



An Overview of World Stainless Steel Scrap Trade in 2017 and 2018

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Introduction

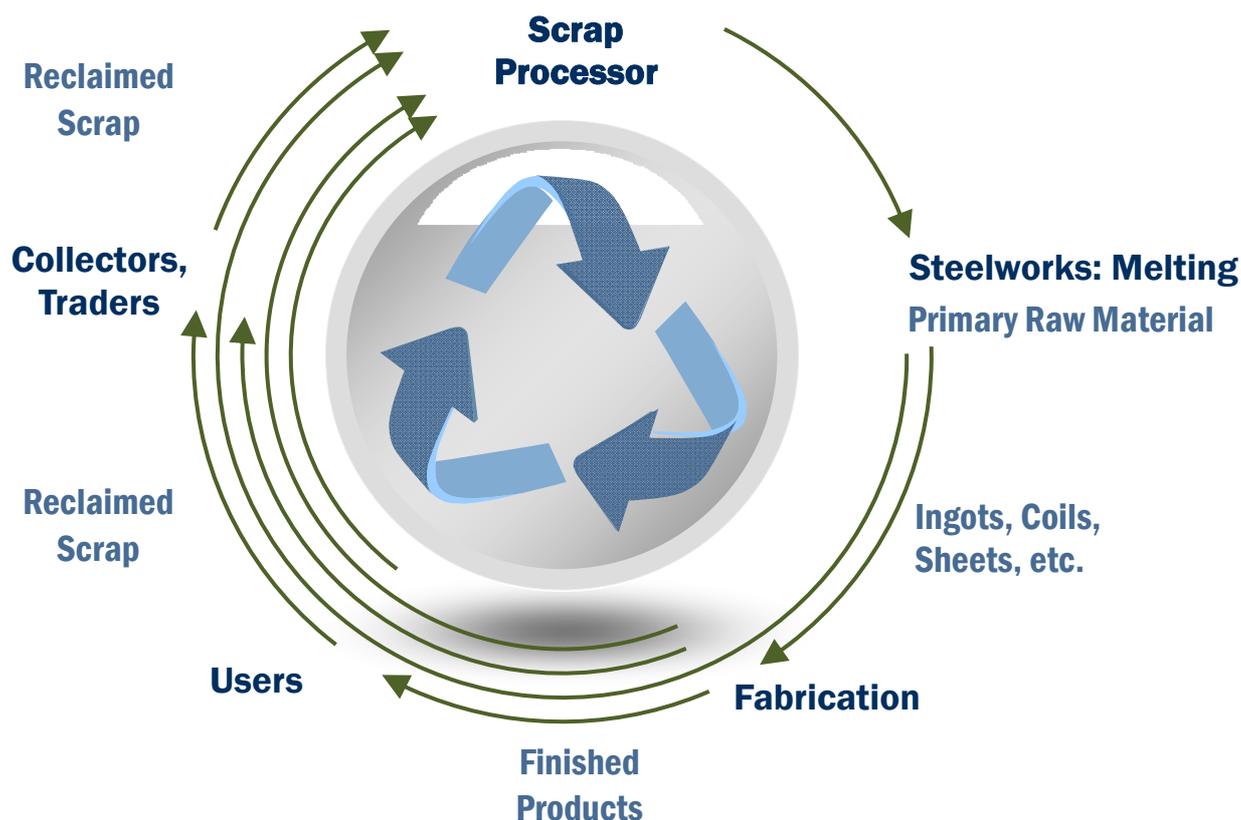
The International Nickel Study Group (INSG) collects data on stainless steel scrap (SSS) trade on a monthly basis as part of its regular market research activities. Detailed figures are published on a country by country basis in the INSG Monthly Bulletin and Yearbook, and are also available in the Study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

This Insight report, the 31st 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:

- Americas - Brazil, Mexico and United States of America (USA)
- Europe - Belgium, Finland, France, Germany, Italy, Netherlands, 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 final 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).

