



An Overview of World Stainless Steel Scrap Trade in 2019

Ricardo Ferreira, Director of Market Research and Statistics
Francisco Pinto, Manager of Statistical Analysis

Introduction

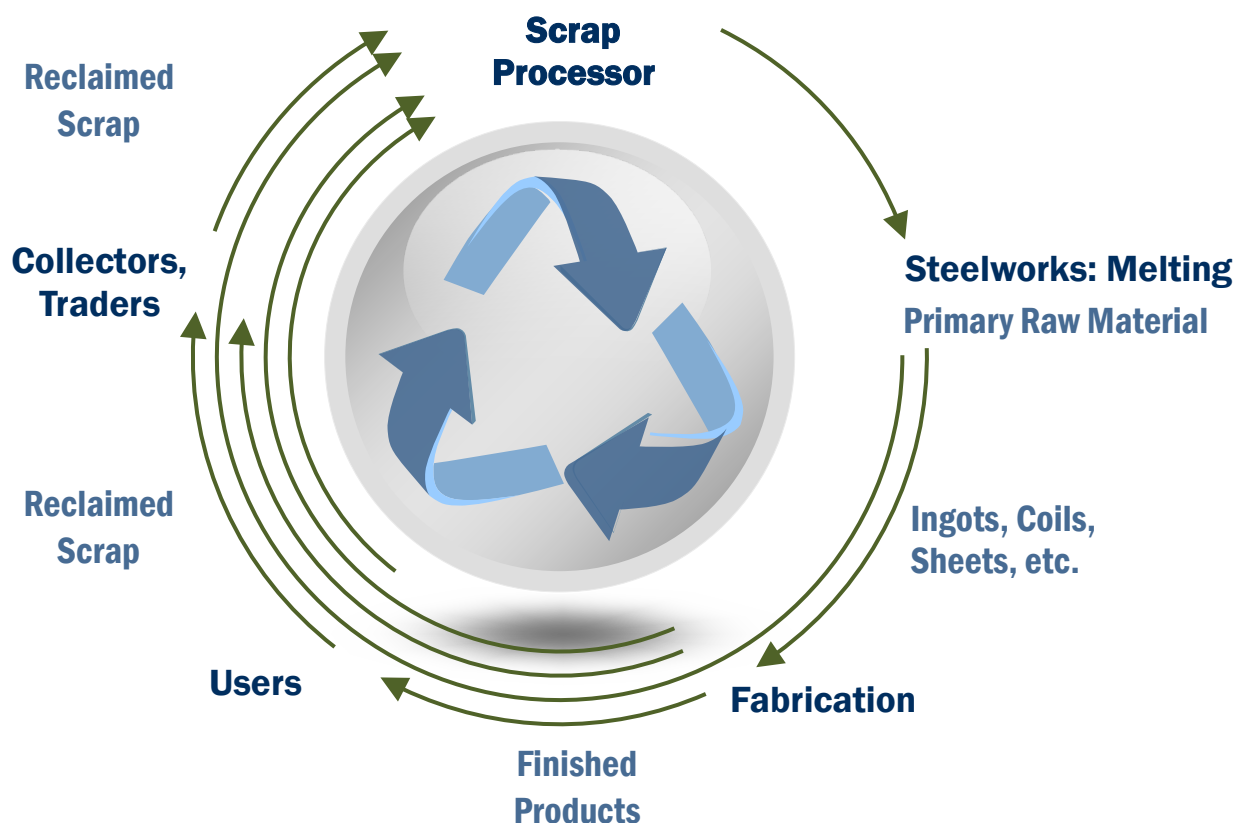
The International Nickel Study Group (INSG) collects data on stainless steel scrap (SSS) trade on a monthly basis as part of its regular market research activities. Detailed figures are published on a country by country basis in the INSG Monthly Bulletin and Yearbook, and are also available in the Study Group's online Statistical Database to members and subscribers.

This Insight report, the 34th in the series, provides members with an analysis of this market, highlighting the major trends of SSS trade between countries around the world.

Secondary nickel units coming from SSS are extremely important when analysing the global nickel market as they have been equivalent to around one third of primary nickel production in recent years. SSS international trade is a very relevant part of the whole SSS market because a considerable part of the material available in some countries is exported and used in other countries.

Finally, integrating scrap into the nickel life cycle is recognizably a significant factor for the protection of the environment and the promotion of the circular economy, giving further weight to the importance placed on this topic by the Study Group.

