



## An Overview of World Stainless Steel Scrap Trade in 2020

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### Introduction

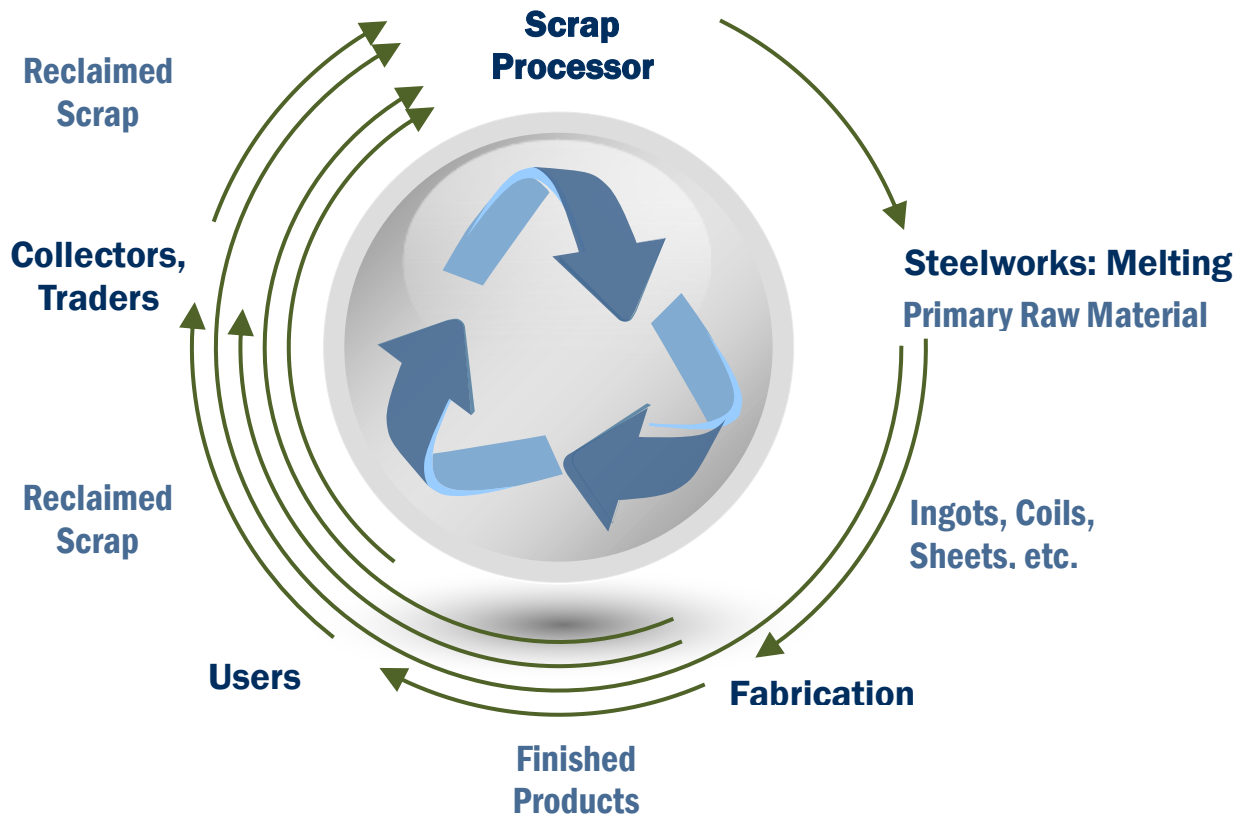
The International Nickel Study Group (INSG) collects data on stainless steel scrap (SSS) trade on a monthly basis as part of its regular market research activities. Detailed figures are published on a country by country basis in the INSG Monthly Bulletin and Yearbook, and are also available in the Study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

This Insight report, the 36<sup>th</sup> in the series, provides members with a review of this market, highlighting the major trends of SSS trade between countries around the World in 2020 – a year negatively affected by the COVID-19 pandemic.

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, 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 and Oceania – South Africa and Australia

The last section comprises some final comments about the global market.

### **General notes**

INSG follows the "Harmonized System"<sup>1</sup> (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).

