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(Part- II : Metals & Alloys)

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**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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15 Silver

Silver is soft and lustrous metal that is grouped in the category of noble metals. Its brilliant white colour, malleability and resistance to atmospheric oxidation have enhanced its value as a highly desired precious metal which is used in many industrial applications. Apart from its monetary and decorative uses, silver is known to have the highest electrical conductivity amongst all metals that enhances its potential in modern age applications, viz, for printed electric circuits, coating for electronic conductors and in alloys of gold & copper for electrical contacts. Its chloride and iodide are light-sensitive and hence used in photographic material. Silver is typically used (in paste form) on solar cells, this means the photovoltaics (PV) market has become one of the most important areas of silver demand. These two major uses have contributed to the increase in supply of scrap of silver contained products. Silver, which is the least expensive of the precious metals, is the whitest element and has the highest electrical and thermal conductivity among all the metals.

In India, there are no native silver deposits except the small and unique Bharak deposit in Rajasthan. It occurs generally with lead, zinc, copper (especially their sulphide ore) and gold ores and is extracted as a by-product from electrolysis or chemical methods. It was usually extracted by melting silver-bearing lead ore (ore containing argentiferous galena).

Silver is recovered as a co-product as well as a by-product in the country. Silver was recovered in the past as a co-product in gold refining at KGF Complex and Hutti Gold Mines in Karnataka and as a by-product in smelting and refining of lead, zinc and copper concentrates at Chanderiya and Debari smelters in Rajasthan, Tundoo and Moubandar (Ghatsila) smelters in Jharkhand and at Visakhapatnam smelter in Andhra Pradesh. The present production of silver comes from Chanderiya lead-zinc smelter of HZL and from gold refinery of HGML.

In addition, Hindalco extracts silver as a by-product during smelting of imported copper concentrates at Dahej in Gujarat.

RESERVES/RESOURCES

As per the NMI database, based on UNFC system, the total reserves/resources of silver ore in the country as on 1.4.2015 have been estimated at about 511.95 million tonnes. Out of these, 150.44 million tonnes were placed under 'Reserves' category and 361.51 million tonnes under the 'Remaining resources' category.

The total reserves/resources of silver in the country as on 1.4.2015 in terms of metal content were estimated at 29,982 tonnes, of which 7,172 tonnes are under 'Reserves' and 22,810 tonnes are under the 'Remaining resources'. By States, Rajasthan accounted for about 87% reserves/resources in terms of ore, Jharkhand 5%, Andhra Pradesh 3% and Karnataka 2%. Madhya Pradesh, Uttarakhand, Odisha, Meghalaya, Sikkim, Tamil Nadu and Maharashtra together shared 3% ore reserves/remaining resources (Table - 1). As per reserves & resources summary of HZL 2017-18, grade of silver was 89 gram/tonne under Reserves category and 73.5 gram/tonne under Resources category.

PRODUCTION

Silver is recovered as a by-product from lead & zinc concentrates, copper slime and as a co-product of gold refining. As per Annual Report of HZL 2017-18, silver refining capacity was 600 tonnes per annum. This facility does not add to the overall smelting capacity. HZL is currently operating silver plant of 600 TPA capacity at SIDCUL, Pantnagar, Uttarakhand since 2011. Now, as per pre-feasibility report of HZL, submitted to Ministry of Environment Forest & Climate Change (MoEF & CC) in April, 2018, it is proposed to increase silver plant annual capacity from 600 TPA to 800 TPA in existing plant by increasing percentage of silver in raw material.

**Table – 1 : Reserves/Resources of Silver as on 1.4.2015
(By Grades/States)**

(In tonnes)