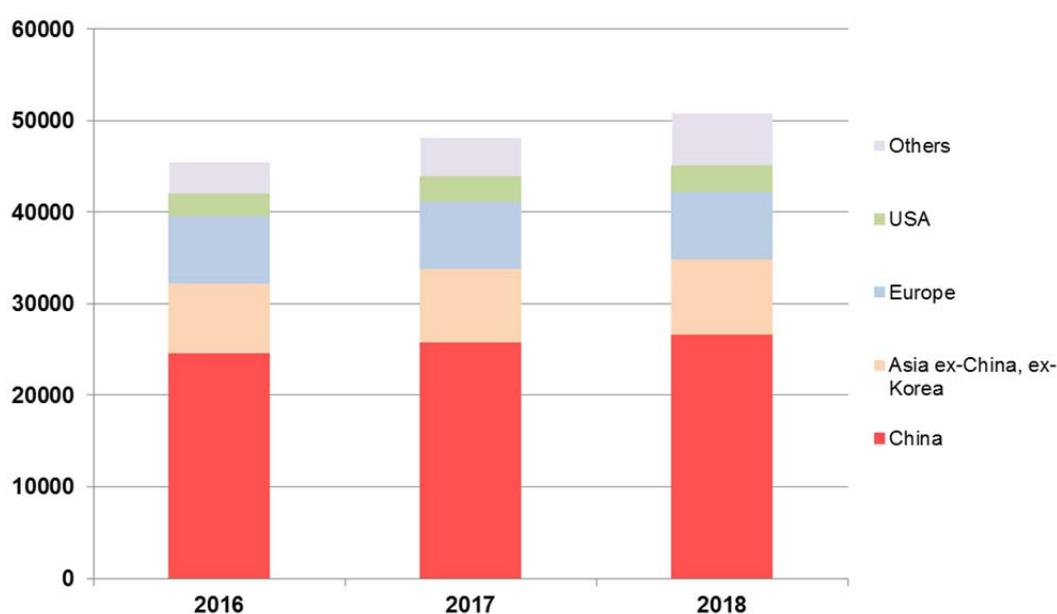
¹ The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO).

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 rate (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 analyse world stainless steel production by region over the last 3 years.

Graph 1. World stainless steel production – 2016-18



Source: ISSF

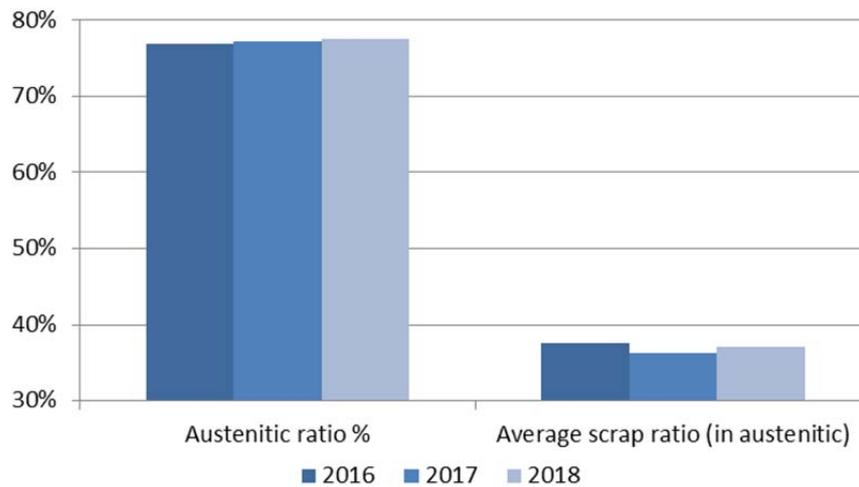
According to the International Stainless Steel Forum (ISSF), world stainless steel melting production reached 48.1 Mt in 2017 and 50.7 Mt in 2018 (graph 1), reflecting increases of +5.8% and +5.5% in those years, accordingly.

China P.R. is the biggest producing country, with total output of 26.7 Mt in 2018, which indicates +3.6% growth compared to 2017. A major change was Indonesia starting to produce stainless steel in the second half of 2017. During this period, the country produced almost 700 kt, while in 2018 it ramped up to 2.2 Mt. Its sole producer is the Chinese company Tsingshan. However, at least one other company is also building a facility there.

