29 Diamond

India is known for its diamond cutting and polishing business specially for small size diamonds. Most of the world's business come to India, particularly to Surat in Gujarat. Indian diamond industry handles 80% of the global polished diamond market. India depends largely on imports of rough gem diamonds for its cutting and polishing industry as there is only one producer in Madhya Pradesh and the production is negligible to meet the cutting and polishing industry's requirements. The cut and polished diamonds are re-exported. Diamond has been the most valuable among gems for more than 2,000 years. Being the hardest natural substance known, industrial variety diamonds are used in grinding, drilling, cutting and as polishing tool. In addition, diamond exhibits highest thermal conductivity amongst minerals and has high electrical resistivity making it suitable for application in semiconductors. The prices of gem diamonds depend upon their rarity, weight, quality, shape and flawlessness.

Diamond has a high refractive index and strong dispersion which gives it exciting brilliance when cut as a faceted stone. Gem diamonds are transparent and colourless or show faint shades of different colours. The transparent water-clear diamonds are known as "of first water" or "blue-white". When yellowish or honey colour tinge is present, they are termed as off-colour stones. The industrial diamonds are dark brown in colour. Diamonds with green, blue or red shades are rare and attract higher price than the common varieties.

Flawless stones of good colour are employed in gem trade while off-colour, flawed & defective stones, chips & cuttings as well as small grains & dust are used in industry. Industrial grade diamond, i.e., diamond that does not meet gem quality standards in terms of colour, clarity, size or shape and those that are produced as a by-product of mining for gem diamonds continue to be used principally as abrasives in many applications despite their initial cost. Although diamond is more expensive than the other abrasive materials, it is more cost-effective in numerous industrial processes because it lasts longer than any other material.

Broadly, industrial diamonds have three varieties viz, 'ballas' which is mass of minute diamond crystals difficult to cleave, 'bort' is gray to black and massive, flawed or irregular in shape and 'carbonado' is black, opaque and without cleavage.

RESOURCES

Diamond occurrences are reported since pre-historic times in the country. Presently, diamond fields of India are grouped into four regions:

1) South Indian tract of Andhra Pradesh, comprising parts of Anantapur, Cuddapah, Guntur, Krishna, Mahaboobnagar and Kurnool districts;

2) Central Indian tract of Madhya Pradesh, comprising Panna belt;

3) Behradin-Kodawali area in Raipur district and Tokapal, Dugapal, etc. areas in Bastar district of Chhattisgarh; and

4) Eastern Indian tract mostly of Orissa, lying between Mahanadi and Godavari valleys.

As per the UNFC system as on 1.4.2005 all India resources of diamond are placed at around 4.582 million carats. Out of these, 1.206 million carats are placed under reserves category and 3.376 million carats under remaining resources category. By grades, about 17% resources are of gem variety, 18% of industrial variety and bulk of the resources (65%) are placed under unclassified category. By states, Andhra Pradesh accounts for about 40% resources followed by Madhya Pradesh (32%) and Chhattisgarh (28%) (Table - 1).

Table – 1 : Reserves/Resources of Diamond as on 1.4.2005
(By Grades/States)

(In carats)

State/Grade	Reserves			Remaining resources						Total Resources (A+B)
	Proved STD111	Probable STD122	Total (A)	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
All India : Total	**605577**	**600000**	**1205577**	**1240**	**298638**	**1523077**	**1549359**	**4022**	**3376336**	**4581913**
By Grades										
Gem	-	-	-	1017	234148	-	521600	-	756765	756765
Industrial	-	-	-	223	58200	-	782400	-	840823	840823
Unclassified	605577	600000	1205577	-	6290	1523077	245359	4022	1778748	2984325
By States										
Andhra Pradesh	-	-	-	1240	298638	1523077	-	-	1822955	1822955
Chhattisgarh	-	-	-	-	-	-	1304000	-	1304000	1304000
Madhya Pradesh	605577	600000	1205577	-	-	-	245359	4022	249381	1454958

EXPLORATION & DEVELOPMENT

GSI continued exploration activites for search of kimberlite, the source rock for diamond, in Andhra Pradesh, Karnataka, Madhya Pradesh and Orissa. Directorate of Geology, Orissa, explored areas in Nuapada district. NMDC carried out exploration for diamond/kimberlite in Anantapur district, Andhra Pradesh. Details of exploration activities by GSI, State DGMs and NMDC are furnished in Tables - 2(A) and 2(B).

