

NICKEL



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(Part- II : Metals & Alloys)

60th Edition

NICKEL

(ADVANCE RELEASE)

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

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12 Nickel

Nickel is a lustrous, silvery-white metal. It is the fifth most common element of earth's crust. Nickel does not occur in native state. Pure nickel is obtained by reduction of its oxides or by the Mond process which consists of the formation of volatile nickel carbonyl produced by passing carbon monoxide over heated nickel oxide, and the dissociation of this compound at a higher temperature into nickel and carbon monoxide, which can be used again. It has a melting point of 1,453 °C, relatively low thermal & electrical conductivities, high resistance to corrosion & oxidation, excellent strength & toughness at high temperatures and capable of getting magnetised. It is attractive and very durable as a pure metal and alloys readily with other metals.

Nickel is not produced from primary sources in the country and the entire demand is met through imports. However, aided by latest technology HCL is carrying out recovery of nickel, copper and sulphuric acid from the spent electrolyte (waste stream) of ICC refinery at Ghatsila, Jharkhand.

OCCURRENCES AND RESERVES & RESOURCES

Nickel occurs principally as oxides, sulphides and silicates in India. Important occurrence is

nickeliferous limonite in the overburden of chromite in Sukinda Valley, Jajpur district, Odisha. In addition, nickel is found associated with uranium deposits at Jaduguda, Jharkhand and a process is being developed for its recovery. Resources are spread over in Singhbhum East district of Jharkhand and Jajpur, Keonjhar & Mayurbhanj districts of Odisha.

As per NMI database as on 1.4.2020, based on UNFC, Resources of nickel are estimated at 189 million tonnes. The entire resources fall under Remaining Resources category. The State of Odisha is endowed with the largest share of resources of nickel ore in the country at 175 million tonnes (93%) followed by Jharkhand and Nagaland. These resources are mainly found to occur in three districts, namely, Jajpur (140 million tonnes), Mayurbhanj (27 million tonnes) and Keonjhar (8 million tonnes). Jharkhand has 9 million tonnes (5%) resources most of which are in Singhbhum (East) district. Nagaland has 5 million tonnes (3%) resources which predominantly are in Kiphire district (Table- 1).

EXPLORATION & DEVELOPMENT

The exploration and development details, if any, are covered in the Review on "Exploration & Development" under "General Reviews".

**Table –1: Reserves/Resources of Nickel Ore as on 1.4.2020 (P)
(By Grades/Stages)**

(In million tonnes)

Grades/Stages	Total Reserves (A)	Remaining Resources					Total (B)	Total Resources (A+B)
		Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333		
		STD221	STD222					
All India : Total	–	21	21	31	53	63	189	189
By Grades								
+ 0.9% Ni	–	13	7	–	18	3	42	42
0.5 to 0.9% Ni	–	7	13	31	21	21	94	94
(+) 0.5% Ni, unclassified	–	–	–	–	14	39	53	53
Not-known	–	–	–	–	–	0.23	0.23	0.23
By States								
Jharkhand	–	–	–	–	2	7	9	9
Karnataka	–	–	–	–	–	0.23	0.23	0.23
Nagaland	–	–	–	–	–	5	5	5
Odisha	–	21	21	31	51	51	175	175

Figures rounded off

INDUSTRY

HCL produced nickel sulphate as a by-product at its Ghatsila Copper Smelter in Jharkhand. The sulphide copper ore from Ghatsila area contains nickel in small quantity along with other important metals like gold and cobalt. HCL, by means of imported EMEW technology from Canada, developed capabilities to recover LME-Nickel, a grade cathode from lower concentration of copper in spent electrolyte, which otherwise was not possible by conventional means. Besides this, the technology also enabled HCL to recover nickel from the spent electrolyte at ICC refinery. Another technology of Acid Purification Unit (APU) again imported from Canada, and that which is an eco-friendly technology allowed reduction of liquid effluent and facilitates recovery of nickel in the downstream process. HCL has installed capacity of 390 MT to recover nickel sulphate. However, production of nickel sulphate has not been reported since 2004-05. The Nicomet Industries Ltd located at Goa is presently engaged in production of nickel metal and their derivatives and its annual production capacity from its Goa plant is about 5,400 MTPA.

