

The Diamond Pipeline into the Third Millennium: A Multi-channel System from the Mine to the Consumer

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SUMMARY

The single-channel marketing system for rough diamonds, presented by De Beers as the ideal since the mid 1930s, has lost market share in the past decade. Most diamond industry analysts now recognize the diamond pipeline to consist of two marketing channels (tiers) for rough diamonds: one for better-quality and the other for lower-quality, rough diamonds. However, we suggest that the pipeline now consists of three distinct channels that extend from the mine (rough diamonds) to the consumer (polished diamonds): 1) the Traditional Gem Channel, whose stability and prosperity are maintained by De Beers and which is characterized by high-value diamonds; 2) the Indian Channel, a high-volume market based on small, low-quality diamonds cut in India, most

of which were formerly considered industrial diamonds; and 3) the Russian Channel, whose status and potential have yet to be fully determined. Each channel has its own characteristic organization and distribution system. These developments bode well for the fledgling Canadian diamond industry, as they indicate that Canadian diamond producers will have choices for marketing their rough diamonds.

RÉSUMÉ

Le canal unique de mise en marché des diamants bruts de De Beers a perdu une part du marché au cours de la dernière décennie. Ce canal unique, et idéal selon De Beers, existait depuis le milieu des années 1930. La plupart des analystes de l'industrie diamantaire sont d'avis que, de nos jours, la mise en marché des diamants bruts se fait selon deux canaux (niveaux) différents, soit l'un pour les diamants de haute qualité, et l'autre pour les diamants de moindre qualité. Nous croyons plutôt que le marché actuel des diamants est constitué de trois canaux distincts par lesquels les diamants bruts des mines arrivent jusqu'aux consommateurs (diamants finis), soit 1) Le canal traditionnel, dont la stabilité et la prospérité sont assurées par l'organisation De Beers, s'occupe de diamants à prix élevés; 2) Le canal indien, un marché à fort volume de diamants de basse qualité taillés en Inde et autrefois qualifiés de diamants industriels; et 3) Le canal russe, dont les caractéristiques et le potentiel ne encore mal définis. Chacun de ces canaux possède sa propre organisation et son propre système de distribution. Ces développements récents sont de bon augure pour la jeune industrie diamantaire canadienne, puisque les producteurs canadiens disposeront d'un meilleur éventail de mode de mise en marché.

INTRODUCTION

Canada will become a significant producer of gem-quality diamonds in the fall of 1998 with the opening of the Ekati diamond mine (owned by BHP Diamonds Inc. [51%], Dia Met Minerals Ltd. [29%], Charles Fipke [10%], and Stewart Blusson [10%]) near Lac de Gras, Northwest Territories. Once the Diavik project (owned by Diavik Diamond Mines, a subsidiary of Rio Tinto PLC [60%] and Aber Resources [40%]), also in the Northwest Territories, goes into production in 2002, it is anticipated that

Canada will produce about 10% (by weight) of the world's rough diamonds. With exploration continuing in the Northwest Territories as well as in Alberta and other provinces where interesting but as yet unproven economic diamond occurrences have been found (Pell, 1997; Boucher, 1997), it is likely that Canada's importance as a source of diamonds will increase as the 21st century progresses.

As a major producer, Canada will need to be concerned with various economic aspects of the diamond industry, particularly the marketing of the newly produced diamonds. This paper considers the nature and significance of the "diamond pipeline" by which diamonds are distributed and marketed from the mine to consumer. In particular, we consider certain economic forces in operation in the diamond industry in the late 1990s; these forces will be of significance well into the next century. What is the "diamond pipeline," how is it structured, how does it operate, and what does this mean for Canadian diamond explorers and producers? These are the type of questions to be considered in this paper.