| State/Grade | Reserves | | | Remaining Resources | | | | | Total Resources (A+B) | | | | |
|--------------------------|------------------|---------------------------|--------------|-----------------------|----------------------------------|--------------------|---------------------|--------------------|-----------------------|--------------------------|--------------|-----------|-----------|
| | Proved STD111 | Probable STD121 STD122 | Total (A) | Feasibility STD211 | Pre-feasibility STD221 STD222 | Measured STD331 | Indicated STD332 | Inferred STD333 | | Reconnaissance STD334 | Total (B) | | |
| All India : Total | | | | | | | | | | | | | |
| Ore | 69277075 | 8413000 | 72753828 | 150443903 | - | 1484543 | 46726460 | 29632000 | 65056000 | 218611729 | - | 361510732 | 511954635 |
| Metal | 4309.78 | 220.77 | 2641.39 | 7171.94 | - | 42.85 | 259.62 | 2037.99 | 3236.39 | 17230.19 | 2.84 | 22809.88 | 29981.82 |
| By State | | | | | | | | | | | | | |
| Andhra Pradesh | | | | | | | | | | | | | |
| Ore | - | - | - | - | - | - | 16950000 | - | - | - | - | 16950000 | 16950000 |
| Metal | - | - | - | - | - | - | 128.13 | - | - | - | - | 128.13 | 128.13 |
| Jharkhand | | | | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | - | - | 23840000 | - | 23840000 | 23840000 |
| Metal | - | - | - | - | - | - | - | - | - | 5.22 | - | 5.22 | 5.22 |
| Karnataka | | | | | | | | | | | | | |
| Ore | 10620000 | 1730000 | - | 12350000 | - | - | 69462 | - | - | 314150 | - | 383612 | 12733612 |
| Metal | 2.71 | 0.24 | - | 2.95 | - | - | 0.48 | - | - | 2.92 | - | 3.40 | 6.35 |
| Madhya Pradesh | | | | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | - | 2096000 | 1120000 | - | 3216000 | 3216000 |
| Metal | - | - | - | - | - | - | - | - | 150.61 | 9.25 | - | 159.86 | 159.86 |
| Maharashtra | | | | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | - | - | 235000 | - | 235000 | 235000 |
| Metal | - | - | - | - | - | - | - | - | - | 0.23 | - | 0.23 | 0.23 |
| Meghalaya | | | | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | - | 880000 | - | - | 880000 | 880000 |
| Metal | - | - | - | - | - | - | - | - | 19.80 | - | - | 19.80 | 19.80 |

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(Contd.)

Table - 1 (Concl.d.)

| State/Grade | Reserves | | | | Remaining Resources | | | | Total Resources (A+B) | |
|--------------------|---------------|----------|----------|-----------|---------------------|-----------------|----------|-----------------|-----------------------|-----------------------|
| | Proved STD111 | Probable | | Total (A) | Feasibility STD211 | Pre-feasibility | | Inferred STD333 | | Reconnaissance STD334 |
| | | STD121 | STD122 | | | STD221 | STD222 | | | |
| Odisha | | | | | | | | | | |
| Ore | - | - | - | - | 960500 | 119000 | - | 670000 | - | 1749500 |
| Metal | - | - | - | - | 27.34 | 3.40 | - | 34.17 | - | 64.91 |
| Rajasthan | | | | | | | | | | |
| Ore | 58657075 | 6683000 | 72753828 | 138093903 | - | 88200 | 29524218 | 27732000 | 60350000 | 191432579 |
| Metal | 4307.07 | 220.53 | 2641.39 | 7168.99 | - | 0.26 | 127.57 | 1876.39 | 3045.91 | 17137.53 |
| Sikkim | | | | | | | | | | |
| Ore | - | - | - | - | 435843 | 63780 | 300000 | - | 150000 | - |
| Metal | - | - | - | - | 15.25 | 0.04 | 27.60 | - | 13.80 | - |
| Tamil Nadu | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | 330000 | 460000 | - |
| Metal | - | - | - | - | - | - | - | 15.87 | 26.68 | - |
| Uttarakhand | | | | | | | | | | |
| Ore | - | - | - | - | - | - | - | 1600000 | 1400000 | 3900000 |
| Metal | - | - | - | - | - | - | - | 134.00 | 4.20 | 0.39 |

Figures rounded off

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During the year 2017-18, the production of silver at 5,57,691 kg increased by 21% as compared to the previous year. The production of silver from gold refining was 173 kg in 2017-18 as against 169 kg in 2016-17. One Private Sector and one Public Sector Undertaking reported production of silver during 2017-18 (Tables- 2 to 4).

In addition, Hindalco Industries Limited reported production of 67,063 kg and 70,146 kg silver from

imported copper concentrates in 2016-17 and 2017-18 respectively.

