

sion them. Its remit is to distribute state subsidies to programmes that satisfy the regulatory requirements in terms of available resources, and to have a supervisory role. Considerable emphasis is placed on the skill requirements being documented and on the programmes being on the tertiary level. The mining and minerals industry is not a defined vocational field within higher vocational education. It is instead included in Technology and Manufacturing, Transport Services or Community Planning and Construction Technology depending on the programme focus. Between 2008 and 2011, Technology and Manufacturing has seen the biggest increase in the number of students. There is currently a handful of programmes directly focused on mining work/mining technology within these three areas.

It can be ascertained that the number of applicants to graduate engineering programmes has risen in recent years. In order to make use of the interest and skills of technology students, the Government has increased the number of places on graduate engineering programmes at universities and university colleges. In 2013, the number of places on current programmes will have risen by 600 first-year places compared to 2011. Universities and university colleges are themselves responsible for deciding the dimensions of their programmes and it is the needs of the labour market and the students' own choices that are to influence the range of programmes on offer. If the demand for engineers increases, universities and university colleges should therefore allocate greater priority to these programmes.

In the global economy, the availability of knowledge and skills is of crucial importance for the innovativeness and competitiveness of countries, regions and individual enterprises. The mobility of individuals between sectors, labour market regions and countries has also become a strong competitive factor. A key priority is therefore to safeguard a good skills supply on the national, regional and local level alike. This is important not least for the expanding mining industry in different parts of the country.

Actors with a responsibility for regional development in all Swedish counties have, at the



*Jingjing Jiao, geology student at Uppsala University, studies and samples bore cores from Blötberget in the SGU borecore archive in Malå.
Photo: Erik Jonsson/SGU.*

behest of the Government, established regional skills platforms for collaboration in skills supply and education planning in both the short and the long term¹⁵. How far the counties have progressed regarding this task varies somewhat. Furthermore, in total compliance with the task they have received, the counties focus on different things depending on their varied regional priorities. In the start-up phase, most of the counties have focused on creating a knowledge base in the form of relevant forecasts and needs analyses, sometimes general in nature and sometimes more industry-specific. The priority industries in the majority of the counties are technology and manufacturing, IT and health and social care. In Norrbotten County, the actors in the skills platform have agreed to focus on the mining industry and its various support sectors.

The Government takes a long-term view of the work to achieve an efficient organisation and good cooperation within the framework of the regional skills platforms. Within the framework of its policy for regional growth, the Government has therefore decided to invest SEK 60 million (EUR 7.2 million) in 2013-2016 to strengthen and further develop the regional skills platforms as important tools to safeguard skills supply across the entire country. Within the framework of the regional skills platforms, the counties cooperate with

¹⁵See key facts on page 29 for information on actors.



Stores of blast-furnace slag, SSAB Tunnpåt, Luleå. Photo: Stig-Göran Nilsson, Jernkontoret.

both neighbouring counties as well as with other regions whose conditions are similar to theirs. Current work commuting for functional labour market regions is far more important than formal county borders. A limitation caused by the current county boundaries is that it can lead to over-dimensioning in the education sector with the associated risks of locking effects and mismatch on the labour market. According to the Swedish Public Employment Service, it is unusual for people with special skills to move around between different enterprises. Interregional coordination is therefore necessary in a long-term cross-border matching perspective. Such a perspective not only combats any mismatch problems but also makes it easier to coordinate the measures that the labour market policy can solve in the short term with education policy measures that need to be taken in the longer term.

To guarantee the skills supply needs of the industry and the regions, it is proposed within the framework of the minerals strategy that:

- As part of its remit to promote sustainable growth and entrepreneurship in the mining and minerals sector, SGU be given the task of leading a project stretching over several years to increase knowledge about the role of geology in society and its significance for growth in all parts of the country. Businesses are to be given the chance of participating in this project provided that they cofinance it. The participation and cofinancing of the business sector will help to highlight the industry as a workplace. Financing options via different EU funding instruments should be utilised.
- Actors with a responsibility for the regional skills platforms in the relevant counties be given the task of drawing up a com-

mon plan for how to meet the long-term skills supply needs of the mining and minerals industry in the respective regions. The platforms will be allocated resources to allow them to produce the necessary background documentation. The work should be characterised by coordination and a cross-border perspective.