Figure 1 - Stainless steel scrap flow



Source: Cronimet

This report is organised in seven sections. The first two sections summarize the main trends regarding world stainless steel (STS) production and stainless steel prices. Then there are four sections focusing on regional SSS trade as follows:

- Americas – Brazil, Mexico, the United States of America (USA) and Canada
- Europe – Belgium, Finland, France, Germany, Italy, Netherlands, Norway, Slovenia, Sweden, Spain, Russian Federation and United Kingdom (UK)
- Asia – China P.R., India, Japan, the Republic of Korea (South Korea), Taiwan (China), Turkey
- Africa & Oceania – South Africa and Australia

The last section comprises some comments about the global market.

General notes

INSG follows the "Harmonized System"¹ (HS) nomenclature to collect and publish international trade data. The pertinent HS Code related to stainless steel scrap is: "720421 Waste and scrap of stainless steel 'ECSC' (excl. radioactive, and waste and scrap of batteries and electric accumulators)". In this report we will refer to this code by the term stainless steel scrap (or SSS).

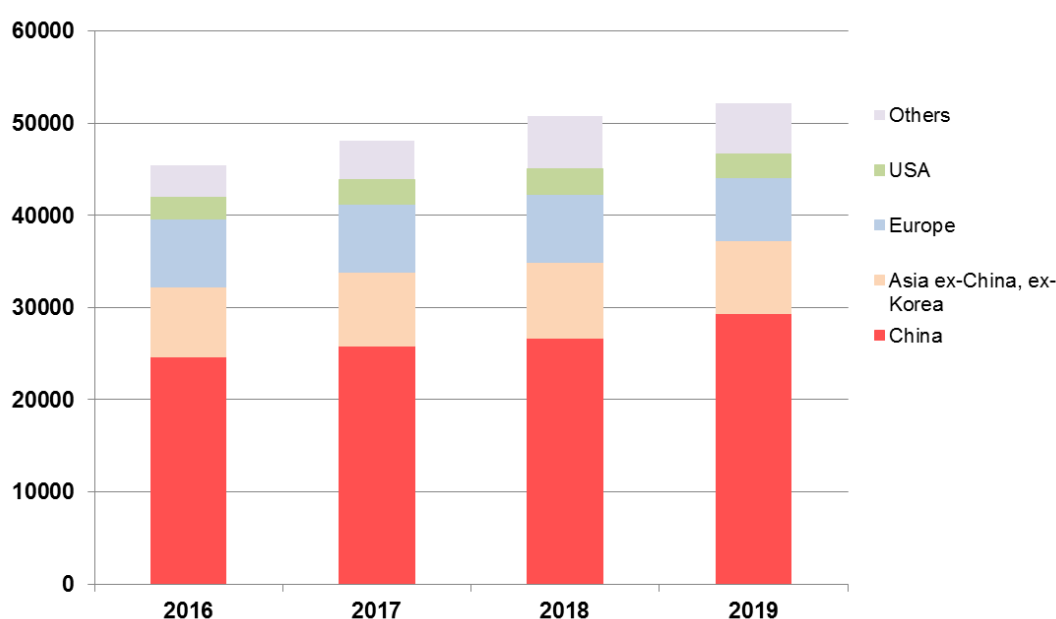
¹ The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO).

Additional notes (unless otherwise stated): 1) all figures are official statistics; 2) all quantities are in metric tons (t) (usually rounded to thousand tons - kt); 3) the periods are in calendar years; some figures are preliminary; 4) net trade refers to imports minus exports; 5) mirror statistics (or “mirror”) mean that the figure for a specific country is reported by its partners (e.g. imports of country A are the exports of the reporting countries to country A); 6) percentage figures with “+” or “-“ between brackets refer to growth rates (e.g. (-1%) = one percent decrease).

1. World Stainless Steel Production

The typical destination of SSS is the STS mill, where scrap is used as a raw material for the production of new stainless steel. Therefore, in this section we will briefly analyse world stainless steel production by region over the last 4 years.

Graph 1. World stainless steel production – 2016-19



Source: ISSF (as of 25 March 2020)

According to the International Stainless Steel Forum (ISSF), world stainless steel melting production reached 50.7 Mt in 2018 and 52.2 Mt in 2019 (graph 1), reflecting increases of +5.5% and +2.9% in those years, respectively. In 2019, all regions except China P.R. performed negatively.

China was the biggest producing country, with total output of 29.4 Mt in 2019, which indicates +10.1% growth compared to 2018.

