

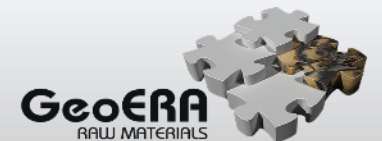


# Atlas of European ornamental stone resources

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731166



# Project Lead



GEOLOGICAL  
SURVEY OF  
NORWAY

- NGU -

# WP Leads



# Partners



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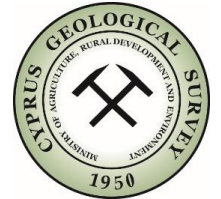
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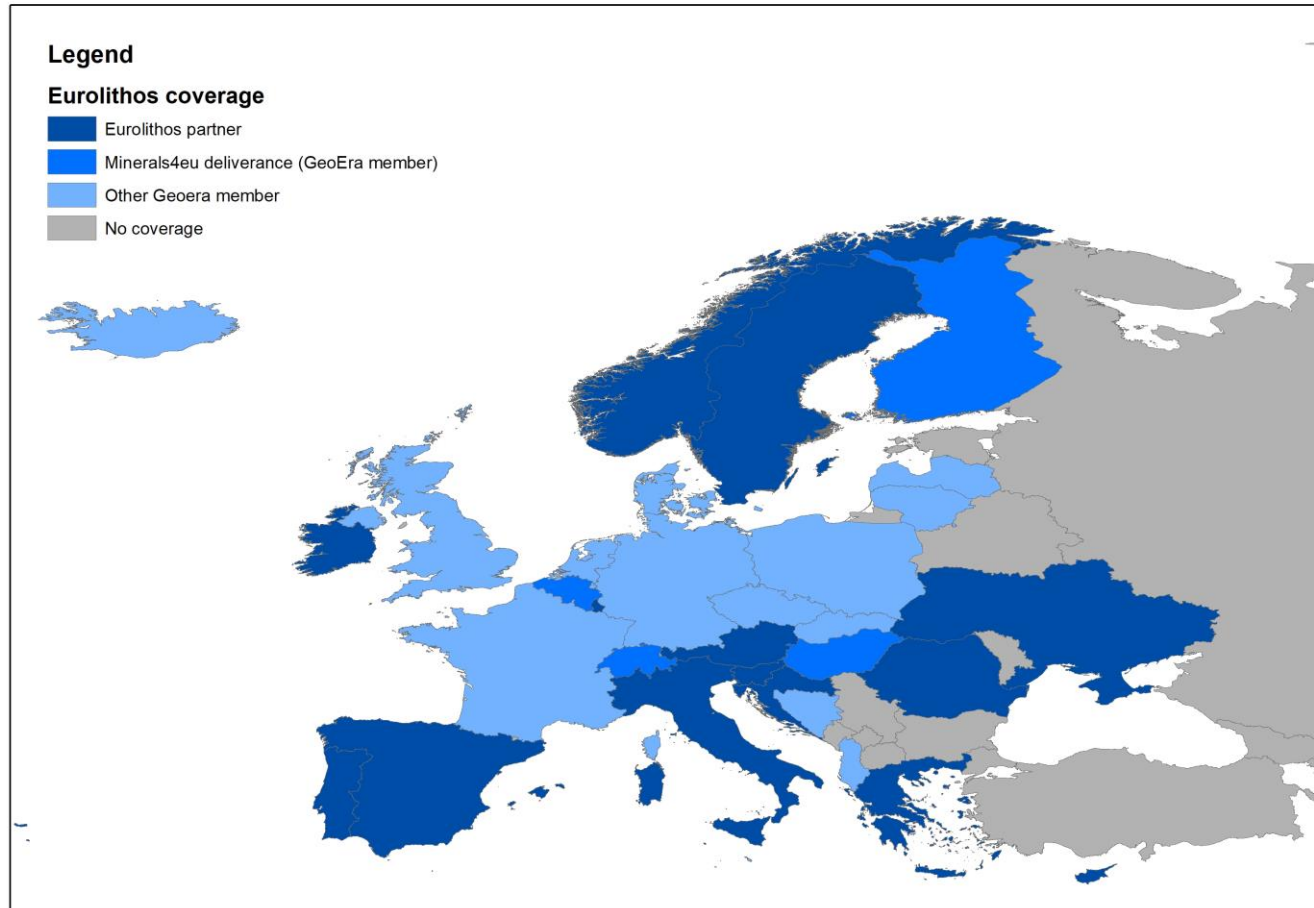