The USA had very strong growth in 2017 (+11%) but this declined in 2018 (+2%). Europe also increased production in 2017 (+1.3%) but stagnated in 2018 (+0.1%).

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 and 2018 to more than 77% of total world production (graph 2), but average scrap ratios in austenitic decreased in 2017 before recovering partially in 2018.

Graph 2. World Austenitic Ratios and Scrap Ratios – 2016-18

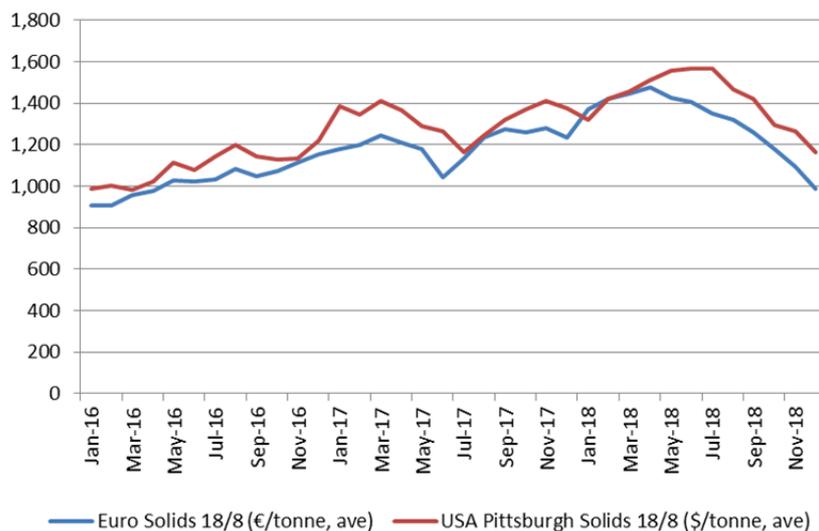


Source: Macquarie

2. Stainless Steel Scrap Prices

In this section we will briefly describe the evolution of stainless steel scrap 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 – 2016-2018



Source: Fastmarkets MB

In graph 3, we can see price trends in Europe and the USA for 18/8 stainless steel scrap solids. In 2017, prices closed at more than 1,200€/t in Europe and at almost 1,400\$/t in the USA, meaning increases of almost +7% and +13%, respectively.

In 2018, prices went up in the first half of the year before dropping sharply in the second half. In Europe, prices averaged more than 1,400€/t in H1 but closed the year below 1,000€/t. In the USA, prices reached more than 1,500\$/t from April to July and closed below 1,200\$/t. Considering the full year, prices decreased almost -20% in Europe and more than -15% in the USA.

3. Americas

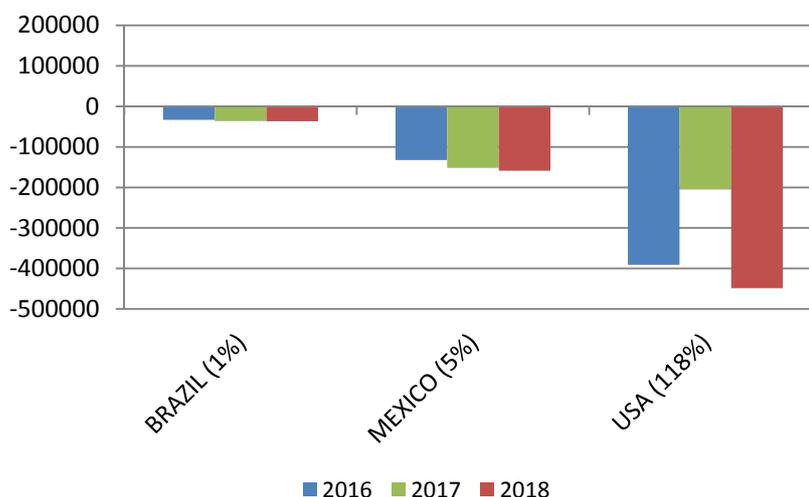
In this section, North and South American countries will be covered, analysing in more detail Brazil, Mexico and United States of America (USA)².