Table – 2 (A) : Details of Exploration Activities for Diamond, 2006-07

Agency/ State/District	Location	Mapping		Drilling		Sampling	Remarks and Reserves/Resources estimated
		Area (sq km)	Scale	No. of boreholes	Meterage (m)		
GSI							
Andhra Pradesh							
Anantapur	Timmasamudram & Muktikapuram	-	-	-	-	-	Detailed ground magnetic survey was carried out covering a length of 347 km. Two new kimberlite bodies TK-5&6 were discovered. Detailed E.M. survey was also carried out as a few conductive zones were delineated.
Anantapur & Kurnool	Gooty block in Anantapur dist.& Hossur-Tuggali blocks in Kurnool dist.	-	-	-	-	-	Reconnoitary mapping and sampling was carried out. Analysis of samples did not yield any specific indicator minerals.
Krishna & Khammam	along Munneru river	-	-	-	-	-	Mapping and sampling was carried out. Preliminary study indicates presence of ilmenite, corundum, spinel, pyroxene and zircon .
Mahaboobnagar	Pebburu	-	-	-	-	-	Search for kimberlite was carried out bymapping and sampling in Tungabhadra born. Two kmberlite bodies CGK-1(300 m x 400 m) CGK-2(200 m x 250 M) were discovered. Kimberlite specific minerals like chrome-diopside, pyrope, etc.were yielded.
Kurnool Mahaboob-nagar	Mantralayam Kimberlite Pipe occuring on north bank of river Tungbhadra	-	-	-	-	-	Five pits were dug out and 76 & tonnes of bulk samples collected. Processed samples did not yield encouraging results.
Karnataka							
Gulbarga, Raichur and Bellary	-	-	-	-	-	-	Search was continued through mapping and sampling. Two stream sediment samples yielded indicator minerals.
Orissa Bargarh	In parts of Bargarh district and adjoining areas of Mahasamund dist. of Chhattisgarh.	-	-	-	-	-	Two suspected micro-diamond grains have been identified. Confimation by SEM-EDX is awaited.
Directorate of Geology, Orissa							
Nuapada	Arkholi, Kathiwadi	2.00 0.04	1:50000 1:2000	-	-	37	Trial excavation: 201 cu m dug out and 7.4 tonnes of bulk samples collected.

(Contd.)

Table - 2(A)(Concld.)

Agency/ State/District	Location	Mapping Area (sq km)	Mapping Scale	Drilling No. of boreholes	Drilling Meterage (m)	Sampling	Remarks and Reserves/Resources estimated
Nuapada	Pokhampador, Bharuamunda	12.0	1:50000	-	-	63	Trial excavation: 131.70 cu m dug out and 80 tonnes of bulk samples collected. Olivine lamproite body near Bharuamunda was delineated. dimension 150 m x 130 m.
Koraput	Katpal	120.0	1:50000	-	-	64	-
NMDC							
Andhra Pradesh							
Anantapur	Kalyandurg PL Area	-	-	-	-	-	Anomaly maps were generated for all the 8 placers.
-do-	Anumpalle P.L. area	-	-	-	-	-	Two trenches of 10 m x 4m x 4m were made and a bulk sample weighing 347.56 tonnes was recovered. 26 nos of diamonds weighing 3.15 carats were recovered.
-do-	0.5 km east of Venkatampalle PL area	-	-	18	644	1 (bulk)	Fourteen nos of diamonds weighing 1.55 carats were recovered.
-do-	Chigicherla P.L.area	-	-	65	2080	-	About 132 tonnes of bulk samples were collected and sent for processing.