RESEARCH & DEVELOPMENT

India's first facility to produce nickel, a metal for which the country is completely dependent on imports, has been launched by the Hindustan Copper Limited (HCL) at its Indian Copper Complex (ICC) at Ghatsila in Jharkhand. The new facility "Nickel, Copper and Acid Recovery Plant" is the first facility in India to produce nickel metal of London Metal Exchange (LME) grade from primary resource.

NMDC has submitted application to DMG, Govt of Odisha for proposal to reserve 8 sq. km area in Jajpur district, Odisha, under Section 17 A (2A) of MM(D&R) Amendment Act, 2015 for prospecting and mining operation of Nickel.

An Indian delegation led by Dr V.K. Saraswat, Member, NITI Aayog visited Chile, Argentina and Bolivia to explore opportunities for sourcing lithium for manufacture of advanced chemistry batteries in India. Discussions were held with Western Australian Premier and the delegation on strategic partnerships for sourcing raw materials, such as, lithium, cobalt and nickel to support manufacturing of battery. The mobility mission held consultations with industry to

develop battery recycling as a sustainable method for ensuring up to 95% recovery of critical minerals, such as, lithium, nickel, cobalt etc.

Considering the need and significance of the problem related to energy materials, CSRI-IMMT has developed suitable process flow sheets for the processing of resources, such as, alloy scrap and spent catalyst to produce precursor materials that can be used for battery application particularly in preparing electrodes of Li-ion batteries.

USES

Sectoral uses of nickel metal are in the areas of stainless steel making; catalysis chemical industries, as an electroplating material; heat resistant alloys; alloying element for non-ferrous metals; space, defence & rocket industries; and nickel cadmium batteries. Nickel is used in many specific and recognisable industrial and consumer products including stainless steel, alnico magnets, coinage, for filters & binders, rechargeable batteries, foundry, electric guitar strings, microphone capsules and special alloys. It is also used for plating and as green tint in glass. Nickel is predominantly an alloy metal & its chief use is in the nickel steel & nickel cast iron of which there are many varieties. It is also widely used in many other alloys, such as, nickel bronze & brasses and alloys with copper, chromium, aluminium, lead, cobalt, silver & gold. It is used as catalyst which is key to several important reactions including the hydrogenation of vegetable oils, reforming of hydrocarbons and in the production of fertilizers, pesticides and fungicides.

Nickel sulphate is an important compound used commercially in the country in nickel plating, in dip baths for enamelling, in preparation of nickel compounds and as a catalytic nickel. Nickel based alloys, like stainless steel with higher nickel content are used for more demanding applications, such as, in gas turbines and some chemical plants.

CONSUMPTION

World over about 65% of nickel is used in the manufacturing of stainless steel and 20% in other steel and non-ferrous (including super alloys) components often used for highly specialised industrial, aerospace and military applications. About 9% is used in plating and 6% in other uses, including coins and a variety of nickel chemicals.

SUBSTITUTES

Aluminium, coated steels, plain chromium steels and plastics are the common substitutes that could replace stainless steel to a limited extent in many construction and transportation applications. Low-nickel, duplex, or ultra-chromium stainless steels are being substituted for austenitic grades in construction. Nickel-free speciality steels are sometimes used in place of stainless steel within the power-generating, petrochemical and petroleum industries. Titanium alloys or speciality plastics are in use as materials that could substitute nickel metal or nickel-based alloys in applications to resist corrosion in highly corrosive chemical environments. Lithium ion batteries are replacing nickel-metal hydride batteries in many applications.

