2. Mining equipment exports

Key points:

- The EU-28, China, Japan and the United States were net exporters of mining equipment over the 2011-2015 period. The EU-28 was the world's leading exporter of mining equipment over the same period, accounting for almost a quarter of world's total exports.
- Due to a significant decline in imports, net exports in China have increased in recent years, while net exports in the EU-28, Japan and the United States all declined.
- The United States represents by far the main destination of the EU-28's exports of mining equipment in 2015, followed by China and Norway.

Overview and context

In recent decades, mining techniques have advanced significantly, moving from labour-intensive to technology-intensive practices, and leading to a tremendous rise in mine productivity. The development of mining equipment has played a fundamental role in this process[52].

Mining equipment is an essential technological input to mining activities. During the 1980s and 1990s for example, mining equipment manufacturers cut back their investments, in line with low investment in the mining industry itself. When commodity markets started booming in the 2000s, longer lead times for the delivery of mining equipment were reported to have led to bottlenecks in the mining industry and to increased costs of production[53].

Trade in mining equipment follows closely its global demand, which in turn is driven by the magnitude of mining operations and global expansion of mining production[54]. It is interesting to monitor the EU's global position compared with other regions in the context of increased demand for metals and minerals and a shift in the location of mining activities (Indicator 1).

Mining equipment includes technologies used in various mining applications such as crushing and milling equipment, drills and breakers, continuous mining and tunnelling machinery, underground load and haul equipment, mining cars, conveying, and screening and separating machinery.

52 Farooki M., 2012, 'The diversification of the global mining equipment industry — Going new places?', Resources Policy 37, pp. 417-424.
53 Ibid.
54 Ibid.

Facts and figures

Figure 2.1 presents the evolution of net exports (i.e. exports minus imports) of mining equipment by world region and main country between 2011 and 2015, based on official trade statistics. China, the EU-28, Japan and the USA are net exporters of mining equipment.

China has kept increasing its net exports. This was due to a significant decline in imports (around 65 %) in 2015 as compared with 2011, whereas exports remained relatively stable. This might reflect a shift in the way China met its mining industry's demand, shifting from imports towards its own domestic production of mining equipment[55].

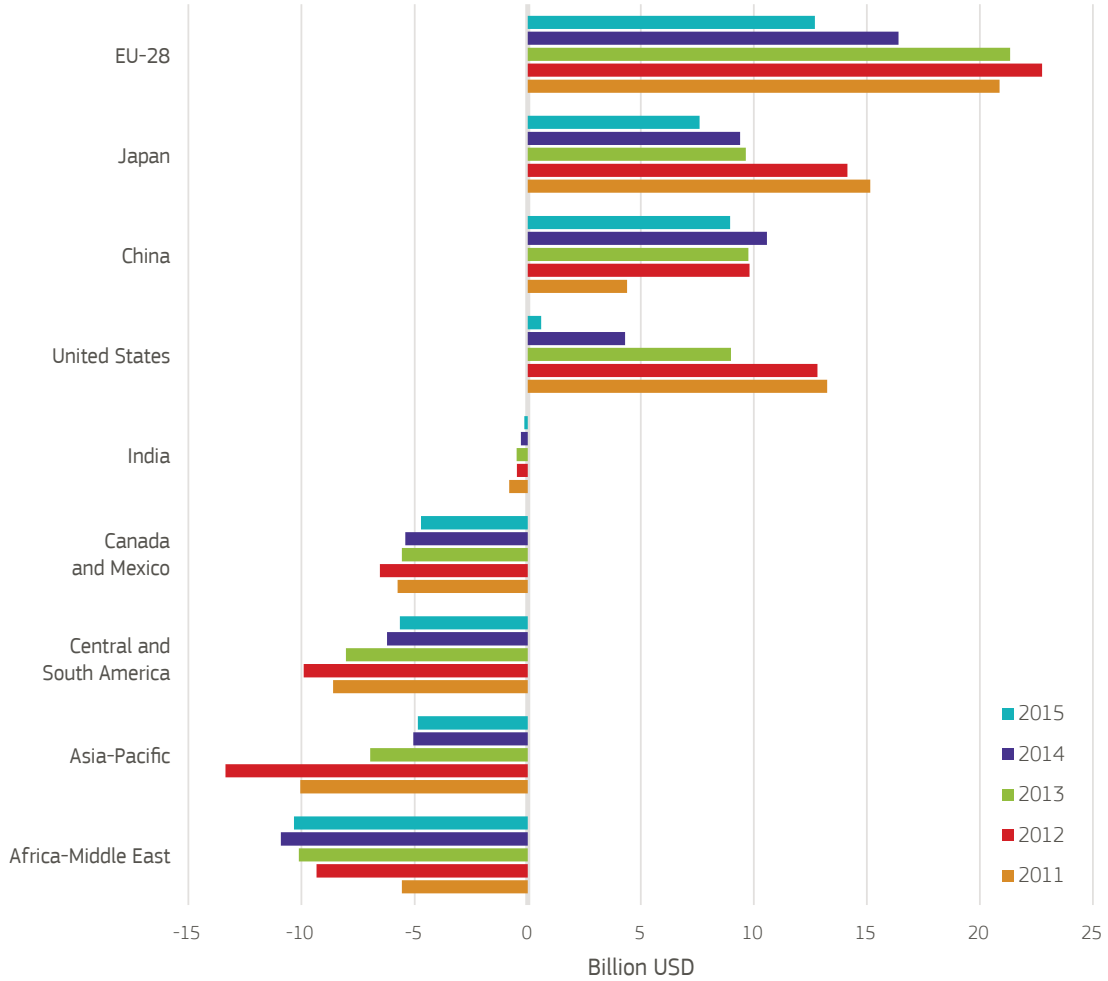
Figure 2.1 also highlights that emerging mining regions such as Central and South America, Africa-Middle East and Asia-Pacific accounted for high net imports of mining equipment. Africa-Middle East significantly increased its imports of mining equipment, with a rise of around 85 % in 2015 compared with 2011.