Table – 2 (B) : Details of Exploration Activities for Diamond, 2007-08

Agency/ State/District	Location	Mapping Area (sq km)	Mapping Scale	Drilling No. of boreholes	Drilling Meterage (m)	Sampling	Remarks and Reserves/Resources estimated
GSI							
Andhra Pradesh	Peruvu Anantapur	-	-	-	-	-	One stream sediment sample from Gangampalli area yielded a few grains of suspected kimberlite indicator minerals. The detailed sampling carried out in the upstream area also yielded picro-ilmenite and chrome-spinel.
Kurnool and Mahaboobnagar	Rajoli block South of Tungabhadra river	-	-	-	-	-	Systematic regional stream sampling and study of heavy mineral concentration did not yield any kimberlite specific heavy minerals.
Mahaboobnagar	Chagapuram sub block	-	-	3	-	-	Two new kimberlite blocks CGK-3 & 4 were discovered. The heavy minerals were recovered from these blocks. Bulk sample from CGK-1 and CGK-2 did not yield any diamonds.

(Contd.)

Table - 2(B) (Concld.)

Agency/ State/District	Location	Mapping		Drilling		Sampling	Remarks and Reserves/Resources estimated
		Area (sq km)	Scale	No. of boreholes	Meterage (m)		
Mahaboobnagar	Chagapuram Kimberlite pipe	-	-	-	-	-	Collected and processed bulk samples. Processing did not yield any diamond.
Chhattisgarh							
Kanker, Durg and Dhamtari	Purur and Kochwahi	-	-	-	-	-	From the stream sediments heavy mineral concentrate, suspected ilmenite, spinel and garnet were identified. Laboratory studies are in progress.
Madhya Pradesh							
Shivpuri & Datia	-	-	-	-	-	-	Regional search was carried out. Stream sediment samples analysed so far have not given encouraging results.
Orissa							
Jharsuguda Sambalpur Sundergarh	-	-	-	-	-	-	Search was carried out in four target blocks identified earlier. Four small ultramafic bodies were identified.
Directorate of Geology, Orissa							
Nuapada	Arkholi, Kathiwadi	19.0 1.0	1:50,000 1:2000	-	-	26	Trial excavation: 220 cu m dug out and 15 tonnes of bulk sample collected.
-do	Pokhampador, Bharuamunda	10.0 0.525	1:50000 1:2000	-	-	195	Trial excavation : 165 cu m Olivine lamproite body near Bharuamunda was delineated dimension 90 m x 130 m.
NMDC							
Andhra Pradesh							
Anantapur	Kalyandurg (PL Area)	5.972	1:500	-	-	-	-
-do-	Anumpalle, PL area.	-	-	-	-	-	About 35.088 tonnes of kimberlite sludged sample was processed. Four nos. of diamonds weighing 0.27 carat were recovered. 3.51 million tonnes of mineable kimberlite reserves with diamond incidence of 0.91 carats per hundred tonnes were established.
-do-	0.5 km east of Venkatampalle PL area	-	-	-	-	-	Kimberlite reserources down to 90 m depth were estimated at 0.55 million tonnes with diamond incidence of 7.89 carats per hundred tonnes.
-do-	Chigicherla PL area	-	-	-	-	-	Four diamonds weighing 1.72 carats were recovered. Kimberlite resources down to 90 m depth were estimated at 5.57 million tonnes.

PRODUCTION & STOCKS

Production of diamond at 586 carats in 2007-08 showed a steep fall of about 73% over the previous year due to stoppage of mining activity from 19.04.2006 and due to closure of plant. There were two reporting mines, both in public sector located in Panna district of Madhya Pradesh. Of these , one mine owned by the Department of Geology and Mining, Government of Madhya Pradesh contributed the entire production. The other mine owned by National Mineral Development Corporation Ltd (NMDC) reported more production but was engaged in other mining activities.

Of the total output, gem variety consisting only rough and uncut, constituted 38% and the remaining 62% was of Industrial grade, covering both off-colour and dark brown varieties (Tables - 4 to 6).

Mine-head stocks of diamond at the end of the year were nil as against 2,050 carats at the beginning of the year (Table-6). The average daily employment of labour during 2007-08 was 243 as against 220 in the previous year.

