Policy highlights

OECD Mining Regions and

Cities Case study: Andalusia

Spain

Introduction

These policy highlights provide a summary of the **OECD Mining Regions and Cities Case Study of Andalusia**. This study is part of the OECD Mining Regions and Cities Initiative, a platform for knowledge sharing and co-operation that aims at increasing productivity and enhancing the wellbeing of cities and regions with a specialisation in mining and extractive industries.

Mining regions can play an essential role in meeting climate goals and in accelerating the economic recovery from the COVID-19 crisis. Global environmental agendas have recognised the relevance of the mining sector to accelerate the transition to a low-carbon economy. Driven by the Green Deal and the new Industrial Strategy, the European Union (EU) has made the environmental sustainability of mining extraction and transformation a priority to achieve the EU's climate neutrality goal by 2050. While mining is a global industry, its geographic concentration is a critical factor in the design of policies for sustainable economic development. Promoting environmentally sustainable regional mining value chains can provide new business opportunities for local firms and high-value-added jobs for local communities while meeting the climate goals.

Andalusia is a European region that can leverage the increasing global and EU demand for sustainable raw materials and thus become a frontrunner in leading technologies and circular processes for environmentally sustainable mining. Andalusia is the largest mining producer in Spain, the second-largest copper producer in the EU and a leader in marble and gypsum production. The region hosts companies and activities at almost all stages of the mining value chain, from extraction to services and processing activities. Andalusia benefits from two distinct mining subsectors, each with a rich network of suppliers that are relevant for local development: the metallic mining sector (e.g. copper and zinc), which accounts for most of the regional mining production, and the non-metallic sector (ornamental rocks, aggregates and industrial minerals), which is highly dispersed across the territory.

The region has the potential to further mobilise the assets of its mining ecosystem to attract investment and open new sources of growth while meeting EU climate goals. These assets include attractive geology, a strategic geographic location among EU and non-EU markets, good infrastructure and benefits from the proximity of mines to urban centres (e.g access to services). Furthermore, the region enjoys a mining identity with a young workforce that offers community support for mining ventures.

Yet, the region must overcome existing bottlenecks to fully leverage the potential of its mining ecosystem, while reducing its income gaps with respect to the national average. These include a low innovation intensity with insufficient linkages among firms within the regional mining value chain, a large share of small- and medium-sized enterprises (SMEs) and entrepreneurs in low-value-added activities and a complex and unpredictable regional administrative process for mining operations that relies on an outdated national regulation.

This study proposes 4 groups of recommendations with 15 sub-recommendations to help Andalusia build on its strengths and address current and future challenges to become an EU frontrunner on sustainable mining while accelerating regional growth and productivity. These recommendations require action at local, regional and national levels. To this end, the development of a national mining strategy is fundamental to generate synergies between Spanish mining regions and contribute to the EU's climate objectives. Furthermore, the update of Andalusia's regional mining strategy represents a key tool to create the conditions for innovative

projects to emerge across the whole mining value chain and increase its attractiveness for innovative firms and skilled workers.

Andalusia's mining ecosystem has the potential to make the region a frontrunner in environmentally sustainable mining while unlocking new business opportunities locally

Andalusia is the southernmost region of Spain, has the largest population and second greatest land area in the country. The region's location in the Iberian Pyrite Belt (IPB), encompassing Seville and Huelva through to Southern Portugal, represents a global asset when it comes to metallic minerals. The region is the largest mining producer in Spain (Table 1) and growing player in the European mining sector, distinguishing itself as the second European producer of copper and leader in the production of marble and gypsum. Within the Andalusia, Huelva is the main mining (TL3) region, producing 70% of the region's metallic mining[1].

