



European Network
for Sustainable
Quarrying and Mining

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Biodiversity Stewardship
in Quarry Management

Quarries alive 2018 Conference, Évora, Portugal
Dirk Fincke, Secretary General, UEPG – European Aggregates Association



ENSQM - A Raw Material Commitment

The European Network for Sustainable Quarrying and Mining is a **raw material commitment** under the European innovation Partnership linked with the Strategic Implementation Action Plan under the non-technological pillar, Improving Europe's raw materials framework conditions, public awareness;

Commitments are **joint undertakings** by several partners, who commit to activities aimed at achieving the European innovation Partnerships' (EIP) objectives

The Raw Material Commitment was approved by the Commission in July 2016

Partners

- ▶ The network is open to any stakeholders bringing values to the European network

European associations

- ▶ Eurogypsum (coordinator)
- ▶ UEPG (Aggregates)
- ▶ CEMBUREAU (Cement)
- ▶ EU Salt (Salt)
- ▶ IMA-Europe (Industrial Minerals)
- ▶ European Federation of Geologists

National associations

- ▶ Cominroc (Spanish Confederation of Extractive Industries of Rocks and Industrial Minerals)
- ▶ Bundesverband Baustoffe - Steine und Erden e.V. (BBS)
- ▶ The Chamber of Mines of Galicia

National authorities

- ▶ Centro para el desarrollo tecnologico industrial (CDTI)
- ▶ Direcção-General de Energia e Geologia (DGEG)-Portugal

Universities

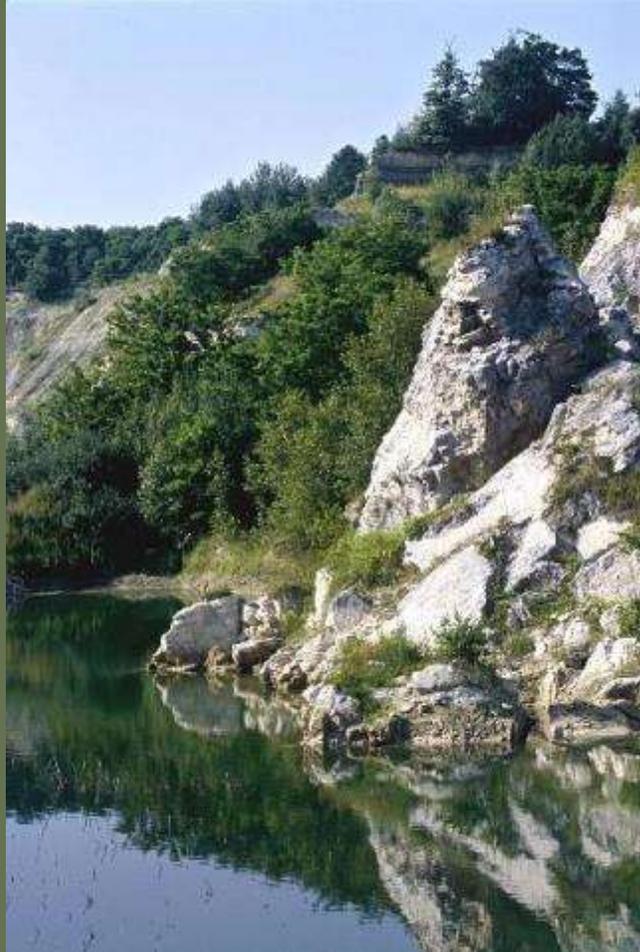
- ▶ University of Bingen (Germany)
- ▶ University of Liège (Belgium)

Mission

The European Network for sustainable quarrying and mining is a platform aiming at boosting sustainable quarrying and mining by **creating a culture of cooperation** among all the stakeholders;

At national level, the commitment could materialise in a national/local/regional fora within the framework of jointly agreed objectives and procedure between the stakeholders of the quarrying and mining sector;

The **ultimate goal** would be that the European Network for Sustainable Quarrying and Mining becomes **reference for the sector** because it takes into account economic, social and environmental values.





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Examples on reconciling biodiversity protection and non-energy extractive industries (NEEI)

Aggregates (1) UEPG

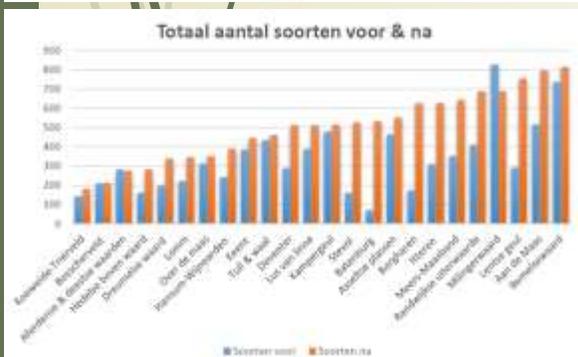


Objective: To identify the impact of sand and gravel extraction in the Maas River and on species and natural habitat.