All the 3 countries are net exporters of SSS (graph 4), but the USA is the most important market for both stainless steel production and SSS trade. The country generates, consumes and exports large quantities of scrap. In 2018, it had net exports of 449 kt, an increase of +118.5% compared to 2017, after declining -47.5% in 2016.

Mexico had net exports of 159 kt in 2018 (+4.7%) and 152 kt in 2017 (+14.5%). In 2018, the country exported 69% of its scrap to the US and 12% to India.

Brazil showed similar levels for both years: 37 kt in 2018 and 36 kt in the 2017. In 2018, the country exported 24% of its scrap to Spain, 23% to South Korea and 19% to the Netherlands.

Graph 4. Stainless steel scrap net trade – Americas – 2016-2018



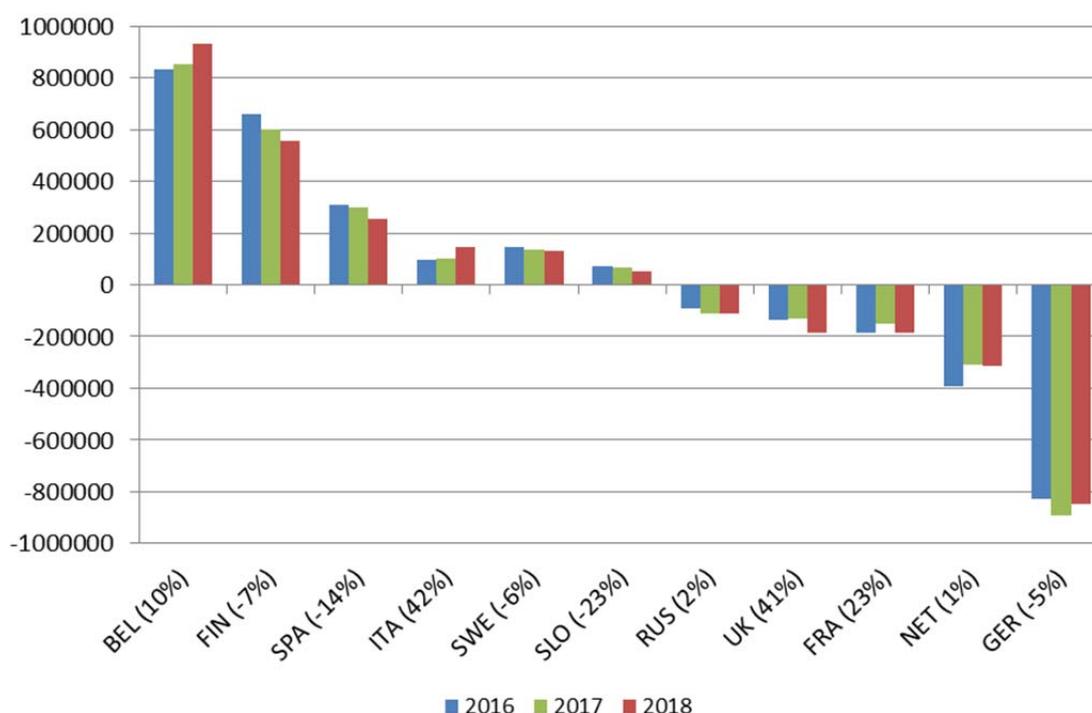
Source: Country Customs, GTI, INSG

4. Europe

As we can see in Graph 5 some European countries are exporters while others are importers. Belgium is the biggest net importer, followed by Finland and then by Spain, while Germany is the top net exporter, succeeded by the Netherlands and then by France. The rest of the countries have only traded relatively small tonnages: 1) net importers: Italy, Sweden and Slovenia; 2) net exporters: Russian Federation and the United Kingdom (UK). Traditionally, European countries trade a significant amount of SSS between each other.

² Canada was included in past Insight reports but some of the figures reported in 2017 and 2018 are under further investigation. For reference, Canada declared imports of 221 kt in 2016, 1.2 Mt in 2017 and 960 kt in 2018 and exports of 214 kt in 2016, 168 kt in 2017 and 156 kt in 2018.