Table – 3 : Producers of Diamond, 2007-08

Name & address of producer	Location of Mine	
	State	District
National Mineral Development Corp. Ltd, 10-3-311/1, Castle Hills, Masab Tank, Hyderabad – 500 028, Andhra Pradesh.	Madhya Pradesh	Panna
Director of Geology & Mining, Government of Madhya Pradesh, Khanij Bhavan, 29-A, Arera Hill, Bhopal - 462 016, Madhya Pradesh.	Madhya Pradesh	Panna

Table – 4 : Production of Diamond, 2005-06 to 2007-08

(Quantity in carats; value in Rs. '000)

State	2005-06		2006-07		2007-08	
	Quantity	Value	Quantity	Value	Quantity	value
India	**44170**	**233710**	**2180**	**14683**	**586**	**5701**
Madhya Pradesh	44170	233710	2180	14683	586	5701

Table – 5 : Production of Diamond, 2006-07 and 2007-08
(By Sectors/States/Districts/Grades)

(Quantity in carats; value in Rs. '000)

State/District	2006-07					2007-08 (p)				
	No. of mines	Quantity			Value	No. of mines	Quantity			Value
		Gem (rough & uncut)	Industrial*	Total			Gem (rough & uncut)	Industrial*	Total	
India/Public sector	**2**	**722**	**1458**	**2180**	**14683**	**2**	**222**	**364**	**586**	**5701**
Madhya Pradesh/Panna	**2**	**722**	**1458**	**2180**	**14683**	**2**	**222**	**364**	**586**	**5701**

** Includes off-colour and dark-brown varieties of diamond.*

Table – 6 : Mine-head Stocks of Diamond, 2007-08 (p)
(By States/Grades)

(In carats)

State	At the beginning of the year			At the end of the year		
	Gem (rough & uncut)	Industrial*	Total	Gem (rough & uncut)	Industrial*	Total
India	**1691**	**359**	**2050**	**-**	**-**	**-**
Madhya Pradesh	1691	359	2050	-	-	-

* *Includes off-colour and dark-brown varieties of diamond.*

MINING & PROCESSING

Majhgawan in Madhya Pradesh is a fully mechanised mine operated by NMDC. It is worked by opencast method in tuff rock by deploying 4-cu m hydraulic shovel and 40-tonne dumpers in combination. The mine benches have been designed with a height of about 10 m. Few benches are of 4-5 m height too. Drilling is done by 4-inch diameter drills and charged with slurry explosives, and about 40-50 holes are blasted at a time with delay pattern. The capacity of the mine is about 30,000 carats per year. Diamonds are also recovered from conglomerate and gravel beds at shallow depths by small operations on the basis of annual permits granted by Diamond Officer, Government of Madhya Pradesh.

At Majhgawan, kimberlite rock after mining is stock piled for weathering action and then is fed to crushing plant. It is processed through Heavy Media Separation System in processing plant for recovery of diamond. Recently, x-ray diamond sorter has been installed for sorting of diamonds from ore by which recovery of raw diamonds has increased to 98%.

Diamond Mining Factors

Grade : Grade is the weight of diamond expressed as carats per tonne (ct/t) of ore. It varies widely from one mine to another but generally falls somewhere between 0.3 and 1.3 ct/t. One carat is equal to 0.2 gram.

Size (weight) of rough diamonds in deposit: Individually, rough diamonds can range from microweight to stones weighing more than 1,000 carats. Depending on the mine, the average size of rough diamonds recovered can weigh from 0.01 ct (about 1 mm) to more than 0.7 ct. Many mines in the world show on an average about 0.4 to 0.5ct per stone. It is interesting to note that the number of stones larger than 2 ct (0.4 g) produced at mines are very small (about 400,000 stones per year).

INDUSTRY

Indian diamond industry enjoys respect and credibility in the world market, particularly for small diamonds used in jewellery. Indian diamond manufacturing standards are reckoned as the best in the world. Indian artisans can polish small diamonds economically and efficiently. India may become a Trading Centre for rough and polished diamonds. Surat in Gujarat is the centre of the cutting and polishing industry.