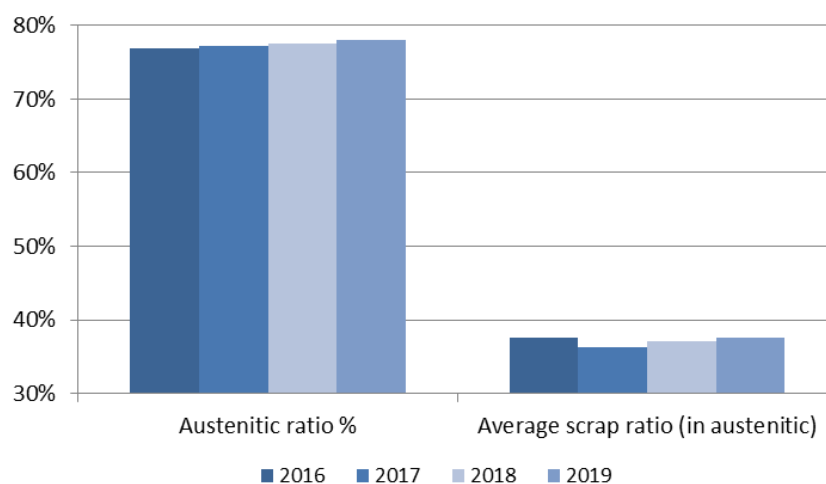
Asia excluding China and South Korea had negative performance in 2019 with -3.7%. The USA had very strong growth in 2017 (+11%) but this declined in 2018 (+1.8%) and further in 2019 (-7.6%). Europe also increased production in 2017 (+1.3%) but stagnated in 2018 (+0.1%) and decreased production in 2019 (-7.9%).

Other countries (Brazil, Russia, S. Africa, S. Korea, Indonesia), showed negative growth in 2019 (-2.0%). A major change in this region was that Indonesia started to produce STS in the second half of 2017. During this period, the country produced almost 700 kt, while in 2018 it ramped up to almost 2.3 Mt and to over 2.4 Mt in

2019. In February 2020, Delong commissioned the second mill to be built in Indonesia, the other being operated by Tsingshan. Both companies are Chinese.

Nickel-containing stainless steel, also known as austenitic stainless steel (200-series with 1-3% Ni and 300-series with 8-9% Ni), ratios increased in 2017, 2018 and 2019 to more than 77% of total world production (graph 2). Average scrap ratios in austenitic decreased in 2017 before recovering partially in 2018 and 2019.

Graph 2. World Austenitic Ratios and Scrap Ratios – 2016-19

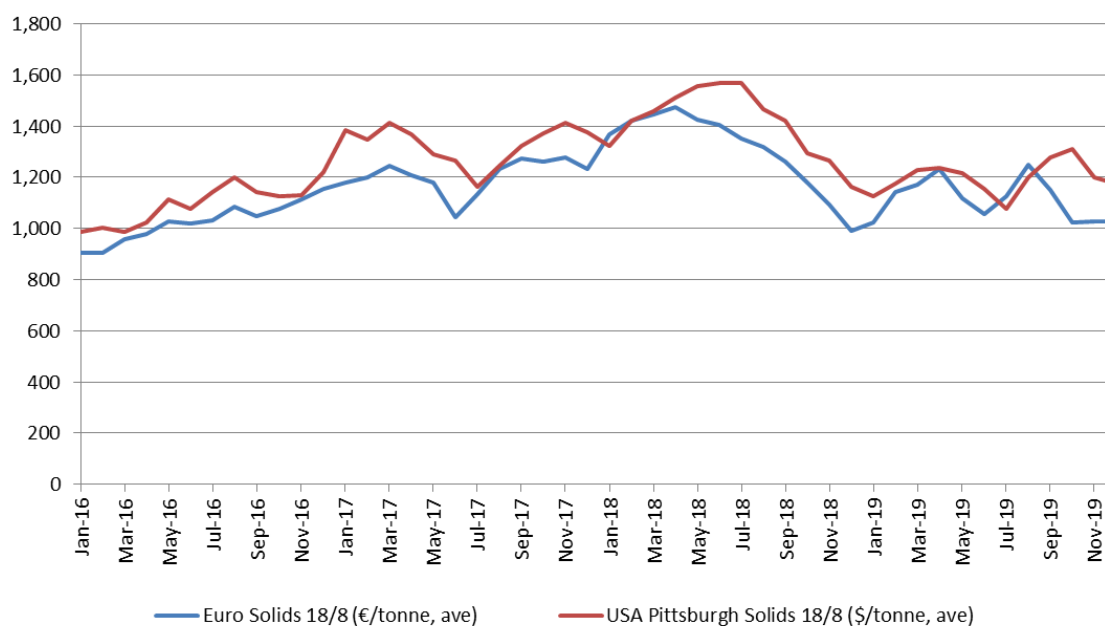


Source: Macquarie, ISSF, INSG

2. Stainless Steel Scrap Prices

In this section we will briefly describe the evolution of SSS prices. This is important because the competitiveness of the mills largely depends on how much they have to pay for this “raw material”.