An internationally renowned, active and attractive mining and minerals industry

Historically, foreign capital and foreign skills have played an important role in the development of the Swedish mining industry, even though it was dominated by Swedish enterprises for most of the twentieth century. Since the beginning of the 1980s, however, an increasing number of foreign enterprises have expressed an interest in mineral exploration and mining operations in Sweden, especially once the state's half-share in a mining concern and the requirement for a special permit allowing overseas citizens to acquire mineral rights were abolished at the beginning of the 1990s.

The Geological Survey of Sweden (SGU) assists prospectors and other enterprises by supplying them with advanced geological data. Material produced during state-financed mineral exploration over the last one hundred years is stored at the SGU local office in Malå along with material from private exploration activities since 1999. From 2012 onwards, the Government has allocated extra funding to SGU of SEK 30 million (EUR 3.6 million) per year over four years to further improve mineral data. Measures implemented include the digitalisation of archive material and the scanning of core samples that can be accessed via web-based technologies.

Sweden is a small, export-dependent coun-

try. To maintain the country's position as both the leading mining and mineral nation in the EU and as a world-leader in certain segments, internationalisation is of the utmost importance. The Swedish mining brand is characterised by innovation, cost-efficiency, quality and sustainability. Sweden's strong global brand in the mining industry should be used to further strengthen the country's large-scale enterprises while utilising the opportunities for small and medium-sized enterprises (SMEs) to develop into the mining companies of the future. There is potential to widen service exports, e.g. concerning green, resource-efficient and energy-efficient technology, to attract investment in Sweden, and to export Swedish knowhow in recycling and sustainable business operation.

There are currently several different, though interlinked, activities in the EU to strengthen European access to metal and mineral raw materials. One of these activities is the start-up of a European Innovation Partnership on Raw Materials, in which Sweden, via the Government, is represented in the partnership's management group. The Swedish EPA, SGU and the National Innovation Systems Agency (Vinnova) have been given the task to assist the Government in its work with the Innovation Partnership. Another activity is the planned Knowledge and Innovation Communities (KICs) within the European Institute of Innovation & Technology. Various communities working on metal and mineral issues on the international level have already been established, such as advisory groups to DG Enterprise, the international metal study groups and various UN-led configurations. It is important that Sweden is active in the relevant international communities and that Swedish standpoints have an impact in the ongoing international discussions.

A good supply of capital and promotion of investments

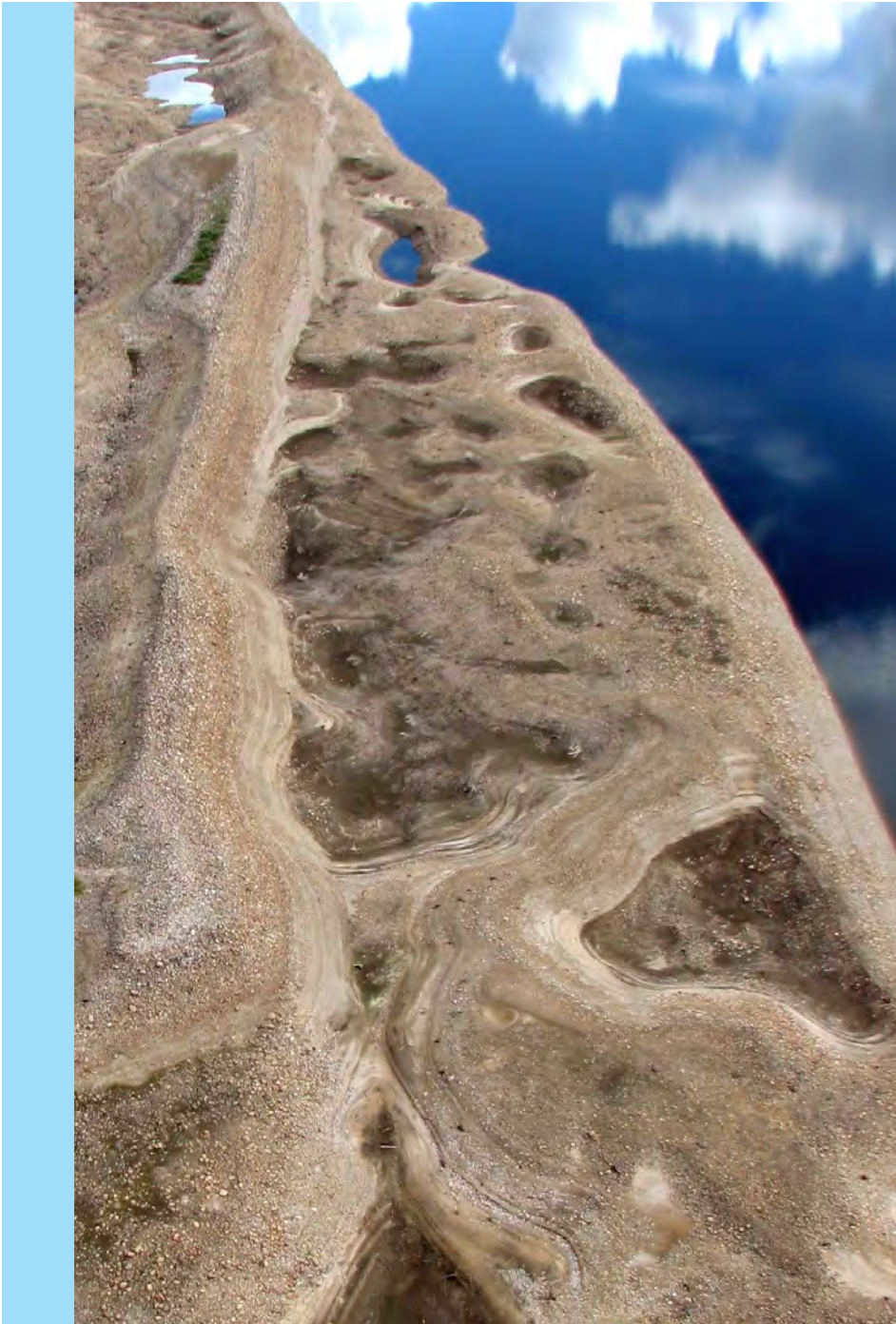
Objective: To promote Sweden's attractiveness as a mining nation and to improve the investment climate