Graph 5. Stainless steel scrap net trade – Europe – 2016-2018



Source: Eurostat, GTI, GTT, INSG

Belgium's SSS net imports increased in both 2017 (+2.4%, 852kt) and 2018 (+9.5%, 933kt), due to a strong influx of material. In the latter year, the country's main suppliers were Germany (61%) and France (30%), while the Netherlands (37%) and the UK (25%) were its main customers.

Finland presented the opposite trend. For the same years, SSS net imports decreased: -8.9% (600kt) and -7.3% (556kt), respectively. Since exports augmented marginally, the main reason for that was the decrease in (mirror) imports. In 2018, the Netherlands was the country's main supplier with 70%, followed by Poland with 18%.

Germany is the largest net exporter of SSS and had a mixed trend in those two years. In 2017, net exports grew to 893kt (+8%) and, in 2018, decreased to 848kt (-4.9%). Germany bought material from several countries in 2018: the Netherlands (19%), Austria (18%), Czech Rep. (11%), and others. Almost half of the scrap was sold to Belgium (47%).

The remaining countries trade relatively small quantities of scrap and exhibited differing trends over the years being analysed. On the net importers side, Spain (-4.5% and -14%, or 297kt and 255kt), Sweden (-7% and -5.5%, or 137kt and 129kt) and Slovenia (-1.8% and -22.6%, or 69kt and 53kt) decreased activity in both years respectively, while Italy increased +3.9 (102kt) in 2017 and +41.8% (145kt) in 2018.

On the net exporters side, the Netherlands exported less in 2017 (-21.4%, 310kt) and kept similar levels in 2018 (+0.9, 313kt). Both France (-18.1% and +23%, or 152kt and 187kt, respectively) and the UK (-3.3% and +40.8%, or 130kt and 183kt, respectively) exported less in 2017 and recovered in 2018.

This final section focuses on the European Union (EU) as a whole.

The EU – considering extra-EU trade – went from being a net importer to a net exporter from 2017 to 2018, with net imports of 17kt in 2017 and net exports of 55.7kt in 2018.

Total imports made by the EU from non-EU countries were 427.2 kt (3.2%) in 2018. Exports were 482.9kt (21.7%) for the same period.

Most of the trade in the EU is between EU countries. In 2018, 86% of exports from EU countries had another EU country as their destination (in 2017 it was 89%). Regarding imports this figure was 88% for both years.

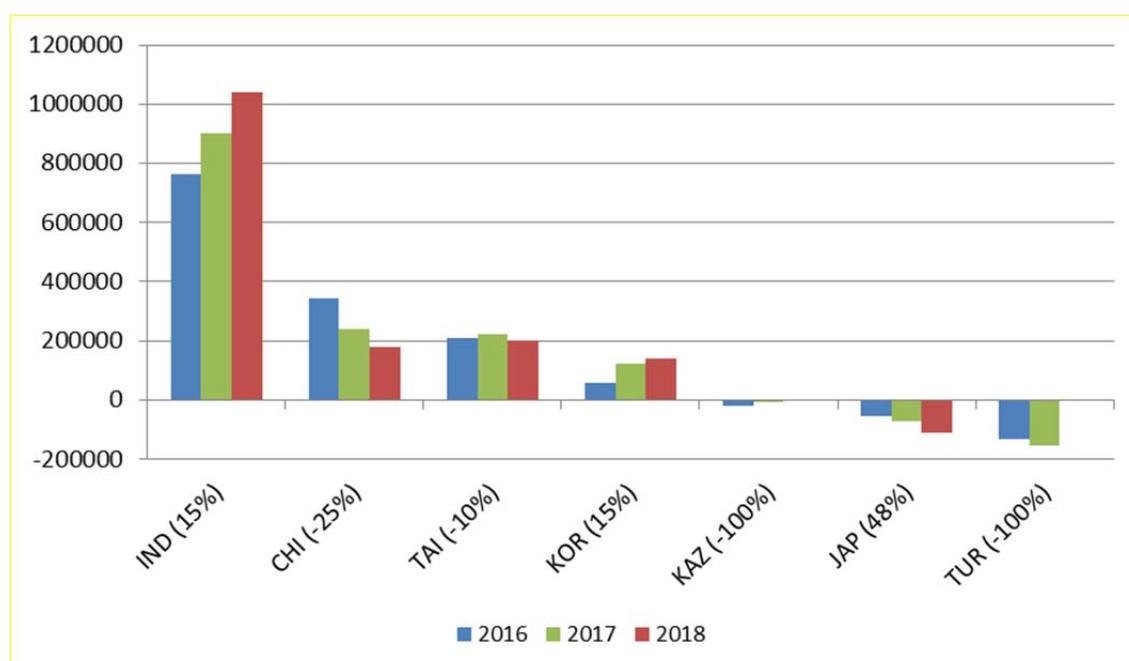
The main destination of exports outside the EU in 2018 was India with 249kt (38.8%), followed by Taiwan (China) 47.7kt (2.3%) and Bangladesh 46kt (56.2%). A relevant change to be noted is Indonesia, which soared from less than 1kt in 2017 to 31.3kt in 2018. This put it in 5th position after Pakistan with 31.9kt (-29.9%).