TRADING EXCHANGE

Three leading commodities exchanges, where a prospective investor can trade in silver are:

1. National Multi Commodity Exchange (NMCE)
2. National Commodity & Derivatives Exchange (NCDEX)
3. Multi Commodity Exchange (MCX)

Table – 2 : Principal Producers of Silver, 2017-18

| Name and address of the producer | Name of Plant | Location of the plant | |
|---|---------------|-----------------------|-------------|
| | | State | District |
| Hindustan Zinc Ltd, Yashad Bhavan, Udaipur- 313 004 Rajasthan. | Chandaria | Rajasthan | Chittorgarh |
| | Pantnagar | Uttarakhand | Pantnagar |
| The Hutti Gold Mines Co. Ltd, Hutti, Distt.-Raichur, 584 115 Karnataka | Hutti | Karnataka | Raichur |

**Table – 3 : Production of Silver*, 2015-16 to 2017-18
(By States)**

(Quantity in kg; Value in `'000)

| State | 2015-16 | | 2016-17 | | 2017-18 (P) | |
|--------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
| | Qty | Value | Qty | Value | Qty | Value |
| India | 426443 | 15212374 | 460811 | 18320758 | 557691 | 21179042 |
| Karnataka | 122 | 4048 | 169 | 6639 | 173 | 6609 |
| Rajasthan | 426321 | 15208326 | 460642 | 18314119 | 557518 | 21172433 |

* Excludes by-product recovery of silver by Hindalco Industries Ltd at Dahej, Gujarat from imported copper concentrates

**Table – 4 : Production of Silver*, 2016-17 and 2017-18
(By Sectors/States/Districts)**

(Qty in kg; Value in `'000)

| State/District | 2016-17 | | 2017-18 (P) | |
|------------------------------|---------------|-----------------|---------------|-----------------|
| | Qty | Value | Qty | Value |
| India | 460811 | 18320758 | 557691 | 21179042 |
| Public sector | 169 | 6639 | 173 | 6609 |
| Private sector | 460642 | 18314119 | 557518 | 21172433 |
| Karnataka/Raichur | 169 | 6639 | 173 | 6609 |
| Rajasthan/Chittorgarh | 460642 | 18314119 | 557518 | 21172433 |

* Silver as a by-product:

i) In Karnataka, it is recovered at Raichur district while refining of gold at Hutti and Uti gold mines.

ii) In Rajasthan, it is recovered at Chandaria, lead-zinc smelters of HZL.

iii) Excludes by-product recovery of 67,063 kg and 70,146 kg silver from imported copper concentrates in 2016-17 and 2017-18, respectively.

RECYCLING

Recycling, a significant factor in the supply of many of the metals used in our society provides environmental benefits, such as, energy saving, reduced emission associated with energy saving etc. Photographic wastes, spent catalysts and electronic scrap are the major sources of materials for silver recycling. Other recyclable silver-bearing materials include dental alloys, jewellery and silverware. Cell phones have become one of the major sources for recycled silver recovery.

As per USGS Report entitled "Recycled Cell Phones—A Treasure Trove of Valuable Metals", references on data offered by the Falconbridge Ltd, indicate that one tonne of obsolete cellphones (exclusive of batteries) contains an average 3.14 kg of silver metal.

As per the data of World Silver Survey 2018, global silver scrap supply fell by 1% to 4296 tonnes (138.1Moz), the sixth consecutive year of decline and the lowest level in 21 years. Asia was the main region responsible for the annual drop driven by a lack of incentive from both suppliers and consumer to recycle their silver valuables. In addition, the relatively low silver price motivated cash rich recyclers to wait for better days. At, 83 tonnes (2.7 Moz), Indian scrap supply in 2017-18 was down by 2% as compared to 2016-17. Steady prices and reduced economic distress contributed to the marginal decline. Source of supply varied from jewellery, articles, electrical contact and plated materials. Looking ahead, the source of scrap from the industrial segment is expected to shift higher with the increase in capacity for Ethyl Oxide production as the silver post scrapping is sold in the domestic market. Secondly, rules related to e-waste management are going to tighten and this will require a more organised recycling of electronic waste in India.

As per Mineral Commodity summaries, 2018 approximately 1,150 tonnes of silver was recovered from new and old scrap in United States of America during 2016-17.

WORLD REVIEW

The total reserves of silver in metal content are estimated at 5,30,000 tonnes. Peru contributed (18%), Australia & Poland (17% each), Russia (10%), China & Mexico (7% each) and Chile (5%) are the major countries having silver reserves (Table-5).

