



GEOreCIRC

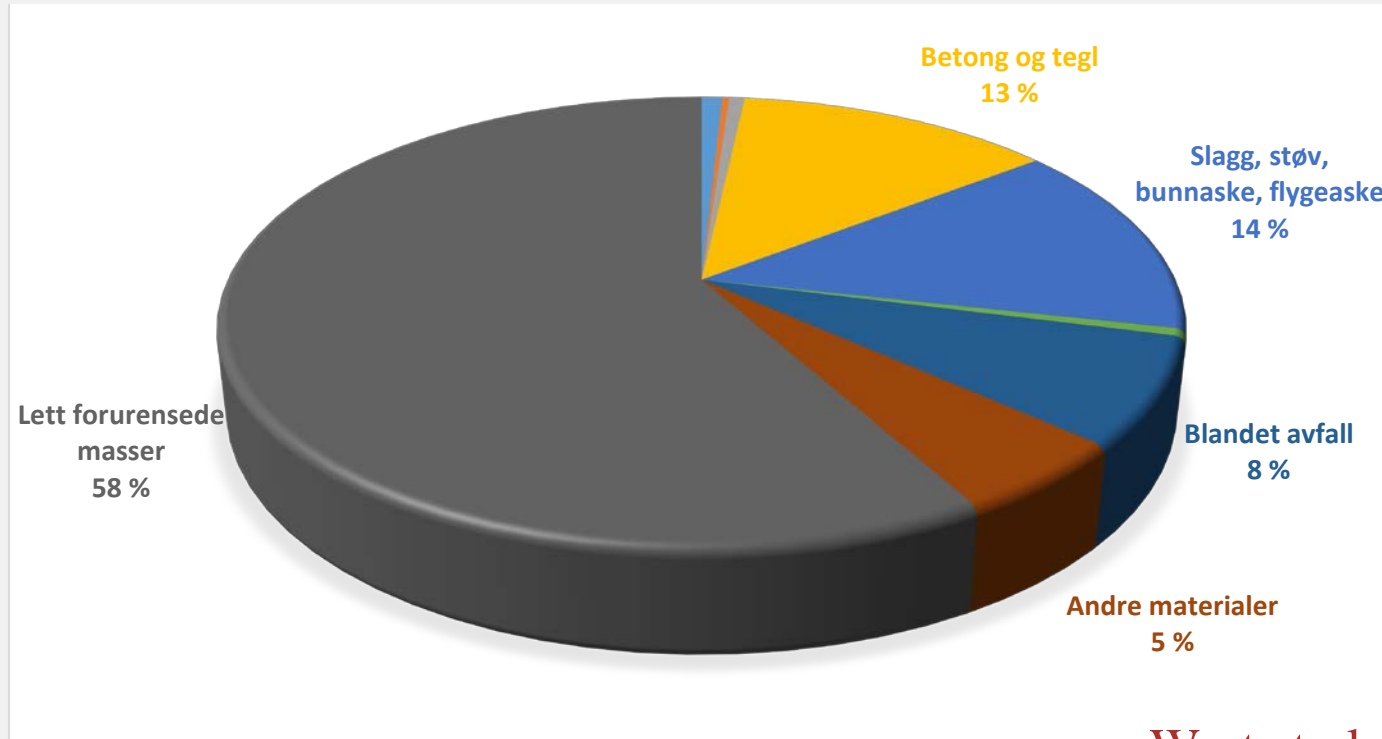
Barriers in the reuse of waste and low level contaminated soil – Lessons learnt in Norway

Gudny Okkenhaug, Sarah Hale, Gijs D. Breedveld, Erlend Sørmo,
Norwegian Geotechnical Institute, NGI

WASCON, Tampere, 8 June 2018



Norway today: Surplus masses from B&C activities are often disposed off and not reused



GEOreCIRC: GEO-resources in the circular economy

Main objective: Develop methods to increase re-use of geo-resources that today are considered a waste and send to disposal sites

