



## COLLABORATIVE RESPONSE DURING GJERDRUM LANDSLIDE IN NORWAY

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### ABSTRACT



This article presents some successful elements of collaboration during an emergency response to a landslide which happened in Gjerdrum, Norway. Furthermore, it will shed light on the pivotal role of improvisation versus planning, and formal versus informal connections. This article highlights role of communication and knowledge sharing within organizations, which is important part of ISO 31000:2018 Risk management process. Effective collaboration networks, characterized by discursive properties such as reciprocity, participatory decision making, and collaborative leadership, are identified as successful elements in this incident.

### Link to ISO 31000

This article highlights role of communication and knowledge sharing within organizations, which is important part of ISO 31000:2018 Risk management process.

### 1. Introduction

Countries and communities need to develop solutions for adaptation and implement action to respond to the impacts of climate change that are already happening, as well as prepare for future impacts. These are words from the UN Climate Change Secretariat (UNFCCC, 2021), discussing adaptation to climate change. However, natural disasters are not isolated events, as they are often the result of complex interactions between social and environmental factors (Boin et al., 2020). To address this multifaceted issue, this article will address the ISO 31000 principles and refer to the ASIS handbook 'Domain Seven'.

Collaboration across multiple geographic and organizational boundaries is one of the key parts of enhancing risk management and resilience that enable effective response and recovery activities in a natural disaster (Therrien, Beauregard, & Valiquette-L'Heureux, 2015).

The evaluation reports of several disasters, such as Hurricane Katrina, the California wildfires and the flood in Germany in 2021, indicate that more organized inter-organizational collaboration would have reduced the destructive effects of these events. The dynamic situations in natural disasters and responding to complex events often require emergency organizations to deviate from established organizational structures to address a novel context and new tasks (Andreassen & Borch, 2020). Responding to natural disasters requires organizations to collaborate because a single organisation may not respond independently due to rapid changes in the environment, a lack of experience, the scope of the task, and insufficient resources (Kapucu & Garayev, 2011).



This inter-organizational collaboration can be ensured by the systematic sharing of information possessed by each organization and by combining their goals (Therrien, Beauregard, & Valiquette-L'Heureux, 2015). Therefore, in such collaborative emergency response, several organizations, such as police departments, paramedic services, and rescue agencies, may be involved. In addition, depending on the scale of the emergency, local authorities, government departments, military forces, and various businesses from different nations may also be engaged. Additionally, resilience enhancement in a natural disaster requires an integrated hazard mitigation and resilience plan that includes inter-organizational collaboration among interdependent organizations (Godschalk, 2003).

This article presents some best practices of the inter-organizational relationships in the landslide event in the small town of Ask in the Gjerdrum municipality in Norway. Due to its coastline and wide mountain ranges, Norway is highly exposed to changing weather conditions. The "Climate in Norway 2100" report, provided by the Norwegian Centre for Climate Services (NCCS, 2017), indicates that gradually increasing temperature, increased precipitation and extreme rainfall, and increased floods in the future climate may cause more quick clay slides in certain areas in Norway (p.34). In addition, some flood and landslide events have been studied with a view to improving risk and crisis management related to natural hazards.

## 2. Case

The 2020 Gjerdrum landslide occurred in Norway, at Ask village, Gjerdrum's administrative center. This quick clay landslide spanned an area of 300 by 700 meters and caused debris flow to affect an additional 9 hectares. While some individuals were rescued and others evacuated themselves, 10 people lost their lives and several buildings were destroyed, resulting in an estimated economic cost exceeding \$100 million (Nikel, 2021). The Joint Rescue Coordination Center (JRCC) report states that during the early phase of the Gjerdrum landslide, the primary challenge was to acquire a comprehensive understanding of its extent and to request appropriate resources (JRCC, 2021).

Emergency situations are often characterized by uncertainty and limited information, and incidents occurring during the night or under adverse weather conditions, such as the Gjerdrum landslide at night during the Christmas period, exacerbate the challenge of gaining an overview. The incident necessitated a demanding search and rescue (SAR) operation due to the significant number of people requiring immediate attention, and the subsequent breakdowns in infrastructure, such as water, sewage, roads, and electricity in the area, added to the complexity of the operation (JRCC, 2021).