TRADE POLICY

As per Foreign Trade Policy, 2015-2020, imports of nickel ores & concentrates (Heading no. 2604) and Nickel waste & scrap (Heading no. 75030010) are allowed free. However, some forms of metal waste & scrap (ITC-HS Code No. 7503 0090) are restricted.

WORLD REVIEW

The world reserves of nickel are estimated at 95 million tonnes of metal content. Indonesia & Australia (22% each), Brazil (17%), Russia (8%) and Philippines (5%) are the major countries having reserves of Nickel. The identified land-based resources averaging approximately 0.5% nickel or more contain at least 300 million tonnes of nickel. About 60% of nickel reserves is in laterites and 40% in sulphide deposits. Extensive nickel resources are also found in manganese crusts and as nodules in the ocean floor (Table-2).

In 2020, world mine production of nickel increased considerably to 2.51 million tonnes as compared to 2.67 million tonnes of metal content in the previous year (Table-3). The chief producers of nickel in the world in 2020 were Indonesia (33%), Philippines (13%), Russia (9%), New Caledonia (8%), Canada & Australia (7% each), China (4%), etc. (Table-3).

**Table – 2: World Reserves of Nickel
(By Principal Countries)**

(In Metric tonnes of nickel content)	
Country	Reserves
World: Total (rounded off)	95000000
Australia	21000000
Brazil	16000000
Canada	2000000
China	2800000
Indonesia	21000000
New Caledonia ^(b)	NA
Philippines	4800000
Russia	7500000
USA	340000
Other countries	20000000

Source: USGS, Mineral Commodity Summaries, 2022

(a) for Australia, Joint Ore Reserve Committee - compliant reserves were 8.3million tonnes.

(b) Overseas territory of France. NA- Not Available

**Table – 3: World Mine Production of Nickel
(By Principal Countries)**

(In tonnes of metal content)			
Country	2018	2019	2020
World: Total	2384000	2674000	2510000
Indonesia*	651600	1036200	816700
Philippines	344966	323325	328372
Russia	218000	223200	237300
New Caledonia	216225	208185	199485
Canada	185962	180904	167243
Australia	160022	158751	169344
China	108200	104674	105000
Brazil	65300	55700	77100
Guatemala	65710	36300	68363
Other countries	367880	346151	341224

Source: BGS, World Mineral Production, 2016-20

NICKEL

FOREIGN TRADE

Exports

Exports of nickel ores and concentrates were nil in the current year. However, there were negligible tonnes exports of nickel ores & concentrates in the preceding year. On the other hand, exports of nickel and alloys including scrap decreased drastically by 83% to 2,937 tonnes in 2020-21 from 16,890 tonnes in the previous year. Out of the total alloys and scrap exported in 2020-21, nickel & alloys were 2,269 tonnes, while nickel waste & scrap were 668 tonnes. Exports of nickel and alloys including scrap were mainly to China (21%), UK (11%), Mexico & Netherlands (7%), Turkey (6%), USA (5%), Korea. Rep of (4%), UAE & Brazil (3% each)(Tables-4 to 18).

Imports

Imports of nickel ores & concentrates were 37 tonnes in the year 2020-21. Imports of nickel & alloys including scrap were at 56,536 tonnes in 2020-21 which increased drastically by 17% from that of 48,425 tonnes in the previous year. Out of the total alloys and scrap imported in 2020-21, nickel & alloys were at 53,248 tonnes as compared to 45,294 tonnes in the previous year, while nickel waste & scrap were 3,288 tonnes as compared to 3,131 tonnes in the previous year. Imports of nickel and alloys including scrap in 2020-21 were mainly from Papua N Guinea (24%), Japan & Norway (10% each), Canada (6%), USA, China & South Africa (5% each) and UK & Netherland (3% each).(Tables-19 to 33).