Looking at imports, the main source from outside the EU was the Russian Federation with 97.3kt (-5%), followed by Turkey with 82.7kt (-1.8%) and Switzerland with 57.2kt (-2.4%).

5. Asia

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

Graph 6. Stainless steel scrap net trade – Asia – 2016-2018



Source: Country Customs, GTI, INSG

India is the largest importer of scrap in Asia and continues to grow. After an increase of 18.1% to 903.3kt in 2017, net imports climbed at a rate of 15.6% to 1,044kt in 2018. India only produces a small quantity of nickel and relies on imports of both nickel products (as ferronickel, NPI and refined) and scrap for its growing STS production. 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 2018, the USA, the United Arab Emirates and Thailand were the three main suppliers, with 11%, 9% and 8% shares respectively.

China's use of scrap has been growing, although the country still has relatively low scrap ratios. 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 imports decreased 25% to 181.3kt in 2018 (mirror statistics), following the trend of the previous year (a 30% decrease to 241.5kt in 2017). Hong Kong and the USA were the main countries to report exports of SSS to China with 57% and 23% shares, respectively. Japan followed with a 9% share.

Taiwan (China)'s net imports decreased 9.7% to 198.9kt in 2018, after an increase of 5.9% to 220.4kt in 2017. Although with percentage changes, net trade figures have been stable at around 210kt over the last 3 years, following a longer-term trend. The main suppliers of scrap were the USA, the Netherlands and Japan with 35%, 16% and 12% shares, respectively.

South Korea saw its net imports increase 15% to 140.1kt in 2018, after a surge of 109% (to 121.8kt) in 2017. Although it is a net importer, the country also has an important role as an exporter of SSS. Looking at the total trade figures, it can be seen in 2018 total imports were 267.8kt and total exports were 127.7kt. The main sources of scrap were Japan (42% share), Thailand (26% share) and Taiwan (China) (9% share). The main destinations were India (55% share), Japan (29% share) and Taiwan (China) (9% share).

Japan has consolidated its position as a net exporter over the last two years, reaching 108.9kt of net exports (47.5%) in 2018, after a figure of 73.8kt (40%) was reached the previous year. Similarly to South Korea, Japan has a relevant position in SSS trade, reaching imports of 80kt and exports of 188.9kt in 2018. Its main suppliers were South Korea (48% share), Taiwan (China) (24% share) and the USA (12% share). The most important customers were South Korea (55% share), Taiwan (China) (16% share) and China (10% 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 in a developed stage in these two countries.

6. Africa & Oceania

South Africa and Australia are the most relevant countries in Africa and Oceania, though only the first is a STS producing country.