There are over 10,000 diamond processing units in Surat. Most of them now use computerised cutting machines.

The Indian diamond industry is looking for more supply of rough diamonds at competitive rates directly from the producers to maintain its lead in the world market.

India is maintaining its leading position in the world market because of the combination of pragmatic policies of the Government and sustained efforts of exporters. Policy changes, such as, creation of Special Economic Zones (SEZ) will help boost the export performance further. Several diamond polishing companies have already established offices in India for trading in rough and polished diamonds. India obtains rough diamonds from Belgium, UK, Hong Kong, UAE, Israel, etc. Indian diamond traders seek opportunities to establish direct trade ties with mining countries and companies.

CONSUMPTION

Industrial diamonds are mostly consumed by manufacturers of drill bits, grinding tools and stone cutting and polishing machines. Though many small-scale sector units operate in cutting and polishing trade, it is difficult to get a reliable data on consumption of industrial diamonds. Demand of industrial diamonds is mostly met by imports.

SUBSTITUTE

Synthetic Diamond

Today, market for industrial diamond is dominated by synthetic stones, first developed in 1950s. Synthetic diamonds manufactured by using high pressure and high temperature methods compete as an abrasive mineral with natural industrial diamonds and also with manufactured materials like silicon carbide (SiC), alumina (Al_2O_3), tungsten carbide (WC) and carbide boron nitrate (CBN). Synthetic diamonds being marketed are mostly 0.6 - 0.8 mm and smaller in size. Synthetic Diamond Abrasives (SDA) are used for sawing, drilling or milling hard stones, concrete aggregate, refractory materials, masonry and asphalt. In general, large crystals are used for cutting softer materials and smaller crystals for tougher jobs. Synthetic diamonds now account for bulk supply of industrial diamonds and are preferred over natural diamonds because their quality can be controlled to suit customer requirements.

Synthetic diamonds were produced earlier by using graphite with a metal catalyst under very high pressure & temperature.

A process which needs relatively low pressure for production of synthetic diamonds is chemical vapour deposition (CVD). This process involves depositing tiny crystals of diamond on a film which can be built in complicated shapes and used at desired places or instruments such as machine part, heat conductors in micro circuit, short-wave UV, microwave sources and radiation detectors. In future, CVD can be a subsitute for silicon in computer industry.

POLICY

Diamond is a freely importable item. Foreign Direct Investment (FDI) in diamond mining up to 100% is admissible for automatic approval of Reserve Bank of India.

WORLD REVIEW

The world reserve base of industrial diamond is about 1,300 million carats and are located at Congo (Kinshasa) (27%), Australia, Botswana (18% each), South Africa (12%) and Russia (5%). The world resources of diamond are given in Table-7.

Angola, Canada and Guinea increased their output considerably, while output decreased in Australia, Botswana, Congo, Ghana and Namibia. The total world production of diamond decreased marginally from 177 million carats in 2006 to 170 million carats in 2007. Russia (23%), Botswana (20%), Congo (17%),Australia (11%), Canada (10%) and South Africa (9%) were the principal producers (Table-8).

Demand for rough diamonds is increasing and the long-term forecast for 2015 assumes an annual increase of about 3%. Furthermore, as no important new discoveries were announced, a substantial supply shortfall is predicted. Natural diamonds are cut in 52 countries. The major diamond cutting centres in the world are Antwerp in Belgium, Ramatyyan in Israel, New York in USA and Surat in India.

Table – 7 : World Resources of Diamond (Industrial) (By Principal Countries)

(In million carats)

Country	Reserve base
World : Total (rounded)	**1300**
Australia	230
Botswana	230
China	20
Congo (Kinshasa)	350
Russia	65
South Africa	150
USA	NA
Other countries	210

Source : *Mineral Commodity Summaries, 2008.*

Table – 8 : World Production of Diamond (By Principal Countries)

(In '000 Carats)