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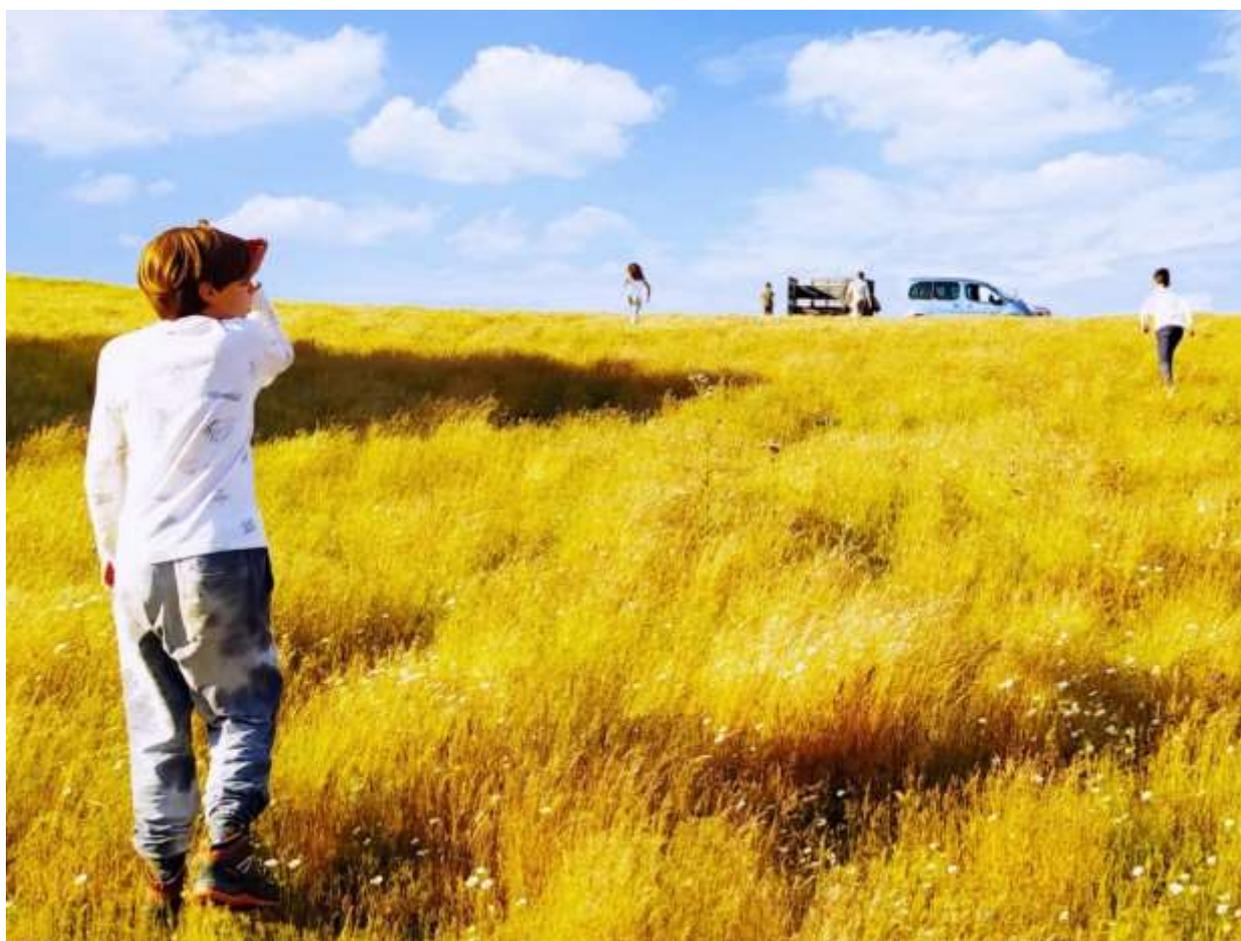
[1] The OECD regional database collects and publishes regional data at two different geographical levels, namely large regions (Territorial Level 2, TL2) and small regions (Territorial Level 3, TL3). Both levels encompass entire national territories. TL3 regions are smaller territorial units that make up each TL2 region. Andalusia is composed of eight TL3 regions: Almeria, Cadiz, Cordoba, Granada, Huelva, Jaen, Malaga and Seville

Note: Andalusia
Photographer: Juan Manuel Pérez

The European Union's (EU) priorities, driven by the Green Deal and the new Industrial Strategy, have made sustained access to raw materials and the environmental sustainability of mining value chains a cornerstone of the EU climate neutrality goal for 2050. Raw materials are essential for the development of clean energy technologies (e.g. wind turbines, batteries, fuel cells and autonomous cars). The amount of minerals required for these technologies is greater than for fossil fuel-based counterparts and in some cases exceed the current production levels. The demand for both rare minerals (e.g. cobalt, lithium) and some traditional metallic minerals, such as copper, is expected to increase.

Table 1. Share of the TL2 regional mining production value and employment over national, 2018

Autonomous community	Share of production value (%)	Share of employment (%)	Main extractions
Andalusia	38.6	24.8	Copper, lead, zinc, silver, plaster, marble
Catalonia	12.9	12.0	Hydrocarbons, potash, industrial rocks
Castile and León	9.9	11.6	Coal, anthracite, slate, glauberite, tungsten
Galicia	7.3	11.3	Kaolin, quartz, slate, granite
Asturias	4.9	8.1	Coal, anthracite, fluorite, gold

Note: Share over the total value.
Source: Spanish Government (n.d.[10]), *Minería y Explosivos*, https://energia.gob.es/mineria/Paginas/Index.aspx; Spanish Government (2018[11]), *Estrategia Minera Nacional 2018*.

The increasing global demand and strategic EU support for sustained access to raw materials represents an opportunity for Andalusia. The mining ecosystem in Andalusia presents a number of strengths that can be further mobilised to become a frontrunner in resource circularity and environmentally sustainable mining. They include:

- **Attractive geology**. Andalusia's subsoil has diverse geology and, after many years of mining, remains highly prospective. It covers 60% of the IPB and holds the largest European reserve of non-ferrous minerals. Andalusia's mineral deposits contain some quantities of minerals identified as critical to supporting the generation of clean energy technologies (e.g. zinc, lead, silver, nickel, cobalt, copper, molybdenum, manganese) and a rich mining endowment (more than 400 mines) that provides a fertile ground for technologies to recover traditional and critical minerals.

- **A strategic geographic location as the closest EU region to Africa and with cultural proximity to Latin America.** Africa and Latin America are important sources of minerals for Europe as well as relevant mining markets that also seek greater environmentally friendly mining practices. Responsible sourcing initiatives coupled with EU support for sustainable mining practices provide Andalusia with a competitive advantage to engage with African and Latin American mineral producers and become a gateway to and from the EU in sustainable mining processes and technologies.

- **Good infrastructure and proximity of mines to urban centres**. Andalusia's mining potential sits close to large urban centres, which provides the bonus of not having to operate in isolation, unlike many mining projects in other OECD regions. Logistics, health, safety and personnel matters are all greatly simplified by having urban centres closely at hand. The region also benefits from a reliable transport (roads, railroads and ports) and energy (sound mix of energy sources, with a share of renewables) infrastructure. Yet, work remains to be done to enhance the quality of the

infrastructure (e.g. broadband) and the co ordination among infrastructure plans and the mining strategy.

* **A marked mining identity with a young workforce that offers community support for mining ventures**. According to the 2018 INFACT survey, 60% of Spaniards showed an attitude between neutral and positive towards mineral exploration, relatively higher than in other European countries (Finland, Germany). Despite the environmental disaster in the Aznalcóllar Mine at the end of the 1990s, Andalusian communities kept recognising the benefits of mining for the local economy and regional development. The regional relatively larger share of the working-age population (67% of the total population) vis-à-vis the national (65.8%) and OECD TL2 benchmark average (64%) represent a relevant source of labour supply for mining development.