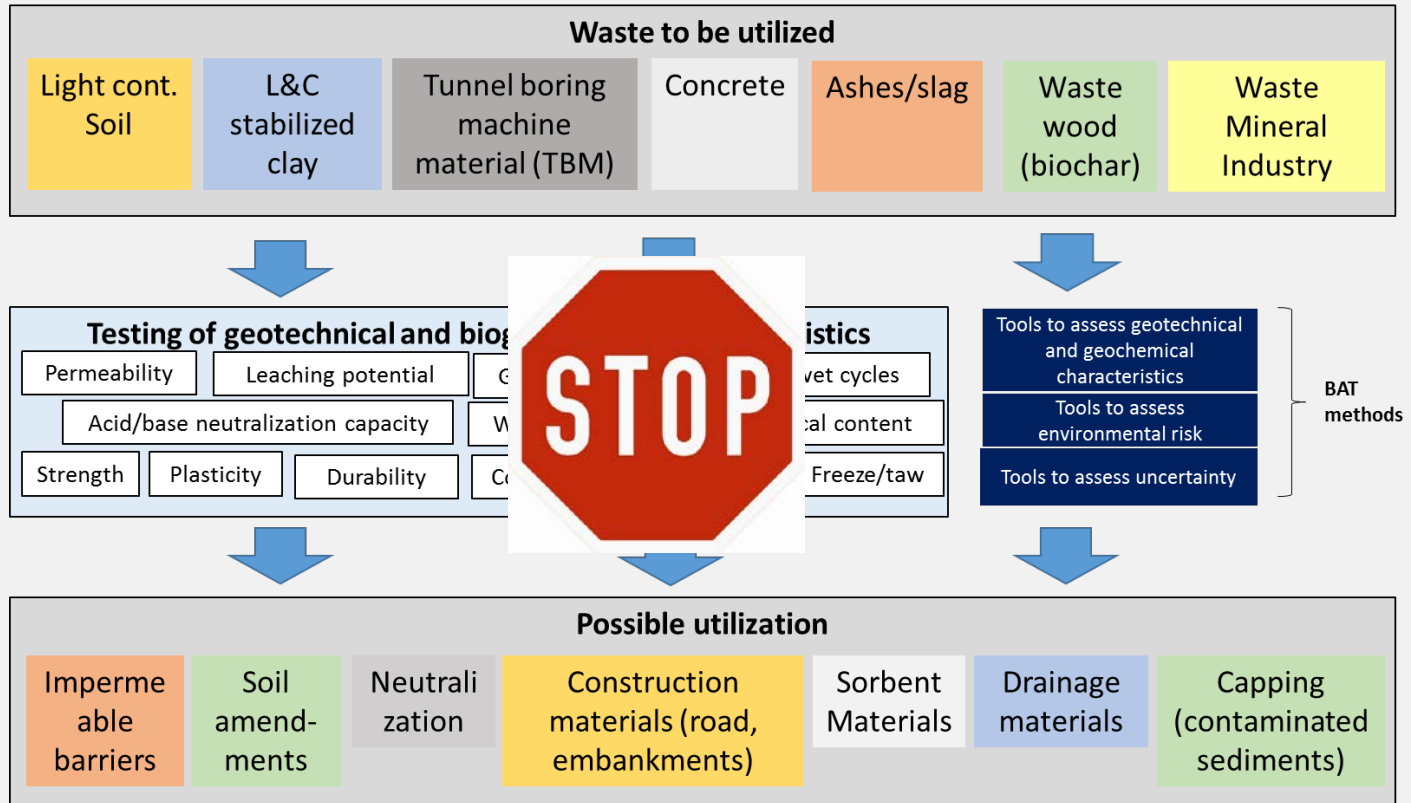
1) Residues/surplus mass considered as clean



