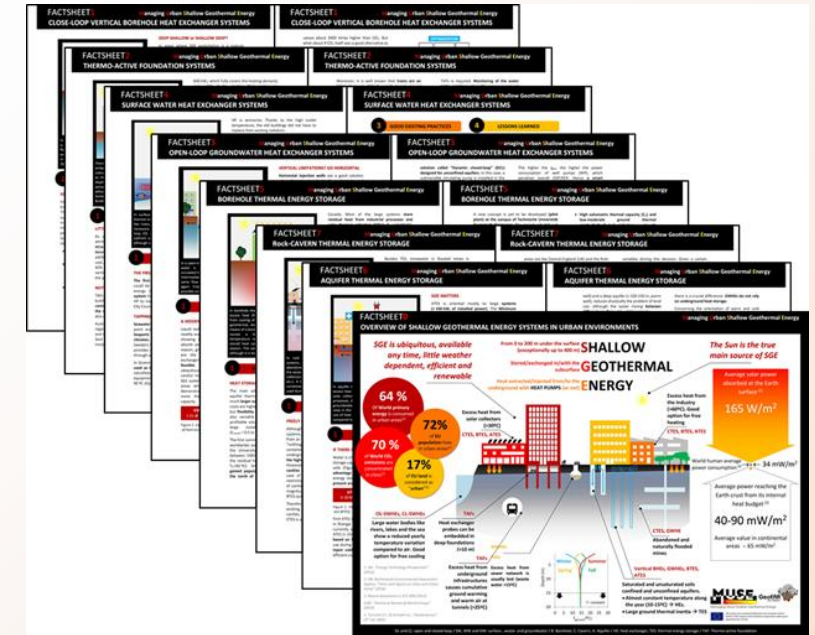


Managing Urban Shallow geothermal Energy



8 Fact sheets of state-of-the-art shallow geothermal energy (SGE) concepts

Geologische Bundesanstalt

ECN TNO innovation for life

Geoscience for a sustainable Earth
brgm

SGU
Geological Survey of Sweden

CZECH GEOLOGICAL SURVEY

GeoZS
Geološki zavod Slovenije

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

British Geological Survey
Expert | Impartial | Innovative

Geological Survey of Belgium

HGI 1909
HRVATSKI GEOLOŠKI INSTITUT
CROATIAN GEOLOGICAL SURVEY

ICGC
Cartogràfic i Geològic de Catalunya

Instituto Geológico y Minero de España

GEUS

STATNÝ GEOLOGICKÝ ÚSTAV
DIOVÝZA STUŽKA

PELJUSKI GEOLOGICKI INSTITUT
REPUBLIKE SLOVENIJE

Geological Survey of Hungary

BGS 1835

Geological Survey of Ireland



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Why focus on **urban** shallow geothermal energy?

EU Shallow geothermal Energy League 2018
(EGEC 2018 Market reports)



> 75 % of Europe's population

- Increasing population density
- Energy transition
- Increasing stress on underground

Management of shallow geothermal energy required!

Challenges

- Lack of common definition of shallow geothermal energy
- Lack of awareness
- Complex legal framework
- Time consuming licensing procedures
- Lack of registers on shallow geothermal energy installations
- Lack of monitoring
- Limited access to knowledge, information and data influencing construction and operation of shallow geothermal energy systems



Report on current legal framework, procedures and policies



Guideline for managing the use of SGE in urban areas

Rank	Installed units (per 1000 inhabitants)
#1	Sweden (55.0)
#2	Finland (21.5)
#3	Estonia (12.7)
#4	Austria (12.4)
#5	Denmark (11.3)
#6	Slovenia (5.7)
#7	Germany (4.7)
#8	The Netherlands (3.5)
#9	France (2.4)
#10	Lithuania (2.0)
#11	Poland (1.4)
#12	Luxembourg (1.3)
#13	Bulgaria (1.2)
#14	Belgium (1.2)
#15	The Czech Republic (1.1)
#16	Ireland (0.9)
#17	Slovakia (0.7)
#18	United Kingdom (0.5)
#19	Hungary (0.2)
#20	Italy (0.2)
#21	Portugal (0.1)
#22	Spain (<0.1)