Mining an engine for Andalusia's economic recovery

Mining was one of the drivers of the regional recovery after the 2008 crisis and, thus, can be instrumental to support the economic recovery to the COVID-19 crisis and help reduce the income and employment gap at the national levels. Contrary to the trends in construction and tourism, the value of the production and the share of regional employment of metallic mining have grown steadily since 2010. During 2000-18, employment in metallic mining grew above the levels of agriculture and construction. Leveraging the assets of its mining ecosystem and the relevance of raw materials for the energy transition, Andalusia could support the recovery from the COVID-19 crisis with the creation of new business for firms and value-added jobs for the community.

Figure 1. Growth of employment by economic sector, 2000-18
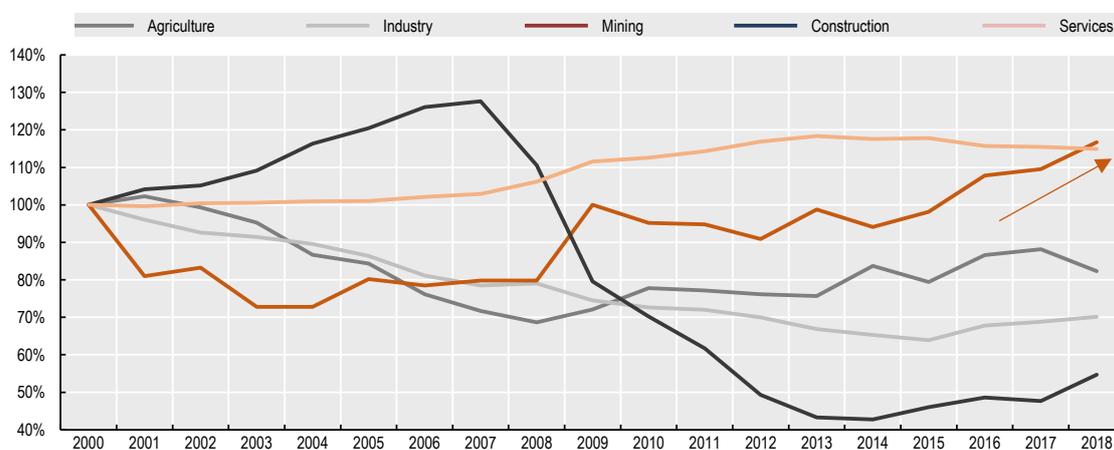
Note: 2000=1.
Source: IECA (2019[19]), *El Mercado de Trabajo en Andalucía. Datos estructurales*, https://www.juntadeandalucia.es/institutodeestadisticaycart ografia/merctrab/mtlnd03.htm (accessed on 5 October 2020); Annual Regional Accounting of Andalusia (Instituto de Estadística y Cartografia de Andalucía, 2020[21]).

Yet, Andalusia needs to address some challenges for development to unlock its mining ecosystem's potential and reduce the income gaps with the national average.

Andalusia faces various challenges that affect its mining business environment and its interaction with the local economy and well-being. The region ranks below the Spanish average and the benchmark of OECD mining regions in productivity, income and employment performance.

Structural GDP and productivity gap encompasses a slowdown of the economy

Andalusia's economy is large but underperforms when compared to national and international levels. The region is the third largest contributor to national GDP (13.3% in 2019), yet its GDP per capita and productivity level is the third lowest in the country and far below the OECD TL2 benchmark (Figure 2). Likewise, by 2020 nearly one out of every five Spanish unemployed was Andalusian (22.7% of national unemployment).

The financial crisis hit hard Andalusia's economy. The region has not been able to close the income and productivity gap with the national average to the levels prior the 2008 crisis. By 2018, Andalusia's GDP per capita was 74.2% the national average, ranking as the third lowest amongst Spanish regions. Without the right policy response, the COVID-19 crisis could further broaden the gap.

Figure 2. GDP per capita of TL2 regions of Spain compared to OECD TL2 benchmark, 2018
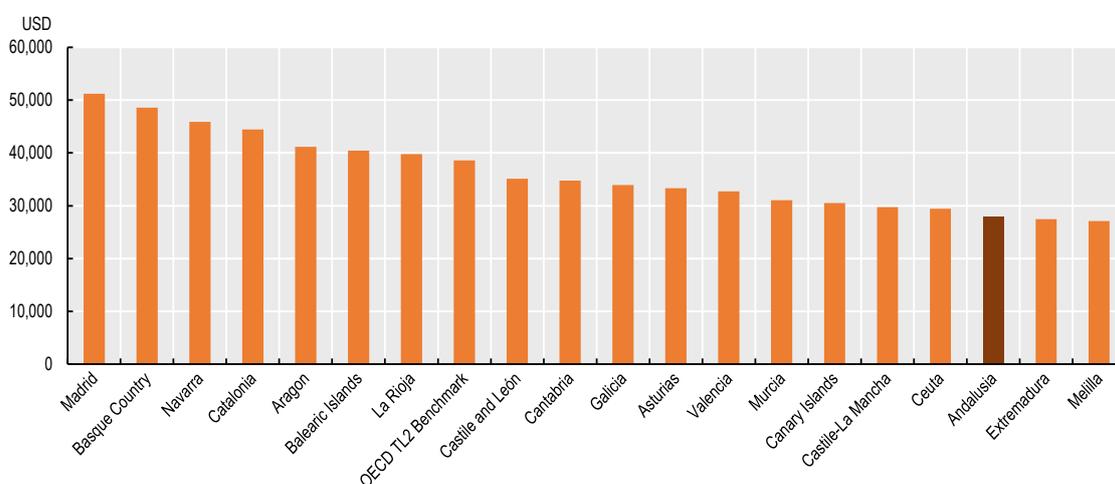
Note: GDP per capita measured in USD per capita, constant prices, constant purchasing power parity (PPP) and base year 2015.
Source: OECD (2021[15]), "Regional demography", https://doi.org/10.1787/region-data-en (accessed on 27 January 2020).

