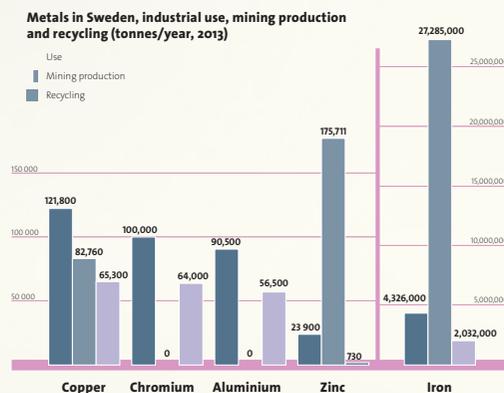


## Recycling

Recycling and reuse are among the most energy-efficient methods of reducing the impact of the mining and minerals industry on the environment. In Sweden we recycle much of our metals, but we can and must recycle even more.

Scrap metal, mining waste, other industrial waste and ageing urban infrastructure are examples of recycling sources. We recycle not only metals produced in Sweden, but also many of the materials that are imported.

But recycling does not suffice to meet growing demand for metals and minerals in Sweden and across the globe. Recycling and mining operations are both needed.



## Geology everywhere

Current living standards in Sweden owe much to the fact that we have been able to mine and use the rich metal and mineral assets present in the country. The first blast furnace used to make iron was built in Sweden as long ago as the 12th century. From the Middle Ages onwards Sweden was Europe's main producer of iron and copper. Even today we remain the main producer of iron ore in the EU. We also produce significant quantities of lead, zinc, copper, gold and silver.

We are still entirely dependent on natural resources, domestic and imported. In fact, our per capita use of natural resources continues to rise:

- Metals are present in most of the products we use – everything from forks and bicycles to smart phones and solar panels.
- Industrial minerals such as limestone, feldspar and quartz are used in clothes, medicines, building materials, glass, electronics, etc.
- Aggregate is the name used for gravel, sand and crushed bedrock. Aggregate is needed for homes, roads and railways, and is one of the main components in asphalt and concrete.
- Dimension stone is used in building facades, for worktops, floors, gravestones and for many other purposes.
- Production of energy peat in Sweden reduces the need to import and use oil and coal.

## Facts about Minerals & metals in Sweden 2017



**SGU**  
Sveriges geologiska undersökning  
Geological Survey of Sweden

## Rock, soil and groundwater

SGU is the government agency responsible for issues relating to bedrock, soil and groundwater in Sweden. Our mission is to meet society's need for geological information. This includes producing annual statistics on the quantity of metals, minerals and aggregate produced in Sweden.

This folder provides an overview of what is produced and in what quantities. The information has been obtained from SGU reports: Bergverksstatistik, Grus, sand och krossberg och Energitorvproduktion ("Statistics of Swedish Mining Industry", "Aggregate" and "Production of energy peat", published 2016).

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## From exploration to mine

It takes several years for a mineral deposit to become a mine. Somewhat simplified, this is how it works:

- 1 You have an idea of where a deposit might be located. You can find useful data and maps in i SGU databases. 
- 2 An application for an exploration permit is submitted to the Mining Inspectorate of Sweden. The inspectorate grants or refuses the application.
- 3 A work plan showing how operations are to be carried out must be produced and communicated to stakeholders.
- 4 If mining is considered appropriate, the inspectorate will grant an exploitation concession.
- 5 The Land and Environment Court considers applications for environmental permits under the Environmental Code. Permits are granted on condition that the applicant put up a bond to cover clean-up costs. 
- 6 The Mining Inspectorate allocates land for mining purposes under the Minerals Act.
- 7 The municipality grants building and land permits under the Planning and Building Act. 
- 8 Mining can begin.

## The total area in Sweden covered by...

- Reindeer herding 22,850,000 hectares
- National parks, nature reserves 4,165,600 hectares
- Quarries and gravel pits 47,300 hectares
- Golf courses 35,000 hectares
- Parking spaces 22,000 hectares
- Exploitation concessions 20,000 hectares
- Trade and business activities 19,000 hectares
- Mines (under the Minerals Act) 9,000 hectares

Sources: Geological Survey of Sweden och Statistics Sweden



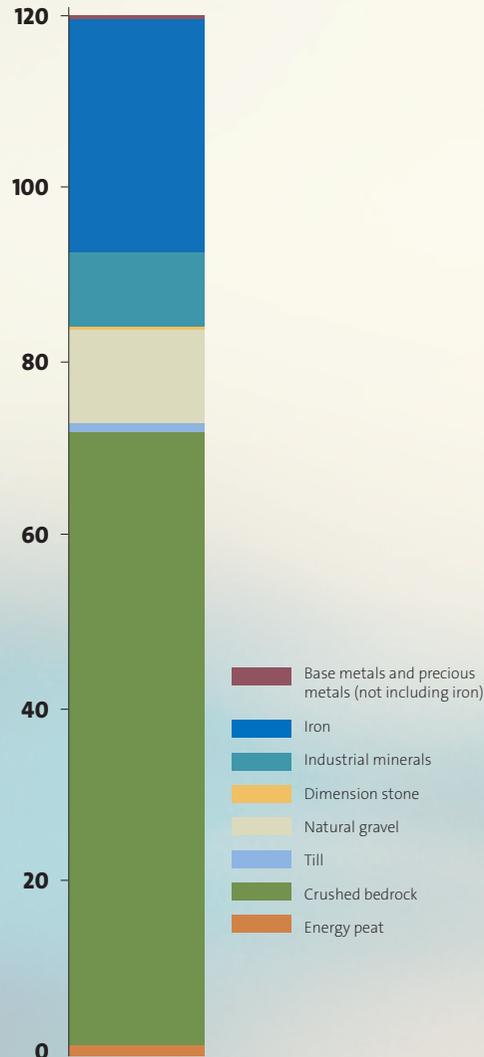
The surface area of Sweden is approximately 44,742,000 hectares

## Metals, minerals and aggregates

Each year some 120 million tonnes of minerals are produced in Sweden, having a total value of about SEK 40 billion. Iron production accounts for the greatest economic value, with crushed bedrock a good second, closely followed by the base metals copper and zinc. Iron drops to second place by volume. The greatest volume produced is of aggregate made from crushed bedrock.