**Table – 5 : World Reserves of Silver
(By Principal Countries)**

| (In tonnes of silver content) | |
|-----------------------------------|---------------|
| Country | Reserves |
| World: Total (rounded off) | 530000 |
| Australia | 89000 |
| Bolivia | 22000 |
| Chile | 27000 |
| China | 39000 |
| Mexico | 37000 |
| Peru | 93000 |
| Poland | 89000 |
| USA | 25000 |
| Russia | 55000 |
| Other countries | 57000 |

Source: Mineral Commodity Summaries, 2019. USGS

Mexico, Peru, China, Australia, Russia, Bolivia and Poland are the main producers of silver. The global primary as well as by-product mine output slightly increased to 27511 tonnes of metal content in 2015 from 27203 tonnes in the previous year. The total world mine production of silver in metal content was reported at 27.46 thousand tonnes during the year 2016 which is slightly lower by 1% as compared to 27.84 thousand tonnes in the preceding year. Mexico was the leading producer by contributing (20%) share in the total production followed by Peru (16%), China (13%), Australia, Bolivia, Chile, Poland and Russia (5% each), Kazakhstan (4%). World mine production of silver is furnished in Table- 6.

Global Supply of Silver

As per World Silver Survey, 2018, global silver mine production declined by 4.1% in 2017 to a total of 26,502 tonnes. Global scrap supply slipped by 1% last year to 4296 tonnes, with divergent performance across various regions.

**Table – 6 : World Mine Production of Silver
(By Principal Countries)**

(In tonnes of metal content)

| Country | 2015 | 2016 | 2017 |
|---------------------|--------------|--------------|-------------------|
| World: Total | 27795 | 27715 | 26559 |
| Argentina | 1079 | 933 | 995 |
| Australia | 1430 | 1418 | 1120 |
| Bolivia | 1306 | 1353 | 1196 |
| Canada | 384 | 385 | 390 |
| Chile | 1504 | 1501 | 1319 |
| China | 3421 | 3496 | 3502 |
| Guatemala | 863 | 838 | 337 |
| Kazakhstan | 1309 | 1187 | 1059 |
| Mexico | 5955 | 5409 | 5815 |
| Peru | 4102 | 4375 | 4304 |
| Poland | 1407 | 1482 | 1490 |
| Russia ^a | 1580 | 1449 | 1306 |
| USA | 1090 | 1150 | 1020 ^e |
| Other countries | 2365 | 2738 | 2707 |

*Source: World Mineral Production, 2013-2017. BGS
a :- Smelted and/or refinery production.*

Global Demand of Silver

As per World Silver Survey, 2018, the total global physical demand eased by 2% in 2017-18 to 31,652 tonnes, dragged lower by a significant contraction in retail investment.

The largest falls were recorded from global coins and bar investment, which declined by 27% to 4,699 tonnes largely due to a precipitous falls in demand from the industrialised world.

Global jewellery fabrication returned to growth in 2017, rising from 2% to 6,503 tonnes with growth in India and North America accounting for the bulk of the rise.

World industrial fabrication increased by 4% to 18, 632 tonnes (599 Moz), the highest level since 2013. Demand was supported by another record from photovoltaic application, as well as a recovery in electronics, brazing alloys and solders. Brazing alloy and solder silver fabrication also recorded an annual rise in 2017, up by 4% to 1790 tonnes (57.5 Moz), boosted mainly by robust growth from China and Japan. Global demand for silver from the Ethylene Oxide (EO) industry declined by 33% last year to 214 tonnes (6.9 Moz), dragged lower by a fall in new installation.

Indian Industrial fabrication contracted marginally year on year reaching 1067 tonnes (34.3 Moz) by the end of last year; this excludes demand for silver from ethylene oxide industry. The drop in industrial fabrication was smaller compared to the decline in GDP growth, which recorded 6.2% expansion, the lowest figure in four years. According to data collected by the Indian Electrical and Electronic Manufacturing Association (IEEMA), approximately 50% of Low Voltage (LV) switchgears, the one application that consumes major volumes of silver in the contacts market, stems from imports. This tends to inflate the silver contact fabrication volumes. Global softer photographic demand and a decline of silver use in ethylene oxide catalysts were the only drag on consumption growth. Silver used in photographic application continued to decline, falling by 3% in 2017 to 1367 tonnes.