Taking the EU-28 as a trade bloc, Figure 2.2 shows that EU-28 mining equipment manufacturers were the world's leading exporters of mining equipment in 2015, accounting for 21 % of world's total exports, followed by the United States (15 %), China (13 %) and Japan (10 %).

The EU-28 was also the leading exporter over the entire 2011-2015 period, with an average global share of 22 % over the period. In 2015, five EU-28 countries — Germany, the United Kingdom, the Netherlands, Italy and France — were among the top ten exporting countries of mining equipment in the world.

Figure 2.3 presents the top ten destinations of EU-28 exports of mining equipment in 2015. The United States (22 %) was by far the main destination, followed by China and Norway (with around 5 % each).

Figure 2.1: Net exports of mining equipment by region and country[56] (2011-2015)[57].



55 Ibid.
56 EU-28 is considered as a trade bloc; thus intra EU-28 trade flows are not taken into account.
57 Source: JRC elaboration, based on UN Comtrade data, accessed via World Integrated Trade Solution (details in the methodological notes). Net export data for country aggregates only account for extra-regional trade flows.

Figure 2.2: Top 10 global exporters of mining equipment (EU-28 as trade bloc, 2015)[58].

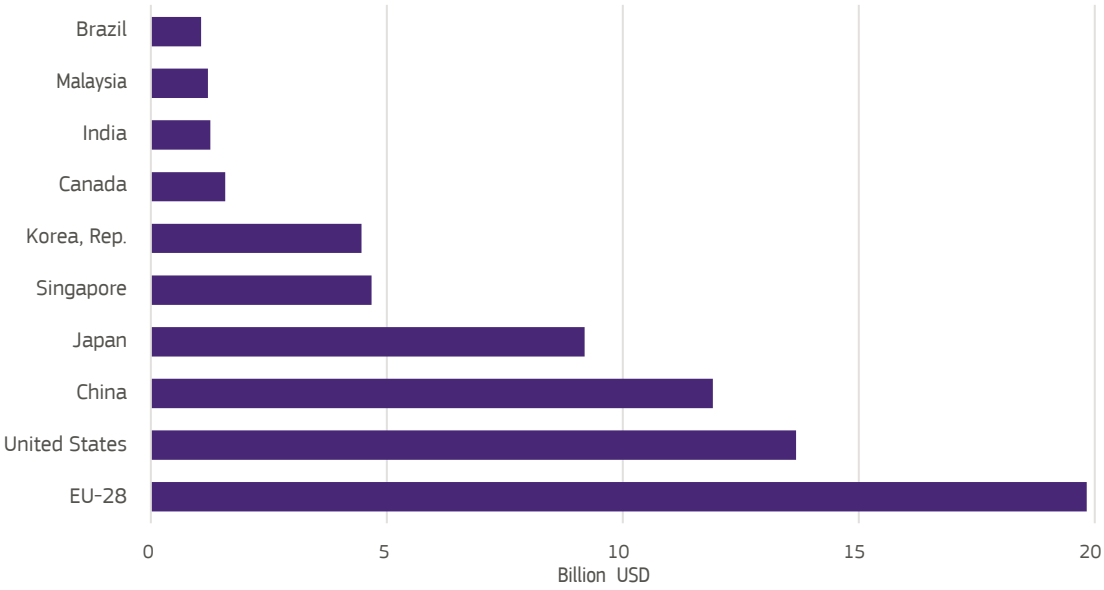
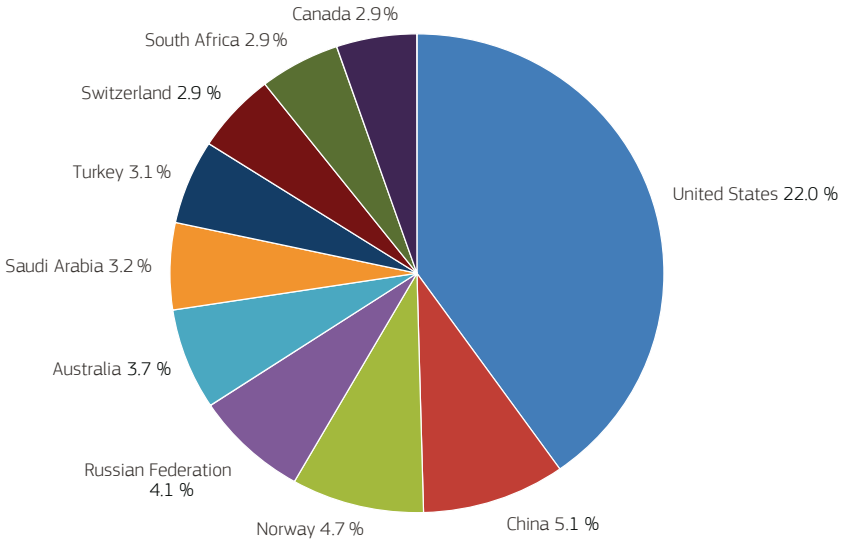