At a sectoral level, the region has experienced a progressive de-industrialization process towards low value added activities such as agriculture, tourism and services. This has led to a seasonality of employment and informality of the labour market. As a result, one every five unemployed in Spain belongs to Andalusia (2020).

Andalusia enjoys a demographic bonus that must be seized before it is halted by the current decelerating trend

Andalusia has a strong workforce, as its population is young standing out from comparable OECD regions. The growth of the population of Andalusia has mirrored the rapid pace of the rest of the country. Between 2001 and 2019, the population of Andalusia grew by 15.1%, similar to the national average (15.4%) and far above the rate of the OECD TL2 benchmark (6.2%).

Yet, the declining trend in the fertility rate, as well as the outmigration of young people, threatens this demographic bonus. Since the financial crisis, all the provinces of Andalusia except Malaga have experienced a negative regional migratory balance. Since 2008, a regional movement out of the Andalusian regions, especially severe in rural municipalities, accompanied the population stagnation in absolute terms. From 2000 to 2016, 54% of all Andalusian municipalities have lost population, and in the case of those with less than 5,000 inhabitants, depopulation has affected 71% of them.

Note: Andalusia
Photographer: Manuel Vázquez

Mining has the potential to reduce demographic challenges in rural municipalities

The mining municipalities of Andalusia have capacity to retain population. Data on demographic growth in mining municipalities of Andalusia are on average positive, reaching an accumulated population increase of 21.6% from 2000. A remarkable average value when compared to the regional average of Andalusia (14.7%), the province of Huelva (13.9%), and the national average (15.4%).

Population in municipalities such as Salteras, Guillena and Gerena have grown by 80%, 52% and 38% respectively between 2000 and 2019. Other municipalities of Huelva with no mining activity and no-known

tourism destinations such as Niebla, San Bartolome de la Torre or Trigueros have registered growths of between 7 and 12%, significantly lower than the mining municipalities. Overall, the mining municipalities perform better than the provinces where they are located, having a leading role in population fixing in rural areas.

Figure 3. Population growth in cities and mining municipalities in Andalusia, 2000-19
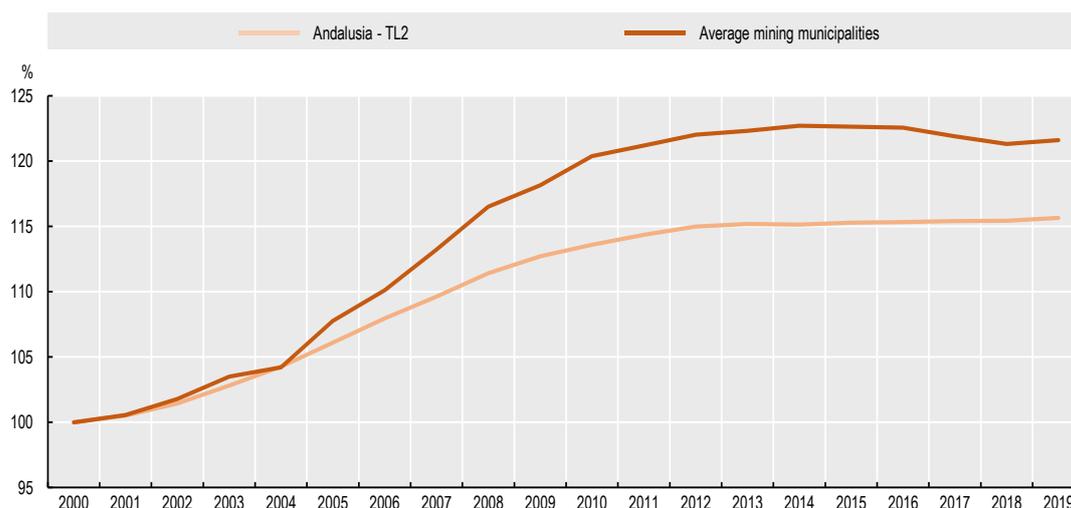
Note: 2000=100. Selected ten mining municipalities according to operating mines.
Source: Junta de Andalucía (2019[4]), *Indicadores sociales de Andalucía*, https://www.juntadeandalucia.es/institutodeestadisticaycartografia/indsoc/indicadores/61.htm (accessed on 10 November 2020).

Andalusia needs to boost innovation within the mining value chain, upscale local SMEs and enhance skills of its workforce to increase productivity

Overcoming the economic structural gap with the national average needs not only to mobilise the assets mentioned previously, but also to address some of the persistent bottlenecks in the mining business environment:

A low-innovation ecosystem

For many historical industrial and mining regions, such as Andalusia's mining provinces, the knowledge and skillset required to produce and compete in the context of the data-driven economy would necessitate a radical change from existing capabilities. Supporting innovation in mining is a matter of stimulating strong innovation-based development in Andalusia.

Innovation in Andalusia is mostly driven by government spending, public organisations and higher education institutions. In fact, the factors most indicative of the region's innovation are linked to public sector R&D expenditures, scientific publications and higher education (Figure 4). Despite some of the innovative industrial companies, including mining companies as CLC or Cosentino, the levels of patenting and R&D expenditure from private sector are below the average innovation index of Andalusia. In fact, in terms of patents, Andalusia ranks unfavourably compared to Spain and other benchmark mining regions.