Global silver demand from the Photovoltaic (PV) industry rose to a fresh record high of 2926 tonnes in 2017, surging 19% from the previous year.

Global silver jewellery fabrication edged higher in 2017, rising from 2% to an estimated 6503 tonnes. The increase was mainly attributed to a strong performance in India, which jumped the 7 % over 2016 Volumes, largely due to stock building ahead of the implementation of the Goods and Services Tax (GST), retails store expansion, and another good monsoon. Silver coins and medals fabrication tumbled by a sharp 35% in 2017 to hit 2471 tonnes, the lowest level since 2008.

Australia

Production in Australia decreased by 26% to 1,374 tonnes in 2015 from 1,847 tonnes in 2014. The decrease was the result of lower average ore grades which is in tandem with plans to cease operation at Cannington in 2015.

Argentina

Silver production increased by 19% to 1,079 tonnes in 2015 from 905 tonnes in 2014 owing to production increases at most of the major silver mines and to the startup of Goldcorp Inc.'s Cerro Negro Mine. Processing of ore at Cerro Negro

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commenced in July and began ramping up to full capacity of 4,000 tonnes per day of ore. Significant increases in silver production took place at Pan American Silver Corp.'s Manantial Espejo Mine and Troy Resources Ltd's Casposo Mine.

Chile

Silver production decreased by 4% to 1,504 tonnes in 2015 from 1,572 tonnes in 2014.

FOREIGN TRADE

Exports

Exports of silver metal decreased marginally by 4% to 27 tonnes in 2017-18 as compared to 28 tonnes in the preceding year. Exports were mainly to USA (41%), UAE, Canada, Germany & Italy (2% each). There were no exports of silver ores and concentrate during 2016-17 & 2017-18. Exports of silver-clad base metals drastically decreased by 68% to 1308 kg during 2017-18 from 4049 kg reported in 2016-17. Exports of Semi-manufactured silver were at 27 tonnes during the year 2017-18 which remained same as in the previous year. Export of silver-unwrought & silver powder was negligible in both the years (Tables-7 to 11).

Imports

Imports of silver increased drastically by 75% to 5,879 tonnes in 2017-18 as compared to 3,359 tonnes in the preceding year. Imports were mainly from the Hong Kong (43%), UK (17%), Russia (13%), China (10%), Singapore (3%), Netherlands & Uzbekistan (2% each).

Imports of silver-clad base metals were at 216 kg in 2017-18 as against 138 kg in the previous year. Italy (66%), Germany (23%) and USA (10%) were the major importers.

Imports of Semi-manufactured silver were at 464 tonnes during the year 2017-18 as compared to 373 tonnes in the previous year. Besides, imports of silver unwrought were 5,411 tonnes during the year 2017-18 as compared to 2,971 tonnes in previous year. Hong Kong (46%), UK (18%), Russia (13%) and China (11%) were the major importers. In 2017-18 imports of silver powder decreased drastically by 73% to 4 tonnes from 15 tonnes reported in the previous year (Tables-12 to 16).

Table – 7 : Exports of Silver (By Countries)

| Country | 2016-17 | | 2017-18 | |
|----------------------|-----------|---------------|-----------|---------------|
| | Qty (t) | Value ('000) | Qty (t) | Value ('000) |
| All Countries | 28 | 756462 | 27 | 659073 |
| USA | 16 | 330899 | 11 | 247978 |
| UAE | 4 | 208431 | 2 | 131180 |
| Canada | 1 | 27766 | 2 | 35882 |
| Germany | ++ | 6037 | 2 | 29045 |
| Iran | ++ | 1690 | 1 | 27163 |
| Italy | 1 | 13190 | 2 | 24142 |
| Mexico | 1 | 32295 | 1 | 23212 |
| UK | ++ | 14656 | ++ | 18072 |
| Chinee Taipei/ | | | | |
| Taiwan | 1 | 6637 | 1 | 17646 |
| France | ++ | 2517 | 1 | 14570 |
| Other countries | 4 | 112344 | 4 | 90183 |