**Table – 4: Exports of Nickel Ores and Conc.
(By Countries)**

Country	2019-2020 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	++	++	-	-
UK	++	++	-	-

Figures rounded off

**Table – 5: Exports of Nickel and Alloys Including Scrap
(By Countries)**

Country	2019-20 (R)		2020-21(P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	16890	6532327	2937	4147078
China	13866	2731462	603	732297
USA	277	389530	161	382978
Mexico	173	264841	193	330936
Turkey	82	113712	187	308047
Netherlands	185	194938	215	272943
UK	566	414230	332	263743
UAE	72	127494	96	182322
Korea, Rep. of	168	213243	127	179750
Brazil	63	82499	98	152797
Saudi Arabia	109	339971	45	134758
Other countries	1329	1660407	880	1206507

Figures rounded off

NICKEL

**Table – 6: Exports of Nickel & Alloys
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	15634	5830642	2269	3763280
China	13866	2731460	603	732297
USA	182	321089	159	381353
Mexico	171	258688	193	330936
Turkey	82	113712	187	308047
Netherlands	108	172915	160	248001
UAE	72	127492	96	182322
Korea, Rep. of	168	213243	127	179750
Brazil	57	81041	98	152797
Saudi Arabia	109	339971	45	134758
Thailand	93	130143	77	114149
Other countries	726	1340888	524	998870

Figures rounded off

**Table – 7: Exports of Nickel Waste & Scrap
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1256	701685	668	383798
UK	509	318515	297	181612
Sweden	134	64106	177	104595
Malaysia	-	-	60	34127
Netherlands	77	22023	55	24942
Japan	145	84267	41	24241
Germany	130	44474	17	5456
Belgium	11	646	15	4931
USA	95	68441	2	1625
Nepal	6	1878	4	1387
Jordan	-	-	++	872
Other countries	149	97335	++	10

Figures rounded off

NICKEL

**Table – 8 : Exports of Electroplated Anode Of Nickel
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	5	3185	64	31638
China	-	-	52	24164
Saudi Arabia	++	27	7	4558
Nepal	4	1943	4	1983
UAE	1	835	1	648
Hong Kong	-	-	++	112
Israel	-	-	++	79
Tanzania	-	-	++	77
Nigeria	-	-	++	12
Mauritius	++	++	++	2
Bangladesh	-	-	++	2
Other countries	++	380	++	1

Figures rounded off

**Table – 9 : Exports of Nickel Oxide Sinters & Otr Intermediate
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	13375	2129664	++	127
Czech Republic	-	-	++	99
USA	-	-	++	28
China	13375	2129664	-	-

Figures rounded off

**Table – 10 : Exports of Nickel Mattes
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	-	-	++	142
Turkey	-	-	++	142

Figures rounded off

NICKEL

**Table – 11 : Exports Nickel Except Electroplated Anode
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	31	33070	39	45191
Singapore	-	-	24	23358
UAE	24	23913	6	7313
Saudi Arabia	3	4138	4	4904
Nigeria	1	1193	2	3857
Nepal	2	2146	2	2004
Ghansa	-	-	1	919
Sri Lanka	1	964	++	664
Taiwan	-	-	++	550
China	-	-	++	531
Indonesia	-	-	++	477
Other countries	++	716	++	614

Figures rounded off

**Table – 12 : Exports of Nickel : Worked
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	212	303820	253	370849
Netherlands	76	113744	124	180585
Brazil	20	27649	39	58637
Turkey	14	19721	21	31273
Philippines	29	41573	21	31264
Germany	-	-	10	13343
Saudi Arabia	8	12311	7	10519
Colombia	20	26340	6	9132
USA	15	21038	6	8306
Malaysia	2	3272	4	6605
Thailand	4	4950	5	6253
Other countries	24	33222	10	14932

Figures rounded off

NICKEL

**Table – 13 : Exports Nickel & Alloys: Unwrought
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	2	8414	3	6481
Turkey	++	375	++	2466
Sri Lanka	++	121	1	984
Uganda	-	-	1	733
Nepal	++	564	++	626
Thailand	-	-	++	531
Kuwait	++	94	1	242
Brazil	++	70	++	214
Egypt	-	-	++	182
USA	++	328	++	156
Kenya	++	64	++	136
Other countries	2	6798	++	211