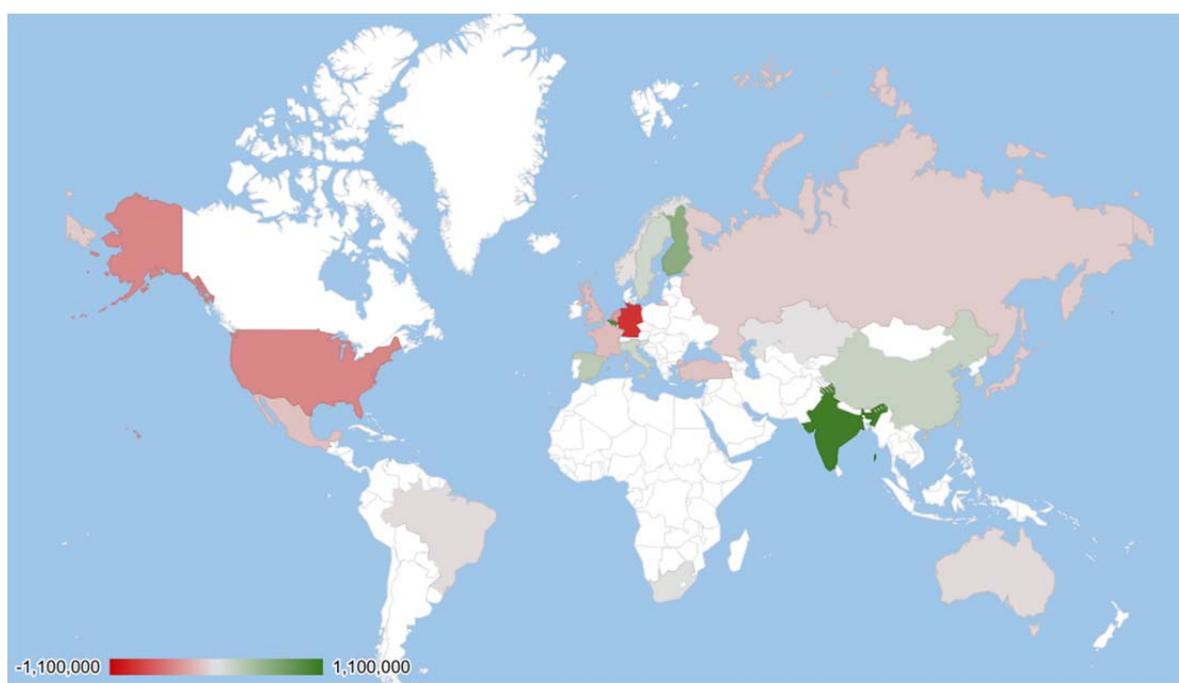
South Africa registered net imports of 19.9kt (22.6%) in 2017. The main import source was Malaysia, with a 60% share. Other sources were African countries such as Zambia and Zimbabwe with 16% and 12% shares, respectively.

Australia reported 45.2kt (-17.4%) of net exports in 2017. India was the main destination with a 46% share of total exports. Most other exports went to smaller Asian countries (reported as “other Asia”) and Vietnam, adding up to a 30% share.

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 producing 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 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 – 2018



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. In different tones of green we can find net exporting countries and in red net importing countries.

Table 1. Top 3 stainless steel scrap exporters

Country	2018		2017		2016	
	k tons	Rank	k tons	Rank	k tons	Rank
Germany	1136	1	1166	1	1085	1
United States	778	2	488	3	654	3
Netherlands	775	3	820	2	810	2

Source: Eurostat, Country Customs, INSG

In short, the Americas are net exporters - the United States is the second largest exporting country (Table 1). Asian countries are net importers - India is the largest importing country (Table 2).

Table 2. Top 3 stainless steel scrap importers

Country	2018		2017		2016	
	k tons	Rank	k tons	Rank	k tons	Rank
India	1044	1	903	2	765	2
Belgium	1031	2	954	1	904	1
Finland (mirror)	580	3	592	3	657	3

Source: Eurostat, Country Customs, INSG

In Europe there are both exporting and importing countries – Germany and the Netherlands are the first and third biggest exporters in the World, while Belgium and Finland (mirror) are the second and third most significant importers in the World, respectively.

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

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

With scrap ratios in 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

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