2) Residues/surplus mass considered as light contaminated



GEOreCIRC – overall idea



GEORECIRC Work package: Barriers for re-use of geo-materials/surplus masses

- What are the barriers to increased re-use of geo-materials?
 - The respective material properties?
 - Rules and regulations?
 - Organisational structures?
- Mapping out potential barriers through:
 - Discussions with regulators
 - Discussions with entrepreneurs
 - Previous applications for re-use of geo-materials
 - Reference group



Reference Group Workshop

Problem owners

(Statens Vegvesen,
BaneNOR/Follobanen, Statsbygg)

R&D

(SGI, NTNU, FFM)

GEOreCIRC

Environmental Authorities

(Miljødirektoratet,
Akershus
fylkeskommune)

B&C

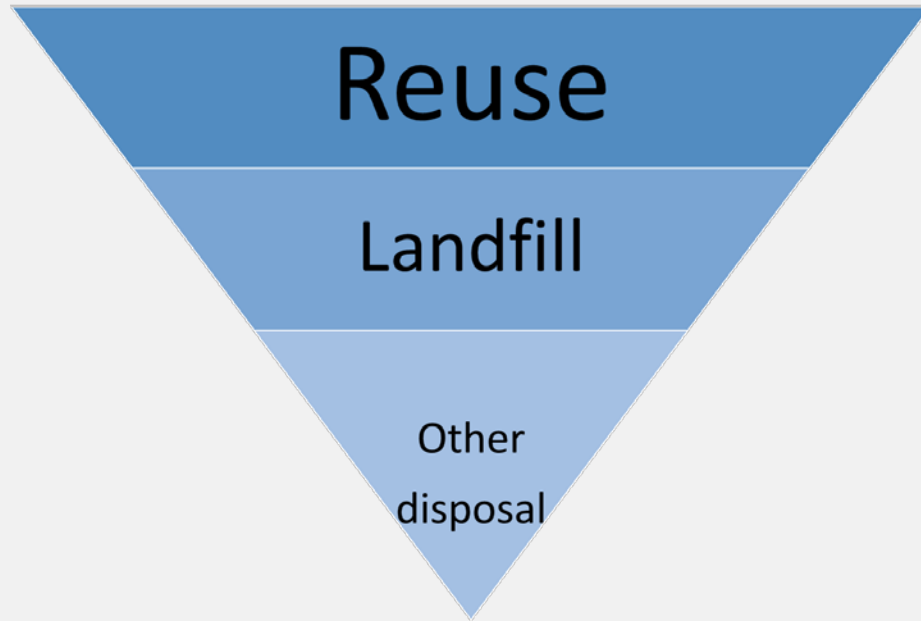
Entrepreneurs

(Veidekke, Hære)