Figures rounded off

**Table – 14 : Exports of Nickel & Alloys : Worked, Nes
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	195	473544	157	608831
Turkey	2	9932	27	113355
Hungary	17	52989	20	64008
Germany	13	46929	17	58865
USA	11	40692	15	58571
Indonesia	7	21393	7	33893
Korea, Rep of	82	87358	25	28772
Mexico	1	13421	4	25692
U K	9	15965	4	20163
Thailand	7	31536	4	20008
Singapore	6	19198	5	19388
Other countries	40	134131	29	166116

Figures rounded off

NICKEL

**Table – 15 : Exports Nickel & Alloys: Worked
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	141	196522	186	253186
Turkey	22	21746	52	61574
Saudi Arabia	18	43421	10	32091
Netherlands	17	22390	20	21047
Italy	++	610	10	15676
South Africa	2	1612	12	15273
Colombia	19	20208	10	15091
Philippines	1	937	13	14136
USA	17	19117	10	11639
Thailand	2	2206	11	10069
Malaysia	5	5007	7	7547
Other countries	38	59268	31	49043

Figures rounded off

**Table – 16 : Exports of Bars,Rods,Plates,Sheets,Foilsof Nickel Alloys
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1403	2154307	1310	2001393
China	490	595593	602	725058
Mexico	158	231683	182	294890
USA	98	193453	98	250041
UAE	25	51146	72	137860
Korea	42	62361	46	62748
Saudi Arabia	56	151653	21	58502
Thailand	65	70816	42	54655
U K	42	66299	26	52247
Brazil	14	20740	21	38716
Netherlands	13	23594	12	27304
Other countries	400	686969	188	299372

Figures rounded off

NICKEL

**Table – 17 : Exports of Bars,Rods,Plates,Sheets,Foils of Nickel
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	274	527509	321	473082
Korea	37	53521	56	88230
Turkey	33	45604	76	82100
USA	41	45989	30	52351
Brazil	18	28154	32	48231
Thailand	15	20635	15	22633
France	8	11273	13	22500
UAE	8	18551	13	22170
Japan	26	32896	11	20454
South Africa	3	17605	1	14792
Russia	++	2583	1	12201
Other countries	85	250698	73	87420

Figures rounded off

**Table – 18 : Exports Nickel Electroplated Anode
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1	3792	++	3998
Kenya	-	-	++	1445
UK	++	1514	++	1294
Nepal	-	-	++	600
Bulgaria	-	-	++	398
USA	++	472	++	261
Netherlands	++	728	-	-
Bangladesh	1	704	-	-
Qatar	++	318	-	-
Bahrain	++	46	-	-
UAE	++	10	-	-
Other countries	++	++	++	++

Figures rounded off

NICKEL

**Table –19: Imports of Nickel Ores & Conc.
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	++	204	37	6404
Japan	-	-	14	3504
UAE	-	-	3	1634
Indonesia	-	-	20	1266
Cote D' Ivoire	++	126	-	-
Austria	++	78	-	-

Figures rounded off

**Table –20: Imports of Nickel and Alloys Including Scrap
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	48425	55491356	56536	55125443
Japan	5116	6660013	5715	7387333
Norway	5901	6031943	5885	6935479
USA	2796	4964094	2927	4302850
China	4566	5597300	2775	3850114
Canada	1656	1680013	3242	3510354
South Africa	4040	3972545	2923	3450761
UK	1994	3169554	1599	2718478
Germany	1250	2065249	1192	2248424
Papua N Guinea	-	-	13788	2054289
Netherlands	3750	3481245	1704	2032483
Other countries	17356	17869400	14786	16634878