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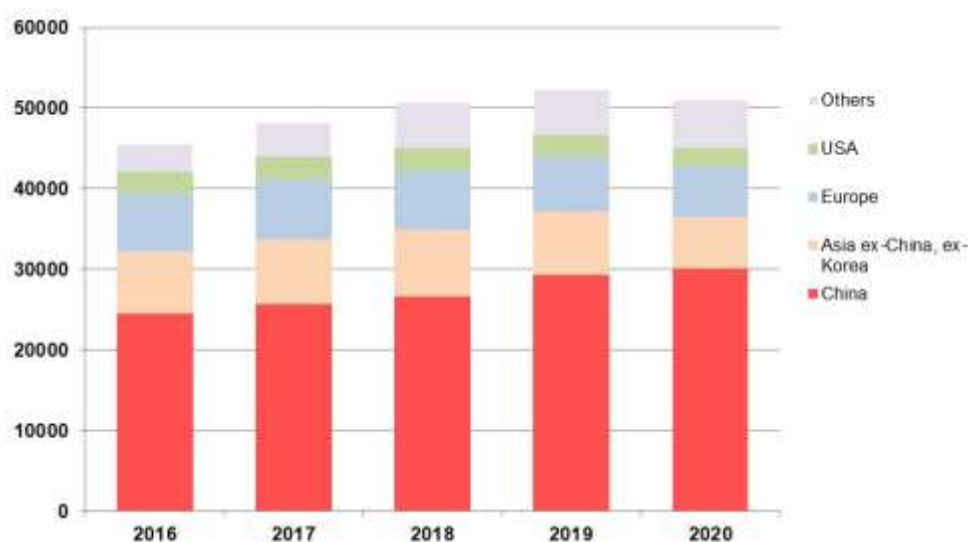
<sup>1</sup> The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO).

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 5 years.

**Graph 1. World stainless steel production – 2016-2020**



*Source: ISSF (as of 15 March 2021)*

According to the International Stainless Steel Forum (ISSF), world stainless steel melting production reached 52.22 Mt in 2019 and 50.98 Mt in 2020 (graph 1), reflecting an increase of +2.9% in the former year, but a decrease of -2.4% in the latter. In 2020, only China P.R. and Others (due to the inclusion of Indonesia) performed positively.

China is the biggest producing country, with total output of 30.1 Mt in 2020, which indicates +2.5% growth compared to 2019.

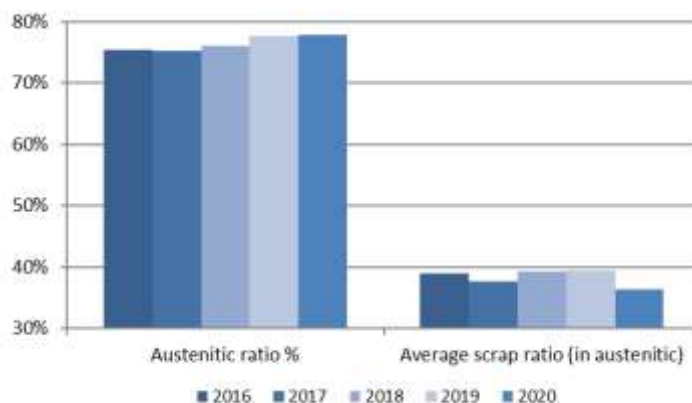
Other countries (Brazil, Russia, S. Africa, S. Korea, Indonesia) showed positive growth in 2020 (+6%), after a decrease of -2.0% in 2019. A major change in this region was Indonesia starting to produce STS in the second half of 2017. During this period, the country produced almost 700 kt and ramped up to almost 2.7 Mt in 2020. In February 2020, Delong commissioned a new mill, becoming the second producer after Tsingshan. Both companies are Chinese.

In Europe, production increased in 2017 (+1.3%), stagnated in 2018 (+0.1%), and decreased in both 2019 (-7.9%) and 2020 (-7.1%). The USA had very strong growth in 2017 (+11%) but output declined in 2018 (+2.0%), 2019 (-7.7%) and 2020

(-17.3%). Asia excluding China and South Korea had negative performances in 2019 and in 2020 too, with reductions of -3.7% and -18.6%, respectively.

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 2018, 2019 and 2020 to almost 78% of total world production (graph 2). Average scrap ratios in austenitic increased in 2018 and 2019 to just above 39% before decreasing to less than 37% in 2020. Less scrap availability during the pandemic has been suggested as the principal reason for this decline.