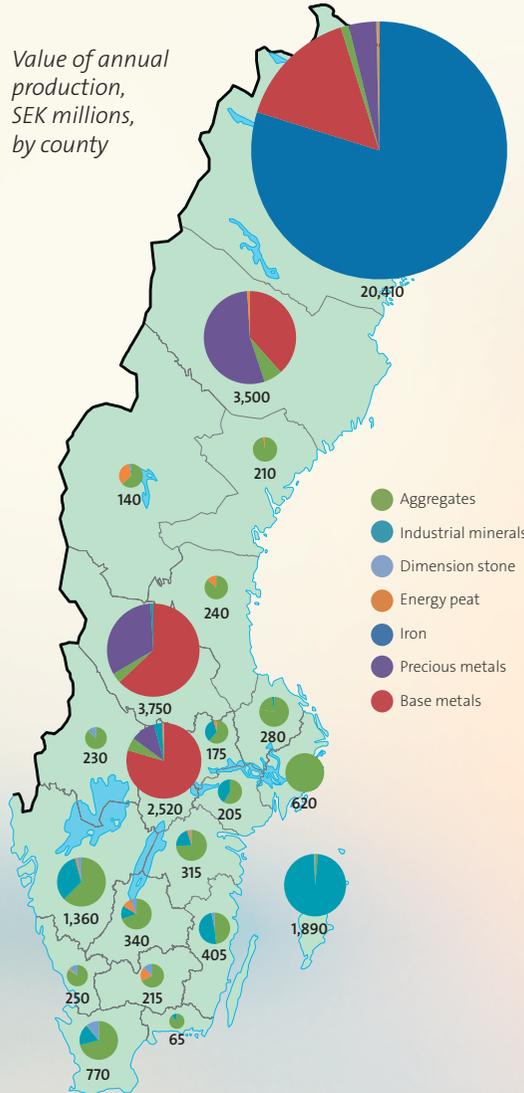
Total production occupies an area of just over 800 square kilometres, equivalent to two-thirds of the island of Öland in the Baltic Sea. The minerals industry employs over 9,000 people at just over 1,400 sites.

Annual production, millions of tonnes



## Metals in the north and aggregates in the south

In terms of value, most minerals are produced in Norrbotten County, northern Sweden. Iron and copper predominate. In southern Sweden, particularly in the densely populated conurbations, aggregate production predominates. On the island of Gotland industrial limestone production is the most important in economic terms, being worth just under SEK 2 billion.



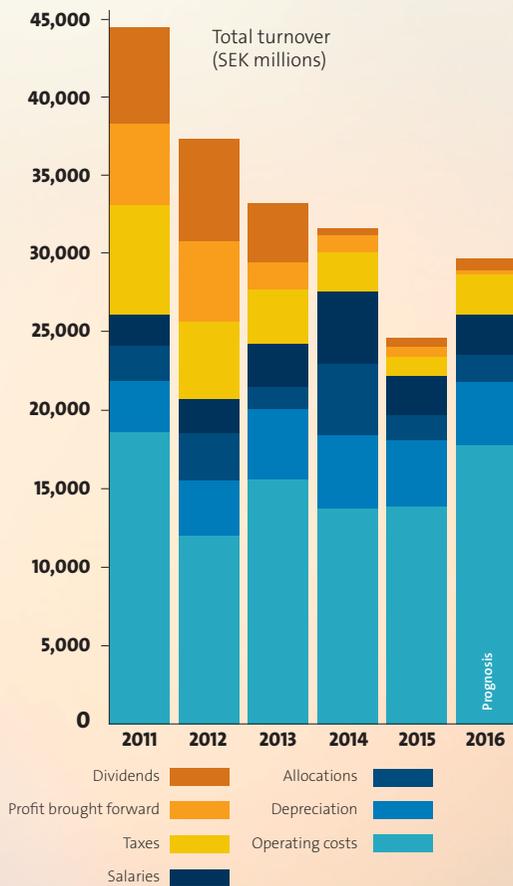
**What is aggregate?** Aggregate is the name for gravel, sand and crushed bedrock. Aggregates are used in concrete, asphalt, as a filler and as railway track ballast, among other things.

## Sustainable mining

In the early 20th century there were about 500 mines in Sweden. Today, 100 years later, the number has fallen to 13 operating metal mines (2016); yet total production has more than doubled. This is mainly due to new technologies and new methods. The quickening pace of technological development, combined with more stringent environmental standards and other factors, is leading to safer, more efficient and more sustainable operations.

The mining sector generates revenues for the state in the form of taxes and, where the state holds a stake, dividends.

Mining sector turnover and dividends in 2016



The mining sector employs over 6,700 people (not including sub-contractors), of whom approximately 19 percent are women.