Activities in pilot areas

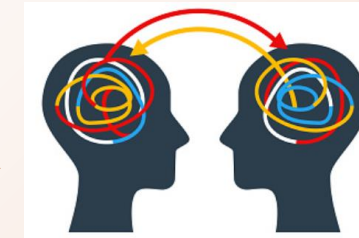
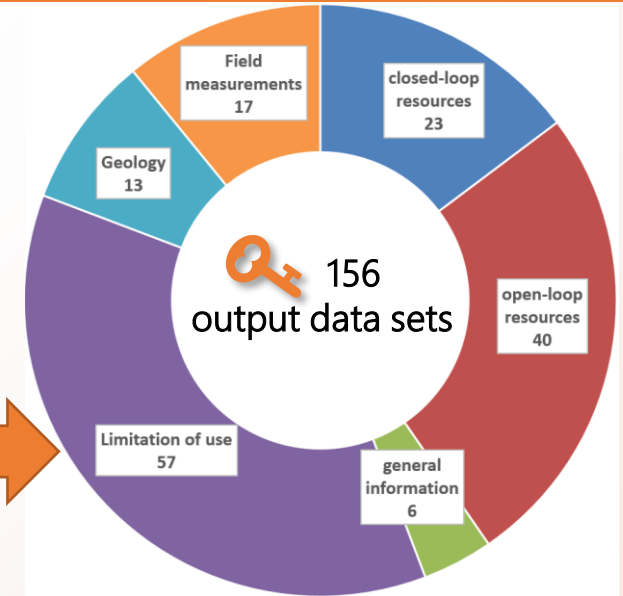
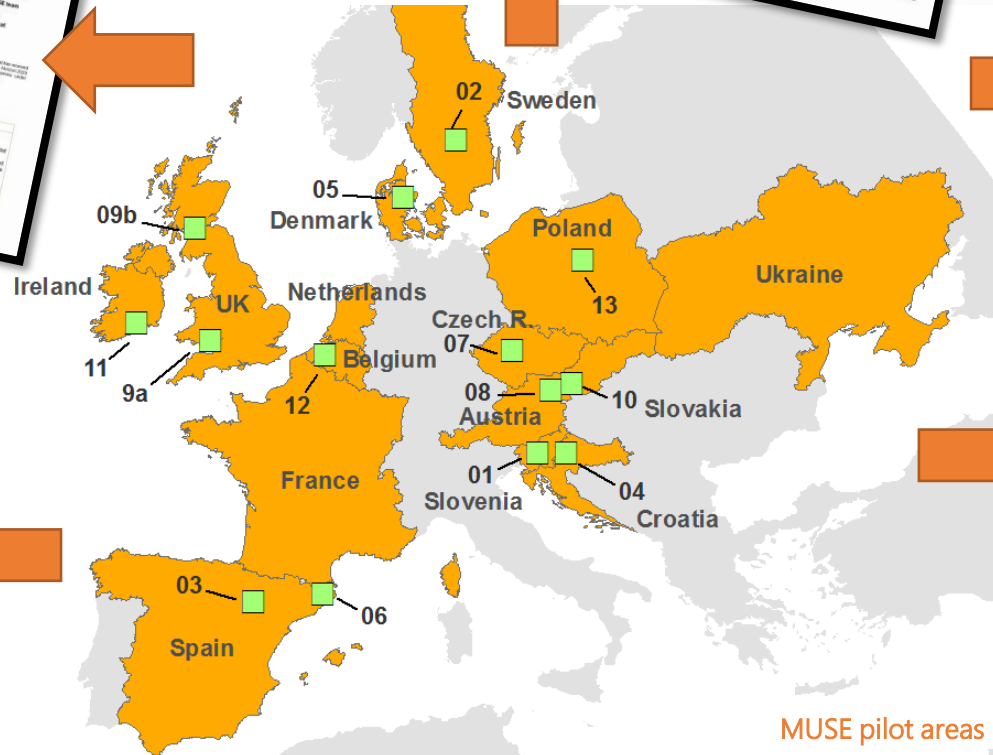
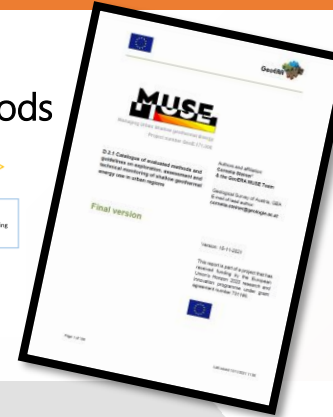
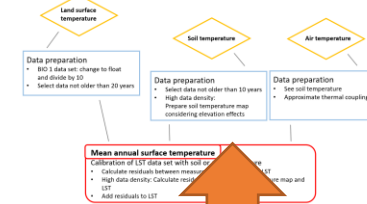