BACKGROUND

"Although the market for gem diamonds has long enjoyed stability and gradual appreciation, it can nevertheless be sensitive to a variety of economic forces" (Boyajian, 1988, p. 134). These words, written after the period of diamond speculation of the late 1970s and early 1980s, during which time the diamond industry was buffeted by extreme price volatility, are as applicable today as they were a decade ago, although for entirely different reasons. (In this paper the term "diamond" refers to gems and near-gems unless the term "industrial" is specified. Near-gems are small, low-quality, rough diamonds that are commercially feasible as gems because of the availability of good, inexpensive labor to cut and polish, such as in India.)

The economic factors responsible for the unfavorable condition of the diamond market in the late 1970s and early 1980s included inflation, a worldwide recession, and high interest rates, especially in the United States and Israel. Since about 1985, the diamond industry has been affected by an entirely different combination of factors. These include:

- production from the Argyle mine in

Australia of high amounts of small, low-quality diamonds;

- the continual rise in importance of the diamond cutting industry in India, where Argyle and other low-value diamonds are cut and polished economically;
- the increase, particularly in the United States, in the mass marketing of inexpensive diamond jewelry based on stones cut in India;
- the demise of the former Soviet Union and the development in Russia of a multi-faceted diamond industry ranging from the export of rough diamonds to the manufacture of diamond jewelry;
- the decision to market rough diamonds from the Argyle mine, independent of the Central Selling Organisation (CSO), starting in July 1996;
- the rise in importance of the Belgian diamond trading centre based in Antwerp where most of the "outside goods" (i.e., rough diamonds not purchased directly by De Beers) from Australia, Russia, Zaire and other producers are marketed; and
- the contract (effective 1 December 1997) between De Beers and Russia, in which the latter gained a greater degree of control over rough diamond prices and supplies, and is permitted to greatly increase its volume of outside

diamond sales, compared with other De Beers (CSO) contractual producers.

As a result of the above factors, the traditional single-channel diamond pipeline no longer exists and in its place a multi-channel pipeline has evolved. As a prelude to reviewing the causes for the evolution of the restructured diamond pipeline, identifying the characteristics of each channel, and illustrating recent changes that have occurred in the entire diamond industry as a result of the restructuring, we first present important definitions.

THE DE BEERS-DOMINATED SINGLE-CHANNEL DIAMOND PIPELINE: 1934-1996

Definitions

The **diamond pipeline** (or simply **pipeline**) has been defined as *a figurative conduit through which all diamonds flow (or the various stages through which diamonds pass) from the mine to the consumer, and in which the industry and trade are firmly located* ("Grantham: CSO eventually...", 1995). Traditionally, it has been depicted as a continuum, as shown in Figure 1.

Many individuals, companies and, in some cases, even sovereign nations are

involved in each stage (e.g., mining, cutting and polishing) of the diamond pipelines. In contrast, the CSO, a company owned by De Beers Consolidated Mines Ltd. (henceforth "De Beers") has striven to be the sole entity, or valve, through which rough diamonds are funneled, sorted and valued, and then released to the trade through **sights** (i.e., the sale of rough diamonds by the CSO to selected clients known as **sight-holders**). Thus, the CSO stands between the production (rough) and consumption (polished) ends of the pipeline and tries to maintain an equilibrium between supply and demand by managing a buffer stock.

Intimately associated with the term diamond pipeline is the concept of the **single-channel marketing system** (or simply **single-channel marketing**); in other words, *the commercialization of the largest part of the world production of rough diamonds through the CSO* (Luysterman, 1995). Thus, whereas the term "diamond pipeline" includes every aspect of the trade from the mine to retail, the term "single-channel marketing system" refers to the link through the CSO, between upstream mining and downstream cutting and polishing. The objective of the CSO under this concept