Country	2005	2006	2007
World : Total	**176000**	**176900**	**170000**
Angola	7079	9175	9702
Australia	30678	29308	19231
Botswana	31890	34293	33639
Canada	12314	13234	17007
Congo, Dem.Peo.Rep.	33055	28990	28454
Ghana	1066	959	839
Guinea	549	474	1019
Namibia	1902	2356	2266
Russia	38001	38361	38291
Sierra Leone	669	582	604
South Africa	15776	15153	15247
Other countries	3021	4015	3701

Source : *World Mineral Production, 2003-2007.*

AUSTRALIA

There are three diamond mines in Australia, namely, Argyle diamond mine of Rio Tinto, Ellendale 9 of Lamproite pipe of Kimberley Diamond Company (KDC) and Kimberlite cluster of North Diamonds Ltd (NAD) (Striker Resources NC). Rio Tinto has decided to develop an underground mine at the Argyle Lamproite pipe which will extend mine life from 2007 to 2018. Owing to improved recovery process, open-pit production at Argyle diamond mine increased from 20.6 million carats in 2004 to 30.6 million carats in 2005 but declined to 29.1 million carats in 2006. KDC produced 15200 carats from mid 2005 to mid 2006. Recently, production of 378,000 carat was reported. KDC produces good quality yellow diamonds. The Ellendale 9 increased its plant capacity from 3.3 million tpy to 4.4 million tpy. The third mine, namely, Merlin Kimberlite Cluster of NAD produces diamonds from tailings left by previous miner, Rio Tinto. The production was 10,000 carats in 2006. A recent study found that 19% of Merlin's diamonds have very low to no fluorescence to X-rays, and therefore, these diamonds were not recovered by the previous operators.

BOTSWANA

Valuewise, Botswana remained the world's largest diamond producer and second in terms of volume. The important mines were Jwaneng and Orapa, both together account for 96% diamond production and the remaining part of production is contributed by Letlhakane and Damtshaa. Debswana is a joint venture between De Beers and the Government of Botswana and is the sole producer of diamonds. As a result of improved diamond recovery, diamond production increased in 2006. De Beers is using 'Zeppelin' to provide stable airborne platform for making highly sensitive measurements of gravity gradients of magnetically non-responsive kimberlites.

Firestone Diamonds, in a joint venture with De Beers, found several kimberlite properties in south and west of Orapa. Tsodilo Reserves Ltd found additional kimberlites on its properties South and West of Orapa. Diamon Ex Ltd finalised its evaluation of the Martins Drift Kimberlites on River Limpopo. The company has evaluated a reserve of 13.5 million tonnes at a grade of 27.41 carats per hundred tonnes (cpht). Mining was to commence in late 2007 with production of 330,000 carats per year for ten years.

CANADA

Canada is the fifth largest producer of diamonds by volume. Canada's active diamond mine Diavik produced 4.5 million carats and 9.8 million carats, in 2006 and 2007, respectively. Ekati's mines production comes from Panda underground mines, Beartooth and Fox open pits. Koala undrground mine is closed. At Diavik, production is reported from open pit at A 154.

The Jericho mine with 296,000 carats per year came on stream in August 2006 and Snap Lake project of De Beers was to come on stream in late 2007 with a planned production capacity of 1.4 million carats for 20 years. Victor mine will commence production in 2009 for a planned production of 600,000 carats per year. Diamond exploration is active in Canada but no new discovery has been reported.

NAMIBIA

Namdeb is a joint venture between De Beers and Namibian Government which manages the onshore operations while De Beers Marine, Namibia manages the major part of offshore operations along the Namibian coast at about 110 m depth. In 2006, a production of over 2 million carats was recorded. Offshore production of diamonds has now overtaken the onshore production in Namibia accounting for 51% of total production.

RUSSIA

Diamond resources in Russia are estimated to be in order of billions of carats and are expected to last for atleast 40 years. The major Russian producers are still the large open-pit mines in the old Udachnaya deposit and the newer Jubilee and Nyurba Kimberlite pipes, all located in the Sakha Republic of the Russian Federation.

Alrosa (Almazy-Rossii-Sakha) controls diamond prospecting, mining, sorting, internal trade in rough diamonds and export. It also owns a polishing plant and a diamond retail store. In 2006, 450,000 ct diamonds were produced at several M42 mines.