Figure 4. Andalusia regional innovation performance, RES Scoreboard by indicator, 2019
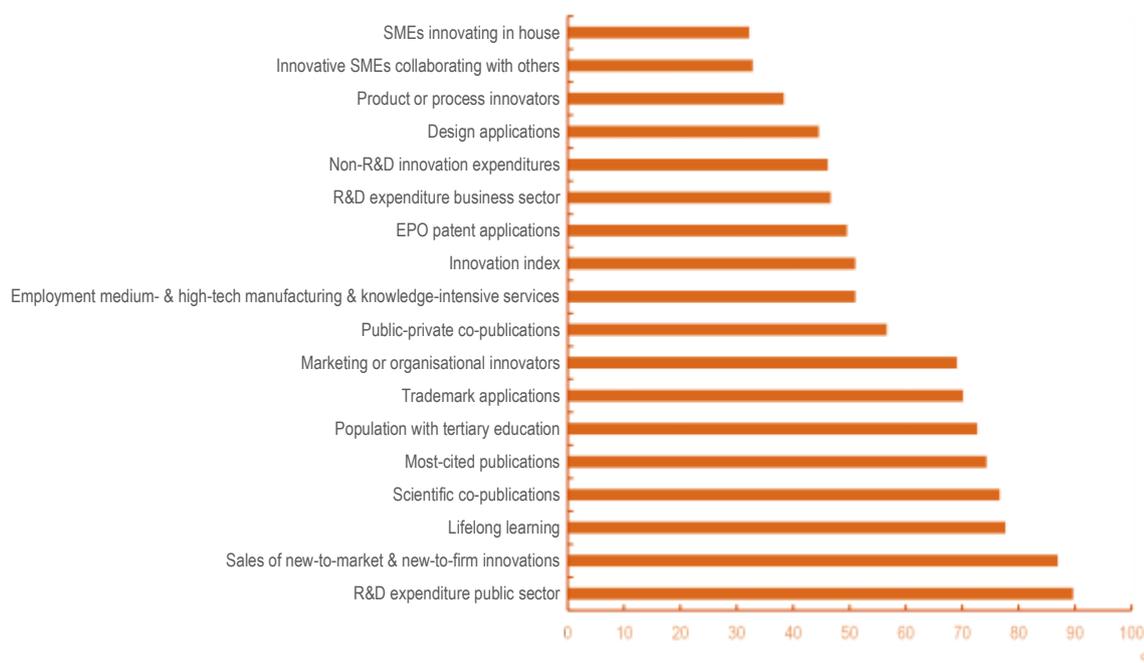
Note: 100 = European country average.
Source: EC (2020[25]), *RIS 2019 (database)*, https://ec.europa.eu/docsroom/documents/36081 (accessed on 23 February 2020).

Large share of SMEs and entrepreneurs in low-value-added activities…

Furthermore, the large majority of nascent entrepreneurs in Andalusia declare that their ventures do not generate innovations of any kind: no new products, nor services or innovative features thereof, no use of any novel technologies or market development[2].

Despite the growth of Andalusian mining sector over recent years, the share of new regional business within the extractive industries is relatively low, with most of new business creation taking place in tourism and non-tradeable services (shops, restaurants). The growth of business creation around mining is in fact pretty low for the weight of Andalusia's mining in the country. The regional's mining entrepreneurial activity in 2019 was less than half of the Spanish average, despite the fact that this national average is pulled down by those regions in Spain with relatively marginal mining sectors.

Relatively low levels of human capital

On the one hand, the share of the population with primary education in the region dropped in the last 2 decades from 61.3% to 46.9%, experiencing a significant increase to levels comparable to those of Madrid (47.3%). Yet this value remains remarkably higher than the OECD benchmark (19%).

In Huelva, the proportion of the population with only primary education (58%) is the highest among all TL3 regions of Andalusia, followed by Jaén (57.8%) and Cádiz (55.2%). Although tertiary education in Huelva

2 Spanish Entrepreneurship Observatory Association (2020), "Situation of entrepreneurship in Andalusia in the face of the COVID-19 crisis", Red GEM, https://www.gem-spain.com/wp-content/uploads/2020/10/Informe-GEM-covid19-andalucia.pdf

has managed to emerge from the low levels, the share of the labour force with at least tertiary education in this TL3 region (24.7%) is behind the provincial capital, Seville (33.2%).

A complex and unpredictable administrative process for mining at the regional level that relies on an outdated national regulation