Graph 3. Stainless Steel Scrap Prices – 2016-2019



Source: Fastmarkets MB

Graph 3 shows monthly average price trends in Europe and the USA for 18/8 stainless steel scrap solids. In 2017, prices closed at 1,233€/t in Europe and at 1,378\$/t in the USA, meaning increases of almost +6.7% and +13.0%, respectively, compared to closing prices in 2016.

In 2018, prices went up in the first half of the year before dropping sharply in the second half. In Europe, prices averaged 1,423€/t in H1 but closed the year at 989€/t. In the USA, prices peaked at 1,569\$/t in July and closed the year at 1,165\$/t. Considering the full year, prices decreased -19.8% in Europe and -15.5% in the USA.

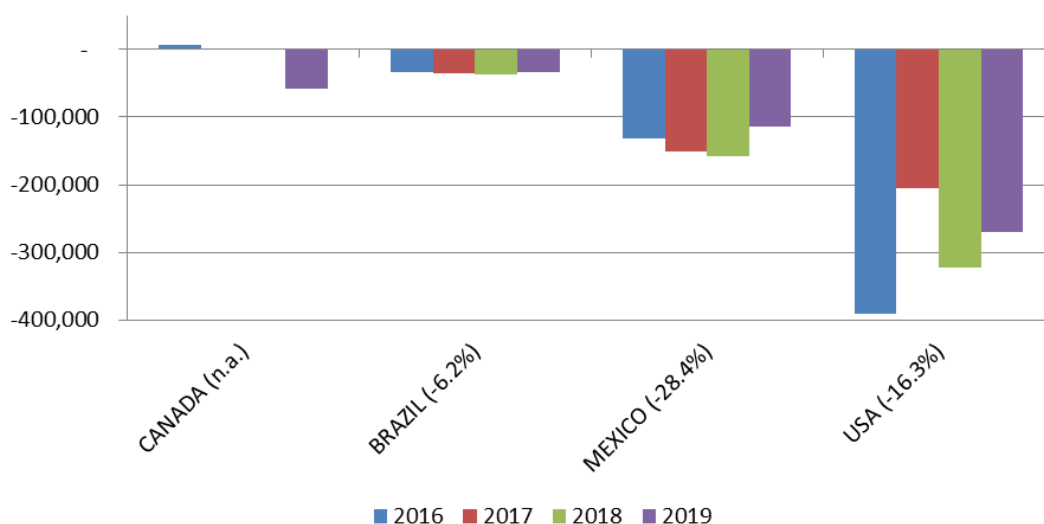
In 2019, prices averaged 1,112€/t in Europe and 1,198\$/t in the USA. In the former, prices closed at 1,028€/t (+3.9%), while in the latter closing prices were 1,176\$/t (+1.0%).

3. Americas

In this section, North and South American countries will be covered, analysing in more detail Brazil, Mexico, the United States of America (USA) and Canada.

All the 4 countries were net exporters of SSS in 2019 (graph 4), but the USA was the most important market for both STS production and SSS trade – the country generates, consumes and exports large quantities of scrap. In 2019, it had net exports of 270 kt, a decrease of -16%, after growing 57% in 2018. The main export destination in 2019 was India (29% share), followed by Taiwan (26% share) and Canada (with a noticeable decrease from a 40% share in 2018 to 19% in 2020).

Graph 4. Stainless steel scrap net trade – Americas – 2016-2019, tonnes



Source: Country Customs, GTI, INSG

Mexico had net exports of 114 kt in 2019 (-28.4%) and 159 kt in 2018 (+4.7%). In 2019², the country exported 79% of its scrap to the US (vs. 69% in 2018), 8% to India (vs. 12% in the previous year).