SOUTH AFRICA

Offshore mining in South Africa is gaining momentum. After successful offshore mining in Namibian waters, De Beers was spending US $ 112 million for mining diamonds off the Namaqualand coast producing about 1.08 million carats per year and is about to increase output further. Along the southern coast, Namakwa Diamonds is developing a coastal deposit. Alluvial operations exist along the lower Orange River, where Transhex Group Ltd and BEE group Mvelaphonda, mines the large Baken deposit and Firestone diamonds with BEE Group African Star, mines the Oena deposit. De Beer's total production in 2006 from Venetia, Fiusch, Cullinan and Namaqualand alluvial mines and Koffiefontein (now closed) and the Oaks was 14.569 million carats.

FOREIGN TRADE

Exports

Value of exports of diamond increased to Rs. 57240.79 crore in 2007-08 from Rs. 47971.87 crore in the previous year. In 2007-08, diamond (mostly cut) alone accounted for more than 99% exports in terms of value. The share of industrial diamonds together with diamond powder was negligible. Exports were mainly to Hong Kong (33%), USA (22%), Belgium (14%), UAE (13%) and Israel (7%) (Tables - 9 to 12).

Imports

In 2007-08, imports value of diamond decreased to Rs.31279.36 crore from Rs. 33134.83 crore in the previous year. Uncut diamond shared the bulk, i.e., about 99.7 % of imports. Imports of industrial diamond and diamond powder were negligible. Imports were mainly from Belgium (39%), UK (15%), UAE (13%), Hong Kong (12%) and Israel (6%) (Tables - 13 to 16).

Table – 9 : Exports Value of Diamond : Total (By Countries)

Country	2006-07 Value (Rs. '000)	2007-08 Value (Rs. '000)
All Countries	**479718676**	**572407881**
Hong Kong	148100864	188936441
USA	113187777	124044927
Belgium	65214744	77920863
UAE	53872217	77078033
Israel	39417044	41490280
Thailand	13376575	13770808
Japan	16831363	13425328
Switzerland	4408478	5671983
Singapore	5089885	5636830
UK	3708175	3932709
Other countries	16511554	20499679

Table – 10 : Exports of Diamond (Industrial) (By Countries)

Country	2006-07		2007-08	
	Qty (Crt)	Value (Rs. '000)	Qty (Crt)	Value (Rs. '000)
All Countries	**268336**	**53031**	**355758**	**102241**
Belgium	53620	16829	127560	67568
USA	74483	13190	43957	11078
Ireland	1400	1064	11495	4505
UK	17800	3476	2910	4213
China	120	615	12260	3465
Israel	102802	5227	2300	3358
UAE	2280	4156	3016	2973
Canada	4342	635	561	792
Hong Kong	7306	5998	-	-
Unspecified	-	-	150210	3277
Other countries	4183	1841	1489	1012

Table – 11 : Exports of Diamond (Mostly Cut)
(By Countries)

Country	2006-07		2007-08	
	Qty (Crt)	Value (Rs. '000)	Qty (Crt)	Value (Rs. '000)
All Countries	**36746077**	**479301420**	**43179091**	**571778597**
Hong Kong	11786632	148091047	14581439	188886451
USA	6427982	113151819	7321326	123952396
Belgium	6466686	65147493	6998774	77679505
UAE	6080510	53780844	7592748	77014394
Israel	1526607	39302796	2096031	41360129
Thailand	1126440	13326808	1151874	13769049
Japan	1199767	16831341	1035759	13425019
Switzerland	435468	4408478	366553	5671782
Singapore	370094	5089885	399304	5636745
UK	258906	3683991	248276	3913754
Other countries	1066985	16486918	1387007	20469373

Table – 12 : Exports of Diamond Powder
(By Countries)