Despite Andalusia's efforts to reduce response times in the permitting process (an objective of the regional mining strategy 2014-20), the average approval time of permits still lacks predictability, with the unclear directive of maximum response times and lack of standardisation on approval times for both concession and research permits. Delays in Andalusia also seem related to the legal vulnerability of public officials in charge of mining-related decisions linked to environmental appeals and legal actions against mining ventures. Finally, mining legislation relies on an outdated national law (1973 – prior to the Spanish Constitution of 1978 and the accession to the EU) with a number of legal guidelines issued at different times and without a legal co-ordinating document.
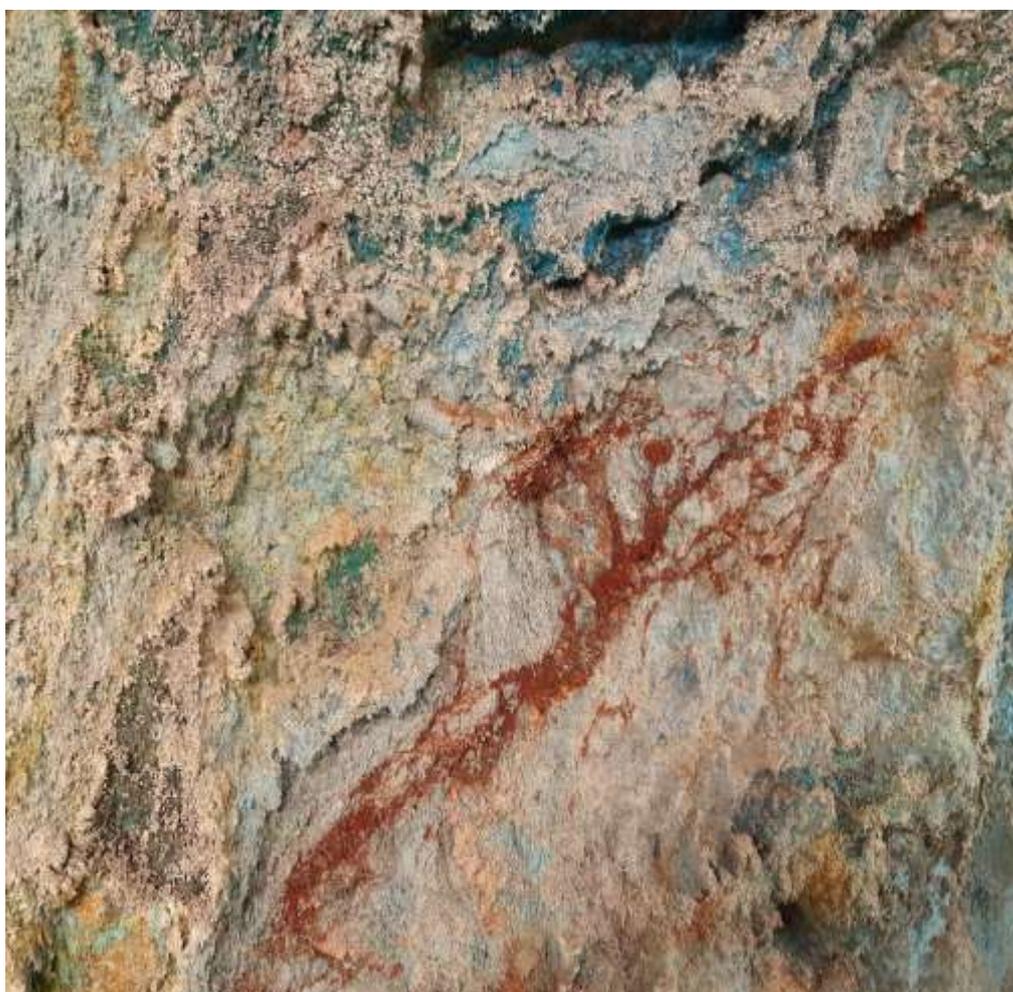
Note: Andalusia
Photographer: Manuel Vázquez

A national mining strategy could help better mobilise the potential of the Spanish mining sector to support sustainable development and EU climate goals in concerned regions

Spain is one of the few EU countries (e.g. Finland, Portugal, Sweden) with mining resources that does not have a national strategy on mining or minerals. Mining policy in Spain is a combination of regional mining policies, where regions are responsible for mining policy design, mining permit delivery and mining policy implementation. The Ministry for the Ecological Transition and the Demographic Challenge has a general monitoring role, mainly in charge of overseeing mining security, waste mining and issues related to mining processes when a mine is located across two regions. Since 2020, the national government has initiated a process to establish a road map for the sustainable management of raw materials.

Despite current efforts for national co-ordination, the lack of a national strategy on mining development leads to duplication of actions among regions and missed opportunities to spur synergies across regional mining ecosystems and among national policy strategies.

The national government has scope to perform a more active co-ordinating role in relation to mining policy, through a clear strategic vision on the role of mining for regional development and a policy approach that fosters regional co-operation on mining investment and promotes policy complementarities among mining and other national sectoral plans to boost innovation, attract investment and increase well-being.

Andalusia's updating process of its mining strategy is a unique opportunity to make the regional mining value chain a frontrunner in assisting the EU climate agenda and an engine of income and well-being

Andalusia's new Mining Strategy 2021-27, which is currently under development, can be an opportunity to overcome some shortcomings of the previous strategy (2013-20). Areas for improvement include establishing a clear and long-term vision for mining activities in the region, aligning it to regional development goals and identifying concrete outcome objectives with a clear timeframe for action. The new strategy should also address the need to enhance the engagement of municipal governments and communities and develop national and international networks.

Recommendations: A framework for action

The study has identified a framework for action based on 4 recommendations and 15 sub-recommendations to help Andalusia and Spain to **become an EU frontrunner on sustainable mining and accelerating regional growth and productivity.**

Figure 5. Framework for action

Andalusia' mining value chain as a frontrunner in the EU climate strategy and an engine to create high value-added jobs and safeguard the environment

Mobilising the strengths of Andalusia's mining ecosystem

- Update and make **Andalusia's geological information** more accessible
- Facilitate the **links with African and Latin-American** mining jurisdictions
- Better integrate urban and infrastructure plans with mining development plans
- Make the most of the **local mining identity** and heritage to strengthen community acceptance

Addressing challenges in Andalusia's mining ecosystem

- **Enhance innovation within Andalusia's** mining value chain for sustainable processes and technologies
- **Upscale and guide SMEs** towards activities of higher value-added
- Improve the **mining regulatory framework** and permit award process

Improving national coordination on mining development

- **Develop a national strategy** on raw materials and/or mining
- Improve the **financial and institutional capacity** of the Geological and Mining Institute

Making the most of Andalusia's updated mining strategy

- **Define a unified vision** of the role of mining for regional development
- Establish **concrete objectives with measurable targets** and a timeframe of actions
- Strengthen the **monitoring framework** of the new mining strategy
- Improve the involvement of **municipal governments and local communities** in the mining strategy
- **Unlock synergies** with other policy strategies and promote local networks
- **Boost collaboration** with other Spanish mining regions, EU mining initiatives and Portuguese mining regions

Mobilising the strengths of Andalusia's mining ecosystem to increase competitiveness and attractiveness for firms and workers.

