



**NATO  
Centre of Excellence  
for  
Cold Weather Operations**

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**ENGINEER**

Norwegian Army Land Warfare Centre  
Engineer School

Capt Sebastien Wærstad-Campeau  
Chief Instructor Geospatial Analysis



## CONTENT

1. Presentation of responsibility – what we do
2. Advantages of winter conditions
3. Challenges of winter conditions – best practise
  - Planning
  - Execution
4. Key takeaway





## Presentation of responsibility

- Military engineers at a glance;
  - Mobility
  - Counter Mobility
  - Survivability
  - General Engineer Support
  - Activities Spanning All Roles
- “Engineers shape the battlespace”
  - As does the winter

NATO Engineering Roles and Activities				
ROLES	MOBILITY	COUNTER MOBILITY	SURVIVABILITY	GENERAL ENGINEER SUPPORT
ENGINEERING ACTIVITIES	Route / Area Clearance	Route / Area Denial	Protective Works / Fortifications	Horizontal and Vertical Works
	Breaching	Obstacle Construction	Support to C2D	Support to Environmental Protection
	Gap Crossing		Support to CBRN Defence	Support to Logistics
	Combat Road construction / repair		Countering Explosive Hazards	Railway Construction / repair
	Support to Forward Aviation		Managing Explosive Hazards	
	Support to Amphibious Operations		Support to Military Search	
			Water Supply	
ACTIVITIES SPANNING ALL ROLES				
Engine Reconnaissance				
Support to Intelligence				
Support to Geomatics				
Engineering Advice				
Engineer Diving				

Military engineering (MILENG) as regulated by STANAG ATP-3.12.1



## Advantages of winter conditions

- Winter opens avenues of approach
  - Thaw and freezing rivers can increase freedom of movement
  - Vehicles with high mobility on snow
- “Seasonal” obstacles
  - Anti tank wall (snow)
  - Frozen rivers can be rigged for demolition
  - Artificial avalanches
  - Camouflage
- Level of training and ability to exploit winter conditions on all levels dictates whether or not the climate will be in our favour





## Challenges of winter conditions Planning

General winter disclaimer: Everything takes time...

### Mobility

- Shifting conditions make detailed planning challenging
- Can be hard to predict, i.e. ice or thaw thickness
- Wheeled units need special consideration
  - Snow clearing of AMAs, AA, LOG areas
  - Snow clearing units most likely scarce resource → state priority of effort in accordance with intent

### Counter mobility

- Seasonal obstacles are seasonal and susceptible to melting
- How does the conditions effect your CMOB efforts
- Ground conditions affect counter mobility measures

### MDMP

- Identify and utilize the advantages in order to create tactical advantage
- Opponents ability to exploit winter conditions





## **Challenges of winter conditions**

### **Execution**

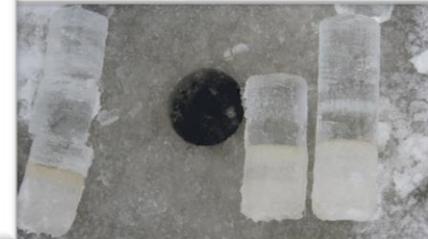
- If possible, verify assumptions
  - Recce
  - Local reports
  - Road cameras...
- Allocate additional time and resources
  - Mobility for combat units as well as CS and CSS (snow clearance)
  - Prioritization, COM intent, flexibility
- Enemy will use the conditions in his favour
  - Defensive
  - Offensive





## Special considerations - Hazards

- Snow can hide hazards
- NO GO terrain can appear as GO.
- Winter is never only an exercise thing.
- Preparations, knowledge and experience must be emphasized within your unit.





## Challenges of winter conditions Summary

- Emphasis on the terrain and weather assessment during the MDMP
  - Important to separate fact, conclusion and assumptions
  - Make assumptions into facts
  - Plan robustly (in both *time* and *forces* factor)
  - Dedicate ENG units to enhance and maintain mobility
- Cold weather can be a force multiplier, if exploited correctly
  - Prepare the force thru education and training on all levels





**Questions?**

