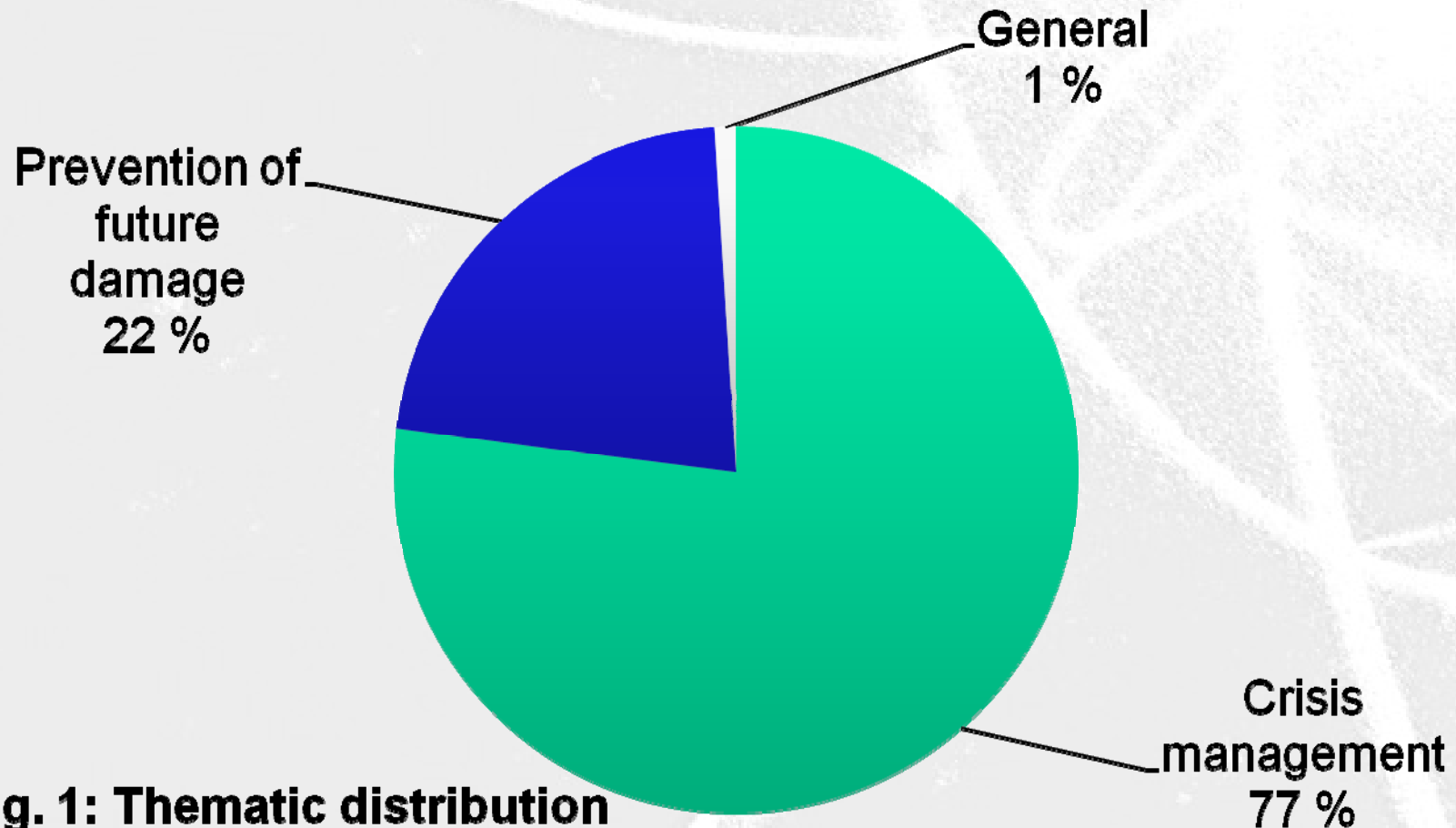


Fig. 1: Thematic distribution of lessons mentioned in interviews

A paradox:

TEMA

09

FYLKESMANNENS KLIMAARBEID

Roller og oppgaver for å redusere
klimagassutslipp og tilpasse seg klimaendringene

”The County Governor’s Office holds special responsibility providing advice and facilitating the preventive and systematic effort of municipalities within civil protection and emergency planning”

Why the weak focus on prevention?