**Graph 2. World Austenitic Ratios and Scrap Ratios – 2016-2020**

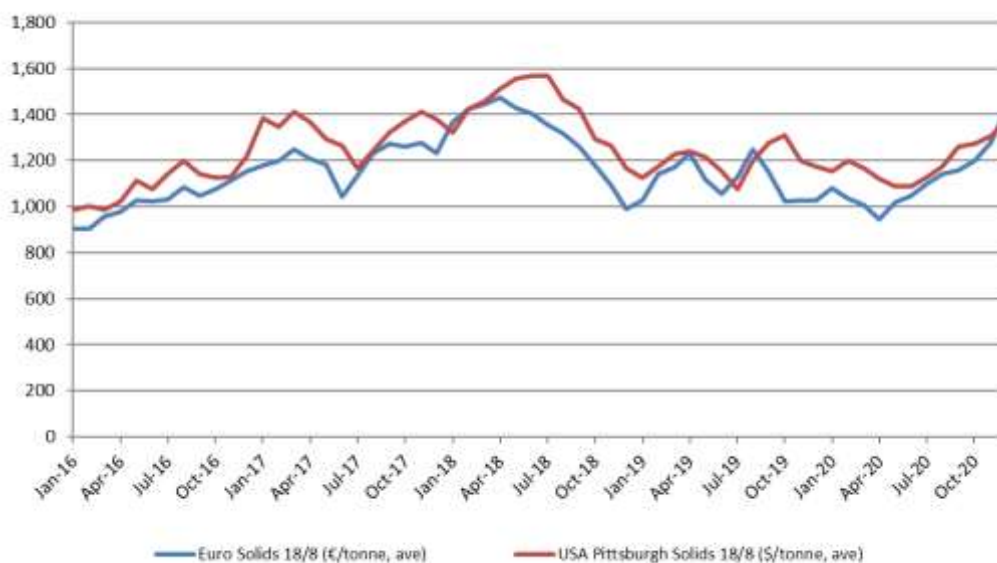


*Source: INSG, ISSF, Macquarie, Eramet*

## 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 STS mills largely depends on how much they have to pay for this “raw material”.

**Graph 3. Stainless Steel Scrap Prices – January 2016 – December 2020**



*Source: Fastmarkets MB*

In graph 3, we can see monthly average price trends in Europe and the USA for 18/8 stainless steel scrap solids.

In Europe, average prices closed at 1,233€/t (+6.7%) in 2017, 989€/t (-19.8%) in 2018 (prices went up in the first half of the year, peaking at more than 1,400€/t, before dropping sharply in the second half), and at 1,028€/t in 2019 (+3.9%).

In the USA, average prices closed at almost 1,378\$/t (+13%) in 2017, at 1,165\$/t (-15.5%) in 2018 (prices peaked at 1,569\$/t in July), and closed at 1,176\$/t (+1.0%).

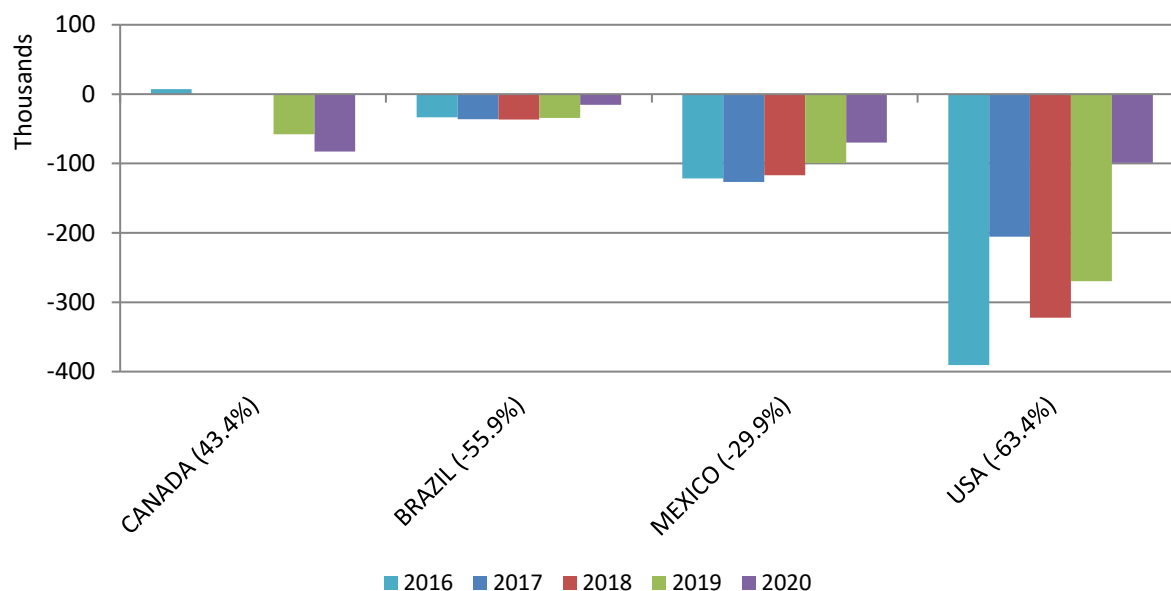
In 2020, prices averaged 1,119€/t in Europe and 1,193\$/t in the USA. In the former, prices closed at 1,414€/t (+37.5%), while in the latter closing prices were 1,367\$/t (+16.2%). In Europe, prices bottomed in April at 944€/t, but in the USA the lowest prices were recorded in May and June at 1,087\$/t.