Actions for biodiversity by Life IP Consortium Deltanatuur:

- Creation of a landscape next to the river offering flooding areas and new habitats for plant and animal species.

Outcome: Most habitats and species have improved thanks to the new landscape created through the extraction of sand & gravel.



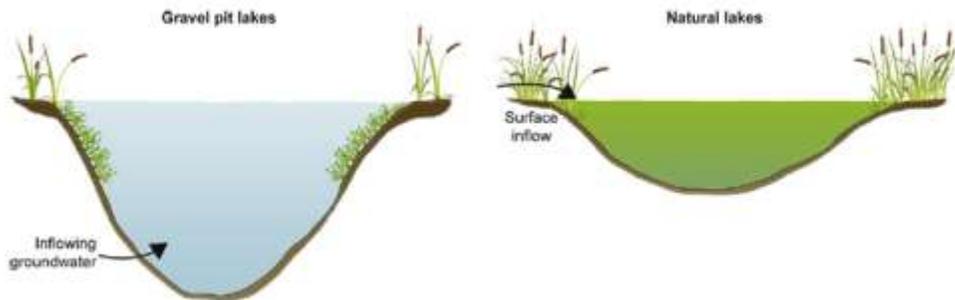
Aggregates (2) UEPG

Objective: To investigate the quality of water in gravel pit lakes compared to natural lakes.

Actions for biodiversity by the University of Aarhus, Denmark:

- ▶ Project conducted jointly with Aarhus University and 3 (out of 5) Danish regions analysing the chemical and biological state.
- ▶ While gravel pit lakes offer increased biodiversity and high recreational value, the study recommends that operators could further optimise the depth design of lakes, to create more shallow areas fostering biodiversity.

Outcome: The conclusions of the study demonstrate that gravel pit lakes, in comparison to natural lakes, have clearer water with higher quality and ecological value.



Aggregates (3) UEPG



Objective: To ensure maximum effective wild bee protection

Actions for biodiversity by JURA Materials (CRH Group), a Swiss aggregates producing company in cooperation with the Swiss Aggregates Association (FSKB) & a nature conservation association: a set of effective measures to foster the protection of wild bees.

- ▶ Launched in 2014, a specialist team developed protection measures using wood, gravel and growing flowering plants
- ▶ They built wild bee hotels on 32 extraction sites belonging to JURA Materials



Gypsum (1) Eurogypsum



Objective: Promotion of mediterranean vegetation in Italy- Tuscany- a prestigious setting with tourist and religious activities -Surface covered: 7 ha

Actions for biodiversity by Knauf Italy:

- ▶ Creation of pilot area for next expansion following proliferation of the mediterranean forest.
- ▶ Project realised with the department of environmental protection



Outcome: Creation of enhanced biodiversity with indigenous seed, bushes, trees.





Austria

Gypsum (2) Eurogypsum

Objective: Mining in a Natura 2000 Natural Area enhancing biodiversity

Actions:

Since 2007, **Quarry Puchberg Saint Gobain Rigips Austria**

- In areas of high value for the nature with rare plants a transplantation of the vegetated top soil is done. (Transplantation and rebuilding of a hill moor and a dry grassland)
 - The transplantation of orchids is done before the topsoil is stripped.
 - The recultivation areas are remodeled like the hilly landscape it has been before.
 - Transplanting of rare bushes and trees.
 - The sowing is done only with crops and hay of this region.
 - Structures like bushes, trees and fence posts are replanted for the birds.
- **Outcome:** The monitoring report shows, the recultivation is done on a very high level and the requirements of the nature conservation authority are fulfilled. The condition of the recultivated areas are so good that they would be classified as areas of high value.