For this, the regional government should:

1. **Update and improve the accessibility of Andalusia's geological information**, in collaboration with the Geological and Mining Institute of Spain. This involves improving the geological information on Andalusia's mining website, with special attention to the mapping of critical minerals.

2. **Facilitate and strengthen links with African and Latin American mining jurisdictions** to become a gateway to and from the EU in sustainable mining processes and technologies. In collaboration with mining business associations, this involves promoting networking and partnerships with those jurisdictions and their established companies as they seek to adopt sustainable mining practices and promote responsible sourcing of minerals to Europe.

3. **Better integrate urban and infrastructure plans with mining development plans** to improve the movement of goods and services for the mining sector as well as to avoid land use conflicts. This co-ordination could aim to enhance the transport efficiency of goods (e.g. ports, roads and railways) for metallic and non-metallic mining.

4. **Make the most of the local mining identity and heritage** to strengthen community acceptance and information on mining activities, while enhancing the mining business ecosystem, by:

- Enhancing the communication of mining benefits among local communities. To this end, the regional government together with mining business associations can promote dialogue among citizens and other actors (e.g. non-governmental organisations [NGOs], universities) within Andalusia's Mining and Minerals Hall event and before every mining project to share experiences on how to maximise the benefits of mining ventures for the local community.

- Partnering with universities and other local actors (citizens, municipalities and business representatives) to better engage with interest groups with a negative perception of mining.

- Improving the links between corporate social responsibility programmes of mining companies and regional development programmes through shared projects for local communities and ad hoc communication strategies.

Addressing challenges in Andalusia's mining ecosystem to unlock growth opportunities and assist the EU climate goals.

For this, the regional government should:

5. **Enhance innovation within Andalusia's mining value chain** to generate sustainable mineral transformation processes and technologies, by:

- *Promoting service innovation activities in the mining value chain*. Specific actions include:
  - Providing capacity and networking support to increase and upscale knowledge-intensive mining service providers. This requires establishing knowledge exchange mechanisms with foreign-based mining and manufacturing firms to upscale services offered by local mining service providers while helping them meet high standard procurement requirements. This should also involve developing capacity-building programmes for service providers on circular processes and technologies for environmentally sustainable metallic and non-metallic mining.
  - Establishing a testbed for mining firms and service providers to co-create projects and experiment. This can be beneficial to build collaboration among metallic and non-metallic

mining providers and firms. Andalusia's mines could be the lifelong learning laboratory for the local mining value system, inspired by the experience of Australia or Sweden.

- *Boosting the role of educational institutions and the public research sector* to support innovation and entrepreneurship for environmentally sustainable mining. Specific actions include:

  o Strengthening partnerships with universities in the region to promote research and academic programmes on technologies and circular practices that reduce carbon emissions in the mining value chain. This includes collaborating with universities to align their research programmes with regional mining strategy goals and industry needs. The regional government can learn from the partnership of Karlstad University and Värmland Region in Sweden.

  o Acting as a broker to facilitate the creation of an institutional platform to conduct R&D in mining. The platform could be co-coordinated by a body of private, academic and public representatives and should work through demand-driven projects from the private sector. This R&D platform can co-ordinate the testbed for the co-creation of projects, develop partnerships with existing regional incubators and promote intrapreneurship activities for companies and knowledge transfer between metallic foreign-based and non-metallic firms.

- *Improving skills in Andalusia to prepare its workforce and youth population for the future* needs of the mining industry and attain high-value-added jobs. Specific actions include:

  o Boosting training programmes in partnership with universities and industry associations to prepare the regional workforce and young generations for the upcoming demand of knowledge-intensive and environmentally sustainable mining activities. This could also involve vocational formation on traditional non-metallic mining activities. Practices from the Canadian Mining Innovation Council's "ReThink Mining" initiative can guide Andalusia.

  o Involving the young population in mining activities through a greater communication of employment opportunities in mining and promotion of internship programmes.

6. **Upscale and guide SMEs towards higher-value-added activities** in order to increase resilience and offer stable sources of income in the local economy, by:

- *Strengthening regional technical support programmes for SMEs to improve networks with large mining companies, build capacity and promote the internationalisation of mining providers and small non-metallic mining firms.* This involves enhancing financial (e.g. grants, co-financing) and training programmes for digital transformation and project collaboration with universities and firms..

- R*educing further administrative obstacles to SME creation and growth*. This involves strengthening capacity-building programmes to help SMEs navigate the regulatory environment in the region and promoting the digitalisation of administrative and fiscal processes..

7. **Improve the mining regional regulatory framework and permit award process** to enhance competitiveness and local community acceptability, while ensuring environmental protection. This action requires close collaboration with the national government.

  For this, the regional government should:

- Establish a formal co-ordination mechanism within the regional government to evaluate and deal with administrative processes for mining. This institutional tool (e.g. a one-stop-shop, a single decision-making body or a branch in the Project Accelerator Unit of Andalusia[3]) should gather officers from different regional ministries to accelerate mining administrative processes and

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[3] In 2019, the regional government of Andalusia created the Project Accelerator Unit to accelerate the administrative procedures of strategic projects. This unit promotes the streamlining of all the procedures of the Andalusian public administrations to process all projects of regional interest effectively and in less time.

improve co-ordination across regional regulations (e.g. environmental and land use) and with national and European legislation. This mechanism can also take stock on expert knowledge (universities or specialised consultants) to issue formal recommendations on the permit award process of mining projects.