- **The focus shift to climate change adaptation and land-use planning is quite recent**
 - National policy not in place
 - Lack of competence and resources
- **Training and background of CG civil protection staff**
 - Training in the Norwegian Armed Forces
 - Ongoing transformation: non-military backgrounds



PART 3

Examples of learning at the regional and
local levels

Case 1: the CG of Aust-Agder – long-term follow-up

- **Heavy snowfall and blizzards in 2006, 2007, and 2008**
 - 'A shock for people in Southern Norway'
 - Wide-ranging consequences (power cuts, breakdown of public communications)
 - Eventually: improved resilience
- **The CG used these experiences to identify new vulnerability**
 - E.g. electrical info boards along European Route 18 vs. risk of power cuts during storms



Aust-Agder, 22 February 2007

← **Not formally the CG's responsibility**
- but relevant offices failed to see the risk

Why such thorough follow-up?

- **A capacity to take on non-mandatory tasks**
 - The county has a low number of municipalities (15)
 - Able to look at evaluation and prevention of future damage
- **Engaged individual(s)**
 - Maximalist (vs. minimalist) interpretation of the CG's tasks
 - Contact with many organisations
- **An understanding of the full potential of the CG's role**
 - Emphasis on prevention future damage
 - Using lessons from extreme weather events
 - ...especially in the light of climate change

The CGs can potentially play an important role

- **Follow-up of extreme weather events is a 'grey area', many organisations are involved**
 - A need for a co-ordinating body
- **County Governors are in a position to preserve a county-wide memory and sound the alarm bell**
 - when extreme weather events are forgotten about
 - when society acquires new vulnerability
 - when the left hand does not know what the right hand is doing
- **Reinforced legal instrument (2010)**
 - raising formal objections to municipal land-use plans that lack risk and vulnerability assessments

Case 2: Municipality of Bergen – thorough follow-up, institutional changes

What has been changed in the municipality's system of civil protection?

What caused this change?



Sectors studied: civil protection/emergency planning, land-use planning, water/sewage services, the climate office



*Hatlestad
Terrasse,
14 September
2005: 3 killed by
mud slide*



*Nesttun, 14 September
2005: shopping mall
threatened by flood*

*Hetlebakka, 14 November
2005: 1 person killed by
mud slide*



Changes introduced after 2005

- **Mandatory risk and vulnerability assessment**
 - in connection with land-use planning and building permits (4 of 18 criteria are climate-related)
- **Geohazards mapping of Bergen's residential areas**
 - Hotspots assessed, geologist "hotline" for worried citizens
- **Demand for water and sewage treatment plan**
 - in all development projects

Why did Bergen achieve all this?

- **Extreme events (weather-related and not) provided an opportunity for learning**
 - Popular and political pressure
- **Beneficial timing**
 - Revision of municipal master plan (2005→)
 - Extreme weather events (2005)
 - National focus on climate adaptation
- **Successful coordination of sectors**
 - Civil protection/emergency planning, land-use planning, and climate office
- **Large, resourceful municipality**



CONCLUSION AND RECOMMENDATIONS

Overall conclusion:

- **Prospects of a future with more extreme weather events calls for a more systematic approach to following up extreme weather events**
- Changes needed at the national and regional levels
- **National:**
 - **Focus shift** from crisis management to preventing future damage
 - **Clearer requirements** concerning the role of the CG in evaluation and follow-up of municipalities after events
 - Improved **resource situation** for civil protection and emergency planning
 - Ensure that existing data on the effects of climate change are **integrated into national guidelines**



- **Regional:**

- The CGs should encourage **inter-municipal collaboration** to help laggards within civil protection and climate adaptation
- At the CG's Office, climate adaptation needs to be **integrated in several departments**, including the environmental, land-use planning, and civil protection
- CGs might benefit from **increased contact with land-use planners in large (city) municipalities** that have addressed climate change adaptation



Does experience with handling extreme weather events lead to a reduction in climate vulnerability?

Generally not – but it has the potential to do so!

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