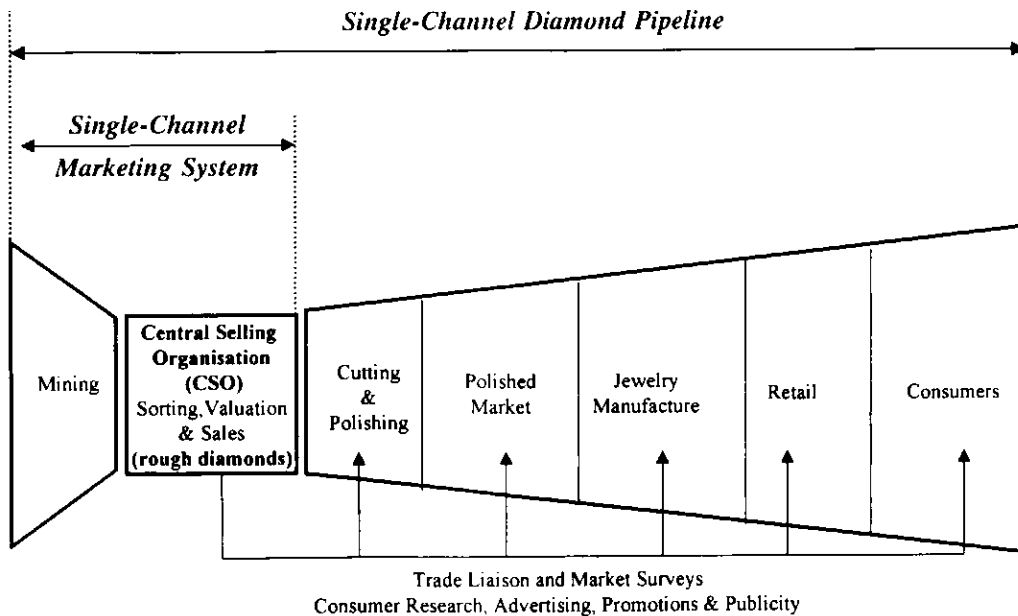


Figure 1 The "diamond pipeline" has been traditionally depicted as a conduit from the mine to the consumer. An essential component of this model is the CSO (Central Selling Organisation), wholly owned by De Beers Consolidated Mines Ltd., through which the largest portion of the world's rough diamonds are assumed to be funneled for sorting, valuation and sale to the trade in an orderly manner. CSO assistance to various sectors of the trade in the form of trade liaison, consumer research, etc., is depicted by vertical lines at the bottom of the diagram. The relative positions of the "Single-Channel Marketing System" and the "Single-Channel Diamond Pipeline" are shown at the top (modified from De Beers, 1997, with the terms "Single-Channel Diamond Pipeline" and "Single-Channel Marketing System" added.)

is to collect rough diamonds and to re-release them in assortments appropriate to economic conditions and the specialization of its various sight-holders.

The diamond pipeline (Fig. 1) includes the single-channel marketing system, so we use the term **single-channel diamond pipeline** (or simply **single-channel pipeline**) for aspects of the diamond industry that operate according to the ideal illustrated in Figure 1. Hence, the single-channel diamond pipeline is a *metaphor describing the conduit in which initially a substantial part of the world's rough diamonds are channeled through one entity, the CSO, after which they follow various sequential stages from the cutting centres to the consumer.*

Idealized presentations of the pipeline (e.g., Fig. 1) do not recognize many variances, functions and services that routinely occur. For example, at various periods in recent history, large numbers of diamonds have entered the pipeline without passing through the CSO, i.e., outside goods (see Sevdermish, *et al.*, 1998, for examples). Nor does this model indicate the important functions performed by diamond bourses in which thousands of dealers in many countries trade rough and polished stones. Furthermore, it does not emphasize that the faceting, setting and retail aspects of the industry, where most of the value of the industry resides (Fig. 2), are independent of De Beers (although De Beers, through the CSO, re-emerges for promotional and other purposes; again see Fig. 1).

In contrast to the ideal model, the diamond pipeline of the 1990s is an intricate web of many individuals, companies and organizations which perform many different functions in many different countries. It can be divided into two

parts: the **upstream part**, involving the handling of rough diamonds from the mine, to and including the CSO, which is dominated by De Beers; and the **downstream part**, involving trade in polished stones from the cutting centres to the consumer, in which De Beers has little direct control or direct financial exposure.