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# Eurolithos coverage



Countries in Europe that are members of EuroLithos or other, connected projects



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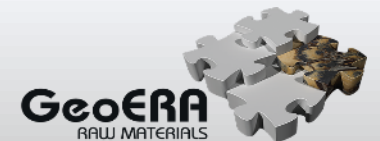


# Why Ornamental stone?

- Ornamental stone has been and is important to European architectural heritage – **our common heritage**
- Ornamental stone exploitation and production is important SME industry many places – **our jobs and skills**
- Ornamental stone has low emissions compared to other construction materials – **our environment**



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# Ornamental stone – the «new» wonder material in a time where sustainability counts?

**Ornamental stone** = quarried rock, cut rock = low energy consumption  
**All other non-organic building materials** = blasted rock, crushed and milled, processed and sorted, mixed, glued together = high energy consumption



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# Why Eurolithos?

- Where are the most important resources and quarries in Europe?
- What are their qualities?
- How can we prevent these to be sterilised for future exploitation?
- How do we valorise such resources from a societal point of view?



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# Production

Production in EU: approx. 10 bn euro

EU part of global trade: approx. 50 bn euro

EU import: approx. 25-40 bn euro

NB: information sources are scarce and not official



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# Important trends

- Sustainable stone production: EPD, LCA, electrification, zero waste
  - Responsible sourcing
  - Awareness on heritage values
  - Volumes of 19th/20th century constructions in need of repair and restoration
- = right time for bringing european stone resources to the foreground**



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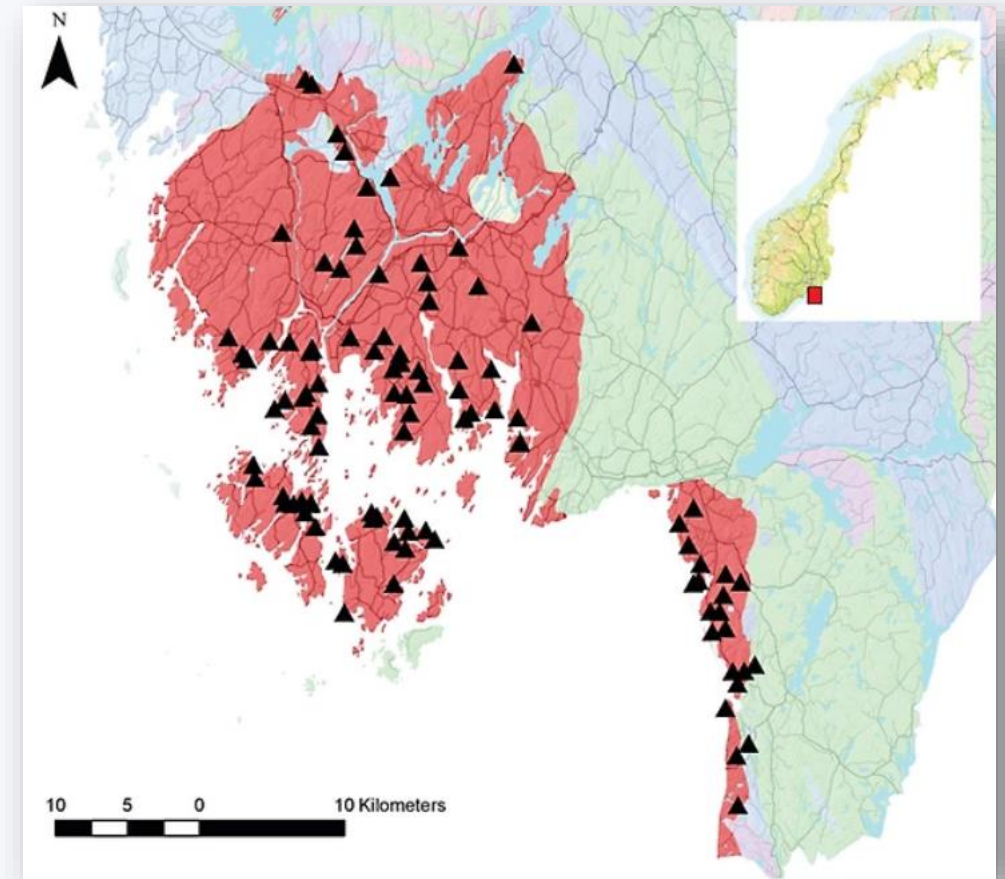