Country	2006-07		2007-08	
	Qty ('000 Crt)	Value (Rs. '000)	Qty ('000 Crt)	Value (Rs. '000)
All Countries	**13586**	**364225**	**20519**	**527043**
Belgium	1781	50422	8006	173790
Israel	3878	109021	3625	126793
USA	939	22768	3317	81453
UAE	3470	87217	1843	60666
Hong Kong	87	3819	2193	49990
UK	1367	20708	374	14742
Ireland	803	15736	846	12888
Thailand	1021	49700	122	1742
China	30	1117	44	881
Germany	102	1157	10	567
Other countries	108	2560	139	3531

Table – 13 : Imports Value of Diamond : Total (By Countries)

Country	2006-07 Value (Rs. '000)	2007-08 Value (Rs. '000)
All Countries	**331348334**	**312793577**
Belgium	149728968	121879281
UK	59507369	48151281
UAE	32929930	42196333
Hong Kong	41160218	36207437
Israel	22482131	18177369
USA	16048263	11428905
Switzerland	4359117	4019382
Russia	1908794	1769807
Thailand	552747	467596
Unspecified	7044	25720572
Other countries	2663753	2775614

Table – 14 : Imports of Diamond (Industrial) (By Countries)

Country	2006-07		2007-08	
	Qty. (Crt)	Value (Rs. '000)	Qty. (Crt)	Value (Rs. '000)
All Countries	**4503**	**107670**	**40912**	**624745**
Belgium	1002	53291	11456	209163
China	-	-	196	5567
France	-	-	200	160
Germany	30	175	-	-
Hong Kong	2463	11330	2192	122969
Singapore	-	-	2	20
UAE	408	39561	26446	270122
UK	50	480		
USA	550	2833	416	16722
Unspecified	-	-	4	22

Table – 15 : Imports of Diamond (Mostly Uncut) (By Countries)

Country	2006-07		2007-08	
	Qty. (Crt)	Value (Rs. '000)	Qty. (Crt)	Value (Rs. '000)
All Countries	**119625535**	**330808846**	**114307558**	**311834220**
Belgium	63928317	149659737	57578312	121657356
UK	22288537	59505644	19785940	48149436
UAE	16903996	32890369	13923201	41925328
Hong Kong	8648796	41064401	7513043	36033333
Israel	4003830	22481474	2652714	18177369
USA	1841967	16010817	1313474	11388823
Switzerland	1016112	4356011	1148029	4018502
Russia	371520	1907523	696813	1768827
Thailand	94036	552739	54359	467596
Unspecified	47	6839	9065399	25713826
Other countries	528377	2373292	576274	2533824

Table – 16 : Imports of Diamond Powder
(By Countries)

Country	2006-07		2007-08	
	Qty. ('000 Crt)	Value (Rs. '000)	Qty. ('000 Crt)	Value (Rs. '000)
All Countries	**56848**	**431818**	**72601**	**334612**
China	22165	133134	41960	159100
Hong Kong	14905	84487	17287	51135
Ireland	9961	106496	4281	48246
USA	2159	34613	2026	23360
Germany	1063	15057	1176	12830
Belgium	1214	15940	1130	12762
Korea, Rep. of	2589	21290	1420	11434
Korea, Dem. People's Rep. of	830	7577	106	1235
Switzerland	92	3106	35	880
Unspecified	6	205	1978	6724
Other countries	1864	9913	1202	6906

FUTURE OUTLOOK

Based on the exploration practices and activities in India new Kimberlites/Lamproites may be discovered. This may result in establishment of new mine and commencement of production by 2015. However, this may only meet a fraction of the industry's requirement. India will have to depend on imports of rough stones for a long time.

The diamond industry in the country currently employs over 7 lakh artisans who are experts in cutting and polishing of small diamonds and are now in a position to process full range of sizes and qualities of gemstones using latest technology.

IBM has identified various thrust areas for modernisation of its testing facilities, one of them is adding one automatic dry up unit and x-ray diamond sorter for characterisation of diamondiferous Kimberlite of Chhattisgarh and Madhya Pradesh region and conducting beneficiation studies for recovery of diamonds.

In view of its superior finishing, the Indian diamonds have a good demand in the international market, especially in USA, Hong Kong, Belgium, Japan, Israel, Thailand, UAE, Switzerland, Australia, New Zealand and Singapore. The exports from India are likely to go up even further.