Table – 8 : Exports of Silver-clad Base Metals (By Countries)

| Country | 2016-17 | | 2017-18 | |
|----------------------|-------------|--------------|-------------|--------------|
| | Qty (kg) | Value ('000) | Qty (kg) | Value ('000) |
| All Countries | 4049 | 11141 | 1308 | 3869 |
| Sri Lanka | 4046 | 11134 | 1307 | 3674 |
| UK | - | - | 1 | 195 |
| Australia | 1 | 2 | - | - |
| Philippines | 2 | 5 | - | - |
| Other countries | - | - | - | - |

Table – 9 : Exports of Silver: Semi-manufactured (By Countries)

| Country | 2016-17 | | 2017-18 | |
|----------------------|-----------|---------------|-----------|---------------|
| | Qty (kg) | Value ('000) | Qty (kg) | Value ('000) |
| All Countries | 27 | 731480 | 27 | 640176 |
| USA | 15 | 310726 | 11 | 247117 |
| UAE | 4 | 208428 | 2 | 131180 |
| Canada | 1 | 27766 | 2 | 35867 |
| Germany | ++ | 6037 | 2 | 29045 |
| Iran | ++ | 1690 | 1 | 27163 |
| Italy | 1 | 13151 | 2 | 23417 |
| Mexico | 1 | 32295 | 1 | 23212 |
| Chinese Taipei/ | | | | |
| Taiwan | 1 | 5792 | 1 | 17646 |
| France | ++ | 2517 | 1 | 14570 |
| Turkey | ++ | 6817 | ++ | 9797 |
| Other countries | 4 | 116261 | 4 | 81162 |

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**Table – 11 : Exports of Silver:Powder
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|----------------------|------------|------------------|------------|------------------|
| | Qty (t) | Value (`'000) | Qty (t) | Value (`'000) |
| All Countries | ++ | 4557 | ++ | 1512 |
| South Africa | - | - | ++ | 1373 |
| Iraq | - | - | ++ | 51 |
| Italy | ++ | 39 | ++ | 29 |
| Singapore | - | - | ++ | 26 |
| USA | - | - | ++ | 16 |
| Canada | - | - | ++ | 15 |
| UK | - | - | ++ | 2 |
| Morocco | ++ | 14 | - | - |
| Spain | ++ | 184 | - | - |
| Austria | ++ | 3472 | - | - |
| Other countries | ++ | 848 | - | - |

**Table – 12 : Imports of Silver
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|----------------------|-------------|------------------|-------------|------------------|
| | Qty (t) | Value (`'000) | Qty (t) | Value (`'000) |
| All Countries | 3359 | 123293266 | 5879 | 207248886 |
| Hong Kong | 836 | 32082324 | 2531 | 89921781 |
| UK | 216 | 7519006 | 998 | 35699874 |
| Russia | 321 | 11575782 | 738 | 25857980 |
| China | 793 | 29565386 | 596 | 21075287 |
| Singapore | 76 | 2941926 | 158 | 5654156 |
| Netherlands | 10 | 369165 | 141 | 4931565 |
| Uzbekistan | - | - | 120 | 4231687 |
| Australia | - | - | 93 | 3171175 |
| Switzerland | 199 | 7110228 | 84 | 2931472 |
| Germany | 136 | 4846793 | 75 | 2622453 |
| Other countries | 772 | 27282656 | 345 | 11151456 |

**Table – 13 : Imports of Silver-clad Base Metals
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|----------------------|-------------|------------------|-------------|------------------|
| | Qty (kg) | Value (`'000) | Qty (kg) | Value (`'000) |
| All Countries | 138 | 2964 | 216 | 2740 |
| Italy | - | - | 142 | 1987 |
| USA | 82 | 1323 | 22 | 498 |
| Germany | - | - | 50 | 233 |
| China | - | - | 2 | 22 |
| France | 5 | 140 | - | - |
| Portugal | 30 | 474 | - | - |
| UK | 21 | 1027 | - | - |

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**Table – 14 : Imports of Silver: Semi-manufactured
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|----------------------|------------|-------------------|------------|-------------------|
| | Qty (t) | Value (` '000) | Qty (t) | Value (` '000) |
| All Countries | 373 | 12741317 | 464 | 15051715 |
| Singapore | 30 | 1167076 | 112 | 4043313 |
| Hong Kong | 34 | 1285709 | 57 | 1956988 |
| Indonesia | - | - | 40 | 1398983 |
| Netherlands | - | - | 40 | 1382716 |
| Italy | 25 | 456359 | 46 | 1057382 |
| USA | 34 | 832273 | 46 | 1032568 |
| China | 69 | 2555388 | 19 | 621797 |
| UAE | 4 | 151892 | 17 | 609876 |
| UK | 1 | 58271 | 16 | 590096 |
| Kazakhstan | - | - | 15 | 508424 |
| Other countries | 176 | 6234349 | 56 | 1849572 |