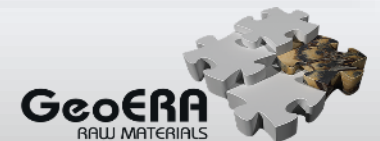
# Making a digital atlas

## Spatial data and maps of stone resources

The location of geological units containing resources of ornamental stone and quarries located therein



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# Making a digital directory

**Connect the spatial data  
to unique ID and  
technical/geological  
characteristics**

Physical, petrographical and  
geochemical properties, and links  
to other databases

URI	URI	??		single
Preferred Label	Unique Name	Entry	structured	single
Alternative labels	Other names	Entry	non-structured	multiple
Commodity	Commodity	Entry	structured	single
Scientific short description text	Macroscopic description		non-structured	single
Scientific short description text	Microscopic description		non-structured	single
bibliographic references	References	Link		multiple
status	Status	Entry	structured	single
color description	Colour	Entry	structured	single
nomenclature of lithologies	lithology	Entry	structured	single
links to vendors pages	External directories	Link		multiple
Uploaded images	Uploaded images	Entry		multiple
links to images published in the web	Image links	Link		multiple
link to a GeoNames location	Geographic name	Link		single
and/or alternative a lat/long location	Lat	Entry		single
	Long	Entry		single
Country of origin	Country	Entry		single
"Linked Data"	Data links	Link		multiple
Uploaded data tables or links to national tables	Mineral content	Entry/link	non-structured	multiple
Uploaded data tables or links to national tables	Physical properties	Entry/link	non-structured	multiple
Uploaded data tables or links to national tables	Main elements	Entry/link		multiple
Uploaded data tables or links to national tables	trace elements	Entry/link		multiple
Uploaded data tables or links to national tables	REE	Entry/link		multiple
Any other web links describing the dimension stone – concept				
Keywords of our new GeoERA Keyword Thesaurus				



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# Making guidelines for value assessment

## **From case studies: non-economic value assessment of ornamental stone resources for resource management**

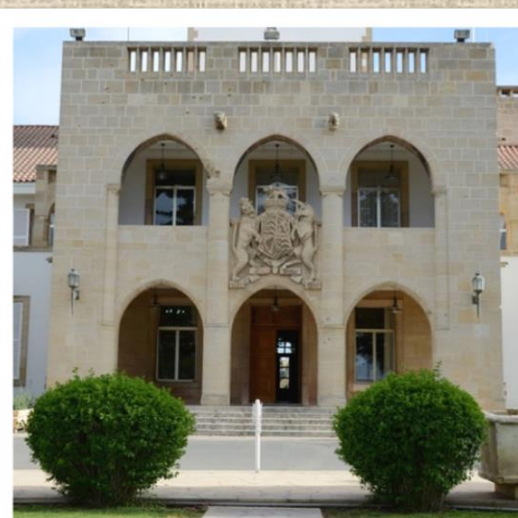
Large quarry areas/landscapes  
Connecting quarries and built heritage  
Intangible heritage  
Sustainable quarrying