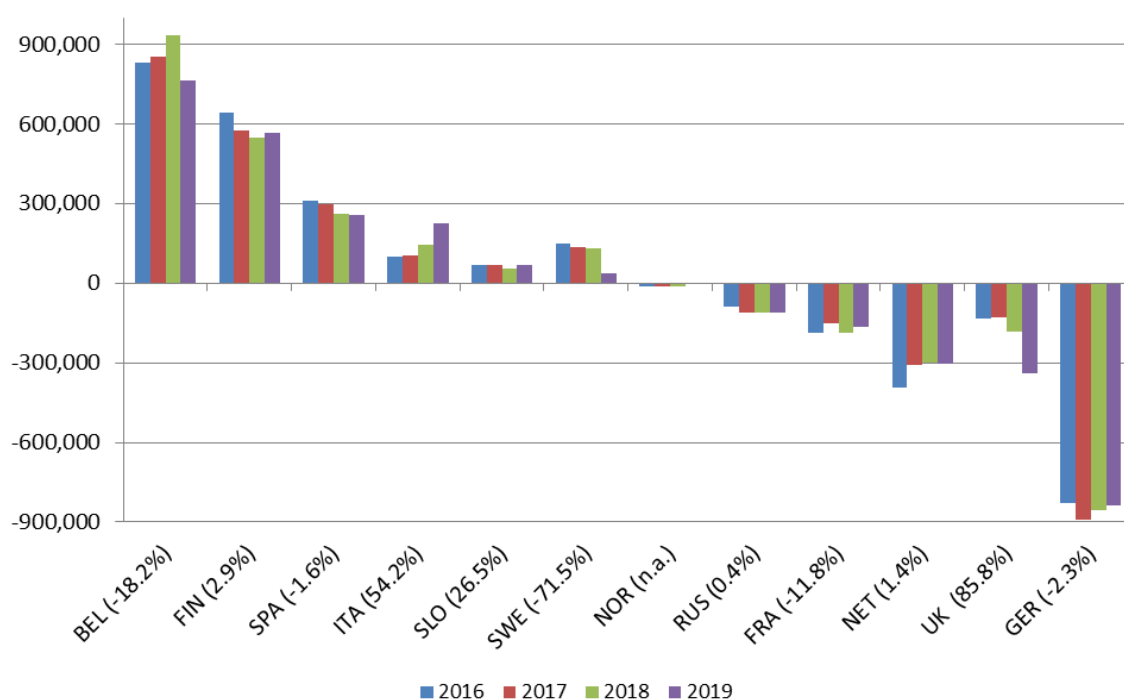
Brazilian exports for the 4-year period under review were relatively stable, falling to 34.5 kt in 2019, from 36.7 kt in 2018 (-6.2%). Last year, the country's largest SSS export destinations were South Africa (47%) and India (16%).

Canada reported net exports of 58 kt in 2019. The USA is historically the main export destination of Canadian SSS (73% in 2019)³.

4. Europe

As shown in Graph 5, Europe has both net importing and net exporting countries.

Graph 5. Stainless steel scrap net trade – Europe – 2016-2019, tonnes



Source: Eurostat, GTI, GTT, INSG

In 2019, Belgium was the biggest net importer, followed by Finland and then Spain and Italy, while Germany was the most significant net exporter, succeeded by the UK, Netherlands and France.

The rest of the countries only traded relatively small tonnages: Slovenia and Sweden were net importers, while the Russian Federation and Norway⁴ were net exporters. Traditionally, European countries trade a significant amount of SSS between each other – below EU trade is analysed in more detail.

² Mexico reported no imports in quantity, but about 1 million dollars in imports in value from the USA were reported (possibly a reporting anomaly). Looking at mirror statistics (exports from USA to Mexico), a large discrepancy appears over the last 5 years

³ Canada's figures reported in 2017 and 2018 are under investigation. For reference, Canada declared imports of 221 kt in 2016, 1,179 kt in 2017, 675 kt in 2018 and 88 kt in 2019; and exports of 214 kt in 2016, 168 kt in 2017, 175 kt in 2018 and 146 kt in 2019.

⁴ Data for Norway refers to 2018, as figures for 2019 are not available yet.

Belgium's SSS net imports increased in 2018 (+9.5% to 933 kt), but decreased in 2019 (-18.2% to 764 kt). In the latter year, the country's main suppliers were Germany (65%) and France (28%), while the Netherlands (39%), the UK (24%) and India (21%) were its main customers.

Finland's SSS net imports⁵ slightly increased to 564 kt in 2019 (+2.9%) after having decreased 5% to 548 kt in 2018. In 2019, the Netherlands was the country's main supplier with 62% of its SSS imports, followed by Germany (16%) and Poland (14%).

Germany was the largest net exporter of SSS. In 2018, net exports slowed to 856 kt (-4.1%) and, in 2019, further decreased to 836 kt (-2.3%). Germany's sources of material were diverse: the main suppliers in 2019 were the Netherlands (17%), Austria (17%), Czech Rep. (12%), Poland (12%) and Switzerland (10%). The main export destinations were Belgium/Luxembourg (40%), Italy (16%) and the Netherlands (13%).

The remaining countries traded relatively small quantities of scrap and exhibited differing trends over the years being analysed.

Net importers that saw decreases in 2018 and 2019 were (growth and total net imports for 2018 and 2019 in parenthesis, respectively), Spain (-12.6% and -1.6%, or 260 kt and 255 k) and Sweden (-5.5% and -71.5%, or 129 kt and 37 kt). Italy saw large growth in both years (+42.3% and +54.2%, or 145 kt and 224 kt); and Slovenia (-22.6% and +26.5%, or 53 kt and 67 kt) and Finland (-5 % and +2.9%, or 548 kt and 564 kt) had a mixed performance.