**Table – 15 : Imports of Silver :Unwrought
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|----------------------|-------------|-------------------|-------------|-------------------|
| | Qty (t) | Value (` '000) | Qty (t) | Value (` '000) |
| All Countries | 2971 | 109940647 | 5411 | 192112337 |
| Hong Kong | 802 | 30793596 | 2474 | 87964793 |
| UK | 215 | 7460708 | 982 | 35109771 |
| Russia | 319 | 11521241 | 725 | 25431744 |
| China | 724 | 26993733 | 576 | 20414107 |
| Uzbekistan | - | - | 120 | 4231687 |
| Netherlands | 10 | 369165 | 101 | 3548849 |
| Australia | - | - | 93 | 3171175 |
| Switzerland | 154 | 5517139 | 74 | 2578028 |
| Germany | 94 | 3371038 | 71 | 2479086 |
| Singapore | 46 | 1774850 | 46 | 1610843 |
| Other countries | 607 | 22139177 | 149 | 5572254 |

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**Table – 16 : Imports of Silver :Powder
(By Countries)**

| Country | 2016-17 | | 2017-18 | |
|-----------------------|------------|-------------------|------------|-------------------|
| | Qty (t) | Value (` '000) | Qty (t) | Value (` '000) |
| All Countries | 15 | 611302 | 4 | 84834 |
| China | ++ | 16265 | 1 | 39383 |
| Italy | ++ | 1192 | ++ | 14342 |
| Chinese Taipei/Taiwan | ++ | 2622 | 3 | 14195 |
| Germany | ++ | 6411 | ++ | 8811 |
| USA | ++ | 20039 | ++ | 5735 |
| Russia | - | - | ++ | 1383 |
| Israel | ++ | 3006 | ++ | 741 |
| Guinea | - | - | ++ | 207 |
| Japan | - | - | ++ | 30 |
| UK | ++ | 27 | ++ | 7 |
| Other countries | 15 | 561740 | - | - |

FUTURE OUTLOOK

Silver has the dual usefulness of being a precious metal as well as an industrial metal. World over, silver is primarily traded for its industrial applications, however, Indian silver imports are largely consumed for jewellery and silverware. India is among the top 5 silver consumers in the world. About 60% of silver consumption in India is from the rural population who views it as a solid saving commodity. India does not produce silver in a significant scale and most of the silver has to be imported. Moreover, silver demand has been on the rise in major growing economies including India during the past few years. New industries, such as, medicine, manufacturing etc. are sealing up their demand for silver, and this may soon translate to higher levels of imports.

As per Annual Silver Focus Report 2017, global silver demand in photographic applications is likely to drop and is expected to touch 1,155 tonnes (37.1 Moz) during 2017-18. Digital technology and its applications would indeed be the primary cause for this fall.

As per Annual Silver Focus Report 2017, India aims to double its installation of new capacity from 4.5 GW during 2016-17 to around 10 GW during

2017-18. In the year 2017-18, India in all probabilities would overtake Japan as the world's third largest photovoltaic (PV) market as there are plans to raise capacity steadily to a target of 100 GW by 2022.

On the other side, industrial demand for silver in India may remain unchanged and would be in consistant with 1,015 tonnes (35.8 Moz) as in 2015-16. This trend is likely to continue into the near future. The key areas of industrial demand are electrical and electronics and brazing alloys. The government's aggressive efforts to boost infrastructure that include expanding the power network, with a target to complete electrification of villages in the next 4-5 years would be the most potent driving force that would influence the industrial demand for silver.

However, the counter narrative is that notwithstanding the Government's initiative for infrastructural boost, the benefits for industrial demand would be only to modest levels as the high inventory levels of semi-fabricated products across the supply chain would offset any demand escalation of silver. Housing projects (driven by a new government initiative) is another potential demand escalator for electrical equipment which would in turn influence the demand for silver.