Report on pilot area activities



Fact sheets about pilot areas

Catalogue of evaluated methods

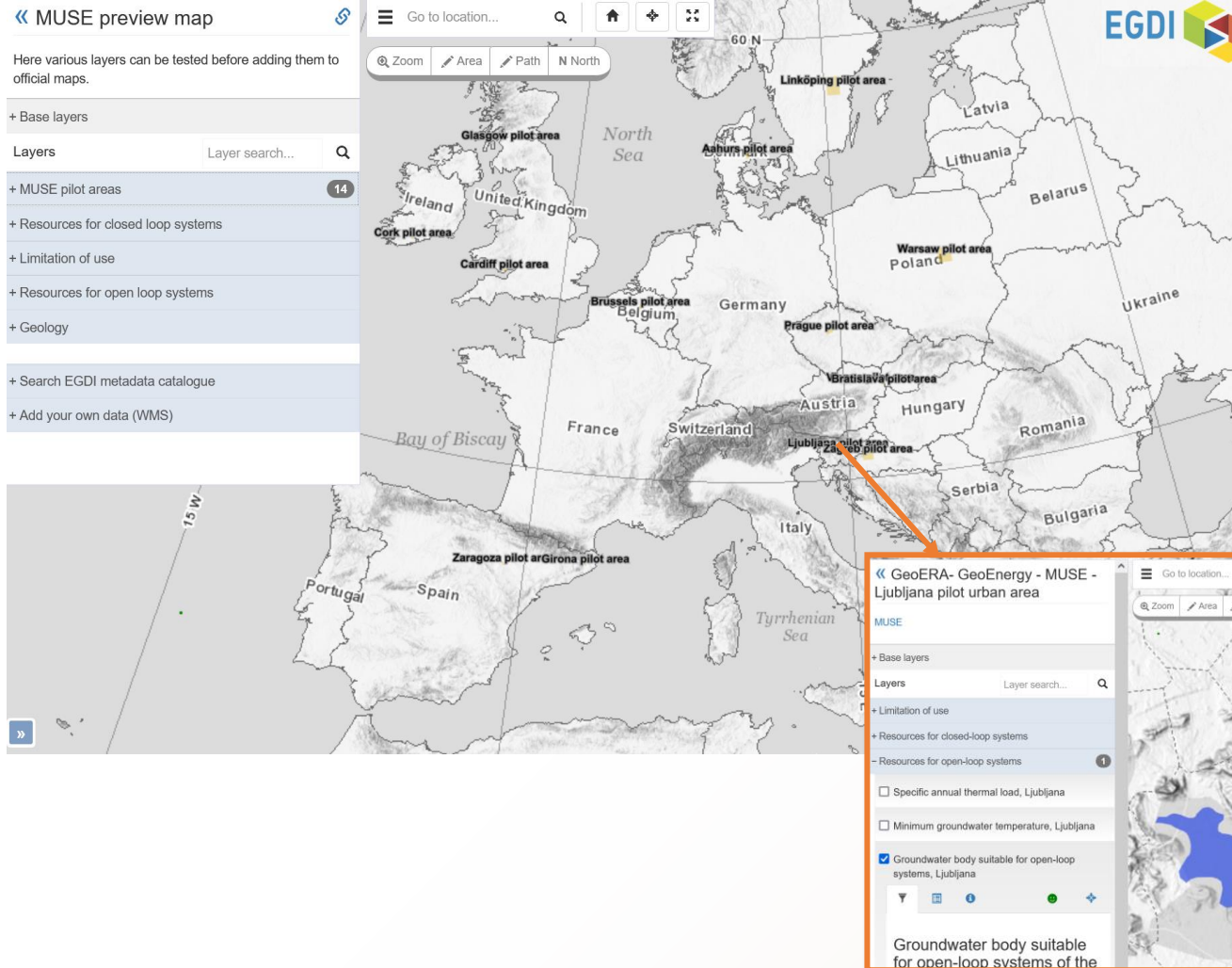


Knowledge exchange workshops

Guideline for targeted stakeholder communication



MUSE webviewer(s) in EGD



MUSE web information system (<https://geoera.eu/projects/muse3/>)

- Separate viewers for pilot areas
- Shows spatial data sets
- Includes metadata and vocabulary
- Data sets available for free download
- Information for stakeholders
- Sets an example for future platforms of shallow geothermal energy