Figures rounded off

**Table –21: Imports of Nickel & Alloys
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	45294	53854179	53248	53022663
Japan	5116	6660013	5514	7224603
Norway	5901	6031943	5861	6905374
USA	2429	4758928	2349	3944331
China	4566	5597300	2775	3850114
South Africa	4034	3966489	2923	3450761
Canada	1437	1434077	2934	3198755
UK	1909	3120781	1558	2692889
Germany	1101	2006987	1115	2215537
Papua N Guinea	-	-	13788	2054289
Netherlands	3678	3453208	1620	1982477
Other countries	15123	16824453	12811	15503533

Figures rounded off

NICKEL

**Table – 22: Imports of Electroplated Anode of Nickel
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	31222	13449229	78724	40534144
South Africa	2437	987073	46821	24112578
Mozambique	1971	832380	12601	5774332
Tanzania	1223	511543	11439	5562294
Philippines	1054	680608	7284	4764104
Malaysia	211	101269	255	144449
USA	186	92595	212	121052
Japan	79	39836	47	29282
China	14	7514	58	18465
UK	3	6763	1	3166
Singapore	764	149934	3	1937
Other countries	23280	10039714	3	2485

Figures rounded off

**Table – 23: Imports of Nickel Oxide Sinters & Otr Intermediate
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	55	22097	14098	2122865
Papua N Guinea	-	-	13788	2054289
Indonesia	-	-	78	16402
Saudi Arabia	-	-	78	16318
Japan	-	-	14	13330
USA	++	192	51	12063
UAE	-	-	20	4059
Egypt	-	-	36	3849
Malaysia	-	-	25	1555
Germany	3	1633	8	993
China	-	-	++	7
Other countries	52	20272	-	-

Figures rounded off

**Table – 24: Import of Nickel Mattes
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	++	72	++	407
UK	-	-	++	396
USA	++	72	++	11

Figures rounded off

NICKEL

**Table –25: Imports of Nickel Except Electroplated Anode
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	33613	33643137	27586	31317895
Norway	5901	6031716	5861	6905365
Japan	3058	3215831	3933	4546886
South Africa	3882	3822088	2879	3406237
Canada	1418	1388317	2895	3149912
Netherland	3530	3202404	1326	1534814
China	3447	3527072	1421	1513648
Russia	1829	1645054	1239	1368013
Korea	1705	1766456	1255	1367722
Singapore	1569	1575062	1247	1363383
Australia	1158	1190371	1207	1325415
Other countries	6116	6278766	4323	4836500

Figures rounded off

**Table – 26: Imports of Nickel :Worked
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	41	71892	13	23174
China	17	21519	7	11917
Germany	++	1569	1	4006
UK	10	17716	3	3525
Colombia	-	-	2	2170
France	-	-	++	1316
USA	4	11314	++	175
Hong Kong	++	121	++	65
Taiwan	5	9013	-	-
Brazil	2	2926	-	-
Austria	1	2761	-	-
Other countries	2	4953	-	-

Figures rounded off

NICKEL

**Table – 27: Imports of Nickel & Alloys: Unwrought
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	364	357810	1027	896439
UK	210	226565	101	189316
Brazil	-	-	153	166255
USA	139	83563	327	157541
Korea	-	-	100	115549
Netherlands	-	-	71	80939
Belgium	1	1642	62	66339
UAE	-	-	175	59528
Canada	-	-	20	21435
China	3	12025	5	14930
Slovenia	7	21440	3	11352
Other countries	4	12575	10	13255

Figures rounded off

**Table – 28: Imports of Nickel & Alloys : Worked, Nes
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	380	1767793	368	2324709
Hong Kong	9	608701	2	858714
Singapore	2	17599	4	296963
USA	26	275197	29	270431
China	42	156612	120	214536
Germany	15	76069	17	158720
Korea	14	21915	69	136597
Japan	24	89580	28	114782
UK	9	63244	24	73537
South Africa	152	144401	44	44524
Italy	14	48871	6	26238
Other countries	73	265604	25	129667