### 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 of the 4 countries were net exporters of SSS in 2020 (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 2020, it had net exports of 99 kt, a decrease of 63%, following a decline of 16% from 2018 to 2019.

**Graph 4. Stainless steel scrap net trade – Americas – 2016-2020, tonnes**



**Source:** Country Customs, GTI, INSG

The main destination for **US** exports in 2020 was India (38% share), followed by Taiwan (19%) and Canada (13%). The main partners were unchanged from 2019, but India's share increased noticeably from 29% in 2019 while the other partners saw their shares diminish. Nevertheless, with a 33% decrease in total exports to 319 kt in 2020, exports to India decreased in absolute value in 2020.

**Mexico** had net exports of 70 kt in 2020 (-30%) and 99 kt in 2019 (-15%). In 2020<sup>2</sup>, the country exported 80% of its scrap to the US (vs. 65% in 2019), 10% to India (vs. 18% in 2019) and 5% to Spain (vs. 8% in 2019).

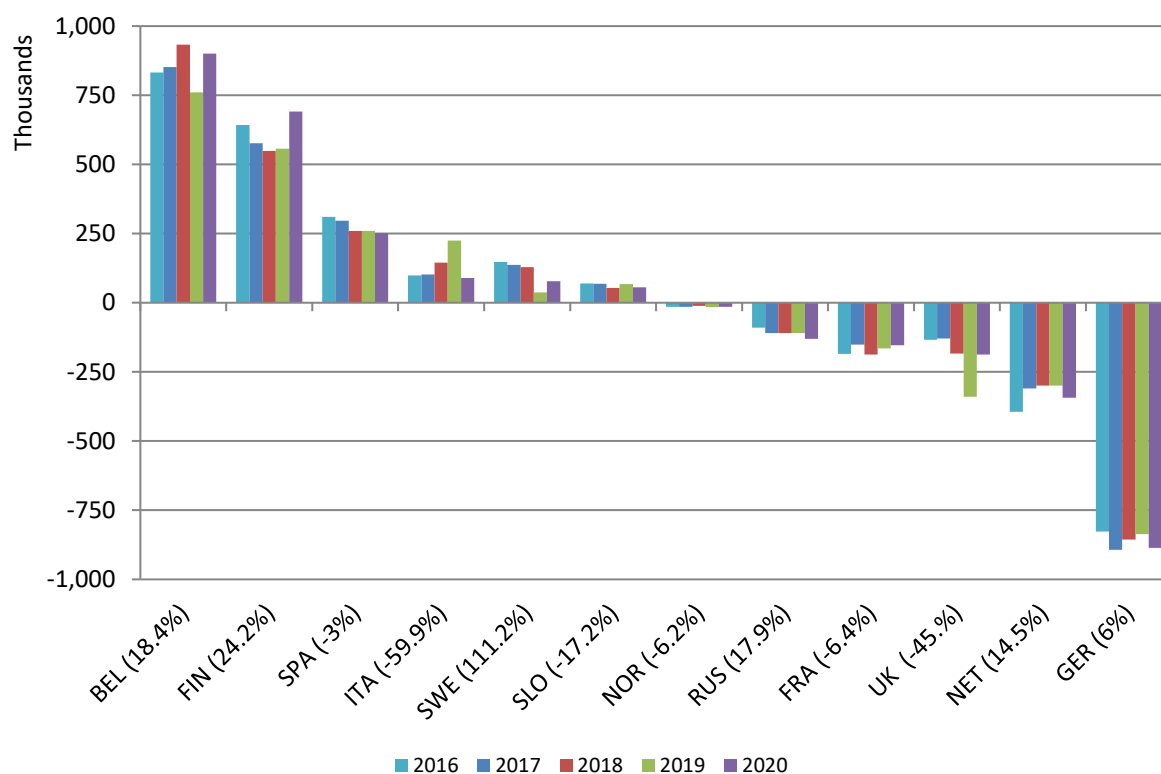
**Brazil** shows similar levels for the first 4 years in the review period, but an abrupt fall to 15 kt in 2020, from 34.5 kt in 2019 (-56%). Last year, the country's largest SSS export destinations were South Africa (37% vs. 47% in 2019), India (18% vs. 16% in 2019) and the Netherlands (18% vs. 9% in 2019). Regardless of the share increases, all destinations have received less exports in quantity, as total exports fell 54.5% in 2020.

