

Municipal Climate Change Sustainability: Slope Failure

The adaptations in this section will help municipalities with slope management and permafrost thawing in developed areas, as well as preventing development in areas with poor drainage and near steep slopes that are likely to be eroded. Some of these adaptations may require more data and potentially a slope risk mapping project. A mapping project will help identify which areas are hazardous and should have some form of slope management if an area is already developed or to prevent future development in that area.

Slope Management

- Protective fencing
 - hybrid/attenuator post systems
- Gabion baskets
 - Gabions are used to slow the velocity of concentrated runoff or to stabilize slopes with seepage problems and/or non-cohesive soils.
- Drainage Trenches
- Planting Vegetation
 - Primary factors include root reinforcement, soil moisture modification, buttressing and arching and wind-throwing
- Natural stabilization:
 - Methods such as hay bales, loose hay, brush and wood debris, in combination with native plants. Hay bales absorb rainwater and protects from wind and rain. Hay will decompose and provide an environment for plants to grow

Permafrost Thawing

- Remove accumulated snow to reduce temperatures on the grounds surface
- Thermosyphon
- Permafrost hazard maps
 - Consult community elders and community members
 - Satellite images
 - Geotechnical reports
- Drainage Systems