An efficient capital supply system is crucial for the start-up and growth of businesses all over Sweden. Initiatives to promote the funding of enterprises are hence an incontro-

vertible part of the Government's efforts to improve the business climate. In addition to good framework conditions and a well-developed system for private financing, supplementary market financing shall, via central government actors, contribute to a better funding situation at those stages and in those segments where the private market is only involved to a limited extent. The Swedish Export Credits Guarantee Board and SEK (Swedish Export Credit Corporation) are bodies that promote Swedish exports by providing competitive financing solutions aimed at facilitating export-related transactions. The Swedish Export Credits Guarantee Board is increasingly providing active support to Swedish enterprises that supply equipment to the mining industry all over the world, both for direct mineral extraction and for transport and other types of contracting equipment linked to mines. Guaranteeing these business transactions creates opportunities for enterprises to cover their risks, offer export financing and thereby increase their exports. There is a demand for export credits to cover risks both in OECD countries and on less developed markets. The Swedish Export Credits Guarantee Board works together with other agencies and participates in both domestic and international conferences to highlight the opportunities that export credits can offer.



Koster diabase off the coast of Bohuslän. Photo: Thomas Eliasson/SGU.



*Glacial river sediment, ridge with kettle holes in Trängseldammen, Dalarna, 2006.
Photo: J-O Svedlund/SGU.*

Seen in an international perspective, Sweden is relatively well-off when it comes to both public and private risk capital. Areas where there is currently a relatively small amount of both private and public capital include the early stages of an enterprises development and concerning larger-scale projects with long lead-times and where financial yield takes a long time to materialise. Against this background, the scope for direct investment in

the mining industry is in certain cases limited since investment of this nature is capital-intensive and characterised by long lead-times.

The newly established enterprise Inlandsinnovation AB started operating in 2011 and is active in Support Area A (The inland districts of northern Sweden and parts of northern Dalarna and northern Värmland). The enterprise has an explicit mission to invest in business projects with a longer investment horizon and

more substantial undertakings, where other financiers cannot underwrite the entire project themselves, something which is a common scenario in mining and mineral investments. The enterprise's equity amounts to SEK 2 billion (EUR 240 million), which suggests that Inlandsinnovation AB can only help finance the construction and operation of new mines to a very limited extent since investments of this type are very capital-intensive. On the other hand, it is possible for the enterprise to finance exploration activities, on condition that it views the financial risk as defensible. In its 2013 Budget Bill, (Govt Bill 2012/13:1, expenditure area 24), the Government announces that the geographical investment mandate of Inlandsinnovation AB is to be expanded to include other parts of Support Area A. An extended investment mandate will enable Innovation AB to work to a greater extent in environments that drive forward renewal and innovation in northern Sweden. This will in all likelihood enable Inlandsinnovation AB to promote more clusters of existing and new enterprises, in e.g. the mining and mineral field.