Despite these departures from the model, however, De Beers unquestionably is, and unquestionably has been, since the time of its founding in 1888, the greatest influence on the modern diamond industry. Its avowed objective has been to maintain the long-term stability and prosperity of the entire industry (De Beers, 1997). Historically, De Beers' success in achieving its objective stems from its pre-eminent position in the mining of diamonds and in the trading of rough diamonds. Thus, from its vantage point at the upstream end, De Beers has reigned over the pipeline and has, until recently, maintained the single-channel marketing system and, as a corollary, the single-channel pipeline, in a dominant position.

Objectives

Two requirements for the success of the single-channel pipeline are: 1) adequate control of the production of rough gem diamonds, either directly by virtue of ownership of mines or indirectly by contract; and 2) a method by which these diamonds can be released to the market in an orderly manner, i.e., at a rate appropriate for the economic conditions of the time.

De Beers has been able to meet the first requirement by discovering or buying many mines. Additionally, in most cases when major mines were found by others and De Beers was either unable or unwilling to buy them, the company

has been able to obtain marketing agreements for the sale of their rough diamond output. The second requirement has been fulfilled by the CSO through sights.

Justification

Through the CSO, De Beers has maintained its fundamental objectives of stability and profitability in the international diamond market primarily by regulating the supply of rough gem diamonds to world markets. Because De Beers regulates the supply of rough diamonds, it also manages or at least influences, within limits, the retail price of polished diamonds (rather than setting the price), adding further stability to the market. Overall, the concept has been eminently successful. Whereas price fluctuations are accepted as normal for most commodities, such generally has not been the case for diamonds.

The advantages of the single-channel pipeline, and particularly the upstream single-channel marketing system, can be explained from two points of view: 1) that of the CSO, and 2) that of a major producer. Minor producers, i.e., those who produce less than 1% of the world's supply of rough diamonds annually, generally are easily accommodated within the industry and are not usually concerned with the following items.

Voluntary sales agreements involving the marketing of rough diamonds through the CSO carry the following principles and guarantees (De Beers, 1997):

- it is in the best interest of major rough diamond producers, as well as the entire industry, to voluntarily subscribe to sales through the single-channel marketing system;
- each producer is guaranteed a *pro rata*

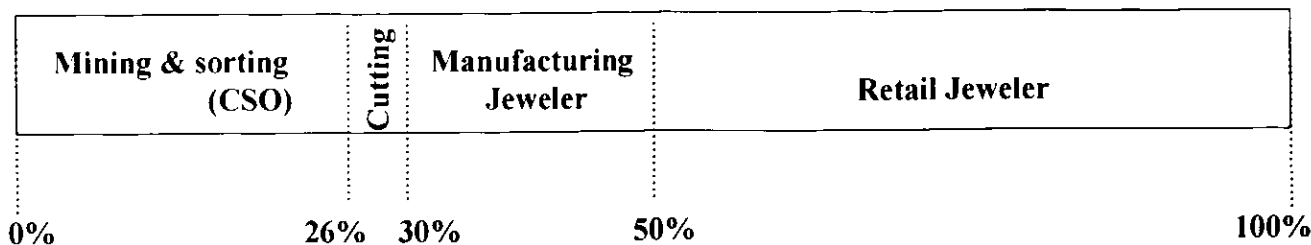


Figure 2 The relative value of a diamond from the mine to retail sale. This "economic conveyor belt" illustrates the added value that a diamond attains as it passes along the pipeline from the mine, through the cutting and jewelry manufacturing processes, to the retail jewelry store. The diagram shows that mining, and functions performed by the CSO (e.g., sorting), account for only 26% of the ultimate retail value (other studies suggest a lower value if low-value near-gems are included; see Sevdermish *et al.*, 1998). This (26%) represents the value of rough diamonds as they leave the CSO and it is also the point in the conveyor belt (or the pipeline) that marks the end of direct influence by De Beers. Within this conveyor belt, diamond cutting (and trading of unset, polished stones) accounts for only about 4% of the total retail value (after Caspi, 1997).

share or quota of total CSO sales;

- the De Beers group of companies has enormous financial resources available which will be used when necessary in the stockpiling of rough diamonds in times of low sales, or the purchase of rough diamonds on the open market;
- the CSO has extensive experience in maintaining a stable price by virtue of its intimate knowledge of the entire diamond market and its longstanding relationships within the cutting centres; and
- De Beers is committed, on behalf of the entire industry, to promote diamond jewelry sales worldwide by means of its highly regarded advertising programs.

