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National Technical University of Athens - NTUA

- NTUA is the only higher education and research body for Mining in Greece performs as a hub over the whole RM value chain connecting academia-research-industry of Greek mining sector.
- It has a continuous collaboration with the Ministry of Environment, Energy and Climate Change and of the Regions involved in the Raw Materials sector. The relevant one for this project is Region of Sterea Ellada.
- Active in various projects and networks towards the enhancement of the National and Regional development of the RM Sector.
Region of Sterea Ellada

- Area of 15.549 km²
- 2nd largest in Greece in total area
- Permanent population: 547,390 inhabitants, (5.07% of the country)

**Strengths**

- Great geographic position (proximity to Athens)
- Rich agricultural land and production expertise in agriculture and livestock production
- Strong industrial sector - first place in nickel and aluminium production
- Great concentration in fisheries and aquaculture
- Important cultural resources (Delfi, Thermopyles)
- Sound infrastructure of national transport networks and RES capacity (solar, wind, hydro)
- Potential in development of synergies with agriculture and livestock production
- Development of environmental technologies and energy saving technologies
Region of Sterea Ellada

<table>
<thead>
<tr>
<th>Industry/ Sector</th>
<th>Gross Value Added (amount in million euro)</th>
<th>% in total GVA of the Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry and Fishing</td>
<td>561</td>
<td>7.6</td>
</tr>
<tr>
<td>Mining, energy, water supply and waste management</td>
<td>584</td>
<td>7.9</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>1856</td>
<td>25.2</td>
</tr>
<tr>
<td>Construction</td>
<td>213</td>
<td>2.9</td>
</tr>
<tr>
<td>Trade, transportation and storage, accommodation and food service activities</td>
<td>1449</td>
<td>19.6</td>
</tr>
<tr>
<td>Information and Communication</td>
<td>75</td>
<td>1.0</td>
</tr>
<tr>
<td>Financial and Insurance activities</td>
<td>158</td>
<td>2.2</td>
</tr>
<tr>
<td>Real Estate activities</td>
<td>986</td>
<td>13.4</td>
</tr>
<tr>
<td>Scientific, administrative and support service activities</td>
<td>128</td>
<td>1.7</td>
</tr>
<tr>
<td>Public administration, education, health and social work activities</td>
<td>1130</td>
<td>15.3</td>
</tr>
<tr>
<td>Arts, recreation and other service activities</td>
<td>234</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7375</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Key exporting goods

- Metals: 45%
- Chemical plastics: 12%
- Food: 21%
- Machinery and appliances: 7%
- Non metal minerals: 5%
- Other: 10%
Region of Sterea Ellada

Bauxite – Alumina - Aluminum

Greece is included in the world’s top 10 countries with the biggest bauxite reserves, estimated to 600 Mt.
ALUMINIUM OF GREECE

THE LARGEST VERTICALLY INTEGRATED ALUMINIUM & ALUMINA PRODUCER IN E.U.

Bauxite Mines
- Second largest bauxite producer in Europe with ~700 ktpa of production capacity.
- Long life of mine underpinned by 11mt of resources.
- Long-term off-take agreement with third parties in Greece and abroad.

Aluminium Smelter
- ~182 ktpa of production capacity
- Established customer base
- Long-term off-take agreements provide security of sales

Alumina Refinery
- Amongst largest standalone smelters globally
- Producer of 17% of total European Alumina output ~820 ktpa
- Sufficient capacity to cover internal needs for the smelter and to export ~500 ktpa
- Long-term off-take agreement with global and regional players

334 MW CHP
- On-site power and steam production offering purchasing flexibility – Secured Electricity Supply
- Internal Steam production using Natural Gas

Port Facilities
- On-site port facilities for incoming raw materials and outgoing finished products, minimising logistical costs.
EU27 produced 2.22% of world mine nickel (2010)

Greece is ranked (2010)

1st in EU27 with 47.1%

12th in the world with 1%

Reserves in Nickel content: 490 ktons
• G.M.M.S.A. LARCO is today the only Ferronickel producer in European Union from local deposits, covering 5% of European market annual demand in nickel.

• The annual production in the three nickel mines (Euboea, Agios Ioannis, Kastoria) exceeds two million tones.

• Larymna smelter: an annual production of 19,000 tones of Ferro Nickel Alloy.

• Among the company’s customers are the greatest stainless steel producers of western Europe.

• GMMASA LARCO is a 100% exporting company and is considered among the most reliable producers in the global nickel market.
**NTUA in REMIX**

The **policy instrument** we want to improve is the Regional Operational Programme of Sterea Ellada (ROP) 2014-2020 mainly on Thematic Objectives (TO) 01: Fostering of Research, Development and Innovation and TO 04: Support the transition to a low-carbon economy.

Through REMIX work we want to:

- Improve governance process towards stronger and more sustainable mining sector.
- Evaluate the already available practices and propose new solutions based on gained expertise from other Regions.
- Enhance regional R&D&I capacity and innovation support for mining.
- Engage regional mining cluster for the improvement of practices towards more sustainable regional industry and processes.
- Create an active communication with the regional stakeholder group, regional planning and decision making actors.
NTUA communication objective

- Engage stakeholder group as a critical mass to apply REMIX objectives in Region of Sterea Ellada
- Create an open to inclusion forum with key national and regional stakeholders from the triangle of R&D&I institutions-industry-public authorities and perform open discussions to develop Regional Strategy for mining sector
- Stakeholders’ active involvement in REMIX events and activities
- Stakeholder members will be involved in the peer review process
- Disseminate REMIX in NTUA various communication channels (H2020 projects, EIT RawMaterials, KIC projects etc.)