Government financiers can promote the establishment of new mines by helping to finance different types of activities associated with such establishments. This might consist of support industries to provide the mining industry with the goods and services it requires or consist of basic service industries to make it attractive for people to live close to the mine, as well as for other businesses to ensure an overall well-functioning labour market. It may also consist of more innovation- and knowledge-intensive activities linked to the mining industry, with the aim of developing products and services to increase productivity and profitability in mine exploration, mine establishment and mine operations.

To promote capital supply and investment, it is proposed within the framework of the minerals strategy that:

- The Swedish Agency for Growth Policy Analysis be given the task of analysing Sweden's attractiveness and investment climate as a mining nation and to identify which factors have a particular impact on this. The analysis should include an international perspective and include an analysis of how conditions can be

created to combine a long-term sustainable mining industry in Sweden with an investment climate that can attract overseas investors.

Greater participation in the international arena

Objective: To ensure that Sweden is an internationally well-known mining nation that participates actively and successfully in relevant international communities where mining and mineral issues are discussed. Exports of mining equipment and recycling and underground technology are to be promoted.

Business Sweden works together with enterprises and other actors in the mining sector to strengthen Sweden's mining industry. International conferences, seminars and delegations are arranged, in cooperation with agencies and enterprises, aimed at highlighting the Swedish mining industry and finding new markets for Swedish suppliers of underground technology and mining equipment. In its guideline decision on investment promotion, the Government has tasked Business Sweden to help implement the Swedish minerals strategy. In order to promote exports and investment in Sweden as a mining nation even more clearly, an active tool in the form of a marketing and communication platform, is being developed with the aim of presenting different activities and initiatives carried out in the field in a uniform fashion. Such an initiative should include mining enterprises, companies who supply equipment and services to the mining sector and enterprises that develop recycling technologies. These industries are close-knit and strong Swedish suppliers of mineral extraction technology contribute to a strong domestic market and make the Swedish mining industry competitive. The initiative may act as a catalyst for increased trade by presenting the Swedish mining sector internationally in a uniform and logical way, in the form of a platform. A number of specific areas should be highlighted in the platform; areas where Sweden and Swedish enterprises are well placed and where there is demand from the rest of the world. For individual enterprises, the platform can put their products and

services in a bigger context. Individual enterprises can also use the platform for sales and customer contacts.

At the Swedish Ministry for Foreign Affairs, the Office for Project Export (PES) is working closely with the Ministry's geographical departments and Swedish missions abroad on strategic, targeted initiatives to promote Swedish project exports and other types of business deals in industries where Sweden has a competitive edge, including the mining sector. In order to promote exports of system solutions, products and services in the mining sector, PES can cofinance strategic, targeted initiatives on fast-growing markets in Africa, Asia, Central Asia, Latin America and the Middle East.

International work can also be based on a long-term development assistance perspective. SGU is currently involved in projects financed by the Swedish International Development Cooperation Agency (Sida)¹⁶, together with countries in Africa to stimulate and strengthen emerging relationships between Swedish actors and actors in the participating countries. This work shall contribute to good management of mineral resources which creates better conditions for sustainable growth in developing countries, economically, socially and ecologically.

It is crucial for the Swedish agencies affected to monitor and participate in the development that is taking place under the management of various international bodies so that they can quickly identify and keep abreast of changes in the minerals area as regards e.g. demand. International trends should be linked to the national minerals strategy at an early stage in order to influence and supplement national thinking. Sweden is currently making an active contribution in various international forums in order to develop international standards and principles on business ethics and corporate social responsibility. It is also important to assert Swedish potential and role as a leading mining nation and international cooperation and commitment should increase, not least to create synergies and exchange with our Nordic neighbours. To achieve maximum success in the international work on raw materials issues in the various configurations, information needs to flow

freely between participating national representatives and the issues need to be as coordinated as possible.