From the point of view of a major (non-De Beers) producer, the following are reasons for adherence to the single-channel marketing system through a voluntary sales agreement with the CSO (Robinson, 1995):

- it is very difficult, even for companies with established reputations in the mining of other commodities (such as metals), to find buyers for large quantities of rough diamonds in view of the leverage of the presently established rough diamond marketing system;
- the diamond business is extremely complex, including the classification and evaluation of rough diamonds, and it is difficult to obtain reliable and qualified personnel for many aspects of the business;
- it is very expensive and difficult to create a successful independent marketing organization; and
- large financial resources are required to stockpile rough diamonds during periods of low demand or erratic price behavior.

History

The dominance of the CSO and the single-channel system has lasted longer than similar schemes for any other international commodity. This is testimony to its success, but success was not always a forgone conclusion. We now consider the single-channel pipeline, with particular emphasis on the upstream end, as it passed through various stages in its history since its formation in 1934.

Formation of the Central Selling Organisation (CSO)

From 1888 when De Beers was formed to 1934, the rough gem diamond trade, and thus the supply and price of dia-

monds to the cutting and polishing sector of the industry, was under the control of a series of London-based firms (Lenzen, 1970; Newbury, 1989; Janse, 1996). These firms, organized into syndicates, contracted to buy all rough diamond production from pipe mines controlled by De Beers. By the late 1920s, in order to stabilize the market, the syndicate of the time (the "Oppenheimer Syndicate") expanded its purchases to include alluvial rough diamonds from mines not controlled by De Beers that originated from South West Africa (now Namibia), Belgian Congo (more recently Zaire and now Congo), Gold Coast (now Ghana), and Angola.

In 1934, at the depth of the Great Depression, the Syndicate was unable to maintain price stability as it held huge stocks and lacked the finances to purchase more rough diamonds for which there was little demand. As a result, the industry was on the verge of collapse. To deal with the problems of the time, the most difficult of which included maintaining the price of rough diamonds and coping with the production from alluvial mines (mainly in Zaire) not controlled by De Beers, the Syndicate was restructured. From this time onward, the mine owners (De Beers and other producers) would have a mechanism by which they, acting as a producers' cooperative (Rothschild, 1992), would maintain control of rough diamonds from the mine until they reached the cutting and polishing centres.

Since 1934, most of the world's rough diamonds, both gem and industrial, have been channeled through companies directly owned by De Beers. The Diamond Corporation (established in 1930, it was the forerunner of the CSO) purchased rough diamonds, whereas the sorting and selling of rough gem-quality diamonds was channeled through the Diamond Trading Company (formed in 1934). The selling agency became known as the Central Selling Organisation (CSO) and the first sight was held in 1935 (Shor, 1993).

Over time, the CSO has evolved. Today it refers to a "group of companies associated with De Beers Consolidated Mines and De Beers Centenary AG to purchase, sort, evaluate, and market rough diamonds" (Liddicoat, *et al.*, 1993, p. 40) (Fig. 3).

The Formative Years: 1934-1945

The survival of the embryonic single-

channel system rested on the closure by De Beers (in 1931 and 1932) of its six operating kimberlite pipe mines in South Africa as well as its beach mines in South Africa and Namibia, although a few of these mines operated for short periods between 1936 and 1939; see Janse (1996).

With De Beers' mines closed, world rough diamond production during most of this period was from non-De Beers alluvial deposits primarily in Zaire and Ghana, but also in a few other African (*e.g.*, Angola, Sierra Leone) and South American (Brazil, Guyana) countries. The alluvial deposits in most of these countries contained a high proportion of industrial diamonds.