## 3. Best practices

The response to Gjerdrum landslide is considered as fairly successful. It could have ended in larger tragedy. Reviewing the evaluation reports and interviewing the actors involved revealed some elements of great collaboration. In Norway, after the terrorist attack in 2011, several reforms have taken place and collaboration was added to the crisis management principles. Since then, the organizations have gone through exercises together to enhance interorganizational collaboration. The municipality in Gjerdrum planned an exercise based on a landslide scenario but due to the outbreak of Covid, unfortunately, they could not execute it. If they had been able to do that, however, the interorganizational challenges that they faced would have been minimized. This revealed the



importance of joint exercises and how it can positively influence **information dissemination, communication, clarity of roles, establishing common operating terms and allocation of resources.**

During the Gjerdrum landslide, fire brigades invited the Norwegian Directorate for Civil Protection (DSB), to listen to their meeting at the operating center. This is the first time they have done it and it was identified as an efficient way of passing information to decision makers at a higher level without creating any confusion. However, the DSB believes this should happen by invitation only from the lower level and not through a command from them. This example highlights the importance of flexibility and trust among organizations involved and across levels.

Moreover, having a liaison who has decision making authority was identified as a facilitating element in collaborative emergency response. This might save a huge amount of time during a crisis.

The crisis management structure of Norway was found to function very well during the landslide because the police were the leader of the operation and there was almost no conflict when it came to decision making and clarity of roles.

There were two operation centers - side by side during the days of a rescue operation, one of which continued its operation for two months after the first one ended. One operation center was focused on the rescue operation, the other on all the other tasks that also had to be taken care of, but which did not fall directly under the rescue operation. The tasks that were solved by the second operation center were also very important tasks and had an impact on life and health. There were, for example, farms with several hundreds of animals within the evacuated zone, there was a need for measures to improve infrastructure such as water and roads and there was a need to retrieve important assets from evacuated buildings. This has been identified as an innovative approach to handle crises. It prevents information overload in one center and categorizes the tasks during operations to facilitate collaboration.

This case further revealed how critical is to have personal and informal contact during crises. For example, the municipality explained that due to Covid it faced so many obstacles and all the roads were destroyed, making the transfer of people to a safe place difficult. It was almost impossible to get public transport in order, but the person in charge had some contacts in private transport companies and was able to call them for assistance.

All the examples above are in line with the findings from our Norwegian security experts round table in which it was underlined how significant soft skills such as communication, continuous interaction, cooperation and making innovative decisions are.

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## References

ASIS International Board Certification Handbook. Accessed 20.04.2023

[https://www.asisonline.org/globalassets/certification/documents/certification-handbook\\_final.pdf](https://www.asisonline.org/globalassets/certification/documents/certification-handbook_final.pdf)

Andreassen, N., Borch, O. J., & Sydnes, A. K. (2020). Information sharing and emergency response coordination. *Safety Science*, 130, 104895.



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Boin, A., Ekengren, M., & Rhinard, M. (2020). Hiding in plain sight: Conceptualizing the creeping crisis. *Risk, Hazards & Crisis in Public Policy*, 11(2), 116-138.

Climate in Norway 2100 (2017). Accessed 25.05.2023

<https://www.miljodirektoratet.no/globalassets/publikasjoner/M741/M741.pdf>

Godschalk, D. R. (2003). Urban hazard mitigation: Creating resilient cities. *Natural hazards review*, 4(3), 136-143.

JRCC (2021). Evaluation report of the rescue operation and the emergency management under quick clay landslide at Gjerdrum. Accessed 25.05.2023.

<https://www.regjeringen.no/contentassets/52d43dc95b5b44fd80293c2b3515713b/rapport-gjerdrum-hovedredningsentralen-03-06-2021-digital-1.pdf>

Kapucu, N., & Garayev, V. (2011). Collaborative decision-making in emergency and disaster management. *International Journal of Public Administration*, 34(6), 366-375.

Nikel, D. (2021). Norway Landslide Insurance Bill Tops \$100 Million [Press release]. Retrieved from

<https://www.forbes.com/sites/davidnikel/2021/01/08/norway-landslide-insurance-bill-tops-100-million/>

Therrien, M. C., Beauregard, S., & Valiquette-L'Heureux, A. (2015). Iterative factors favoring collaboration for interorganizational resilience: The case of the greater Montréal transportation infrastructure. *International Journal of Disaster Risk Science*, 6, 75-86.

United nations climate change annual report (2021). Accessed 25.05.2023

[https://unfccc.int/sites/default/files/resource/UNFCCC\\_Annual\\_Report\\_2021.pdf](https://unfccc.int/sites/default/files/resource/UNFCCC_Annual_Report_2021.pdf)