**Canada** reported net exports of 83 kt in 2020 (43% increase from 2019). The USA is historically the main export destination of Canadian SSS (80% in 2020)<sup>3</sup>.

#### 4. Europe

As we can see in Graph 5, Europe has both net importing and net exporting countries.

**Graph 5. Stainless steel scrap net trade – Europe – 2016-2020, tonnes**



**Source:** Eurostat, GTI, GTT, INSG

In 2020, Belgium was the biggest net importer, followed by Finland and then Spain and Italy, while Germany was the top net exporter, succeeded by the Netherlands, the United Kingdom (UK) and France.

<sup>2</sup> Import figures for Mexico are based on mirror statistics, i.e. as reported by countries exporting to Mexico.

<sup>3</sup> 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, 88 kt in 2019 and 69 kt in 2020; and exports of 214 kt in 2016, 168 kt in 2017, 175 kt in 2018, 146 kt in 2019 and 151 kt in 2020.

The rest of the countries only traded relatively small tonnages: Sweden and Slovenia were net importers, while the Russian Federation<sup>4</sup> and Norway were net exporters. Traditionally, European countries trade a significant amount of SSS between each other – below we analyse European trade in more detail.

**Belgium's** SSS net imports recovered to 900 kt in 2020 (18% growth), from a dip in 2019 (761 kt, a 19% decrease from 2018). Last year, the country's main suppliers were Germany (57%) and France (29%), while the UK (38%) and the Netherlands (32%) were its main clients.

**Finland's** SSS net imports<sup>5</sup> increased to 691 kt in 2020 (+24%) after a small increase of 1.5% to 557 kt in 2019. In 2020, the Netherlands was the country's main SSS supplier with a 44% share of imports, followed by Germany that grew in importance by nearly doubling gross imports from 96 kt in 2019 to 187 kt in 2020 (shares of 16% in 2019 and 26% last year) and Poland (16% of imports in 2020).

**Germany** is the largest net exporter of SSS. In 2020, net exports increased to 886 kt (+6%), after having slowed to 836 kt (-2%) in 2019. Germany's sources of material are diversified: the main suppliers in 2020 were the Netherlands (19%), Austria (15%), Switzerland (13%), the Czech Rep. (11%) and Poland (10%). The main export destinations were Belgium/Luxembourg (40%), Finland (17%) and the Netherlands (10%).

The remaining countries trade comparatively small quantities of scrap and exhibited differing trends over the years being analysed (growth and total net imports for 2019 and 2020 in parenthesis, respectively).

**Sweden**, a smaller net importer, saw a large swing from decline in the previous year to growth in 2020 (-71.5% and +111.2% or 37 kt and 78 kt).

Other smaller net importers seeing decreases in 2020 were **Italy** (+54.2% and -59.9% or 224 kt and 90 kt), **Slovenia** (+26.5% and -17.2% or 67 kt and 56 kt) and **Spain** (-0.2% and -3% or 259 kt and 251 kt). All but the latter with mixed behaviour in the last 2 years.

Looking at the net exporters' side (growth and total net exports for 2019 and 2020 in parenthesis, respectively), growth in 2020 was seen in the **Russian Fed.** (+0.4% and +17.9% or 110 kt and 130 kt) and in the **Netherlands** (+0.1% and +14.5% or 300 kt and 343 kt).

Among net exporters that saw declines, the **United Kingdom** had a large swing from growth in the previous year (+85.8% and -45% or 340 kt and 187 kt). This has shifted the country from 2<sup>nd</sup> to 3<sup>rd</sup> largest net exporter in Europe after the Netherlands. **France** (-11.8% and -6.4% or 165 kt and 154 kt) and **Norway** (+37.1% and -6.2% or 16 kt and 15 kt) also saw their net export figures decrease in 2020.

We now turn to the **European Union (EU)** as a whole<sup>6</sup> – for comparability reasons, EU trade figures do not include the UK. As the UK was the second largest net

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<sup>4</sup> Russian Federation reported no imports in 2020 by the time of publishing of this report. Mirror statistics for 2020 also report no imports for the Russian Federation in this period.