TRANSPLANTING OF ENTIRE GRASSLANDS IN ORDER TO OBTAIN PROTECTIVE SURFACES



TRANSPLANTING ORCHIDS TO RECULTIVATE SITES



THE RECULTIVATION AREAS ARE REMODELED LIKE THE HILLY LANDSCAPE IT HAS BEEN BEFORE

Gypsum (3) -Eurogypsum



Objective: to farm protected plants in Green houses to support the rehabilitation and develop the Biodiversity in Natura 2000 areas

Actions by Etex in the Hornos Ibericos quarry in Spain:

- ▶ Mineral rights and quarry inside of Natura 2000 Area
- ▶ Scientific studies realised with the University of Almeria and University of Madrid
- ▶ Collection and farming of local species in front of mining activity to rehabilitate the áreas with same species after mining
- ▶ Long-time monitoring

Outcome: Scientific restoration of 14 ha, part of the exploitable quarry area.



Gypsum-Summary

Outcome	Partnership	Key action
<p>Mining area recovered with existing Mediterranean vegetation.</p> <p>Recultivated area is such that it could be classified as areas of high value-Natura 2000 area.</p>	<p>With the department of environment protection (Tuscany).</p>	<p>indigenous seed, bushes, trees were planted.</p> <p>Transplantation and rebuilding of a hill moor and a dry grassland.</p>
<p>Scientific restoration of 14 ha already exploited-Natura 2000 area.</p>	<p>With the consejo superior de investigaciones scientificas and the university of Almeria</p>	<p>Seeds have been collected on site, planted in a green house, cultivated and replanted.</p>



Industrial minerals (1)-IMA-Europe

Objective: Enhance old forest wildlife in a renatured area

Actions: Since 2010, Quarzwerke GmbH in Frechen (D) implemented

- ▶ A changed forestry concept
- ▶ Placing maternity roosts & winter boxes for bats on trees
- ▶ Creation of woodland for amphibians in 2012 & building of amphibian tunnel
- ▶ Construct bats winter cave
- ▶ Partnership with the forestry office in 2014
- ▶ Modify old transformer station in the renatured forest into a bat house in 2017/2018

Outcome: The recultivated mining area provides a habitat for over 600 pioneer species, including old forest wildlife, such as fire salamanders, dormice, woodpeckers and bats a.o.





Industrial Minerals (2)-IMA-Europe

Objective: Ecological connectivity in Arcos de la Frontera

Actions: Sibelco Spain enhances biodiversity and surrounding landscapes through:

- ▶ The development of a Biodiversity Management Plan as guidance tool for the ecological balance in the area, covering the different stages of life of the quarry (during extraction, restoration and restored areas)
- ▶ Managing exotic species (acacia farnesiana) and actions to ensure the survival of others (bee-eater, cork oak)
- ▶ Creating several lagoons to ensure connectivity of larger water bodies which serve as resting and foraging areas for migratory animals
- ▶ Monitoring biodiversity
- ▶ Creating nesting places for bee-eaters and sand martins

Outcome: Presence of key species such as the genet and otter. The lagoons connect the Natural Park of Cola del Embalse (at 2km) and the Wetland Network of the Province of Cadiz (at 15 km), enhancing connectivity of Natura 2000 areas.



Industrial Minerals (3)-IMA-Europe



Objective: Increase biodiversity during and after the extraction process and notably protect the Natura 2000 species of the yellow-bellied toad and crested newt

Actions:

- ▶ Signing of an Agreement between the BKRI (German Association for Ceramic Raw Materials and Industrial Minerals) and Ministry of Environment, Agriculture and Forestry of Rhineland-Palatinate in 2009.
- ▶ Creation of suitable habitats for protected species on clay extraction sites (both current and future extraction sites), located within and outside the designated Natura 2000 areas.
- ▶ Annual Reporting by the Nature Conservation Agencies of Rhineland-Palatinate



Outcome: Creation of suitable habitats for target and endangered species such as tree frog and natterjack toads on clay extraction sites.

Industrial Minerals: Summary

Outcome	Partnership	Key action
Provision of habitat for over 600 pioneer species, including old forest wildlife.	Partnership with the forestry office.	Implementation of a changed forestry concept.
Presence of key species (2) + creation of lagoons connecting with Natural park and the wetland network enhancing connectivity with Natura 2000 areas.		Development of a biodiversity management plan.
Creation of habitat for target and endangered species.	Voluntary agreement between BKRI and Ministry of environment, agriculture and forestry of Rheinland-Palatinate.	Annual monitoring by the Nature conservation agencies of Rheinland-Palatinate.