To increase the participation of the Swedish mining and minerals industry in the international arena, it is proposed within the framework of the minerals strategy that:

- Business Sweden, in cooperation with the relevant actors, should investigate the conditions for establishing a communication and marketing platform. The platform is to include a web-portal that presents ongoing activities and projects aimed at internationalising the Swedish mining industry while at the same time placing Sweden in the international vanguard of mining nations.
- SGU be given the task of, in cooperation with Sida, putting forward proposals for how Sweden and Swedish enterprises can contribute to the development of a sustainable mining industry and good management of the mineral resources in developing countries, e.g. by means of actor-driven cooperation. As part of the work, SGU's experience of participating in the Meeting Points Mining and Meeting Points Mining /Systematic Facilitator Services projects should be considered.
- A survey and analysis of countries which the Government feels it may be interesting to have more in-depth contact with in the mining and minerals area should be implemented. This survey and analysis must make it clear which Swedish enterprises are already active in those countries that are deemed to be of particular interest. The survey can also include how Swedish experience of a sustainable mining and minerals industry can help to strengthen management practices and the institutions in the minerals area in a purposeful way. Based on the survey, an action plan is to be drawn up stating which issues are to be discussed in dialogue with identified countries, taking the countries' democratic development into consideration.

¹⁶Meeting Points Mining (MPM) och Meeting Points Mining/Systematic Facilitator Services (MPM/SFS) (<http://www.meetingpoints-mining.net/>).

Implementation of the strategy

The Swedish Minerals Strategy has been developed with the support of the Geological Survey of Sweden, SGU. During the process, challenges, strengths and measures have been identified in an open dialogue together with actors from the industry and with other who contribute to or are affected by the industry's operations.

In early 2012, the Minister for Enterprise issued an open invitation for actors to describe in writing their expectations of the minerals strategy. About forty written contributions were submitted from enterprises, agencies and interest groups. These have been analysed within the Government Offices and are publicly available on the Government's website (www.regeringen.se/mis).

In addition, four dialogue meetings have been arranged to discuss areas that, based on the analysis of the contributions, have been deemed of particular importance to discuss within the framework of the strategy. These meetings have been open to anyone interested in taking part and each one has attracted between 80 and 100 delegates.

Action plan

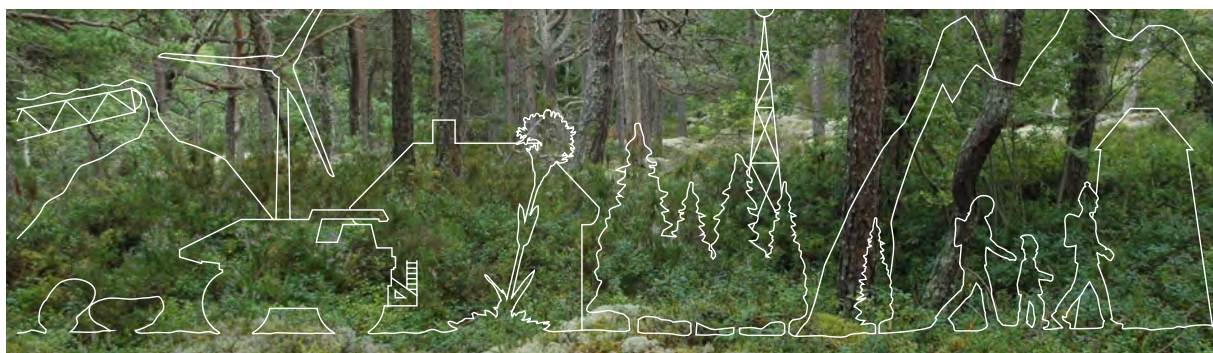
In the minerals strategy, the Government highlights strategic areas that have been identified as being of special importance for discussion, in order to strengthen the Swedish mining and minerals industry in a long-term sustainable way and to utilise the opportunities presented by the current strong international demand for metals and minerals. These

strategic areas have been identified from a time-perspective of ten years based on current prerequisites and framework conditions. The descriptions of the strategic areas are partly of a general nature, while other parts contain concrete proposals for measures, where such proposals have been possible to formulate. Based on further work on the strategy, more measures are to be identified, concretised and carried out.

To aid further work, an action plan has been established based on the measures proposed within the framework of the strategy. These measures are described in Chapter 6 and listed in Chapter 8. Additional measures are to be identified in a continuous dialogue with the relevant actors and within the framework of the work done by the national minerals forum, the establishment of which is proposed as one of the measures.