Figure 2.3: Top ten destinations of EU-28 exports of mining equipment to the rest of the world (extra EU-28 exports, 2015)[59].



Conclusion

China, the EU-28 (as a trade bloc), Japan and the United States were net exporters of mining equipment over the 2001-2015 period, whereas emerging mining regions such as Central and South America, Africa-Middle East and Asia-Pacific were net importers.

Even though the EU-28 has a relatively low share of global raw materials production (see Indicator 1), it is a significant exporter of mining equipment. The EU-28 as a trade bloc is the world's leading exporter of mining equipment, accounting for 21 % of world's exports in 2015 and 22 % of total global exports over the 2011-2015 period. The United States was the main destination of the EU-28's exports of mining equipment in 2015, followed by China and Norway.

To maintain the EU's competitive advantage in the raw materials sector, the European Innovation Partnership on Raw Materials (EIP-RM) has planned several measures on innovative extraction and processing of raw materials[60]. Some of these are also covered by Horizon 2020, the EU's research and innovation programme[61].

58 Source: JRC elaboration, based on UN Comtrade data, accessed via World Integrated Trade Solution. See the methodological notes. Data on the EU-28 aggregate only account for extra-EU-28 exports
59 Source: Ibid.
60 European Innovation Partnership on Raw Materials, 2013, 'Strategic Implementation Plan'.
61 See Societal Challenge 5 on 'Climate Action, Environment, Resource Efficiency and Raw Materials', https://ec.europa.eu/programmes/horizon2020/en/h2020-section/climate-action-environment-resource-efficiency-and-raw-materials.

Methodological notes

This indicator is entirely based on data from UN Comtrade, accessed via the World Bank's World Integrated Trade Solution.

For calculating net exports in Figure 2.1, a certain year's imports are subtracted from exports. In the construction of Figures 2.1 and 2.2, only extraregional trade flows are taken into account for regional trading blocs. For example, data on the EU-28 aggregate only account for extra EU-28 exports.

The starting point for identifying the mining equipment-related commodities to be included in Indicator 2 'Mining equipment exports' are the products covered by the 4-digit NACE class 28.92, 'Manufacture of machinery for mining, quarrying and construction', as listed in Eurostat's PRODCOM List 2013.

This selection is made possible by the statistical correspondence between NACE Rev. 2, the Classification of Products by Activity (CPA) and PRODCOM. The same list also provides the statistical correspondence between the product's PRODCOM code and the corresponding (one or more) six-digit HS headings.

Out of the resulting 30 six-digit HS codes, the JRC retained 21. The remaining nine codes were not retained since they appear to refer to equipment mostly used in infrastructure and construction (see table below).