On the net exporters side (growth and total net exports for 2018 and 2019 in parenthesis, respectively), Germany saw its net export figures decrease in both years (-4.1% and -2.3%, or 856 kt and 836 kt), while the UK exhibited large growth in both years (+41.1% and +85.8%, or 183 kt and 340 kt). France had different variations, growing in 2018, but decreasing in 2019 (+23% and -11.8%, or 187 kt and 165 kt). The Russian Federation and the Netherlands also had mixed trends – the former varied -0.3% and +0.4% in 2018 and 2019, staying at 110 kt, while the Netherlands saw a 3.3% decrease to 300 kt in 2018 and an increase of 1.4% to 304 kt last year.

We now turn to the European Union (EU) as a whole. This region – considering extra-EU trade – consolidated its position as a net exporter in 2019, going from 52 kt net exports in 2018 to 250 kt in 2019. Total imports made by the EU from non-EU countries were 393 kt in 2019 (-7.7%). Exports were 644 kt (+34.7%) for the same period.

Most of the trade in the EU is internal. An estimated 88% of imports by EU countries in 2019 came from other EU countries, while 82% of exports were also destined to other EU countries, in 2018, these figures were 88% and 86%, respectively.

The main destination of exports outside the EU in 2019 was India with 314 kt (a 48.8% share, with noticeable growth of 26% from 2018), followed by Bangladesh with 96 kt (15% share, more than doubled its importance, growing 105%) and then

⁵ Import figures for Finland are based on "mirror" statistics, i.e. as reported by countries exporting to Finland.

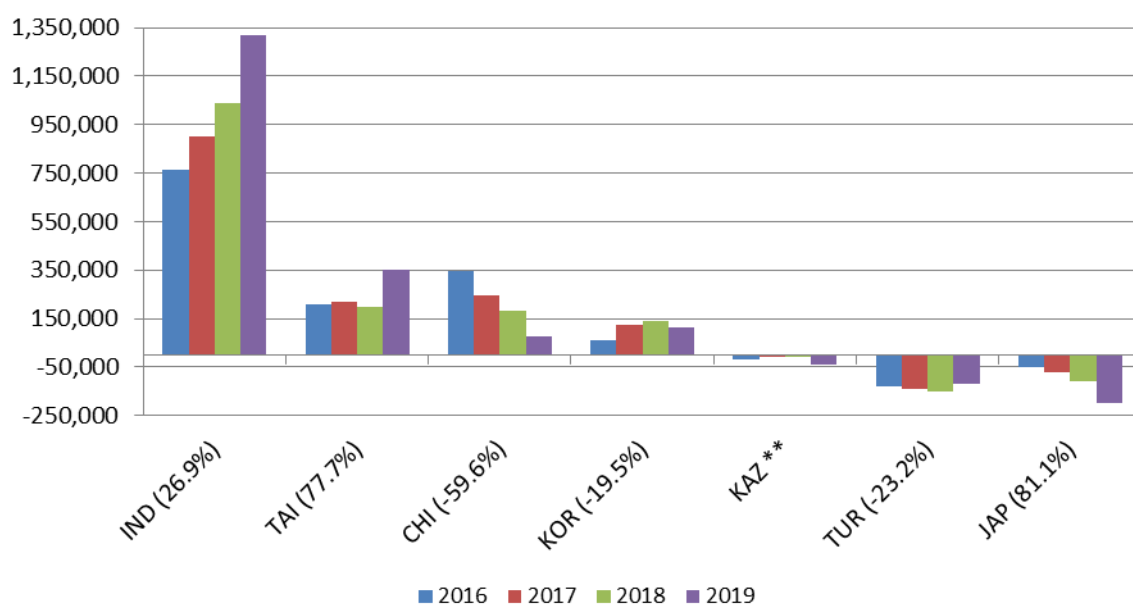
Taiwan (China) with 87 kt (13.5% share, growing 82.5%); in 2018, Taiwan and Bangladesh were also 2nd and 3rd, but the positions were reversed.

Looking at imports, the main source from outside the EU was the Russian Federation with 103 kt (26% share), followed by Turkey with 65 kt (16% share) and Switzerland with 56 kt (14% share).

5. Asia

Asian countries show different profiles regarding SSS trade. In this section comments are made regarding India, China P.R., Taiwan (China), the Republic of Korea (South Korea) and Japan.