Waste handling companies

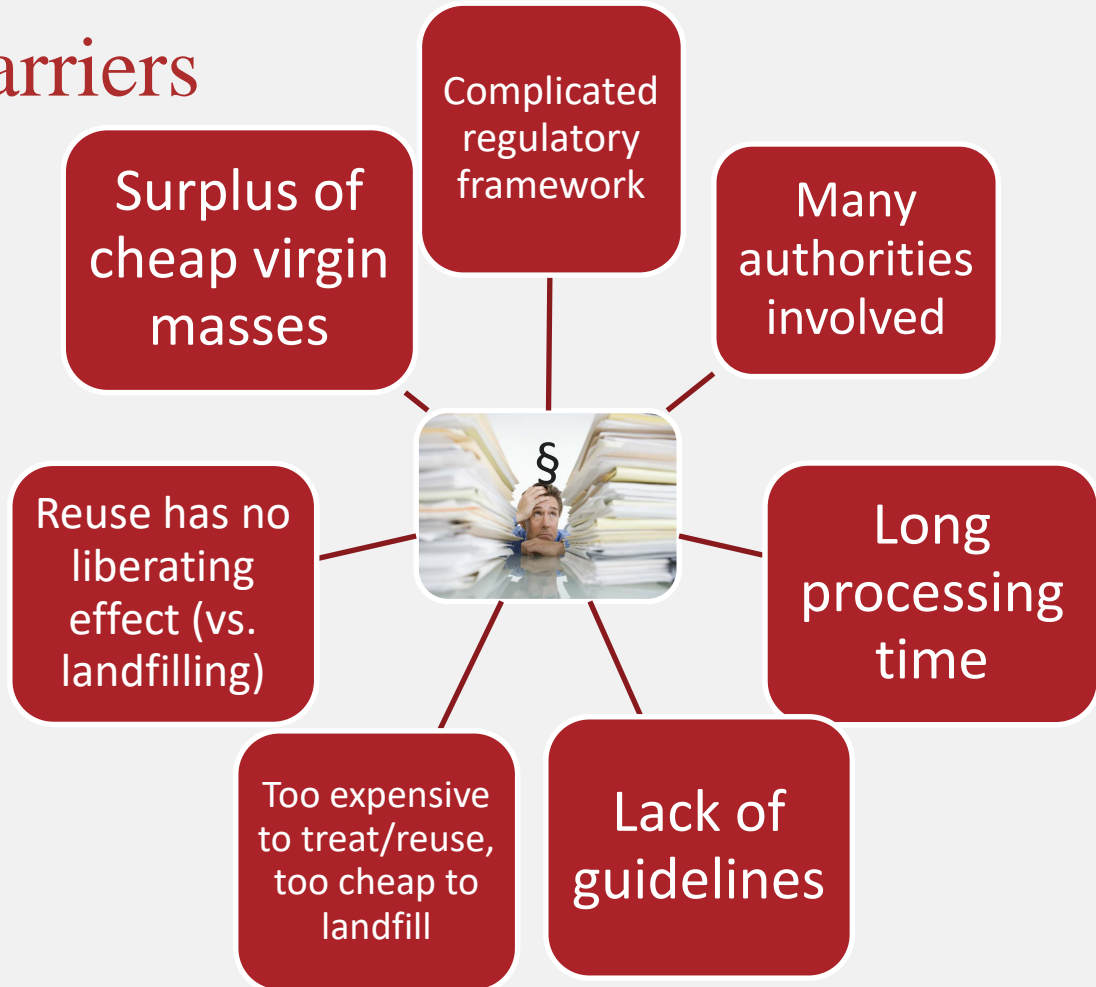
(Lindum AS, NOAH AS)

Reuse of surplus masses: Today's requirements in Norway

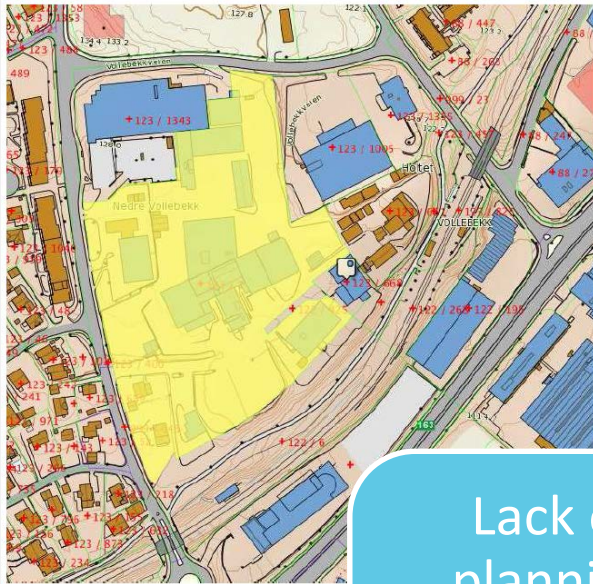


- Control questions for the principle for re-use:
- Does the waste material replace another material?
 - Would the construction take place if the waste materials were not available?
 - Risk for contamination

Regulatory barriers



Planning, organizational barriers



Lack of focus and demands from the project owner for reuse



Lack of planning provides increased costs

Contract form (less time for application to the authorities)