<sup>5</sup> Import figures for Finland are based on mirror statistics.

<sup>6</sup> In EU trade, figures for Finland are based on mirror statistics, which also affects figures for trade with the UK.

importer in 2019 and third in 2020, there is an interesting impact on the EU figures from leaving the UK out of the numbers, as the EU shifts from net exporter to net importer from 2019 to 2020, with 37 kt of net exports and 57 kt net imports, respectively.

The EU (excl. UK) has been a net exporter to the UK, with 31 kt in 2019 (-51% from 2018) and 26 kt in 2020 (-16.5% from 2019), according to reports by EU countries.

Total imports made by the EU from non-EU countries were 398 kt (-3.2%) in 2019 and 389 kt (-2.3%) in 2020. Exports were 435 kt (+20.9%) and 332 kt (-23.5%) for the same periods, respectively.

Most of the trade in the EU is between EU countries. An estimated 88% of imports made by EU countries in 2020 came from other EU countries, while 89% of exports made were also destined to other EU countries, in 2019, these figures were 88% and 86%, respectively.

The main destination of exports outside the EU in 2020 was India with 203 kt (a 61% share, declining 20% from 2019), followed by the UK with 47 kt (14% share, decreasing 2.8% from 2019) and then Taiwan (China) with 33 kt (10% share, falling 51.2% from the previous year); in 2019, India, the UK and Taiwan (China) were also the largest destinations, but the positions were reversed.

Looking at imports, the main source from outside the EU was the Russian Federation with 86 kt (22% share, decreasing 15.5% from 2019), followed by Turkey with 76 kt (20% share, 21.3% growth) and Switzerland with 57 kt (15% share, 0.8% growth).

## 5. Asia

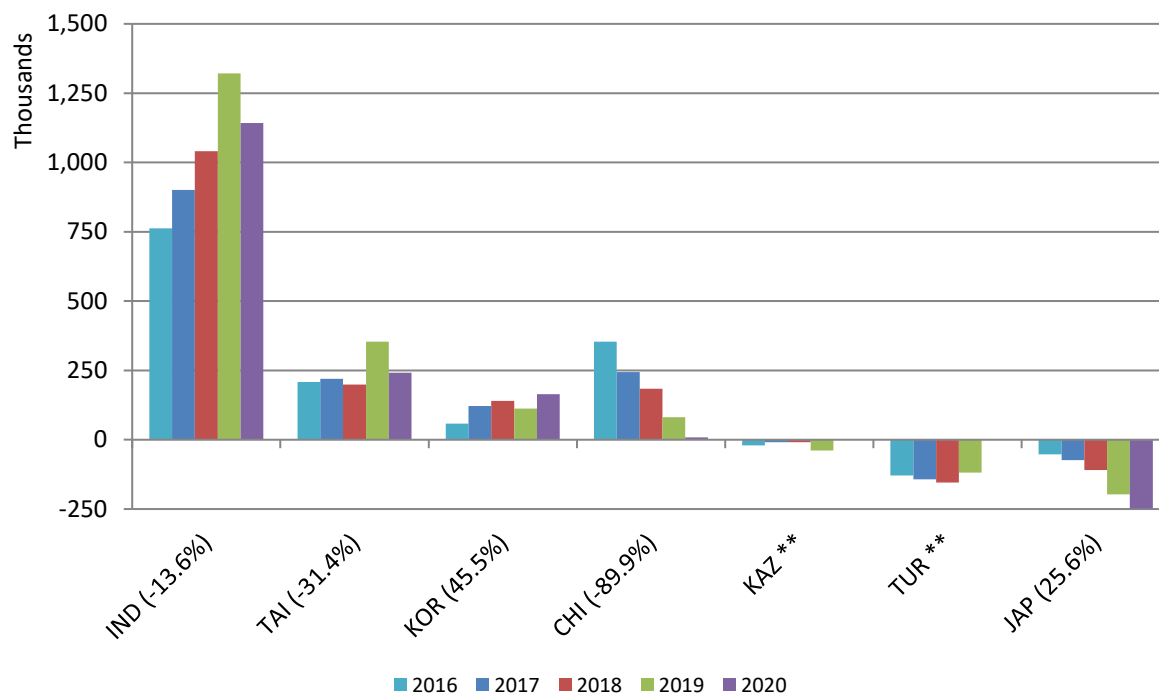
Asian countries show different profiles regarding SSS trade. In this section comments are made regarding India, China P.R., Taiwan (China), Republic of Korea (South Korea) and Japan.