Monitoring of the strategy's implementation and goal achievement

One of the measures proposed within the framework of the strategy is to establish a national minerals forum to monitor implementation of the strategy. It is proposed that one of the tasks of the forum be to monitor and evaluate the measures initiated as a result of the strategy. The forum is also to identify new measures that need to be taken to strengthen the Swedish mining and minerals industry. It is the Government's intention to review implementation of the strategy on an annual basis.



List of proposed measures

In order to increase the resource efficiency of the mining and minerals industry, it is proposed within the Swedish minerals strategy that:

1. SGU be given the task of performing an analysis of the extraction and recycling potential for various metal and mineral assets in Sweden in partnership with the Swedish EPA and with the support of the mining and recycling industries. The analysis is to be linked to the total supply requirement in the whole of Europe. The findings of such an analysis could form one of several bases to stimulate more efficient use of Swedish metal and mineral resources, show how Sweden can contribute to the European sales situation and identify potential business opportunities.

2. SGU be given the task of working together with the Swedish EPA, with the support of the Swedish Transport Administration and the National Board for Housing, Building and Planning, to submit proposals for how a system for reporting shot rock production data can be designed and used together with data that has already been compiled on the production of crushed rock and natural gravel. Improved statistics on ballast production including shot rock will help provide a better planning basis and better monitoring of the target to reduce natural gravel use.

To promote greater cooperation and synergy between the mining and minerals industry and other industries, it is proposed within the minerals strategy that:

3. The Norrbotten County Administrative Board be given the task to head a project to develop a manual for consultation and communication between reindeer husbandry and the mining industry during the permitting process for exploration and exploitation. Both the industries' sector organisations, the Sameting (Sami Parliament) and the Mining

Inspectorate of Sweden, are to be given the opportunity to take part in this project.

To promote attractive natural and cultural environments in new and existing mining communities, it is proposed within the framework of the strategy that:

4. The Swedish National Heritage Board to be given the task of developing, compiling and disseminating best practice as regards how to utilise the cultural environment and make it into an important resource in areas where mines are reopening. This task should also include striving to ensure that cultural heritage is utilised by both the mining industry and tourism and promoting collaboration between them. The task should focus primarily on Bergslagen and be performed in cooperation with the relevant county administrative boards, actors that are responsible for coordinating regional growth initiatives, and in consultation with other interested parties.

To help promote societal development and regional growth, it is proposed within the framework of the strategy that:

5. The Swedish Agency for Economic and Regional Growth be given the task of establishing and implementing a national programme for support when planning major investments from the business sector. The programme shall aim to promote knowledge building, stimulate dialogue, cooperation, the exchange of experiences and coordination between municipalities and public actors on the regional and national level. The programme shall also aim to identify and manage the requirements of such a major business sector investment so that existing resources are used more efficiently in order to meet the requirements.

6. The Swedish Agency for Economic and Regional Growth be given the task of, in

cooperation with the Swedish EPA, to produce a manual for municipalities in which new large-scale mines are about to be set up or in which existing mining and quarrying activities are to be expanded. The manual shall list the measures that need to be implemented by the municipality and will act as an aid to the municipality in the dialogue with the developer. The manual shall also show how the process can be managed and hence how a set of common objectives can be created in partnership with the developer.

7. The National Board of Housing, Building and Planning be given the task of reviewing the obstacles that are preventing an increase in housing production and what experience there is of how municipalities have managed housing construction, coupled to the expansion of the mining industry.

8. SGU be given the task, within the framework of its responsibility for the environmental quality objectives, of further developing and finalising the work that is underway at the agency to develop a methodology for how regional material supply plans can be implemented. SGU shall also support the county administrative boards in their use of the methodology as well as the map service that is being developed for the purpose.

To help stimulate dialogue and clarify the division of responsibility, it is proposed within the framework of the strategy that:

9. A national minerals forum be established to follow the implementation of the Swedish Minerals Strategy and with the task of identifying supplementary measures to achieve the strategy's objectives and vision. The forum is to promote dialogue among stakeholders, provide opportunity for exchanging information and experience and coordinate business intelligence and analysis activities. The forum is to be led by the Minister for Enterprise and gather together companies in the mining and minerals industry, municipalities, stakeholders who are responsible for coordinating regional growth promotion, authorities and sector organisations/interest groups that are affected by and contribute to activities in the mining and minerals industry.