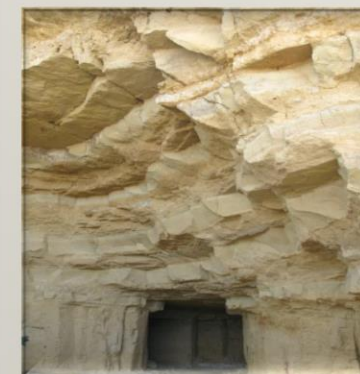
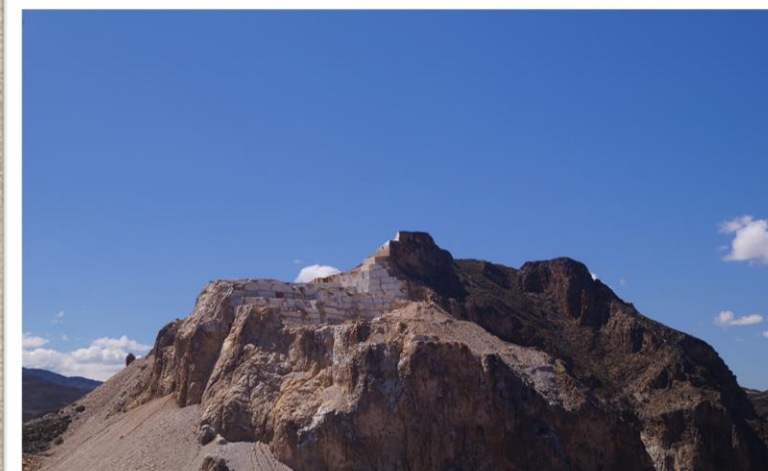
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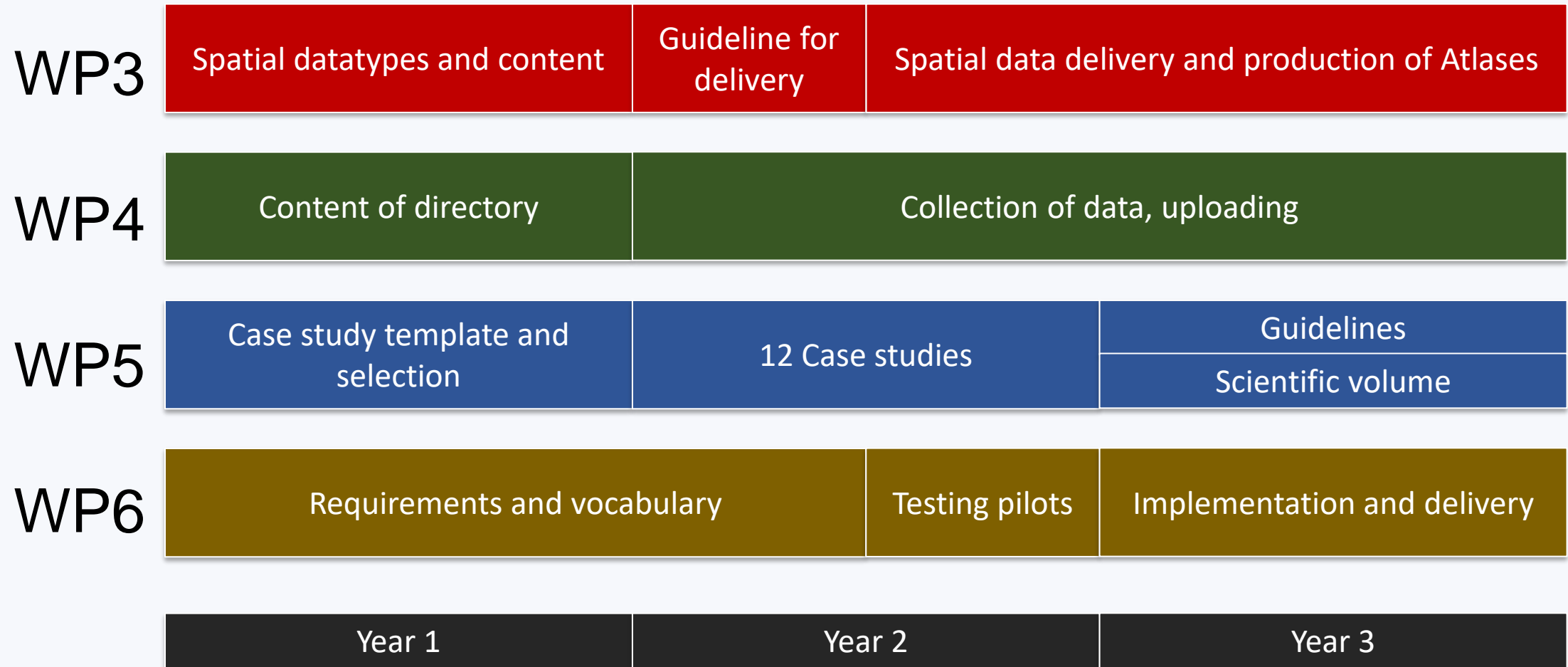




**12 case studies, 9 countries**







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# Communication and dissemination



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Establishing the European Geological Surveys Research Area to deliver a Geological Service for Europe

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### European Ornamental stone resources (EuroLithos)