**India** is the largest net importer of SSS in Asia. 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, but declined by 13.6% in 2020 to 1,142 kt. 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 sufficient to feed the country's needs. India's sources of scrap are quite diversified. In 2020, the USA and Malaysia were the two largest suppliers, with 13% and 8% shares respectively. The United Arab Emirates moved down one position to 3<sup>rd</sup> place, with a share of 7% (vs. 9% in 2019).

**Taiwan (China)**'s net imports also decreased, to reach 242 kt (-31.4%) in 2020. The main suppliers of scrap were the USA, Japan and the Netherlands with 32%, 28% and 8% shares, respectively.



**Graph 6. Stainless steel scrap net trade – Asia – 2016-2020, tonnes**



**Source:** Country Customs, GTI, INSG

**China’s** use of scrap has been growing in quantity, although the country still has relatively low scrap ratios, relying more on NPI as the main feed of nickel for the STS industry. Waste and scrap imports to the country face restrictions, although the release of new standards might suggest some waning of these restrictions in the future, the major source should be domestic.

After an accentuated fall of 59.6% in 2019, China’s net imports<sup>7</sup> nearly disappeared in 2020 with an 89.9% reduction, to 8 kt in 2020 (mirror statistics). There were noticeable decreases in both gross imports (-86%, or from 87 kt in 2019 to 12 kt in 2020) and exports (-45%, from 7 kt in 2019 to 4 kt in 2020). Exports, although largely decreasing, were in the same range of values for both years (i.e., less than 10 kt in both 2019 and 2020), so the imports’ reduction was more significant for the whole picture. Hong Kong’s major reduction as a source of imports going from 59 kt in 2019 to 0.3 kt in 2020 (-99%) greatly explains this shift.

With Hong Kong’s large decrease, the major sources of imports for China in 2020 became Canada (40% share) and Sweden (35% share).

**South Korea** saw its net imports increase 45.5% to 164 kt in 2020, after a decrease of 19.5% in 2018. Despite being a net importer, the country also has an important role as an exporter of SSS. Looking at the total trade figures, in 2020 imports were 279 kt and exports were 115 kt. The main sources of SSS in 2020 were Japan (42% share), Thailand (22%) and Taiwan (China) (13%). The main destinations were India (65% share), Japan (16%) and Taiwan (China) (9%).

**Japan** has been consolidating its position as a net exporter in recent years, reaching 248 kt of net exports (+25.6%) in 2020, after 197 kt (+81.1%) in 2019. Similar to South Korea, Japan has a relevant position in SSS trade, with imports of 35 kt and

<sup>7</sup> Data for China is based on “mirror” statistics and 2020 figures are still preliminary – countries adding up to 92% of mirrored exports in 2019 and 93% of mirrored imports in 2018 have already reported their 2020 figures.

exports of 283 kt in 2020. In 2020, exports increased (+15.1%), while imports decreased (-27.4%), consolidating the country's position as a net exporter. Its main partners were South Korea (39% share in exports and 51% in imports), Taiwan (China) (38% in exports, 2<sup>nd</sup> largest destination; and 14% in imports, 3<sup>rd</sup> source). Other relevant partners were the USA (19% of imports, 2<sup>nd</sup> largest source) and India (13% of exports' share, 3<sup>rd</sup> largest destination).

Regarding Japan and South Korea, it is important to mention that these two countries have high scrap ratios in STS production and domestic scrap plays an important role, which indicates that their circular economy is at a developed stage.

## 6. Africa & Oceania

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

Since 2016, **South Africa** has been a net importer. In 2020, net imports fell 5.4% to 36 kt, after a large increase of 48.7% in 2019, to 38 kt. The main sources of SSS were Malaysia (25% share), Turkey (17% share), Brazil (17% share) and Thailand (15% share). Neighbouring African Countries (Zimbabwe, Zambia, Mozambique, Namibia, Botswana and Eswatini) added up to a share of 15%.

**Australia** reported 103 kt (-3.8%) of net exports in 2020, after an increase of 90.1% to 107 kt in 2019. The largest destination was India (43%), followed by Indonesia (14% of share). Other Asian countries (not specified) represented 17% of exports declared by Australia.