Salt - EUSalt



Objective: Encourage bird breeding and bat roosting - Encourage otters onto site land - Expand the green area

Actions:

- **Compass Minerals** have set aside areas of the site which are not used for exploitation and have installed bird and bat boxes
- Built an artificial otter holt
- Partnered with Cheshire Wildlife trust on 2016 to plant several hundred native trees on the site

Outcome:

- Helping the environment, improving the habitat for wildlife;
- The volunteers were part of Cheshire Wildlife Trust's volunteer program, which provides opportunities for those in recovery from physical or mental illness to get outdoors and closer to nature;
- The trees were specially chosen to fit with the ecology of the surrounding area and the local climate. As they grow, they will be a perfect source of food for insects and birds.



Salt-Summary

Outcome	Partnership	KeyAction
<p>Trees planted enhancing habitat for wildlife.</p>	<p>With the Cheshire wildlife trust volunteer programme.</p> <p><u>Social dimension:</u> volunteer programme for those in recovery from physical or mental illness to get outdoors and close to nature.</p>	<p>Plant trees on a site not used for exploitation.</p>

Somincor mine at Natura 2000

SOMINCOR polymetallic mine and industrial area at Natura 2000



Natura 2000:

- **Site of Community Interest PTCO0036 Guadiana**
- **Special Protected Area PTZPE 0046 Castro Verde**
- **Protection Area for Wild Birds**
- **Several Habitats (Directive n.º 92/43/CEE)**



840 ha industrial area on surface

One of the EU largest underground copper mines (started in 1988)

Yearly outputs around:

- **220K Tons Cu** concentrate
- **145K Tons of zinc** concentrate
- **10K Tons of lead** concentrate

Employing directly around **1000 workers** and **1110 contractors**

Estimated to operate until 2027.

Somincor mine at Natura 2000



1. Somincor signed a protocol with the ICNF (Government Agency for the Protection of Nature and Forestry) to promote Biodiversity in the mine area
2. Somincor is developing several projects:
 - For the protection of steppe birds;
 - For support of endangered species of the Guadiana River;
 - Studies with universities for biodiversity of plants and lichens in the mine surrounding area;
3. Somincor has agreements with local farmers to maintain agricultural activity in about 50% of company's land.
4. **Noise minimization Project:** Social and environmental design to reduce noise in the industrial area and nearby populations.
5. **Social programs** (evolving municipalities);
6. **Valuing and promoting mining heritage;**
7. **Fostering research, technical innovation and technology.**



Somincor mine at Natura 2000



Somincor discloses the Biodiversity in the mine area and surroundings:

- Field guide “*A mine of biodiversity*”;
- Film “*The Song of the Earth - A mine of biodiversity*” (PT and EN) (presentation in several environmental meetings, on the TV channel SIC and on TAP airplanes)



Information available on: <http://www.biodiversidade-somincor.pt>

Portugal Metallic mine -Summary

Outcome	Partnership	Key actions
<p>Natura 2000 area- promotion of biodiversity</p> <p>Creation of habitat for target and endangered species</p> <p>Production of the film "<i>The song of earth-A Mine of Biodiversity</i>" (PT/EN)</p> <p>Maintenance of agricultural activity in 50% of the company's land</p>	<p>Protocol With ICNF (Government agency for the protection of nature and forestry)</p> <p>Projects with several Portuguese universities</p> <p>Agreement with local farmers</p>	<p>Scientific studies for biodiversity of plants and lichens</p> <p>Protection of steppe birds</p> <p>Project to protect endangered species of the Guadiana river</p> <p>Disclosure of the biodiversity actions taken by the mining company</p>



Conclusions

- ▶ **Real and practical commitment of the Non-energy extractive industry to:**
 - ▶ Enhance habitat for wild life and species (including endangered species);
 - ▶ Cooperate with non-governmental associations at local level to enhance biodiversity;
 - ▶ Rely on universities to make studies prior to restoration and enhancement of biodiversity
 - ▶ Create value for people by showing how a quarry supports biodiversity and create leisure;
 - ▶ Promote employment;
 - ▶ Include less advantaged people in the promotion of biodiversity in a quarry.



More examples from sectors represented in the European Network for Sustainable Quarrying and Mining (ENSQM)

Objective: Demonstrating the contribution of sustainable Quarrying and Mining to Biodiversity and Nature Management

Numerous projects & examples at this Quarries Alive Conference presented by:

- SECIL-Companhia Geral de Cal e Cimento, S.A.
- IUCN France
- Lafarge-Holcim
- HeidelbergCement
- Bird Life International/CEMEX
- Titan Cement Bulgaria
- Votorantim Cimentos
- Eurovia
- Life in Quarries project (Belgium)



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