- Create specific programmes to train government staff and provide digital solutions to improve mining administrative processes. These training programmes would benefit from partnerships with business associations from metallic and non-metallic mining to update the administration on the needs and benefits of a new type of mining operation.
- Set clear administrative timelines to deal with applications for new and expanded mining projects, including times for environmental evaluations. Timelines can be set in the regional mining strategy as a clear goal for improvement. Andalusia can find inspiration in the roadmap set by Canada.

For this, the regional government should:

- Update the national mining regulatory framework to make it more efficient and better integrated with other sectoral regulations, including environmental regulations and land use planning

Improving national co-ordination on mining to help attain EU strategic goals and support national and regional development and well-being:

For this, the Spanish national government should:

8. **Develop a national strategy on raw materials or mining**. This strategy should build on the ongoing process of developing the road map for the sustainable management of raw materials. The national strategy should include a long-term vision for mining development, clear mechanisms for co-ordination with other national development policies, tools to promote environmentally sustainable mining processes and technologies, as well as strategies to attract investors, improve communication and boost the well-being of local communities.

9. **Improve the financial and institutional capacity of the Geological and Mining Institute** to help co-ordinate the national mining strategy and boost its research and exploration activities. This institute can also help promote the Spanish mining value chain internationally. Spain may find of interest the structure and role of the Geological Survey of Finland.

Strengthening Andalusia's 2021-27 mining strategy to make the regional mining value chain a frontrunner in environmentally sustainable mining and an engine to increase income and well-being:

For this, the regional government should:

10. **Define a unified vision of the role of mining** for regional development by:
- Agreeing on a clear vision for mining development in the new mining strategy. This vision should be built through a consensus with different local actors, have a long-term timeline (e.g. 2050, in line with the EU Green Deal) and aim to mobilise all of the comparative advantages of the region.
- Enhancing the mining brand of the region and creating a plan to promote it internationally as part of the mining strategy. This brand and its promotion activities need to be developed and co-ordinated with other branding strategies and actors in the region. The brand should aim to attract new firms and skilled workers, based on an image of an innovative business environment that produces essential materials and know-how for the low-carbon transition.

11. Establish concrete objectives with measurable targets and a timeframe of actions in the mining strategy. This includes refining existing indicators and creating a timeframe for objectives by indicating which axis and action lines are a priority for the next few years (e.g. 2021-27) and which are inscribed in a longer timeline (2030).

12. Strengthen the monitoring framework of the new mining strategy by:

- Differentiating among outcome and output indicators to measure long-term objectives and operative tasks differently.

- Developing horizontal indicators that measure transversal objectives in the strategy and avoid duplication across specific tasks, while creating complementarities.

13. Improve the involvement of municipal governments and local communities in the mining strategy by:

- Aligning the new mining strategy with municipal development plans. This can be done through frequent, formal dialogue sessions with municipal governments and their early involvement in the development process of the strategy and its monitoring.

- Improving co-operation with municipalities through the proposed institutional platform for R&D in mining and the multi-stakeholder co-ordination platform for mining development.

- Including in the new strategy a guideline to structure and implement benefit-sharing mechanisms for mining in Andalusia. This includes identifying the models already used in the region and facilitates capacitation programmes for companies and communities to make the most of the benefit-sharing process.

14. Unlock synergies with other regional policy strategies and promote local networks to support a regional mining cluster based on innovation by:

- Establishing a formal mechanism within the regional government to better co-ordinate the different sectoral policies (e.g. aeronautic, industry, construction) with the aim to mobilise the innovative potential of the mining sector. This mechanism should gather representatives from different units of regional and municipal governments.

- Promoting in the new mining strategy the creation of a multi-stakeholder platform for mining development that gathers all relevant actors in the mining value chain to identify synergies and projects of common interest. This platform should have a role in the preparation and monitoring of the mining strategy. The platform can help promote network activities and the international visibility of actors. For this, the regional government can get inspiration from the Mining Finland programme.

15. Boost collaboration with Spanish and Portuguese mining regions as well as with EU mining initiatives to promote joint mining projects, enhance knowledge and funding access by:

- Developing partnerships with regional mining initiatives in Spain (e.g. the Iberian Sustainable Mining Cluster). The new mining strategy should map out the existing regional mining initiatives and specify the mechanisms to involve Andalusia in those initiatives to articulate common projects and promote a co-ordinated approach to reach European support programmes.

- Defining in the new mining strategy tools and flagship projects to materialise the co-operation with Portuguese regions in the IPB. This can involve a common strategy to attract investors and reach EU funding.

- Taking an active role in the EU mining networks to promote common projects with EU mining regions and consolidate Andalusia's role as the bridge for EU mining innovation and sustainable practices with Latin American and North African markets. This collaboration should also aim at improving the competitiveness and internationalisation of local SMEs in the mining ecosystem.

About the OECD

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

About CFE

The Centre for Entrepreneurship, SMEs, Regions and Cities helps local, regional and national governments unleash the potential of entrepreneurs and small and medium-sized enterprises, promote inclusive and sustainable regions and cities, boost local job creation and implement sound tourism policies.

About this booklet

This document summarises the key findings of OECD (2021), OECD Mining case study: Andalusia, Spain, OECD Publishing, Paris.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

For more information: https://www.oecd.org/publications/mining-regions-and-cities-case-of-andalusia-spain-47062327-en.htm

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