Graph 6. Stainless steel scrap net trade – Asia – 2016-2019



Source: Country Customs, GTI, INSG

India is the largest importer of scrap in Asia and continues to grow quickly. After an increase of 15.5% to surpass one million tonnes for the first time in 2018 (1,042 kt), net imports climbed at a rate of 26.9% to 1,322 kt in 2019. India only produces a small quantity of nickel and relies on imports of both nickel products (such as ferronickel, NPI and refined) and scrap to produce STS. As is common in developing economies, domestically generated scrap is not enough to feed the country's needs. India's sources of scrap are quite diversified. In 2019, the USA and the United Arab Emirates were the two largest suppliers, with 15% and 9% shares respectively.

Taiwan (China)'s net imports reversed the 2018 decrease (-9.8%), with an upswing of 77.7% to 354 kt in 2019. The main suppliers of scrap were the USA, Japan and the Netherlands with 35%, 16% and 12% shares, respectively.

China's use of scrap has been growing, although the country still has relatively low scrap ratios, relying more on NPI as the main feed of nickel for the STS industry. Furthermore, waste and scrap face import restrictions in the country. This suggests that in the future, the industry could move towards using more domestically

generated scrap. Net imports⁶ continued an accentuated reduction, falling 59.6% in 2019, to 74 kt, after having declined by 25% in 2018 (mirror statistics). Hong Kong, a trade hub, was the main source of imported scrap, with a 73% share (from 56% in 2018). Canada and Belgium followed with 12% and 4%, respectively. The USA's importance declined from 2018 to 2019 (from 23% to 3% share), falling from 2nd to 4th place.

South Korea saw its net imports decrease 19.5% to 113 kt in 2019, after an increase of 14.9% in 2018. Although it is a net importer, the country also has an important role as an exporter of SSS. Looking at the total trade figures, in 2019 imports were 241 kt and exports were 128 kt. The main sources of scrap were Japan (46% share), Thailand (23%) and Taiwan (China) (9%). The main destinations were India (60% share), Japan (17%) and Taiwan (China) (13%).

Japan has been consolidating its position as a net exporter over the last two years, reaching 197 kt of net exports (+81%) in 2019, after 109 kt (+47.5%) the previous year. Similarly to South Korea, Japan has a relevant position in SSS trade, with imports of 48 kt and exports of 246 kt in 2019. In 2019, exports increased (+30%), while imports decreased (-39.9%) at accentuated levels, thus the large growth in net exports. Its main partners were South Korea (43% share in exports and 45% in imports) and Taiwan (China) (23% share in both, exports and imports). India and Indonesia were the 3rd and 4th largest destinations of exports (12% and 10% shares, respectively). The USA was the 3rd largest source of imports (16% share).

When looking at SSS trade for Japan and South Korea it is important to mention that these countries have high scrap ratios in STS production and domestic scrap plays an important role, meaning that the circular economy is at a developed stage in these two countries.

6. Africa & Oceania

South Africa and Australia are the most relevant countries in Africa and Oceania regarding trade in SSS, though only the first is a STS producing country. There are no figures for 2019 SSS trade for these countries yet.

In 2018, South Africa was a net importer, growing 30% from 2017, to reach 26 kt. The main source was Malaysia (58% share), followed by neighbouring Zambia (17% share) and Brazil (11% share). Other African countries (Botswana, Eswatini⁷ and Namibia) added up 11% of imports.

Australia reported 56 kt (24.7%) of net exports in 2018. The largest destination was India (58%), followed by Thailand (8% of share). Asian countries (not elsewhere specified) represented 18% of exports declared by the country.