Figures rounded off

NICKEL

**Table – 29: Imports of Nickel & Alloys :Worked
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	3813	5631578	3634	5138634
China	526	860292	844	1353439
Sweden	911	641451	1109	807595
UK	635	1294508	260	592537
Japan	179	302712	327	553483
USA	319	738179	169	419682
Brazil	243	369210	210	343829
Germany	383	566153	210	336399
Taiwan	92	147983	121	223227
Italy	112	130144	79	112395
Singapore	90	138511	47	74395
Other countries	323	442435	258	321653

Figures rounded off

**Table – 30: Imports of Bars,Rods,Plates,Sheets,Foils Of Nickel
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	521	1110499	531	1118988
UK	149	280942	182	363272
Netherlands	73	96487	94	130554
USA	61	215867	55	124592
China	44	85751	45	101769
Germany	25	62770	47	92479
Italy	46	139992	21	76051
France	8	15145	21	50484
Belgium	7	16643	12	37921
Hong Kong	12	17790	25	37696
Singapore	8	62318	4	37672
Other countries	88	116794	25	66498

Figures rounded off

NICKEL

**Table –31: Imports of Bars,Rods,Plates,Sheets,Foils Of Nickel Alloys
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	6506	11246333	5971	10049732
USA	1775	3318212	1695	2931058
Japan	1850	3040689	1196	1978821
Germany	669	1289556	830	1615107
China	487	934025	333	639491
UK	140	390582	188	491300
France	186	362567	186	443015
Belgium	113	171574	254	430810
Italy	247	587227	161	318947
UAE	216	194760	203	232136
Netherland	68	128336	121	216685
Other countries	755	828805	804	752362

Figures rounded off

**Table –32: Imports Of Nickel Electroplated Anode
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	1	2968	20	29820
Italy	-	-	20	21009
Germany	++	71	++	4709
USA	++	1332	++	2046
Singapore	++	246	++	1484
China	++	4	++	377
France	++	127	++	153
Canada	-	-	++	42
Czech Republic	1	1154	-	-
UAE	++	34	-	-

Figures rounded off

NICKEL

**Table – 33: Imports of Nickel Waste & Scrap
(By Countries)**

Country	2019-20 (R)		2020-21 (P)	
	Qty (t)	Value (₹'000)	Qty (t)	Value (₹'000)
All Countries	3131	1637177	3288	2102780
USA	367	205166	578	358519
Canada	219	245936	308	311599
UAE	492	251979	557	239582
Japan	-	-	201	162730
Saudi Arabia	326	139357	278	141539
Belgium	-	-	100	115569
Bangladesh	296	153825	113	93487
Bulgaria	++	376	81	84203
Qatar	258	105813	206	79725
Malaysia	188	90350	103	71658
Other countries	985	444375	763	444169

Figures rounded off

FUTURE OUTLOOK

Primarily World nickel demand is for the production of stainless steel where about 65% nickel is consumed. Nickel accounts for 10 to 20% input cost in stainless steel production depending on the nickel content. The future outlook for nickel depends mainly on the production of stainless steel which is one of the main drivers for nickel produced. Batteries and the ongoing Electric Vehicle revolution could prove to be a transformational event as NCA and NCM, one still predominantly used. However, Li-ion technology is gaining in popularity and increasingly by getting established as the battery of choice.

India will have no option but to depend on imports for this metal till a technology to recover

nickel from the overburden of chromite ore in Odisha is established on a commercial scale.

The process developed by HCL for the production of primary nickel from waste generated during copper refining will be a breakthrough in the area of nickel production in the country.

India imports as well as exports nickel scrap covered by ISRI code, Aroma, Barly, Dandy, Daunt, Delta, Decov, Depth, Hitch, House, Ideal, Indian, Junto, Lemon, Lemur are covered under HS code 75030010. But there is hardly any data available or reported for recycling and recovery of nickel from scrap. The recycling of nickel-bearing scrap in Organised Sector will be another source for meeting the demand.