Logistic barriers

Production and need for surplus masses are not coincidental

Lack of intermediate storage capacity on site

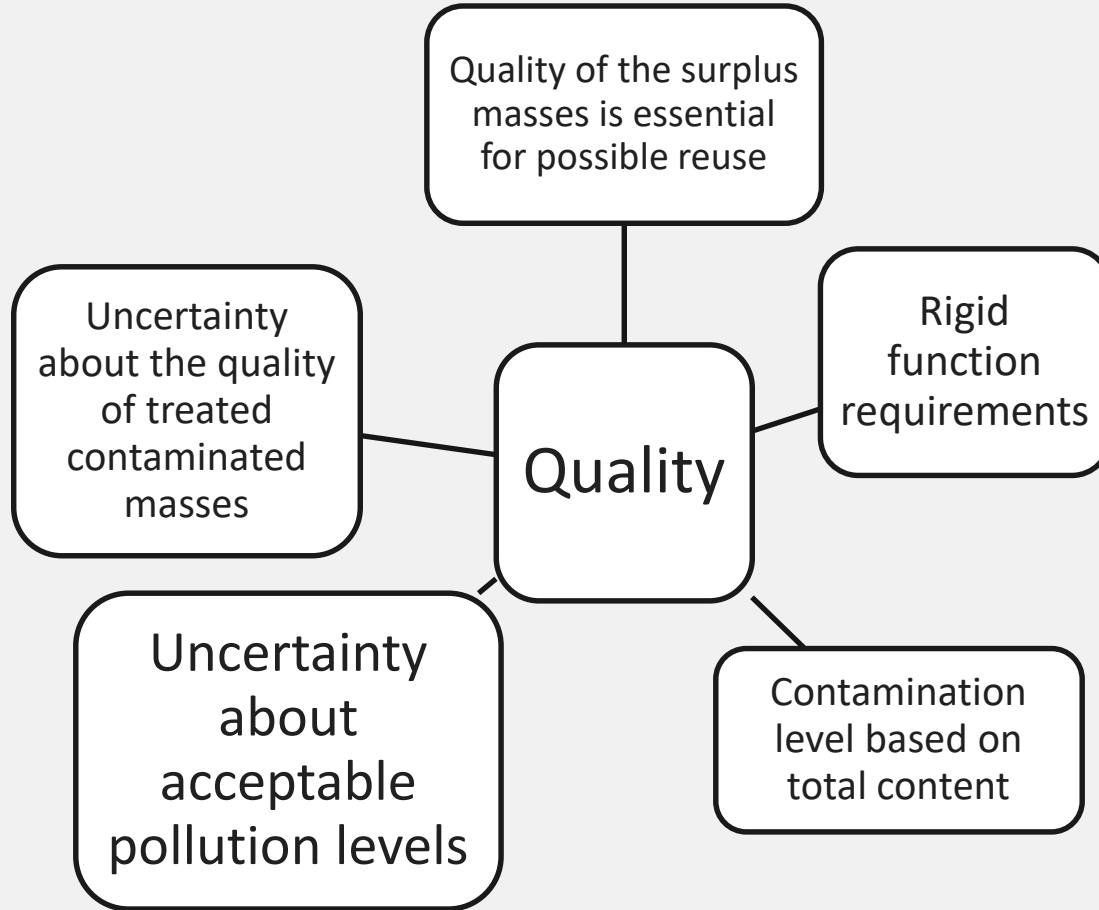
Limited allowed storage time

Logistics

Lack of storage facilities off site



Documentation, quality barriers



Conclusions – main barriers

- Reuse of surplus masses competing with cheap virgin materials
- Complicated regulatory framework, no guidance
- Lack of focus/demand for reuse (from project owner)
- Limited intermediate storage capacity
- Uncertainty about geotechnical and geochemical quality





@infoNGI

NORGES GEOTEKNISKE INSTITUTT
NGI.NO