During World War II, the emphasis was on industrial diamonds for the war effort ("How Sir Ernest...", 1994). As De Beers had accumulated a large supply of rough diamonds before they closed their pipe mines, military requirements for diamonds were obtained primarily from stockpiles. Later, De Beers reopened two pipe mines, one each in 1943 and 1944.

By the end of World War II, additional sources of rough diamonds arose in French Equatorial Africa (now Central African Republic), French West Africa (now Guinea), and Tanganyika (now Tanzania), but in relatively small amounts.

None of the producers in the above countries, either by virtue of their financial strength or the extent of their rough gem diamond production, was in a position to challenge the leadership of De Beers even though the latter was producing relatively few newly mined diamonds.

The Golden Era: 1946-1959

Following World War II and until 1959, alluvial diamond mining, mostly in minor amounts, began in Ivory Coast, Liberia and Venezuela. Only one new major pipe mine, the Mwadui (Williamson) in Tanganyika (now Tanzania), entered the world scene (significant production started in 1945) and its diamonds (about 50% gems) were easily accommodated in the market. De Beers purchased this mine in 1958 and since 1971 it has shared ownership with the government of Tanzania.

The period from 1946-1959 can be considered the Golden Era of the single-channel diamond pipeline from the point of view of the industry as a whole and De Beers in particular. During this

period the economies of the world were expanding. De Beers re-opened several South African mines to cope with increasing demand, and stocks of rough diamonds held since the early part of the Great Depression (1932) were finally sold by 1952 with a windfall profit ("How Sir Ernest...", 1994, p. 7). Further, there was no contender at any level to challenge the supremacy of De Beers. During this period, at least 80% of the world's rough gem diamond production went through the CSO.

The Contractual Era: 1960-1996

In the period 1960-1996, worldwide production of newly mined rough diamonds increased more than four-fold (from 27.7 Mct to 117.0 Mct; United States Bureau of Mines, 1961; United States Geological Survey, 1997). Most of this increase occurred from major new pipe discoveries in countries that previously never had produced diamonds (or only in insignificant amounts), namely Russia, Botswana and Australia. Both Russia and Australia had the technical and

financial capabilities to mine and market their rough diamonds independently. Thus, they had the potential to create the first serious challenge to the single-channel pipeline since its inception in 1934; yet this did not occur.

During this 37-year period, the proportion of the world's rough diamond production from mines *totally* owned by De Beers declined on a weight basis from about 17% in 1960 from mines in South Africa, Namibia and Tanzania, to about 9% in 1996 from mines only in South Africa, as Namibian mines became 50% owned by the Namibian government (Janse, 1995) and as the Mwadui mine effectively ceased operation (Janse, 1996; United States Geological Survey, 1997).

Notwithstanding the apparent decline in the direct control by De Beers of much of the world's rough diamonds, the company flourished and the single-channel system prevailed. This is explained by the fact that De Beers concluded contractual arrangements with all the major producing countries, as well as smaller producers, such as newly independent Namibia. These producers obviously found it in their best interests to market all or major portions of their rough production through the CSO. Hence, we call the period 1960-1996 the Contractual Era. Furthermore, the acquisition of the Finsch (South Africa) mine, as well as discovery of the Orapa, Jwaneng (both in Botswana) and Venetia (South Africa) mines during this period assured a long-term role for De Beers.

However, the contractual era 1960-1996 can be divided into two parts: 1960-1991 and 1992-1996. In the 1960-1991 segment, the contractual agreements between the CSO and all signatory producers were scrupulously followed. The leading producers were mines in the Soviet Union, Australia, Botswana, Namibia and, of course, De Beers' mines in South Africa that, in total, accounted for about 75% (by weight) of the world's diamonds.