## 7. World of Stainless Steel Scrap Trade

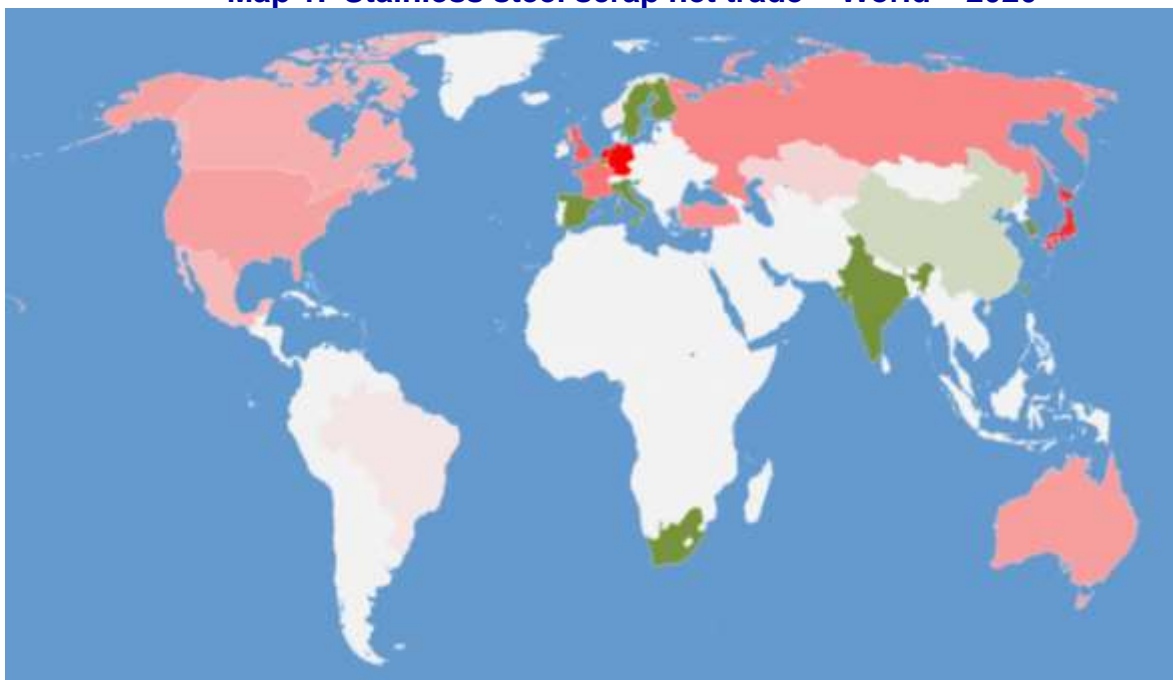
Generally speaking, SSS is generated by recovering the material from the STS production process itself, from obsolete products and demolished buildings. In this sense, SSS generation is more closely linked to STS consuming countries which are generally the more developed ones (higher income countries 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 shows a global view of world SSS net trade (imports minus exports) for the most relevant countries in 2020<sup>8</sup>. In different tones of red we can find net exporting countries and in green net importing countries.

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<sup>8</sup> Data for Turkey and Kazakhstan refer to 2019, as 2020 figures are under investigation or not available at the time of publishing.

**Map 1. Stainless steel scrap net trade – World – 2020**



**Note:** Net exporting countries in red and net importing countries in green. Tones indicate lower or higher figures.

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

Europe is mixed and quite active in this market – in 2020 it was the region with the 2 largest exporters (Table 1) and the 2<sup>nd</sup> and 3<sup>rd</sup> largest importers (Table 2).

The Americas are net exporters, Asian countries are net importers – India is the largest importing country.

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

**Table 1. Top 3 stainless steel scrap net exporting countries**

Country	2016		2017		2018		2019		2020	
	kt	Rank	kt	Rank	kt	Rank	kt	Rank	kt	Rank
<b>Germany</b>	827	1	893	1	856	1	836	1	886	1
<b>Netherlands</b>	395	2	310	2	300	3	300	3	343	2
<b>Japan</b>	53	10	74	9	109	9	197	5	248	3

**Source:** Eurostat, Country Customs, INSG

**Table 2. Top 3 stainless steel scrap importing countries**

Country	2016		2017		2018		2019		2020	
	kt	Rank	kt	Rank	kt	Rank	kt	Rank	kt	Rank
<b>India</b>	763	2	901	1	1,041	1	1,322	1	1,142	1
<b>Belgium</b>	832	1	852	2	933	2	761	2	900	2
<b>Finland</b>	642	3	577	3	548	3	557	3	691	3

**Source:** Eurostat, Country Customs, INSG

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 between 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](http://www.wcoomd.org)

International Stainless Steel Forum (ISSF): [www.worldstainless.org](http://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.

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