	HS 2007 codes	Product description	Areas of use
HS 2007 6-digit codes retained			
1	842831	Continuous-action elevators & conveyors, for goods/materials, specially designed for underground use (excl. of 8428.10 & 8428.20)	mining + others
2	842911	Bulldozers and angle dozers: -- Track laying	mining + others
3	842919	Bulldozers and angle dozers: -- Other	mining + others
4	842951	Mechanical shovels, excavators and shovel loaders: - Front-end shovel loaders	mining + others
5	842952	Mechanical shovels, excavators and shovel loaders: - Machinery with a 360 degree revolving superstructure	mining + others
6	842959	Mechanical shovels, excavators and shovel loaders: Other	mining + others
7	843031	Coal or rock cutters and tunnelling machinery: -- Self-propelled	mining + others
8	843039	Coal or rock cutters and tunnelling machinery: 8430.39 — Other than self-propelled	mining + others
9	843041	Other boring or sinking machinery: Self-propelled	mining + others

10	843049	Other boring or sinking machinery: Other	mining + others
11	843050	Moving/grading/levelling/scraping/tamping/compacting/excavating/extracting machinery, for earth/mins./ores (excl. of 8430.10-8430.49), self-propelled	mining + others
12	843142	Parts suit. for use solely/principally with bulldozer/angle dozer blades	mining + others
13	843143	Parts for boring or sinking machinery of subheading 8430.41 or 8430.49	mining + others
14	843149	Parts suit. for use solely/principally with the machinery of 84.26/84.29/84.30 (excl. of 8431.41-8431.43)	mining + others
15	847410	Sorting, screening, separating or washing machines	mining + others
16	847490	Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid (including powder or paste) form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand — Parts	mining + others
17	870130	Track-laying tractors	mining + others
18	870410	Dumpers designed for off-highway use	mining + others
19	843069	Moving/grading/levelling/scraping/tamping/compacting/excavating/extracting machinery, for earth/mins./ores (excl. of 8430.10-8430.49), other than self-propelled	mining + others
20	847420	Crushing/grinding machines for earth/stone/ores/other mineral substance, in solid (incl. powder/paste) form	mining + others
21	847439	Mixing/kneading machines for earth/stone/ores/other mineral substance, in solid (incl. powder/paste) form (excl. of 8474.31 & 8474.32)	mining + others
HS 2007 6-digit codes excluded (codes referring to equipment mainly used in infrastructure & construction)			
22	842920	Self-propelled graders & levelers	road + construction
23	842930	Self-propelled scrapers	road + construction
24	842940	Self-propelled tamping machines & road rollers	mostly road
25	843010	Pile-drivers & pile-extractors	construction
26	843020	Snow-ploughs & snow-blowers	mostly road
27	843061	Tamping/compacting machinery, not self-propelled	road + construction
28	847910	Machinery for public works/building/the like having individual functions, n.e.s. in Ch.84	road + construction
29	847431	Concrete/mortar mixers	construction
30	847432	Machines for mixing mineral substance with bitumen	road

Based on current knowledge, there is no methodological way of separating the HS codes referring to equipment used exclusively in mining from those used in other activities, especially construction. This is because many of the selected HS codes refer to multi-purpose equipment that is used not only in mining but also in other activities such as infrastructure and construction. This limitation is recognised both by the US Department of Commerce[1] and by Farooki (2012) – the latter tried to *separate out mining and construction equipment, remaining aware that an (unknown) proportion of global construction equipment is used, at least for some of its life, in the mining sector*. Also, to our knowledge, it is not possible to group the resulting HS codes into coal-, metal- and mineral-mining equipment.

The country composition of regions included in Figure 2.1 is as follows:

[1] According to the US Department of Commerce, 'construction and mining equipment and related systems'. Construction 'includes self-propelled equipment, implements, accessories and components for use in construction, forestry, mining, and utilities' (U.S. Department of Commerce, SelectUSA, https://www.selectusa.gov/machinery-and-equipment-industry-united-states).

- ‘Central & South America’ includes Aruba, Argentina, Antigua and Barbuda, Bahamas, Belize, Bolivia, Brazil, Barbados, Chile, Colombia, Costa Rica, Cuba, Cayman Islands, Dominica, Dominican Republic, Ecuador, Grenada, Guatemala, Guyana, Honduras, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, Nicaragua, Panama, Peru, Puerto Rico, Paraguay, El Salvador, Suriname, Saint Maarten, Turks and Caicos Islands, Trinidad and Tobago, Uruguay, St. Vincent and Grenadines, Venezuela and Virgin Islands.
- ‘Asia-Pacific’ includes American Samoa, Australia, Brunei, Fiji, Micronesia, Guam, Hong Kong, Indonesia, Cambodia, Kiribati, Republic of Korea, Laos, Macao, Marshall Islands, Myanmar, Mongolia, Northern Mariana Islands, Malaysia, New Caledonia, New Zealand, Philippines, Palau, Papua New Guinea, Dem. Rep. of Korea, French Polynesia, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vietnam, Vanuatu and Samoa.
- ‘Africa-Middle-East’ includes the United Arab Emirates, Bahrain, Djibouti, Algeria, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia and Yemen.