During 1991, the Soviet Union was transformed into independent states, and the diamond mines of Siberia were subsequently within Russia. Soon, it was clear that the Russians were not abiding by the spirit of their agreements with the CSO, as significant amounts of Russian rough diamonds found their way to the cutting centres, primarily Antwerp and Israel, by various routes outside the single-channel marketing

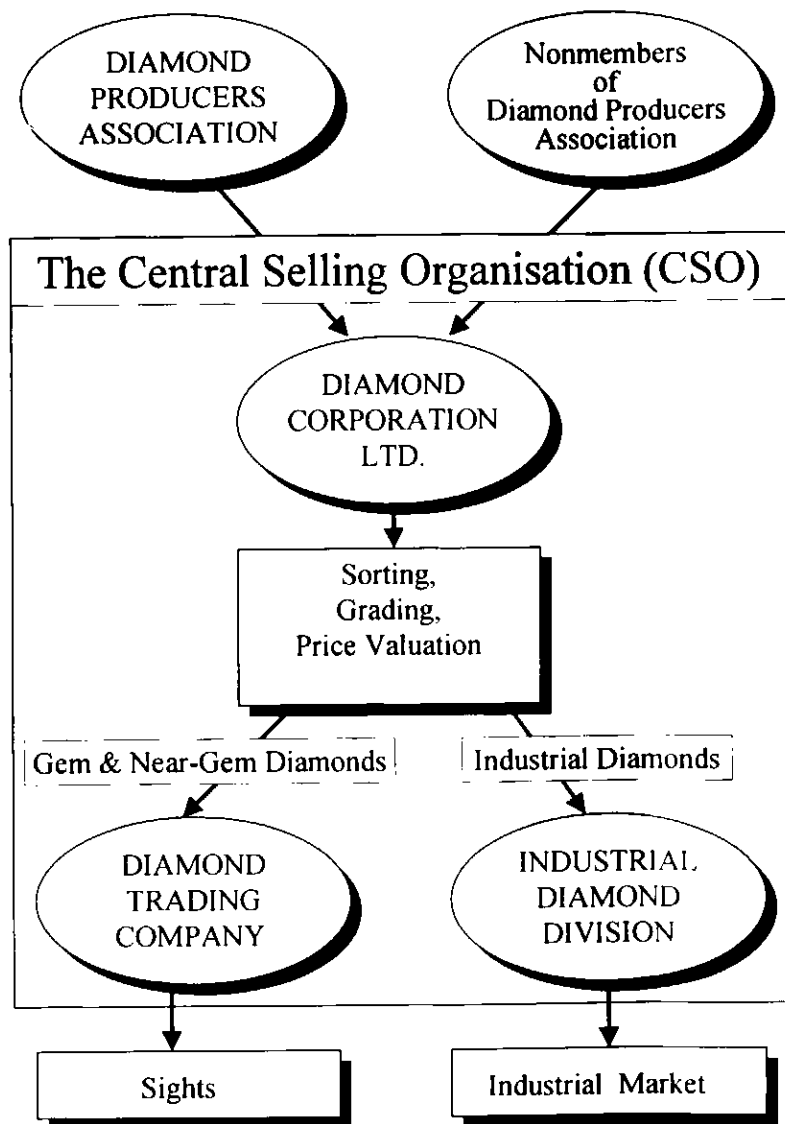


Figure 3 The Central Selling Organisation (CSO), a subsidiary of De Beers, consists of several wholly owned companies shown within the designated outline. The Diamond Corporation is the purchasing arm of the CSO. Its function is to sort, grade and price the diamonds it receives from the Diamond Producers Association (composed of De Beers and other contractual producers) and non-members of the Diamond Producers Association (stones purchased from independent mines or on the open market). Gem and near-gem diamonds go to the Diamond Trading Company where they are sold to sight holders (usually large cutting firms), whereas industrial diamonds are sold through the Industrial Diamond Division (after Diamonds, 1989).

system. Thus, 1992-1996 was a difficult period for the single-channel system, particularly because of events related to Russia (see Sevdermish *et al.*, 1998, for a discussion of these events).