To help improve and clarify the regulations on mineral extraction, it is proposed within the framework of the minerals strategy that:

10. The Swedish Agency for Growth Policy Analysis be given the task to, first of all, follow up the actions that have been initiated and implemented. When doing this task, the Agency shall take the experiences of business operators into consideration. Secondly, the Agency shall, where it is possible, evaluate the effects of the actions, which includes assessing whether government funding has been used efficiently. Thirdly, the work is to include an international comparison between the environmental assessment processes and regulations of relevant countries when it comes to mining and quarrying operations. The work shall include a comparison of lead times in the permitting processes.

11. The Norrbotten County Administrative Board be given the task of running a pilot project in 2013 to investigate how a comprehensive plan covering several municipalities can be developed aimed at providing support to the municipalities in their detailed planning work. This task is to be performed in consultation with the county's municipalities. The benefit of such an approach is to be evaluated within the framework of the task.

To help create a robust infrastructure that meets the needs of the mining industry, it is proposed within the minerals strategy that:

12. The Swedish Transport Administration, as part its task to investigate new electric propulsion systems for trucks on the road, makes use of the lessons learned from previous and ongoing projects within the Programme for Strategic Vehicle Research and Innovation (FFI). Field tests and pilot facilities are important development steps to ensure the technology is ready for full-scale use.

To further stimulate research and innovation in the mining and minerals industry, it is proposed within the framework of the minerals strategy that:

13. Vinnova be given the task of performing a subject review of the mining and minerals research area in cooperation with the Swedish Research Council. This review should contain a biometric evaluation and a survey

of historical and future research initiatives in the mining and minerals area. The survey is to identify recycling and substitution initiatives, for which progress reports are to be presented in 2013 as a basis for the work done within the European Innovation Partnership on Raw Materials. Sweden's strengths and challenges within mining and minerals research in an international perspective are to be identified and the strategic benefit of implementing initiatives on these is to be assessed. The task shall also include submitting proposals for how to improve forms of cooperation among research actors in the mining and minerals area.

To guarantee the skills supply needs of the industry and the regions, it is proposed within the framework of the minerals strategy that:

14. As part of its remit to promote sustainable growth and entrepreneurship in the mining and minerals sector, SGU be given the task of leading a project stretching over several years to increase knowledge about the role of geology in society and its significance for growth in all parts of the country. The business sector is to be given the chance of participating in this project provided that they cofinance it. The participation and cofinancing of the business sector shall help to highlight the industry as a workplace. Financing options via different EU funding instruments should be utilised.

15. Actors with a responsibility for the regional skills platforms in the relevant counties be given the task of drawing up a common plan for how to meet the long-term skills supply needs of the mining and minerals industry in the respective regions. The platforms will be allocated resources to allow them to produce the necessary background documentation. The work should be characterised by coordination and a cross-border perspective.

To promote capital supply and investment, it is proposed within the framework of the minerals strategy that:

16. The Swedish Agency for Growth Policy Analysis be given the task of analysing Sweden's attractiveness and investment climate as a mining nation and to identify which factors have a particular impact on this. The analysis should include an international perspective and include an analysis of how con-

ditions can be created to combine a long-term sustainable mining industry in Sweden with an investment climate that can attract overseas investors.

To increase the participation of the Swedish mining and minerals industry in the international arena, it is proposed within the framework of the minerals strategy that:

17. Business Sweden, in cooperation with the relevant actors, should investigate the conditions for establishing a communication and marketing platform. The platform is to include a web-portal that presents ongoing activities and projects aimed at internationalising the Swedish mining industry while at the same time placing Sweden in the international vanguard of mining nations.

18. SGU be given the task of, in cooperation with Sida, putting forward proposals for how Sweden and Swedish enterprises can contribute to the development of a sustainable mining industry and good management of the mineral resources in developing countries, e.g. by means of actor-driven cooperation. As part of the work, SGU's experience of participating in the Meeting Points Mining and Meeting Points Mining /Systematic Facilitator Services projects should be considered.

19. A survey and analysis of countries which the Government feels it may be interesting to have more in-depth contact with in the mining and minerals area should be implemented. This survey and analysis must make it clear which Swedish enterprises are already active in those countries that are deemed to be of particular interest. The survey can also include how Swedish experience of a sustainable mining and minerals industry can help to strengthen management practices and the institutions in the minerals area in a purposeful way. Based on the survey, an action plan is to be drawn up stating which issues are to be discussed in dialogue with identified countries, taking the countries' democratic development into consideration.