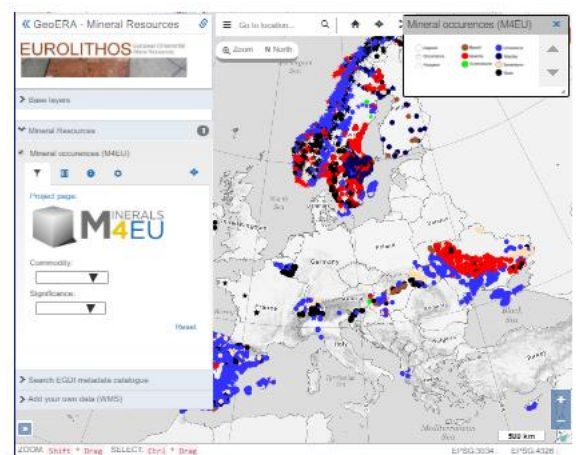
Ornamental stone has contributed significantly in shaping our rural and urban landscapes, through its use in our built heritage from different historical periods. Ornamental stone is today a raw material produced with great skills all over Europe, exploiting the vast diversity of European natural stone resources. Yet, the actual use of local and regional stone resources in Europe is decreasing, and so is the knowledge of the resources, traditions and skills.

EuroLithos is founded on the idea that increased knowledge of the geology, quality and history of use of natural stone in Europe will stimulate both more sustainable use of stone resources in Europe for the benefit of SME's and our cultural heritage, and a sound land use management for the safeguarding of ornamental stone deposits. EuroLithos addresses several aspects of the scope: identify and map the type and quality of construction materials, and provide tools and protocols for the assessment and comparison of deposits. EuroLithos will also address cultural heritage and building preservation aspects, since the maintenance of European heritage and a living stone industry are mutually dependent. EuroLithos will result in an ornamental stone knowledge base under the umbrella of EGD, covering harmonised spatial data on European stone resources, atlas of resources and use, a directory of ornamental stone properties and guidelines for valourising ornamental stone heritage. EuroLithos will work in close collaboration with the GeoERA Information Platform. The EuroLithos consortium is composed of 16 partners from 14 countries, collectively forming a strong and innovative research group.

#### GIS viewer for EuroLithos results

Through this viewer the results of the EuroLithos project will be made accessible when they will be available. The current view is not showing results of the project but is only here to give an idea about and where the results will appear and on which technology (the [EGDI](#)).

[Open map in a new tab](#)



**Project website and Social Media**

Read more about EuroLithos here (<https://www.eurolithos.org/>) and follow the project on <https://www.facebook.com/europeanstonestories/> and <https://twitter.com/eurolithos>

**Budget and participants**

The total budget for the project is 1 100 357 € of which the funded participants contribute 773 551 € and the EC contributes 326 806 €.

Web:

[www.eurolithos.org](http://www.eurolithos.org)<https://geoera.eu/projects/eurolithos1/>

# EUROLITHOS

European Ornamental Stone Resources

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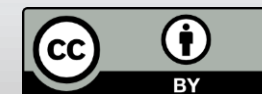


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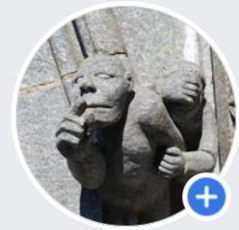


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**European Federation of Geologists (EFG)** @EfgInfo · Dec 6, 2019  
EFG invites you to submit abstracts for the next issue of European Geologist on ["#Mineral #Rawmaterials in #Europe](#) - Chances and challenges for domestic production" - deadline for abstracts: 20 December 2019 - [bit.ly/34YeOR0](#)

**Articles wanted!**  
**MINERAL RAW MATERIALS IN EUROPE: CHANCES AND CHALLENGES FOR DOMESTIC PRODUCTION**  
Deadline for abstract submission: 20 December 2019

EIT RawMaterials and 9 others

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**Minland Project** @minlandproject · Dec 10, 2019  
"Minerals need to be assessed on an equal value basis with other land uses" - this and more accomplishments of the EU funded [#minlandproject](#) in the 4th issue of the [#Minland](#) newsletter - Click here to know more [bit.ly/2qf6nQN](#) @sguSverige

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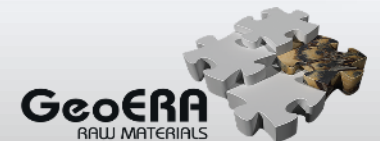
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Workshop Athens March 20-21 2019

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