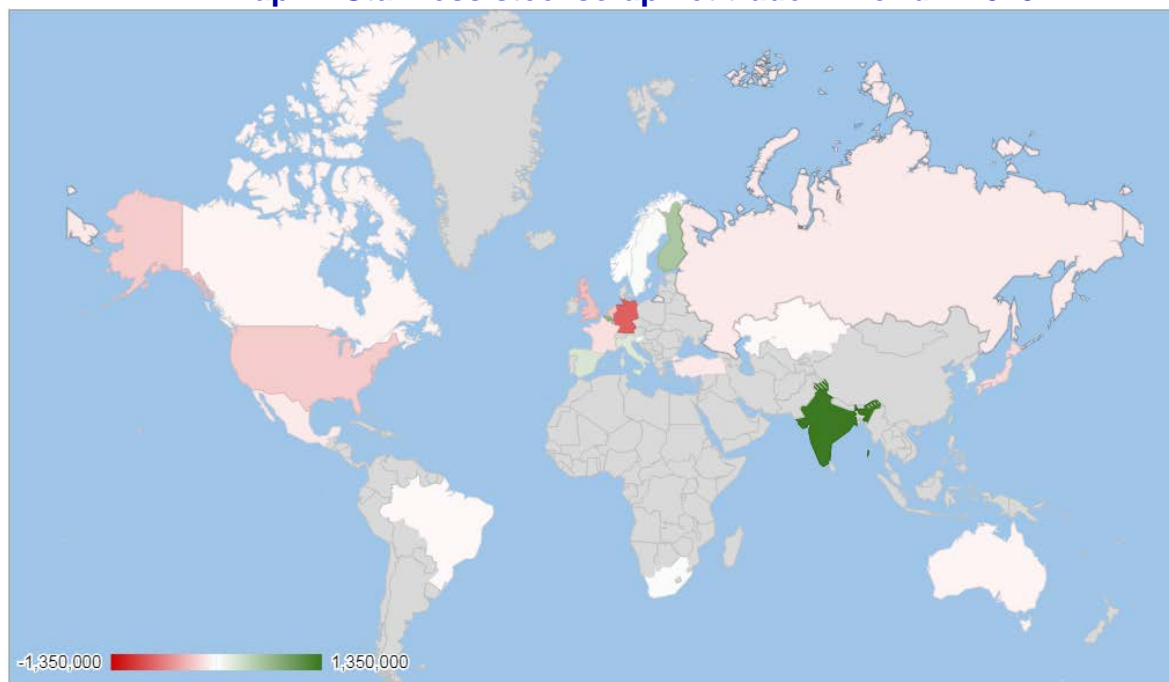
⁶ Data for China is based on "mirror" statistics and 2019 figures are still preliminary – countries adding up to 96% of mirrored exports and 98% of mirrored imports in 2018 have already reported their 2019 figures, so these figures should be close to the final results.

⁷ Also known as Swaziland; officially renamed in 2018.

7. World of stainless steel scrap trade

Generally speaking, SSS is generated by recovering the material from the STS production process itself, from obsolete products and demolished buildings. In this sense, SSS generation is more closely linked to STS consuming countries or more developed ones (higher income countries have tended to use more STS containing products and, at the end of their life cycle, those products should generate more scrap). SSS imports are usually more connected to STS producing countries. Additionally, there are countries which are trading hubs, where the material is imported and re-exported.

Map 1. Stainless steel scrap net trade – World – 2019



Source: Country Customs, Eurostat, GTI, GTT, INSG

Map 1 shows the global view of world SSS net trade (imports minus exports) for the most relevant countries. The different tones of green denote net exporting countries and red net importing countries.

Table 1. Top 3 stainless steel scrap exporting countries

Country	2016		2017		2018		2019	
	K tons	Rank	K tons	Rank	K tons	Rank	K tons	Rank
Germany	827	1	893	1	856	1	836	1
United Kingdom	134	5	130	7	183	5	340	2
Netherlands	395	2	310	2	300	3	304	3

Source: Eurostat, Country Customs, INSG

In short, the Americas are net exporters, Asian countries are net importers – India is the largest importing country (Table 2).

Table 2. Top 3 stainless steel scrap importing countries

Country	2016		2017		2018		2019	
	K tons	Rank	K tons	Rank	K tons	Rank	K tons	Rank
India	763	2	901	1	1,041	1	1,322	1
Belgium	832	1	852	2	933	2	764	2
Finland⁸	642	3	577	3	548	3	564	3

Source: Eurostat, Country Customs, INSG

Europe is mixed and quite active in this market – in 2019 it was the region with the 3 largest exporters and the 2nd and 3rd largest importers.

Countries in Africa and Oceania are typically less important in terms of SSS trade.

The analysis shows that, in addition to a global perspective, there is also a regional focus for international scrap trade as a considerable share of trade is done between countries located near to each other. Transportation costs and economic integration are amongst the reasons for this.

With scrap ratios for the production of STS close to an estimated 60% on average in the European Union, around 50% in Japan, South Korea and Taiwan (China), and around 20% in China, SSS and its trade is an extremely important issue for this industry. Also, recovering material from secondary sources instead of primary ones, especially considering the size of the tonnages involved, is of considerable importance for the protection of the environment and the promotion of the circular economy.

Useful links:

World Customs Organization (WCO): www.wcoomd.org

International Stainless Steel Forum (ISSF): www.worldstainless.org

Member countries are encouraged to contact the INSG secretariat with questions or suggestions for further work on this topic.

Comments or questions

Please contact Ricardo Ferreira or Francisco Pinto at the INSG Secretariat.

Emails: ricardo.ferreira@insg.org ; francisco.pinto@insg.org

Telephone: +351 21 356 7030

INSG
June 2020

⁸ Data for Finland is based on “mirror” statistics.