Economic significance of the minerals industry

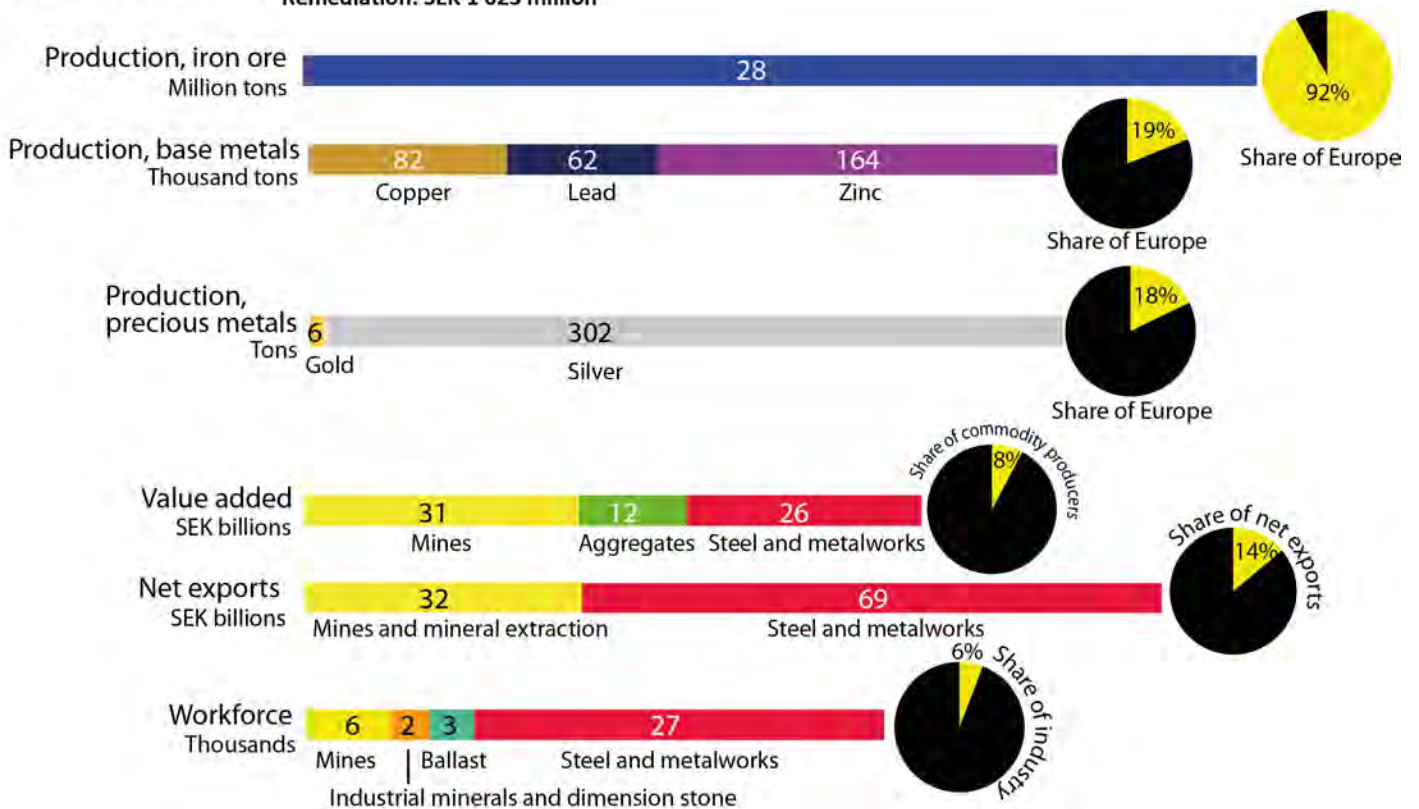
Economic significance of the minerals industry

Mining industry's turnover and expenditure 2011 = SEK 44 470 million



Investment during the year: SEK 9 251 million

Total allocation – urban transformation SEK 5 103 million
Remediation: SEK 1 623 million



Source: SGU.



Viscaria alpina /(Lychnis alpina) - a flower that can grow in copper-rich soil. This was known by geologist Paul Forsell at LKAB, which led to the discovery of the Viscaria copper deposit. The copper was mined between 1982 and 1997.

Photo: Bengt Hedberg/Johnér. Illustration: Blomquist.



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