The Rise of New Channels

Indications of Difficulties in Maintaining the Single-Channel Marketing System

The first indications of problems in maintaining the single-channel marketing system and the single-channel pipeline occurred in 1992 shortly after the dissolution of the Soviet Union in 1991. Large numbers of foreign diamond merchants began arriving in Russia in 1992 and 1993, and joint-venture cutting and polishing operations with access to local rough diamonds started up (Pearson, 1996). Soon, trade journals contained articles that talked about the flooding (or dumping) of rough diamonds on the world market by Russia in blatant violation of its contract with the CSO; there was even reference to "Moscow sights" ("Flooding the diamond markets," 1993, p. 55).

During the next few years, numerous additional comments and articles appeared on the "leakage" of rough diamonds from the Russian stockpile (*i.e.*, sale of rough diamonds to the trade in violation of contractual agreements with the CSO). Several reports noted that the amount of rough diamonds entering the market outside the control of the CSO, primarily from Russia, was rising to dangerous proportions (*e.g.*, "Leakages hit CSO market share," 1996). In 1996, leakage of Russian rough diamonds was valued at \$1 billion (De Beers, 1997), about the same as in the previous few years. Leakage in various forms continues today; however, it is possible that by mid 1998 the Russian stockpile will be exhausted (except for very low-quality diamonds and large stones >10 ct) and, if this is the case, leakage will have been a transitory problem for the industry (Helmer, 1997).

The turning point in the degree of dominance by De Beers over the entire gem (including near-gem) market, however, occurred in mid 1996 when the Argyle mine did not renew its contract with De Beers and began to market its mainly low-quality rough diamond production independently. These diamonds now reach the world markets primarily through Antwerp, although most end up

in India for cutting.

As 1996 closed, among the major rough diamond producers on a carat (weight) basis, only mines in Botswana, Namibia and South Africa remained almost totally, and firmly, committed to marketing rough diamonds through the CSO. Thus, fundamental changes had taken place in the marketing of rough diamonds as independent mining companies, notably Argyle, and mining organizations controlled by governments in different countries, notably in Russia, were marketing all or part of their rough diamond production in ways detrimental to the orderly functioning of the single-channel pipeline, because the CSO was being bypassed.

Speculation on Changes in the Single-Channel Marketing System

As a result of the well-publicized difficulties experienced by the CSO, beginning in 1992, numerous industry analysts began to speculate on the future of the single-channel marketing system. Marriott and Vainer (1994) made the first muted suggestion (that we can find) that the time might be ripe for changes in the organizational aspects of the CSO. They suggested that in the future, the CSO might be owned by the producers and De Beers given a management contract to run it. Miller (1995) appeared to concur by stating (p. 15), "Like it or not, the CSO is going to have to evolve. De Beers' domination of the principal sources of western gem diamond production will no longer be as absolute as in the past."

By 1995, the trade literature was rife with articles suggesting another scenario: the CSO single-channel marketing system for rough diamonds might change to a two-tier marketing system whereby the CSO would support the price of the better-quality rough diamonds (the first tier) but the price of the cheaper goods (the second tier), mainly those cut in India, would fluctuate depending on supply and demand. After studying the diamond market of the early to mid 1990s, Pearson (1996, p. 352) concluded, "The evidence of the past few years suggests that the market is a two-tier continuum." ("Continuum" means that market trends in one area affect, to a greater or lesser degree, the rest of the market.)

The idea of a two-tiered rough market, however, has been repeatedly ruled out by De Beers because it maintains

that diamond prices are interrelated and cannot be separated (*e.g.*, Shor, 1995; "New diamond flood concerns sellers," 1996; "De Beers rules out a 2-tier market," 1996). Nevertheless, De Beers may be tacitly acknowledging the existence of an evolving diamond world by not supporting the market for near-gems (the second tier) since Argyle started to market its diamonds independently (Bates, 1996a; Shor, 1998). Furthermore, the price of rough near-gems (those cut in India) fell by an estimated 25% from late 1996 to early 1997 (Scriven, 1997), and continues to be weak (Sevdermish *et al.*, 1998).

Reality of the Demise of the Single-Channel Marketing System

Since July 1996, however, trade journals have carried numerous articles acknowledging the reality of the breakdown of the single-channel marketing system (*e.g.*, "No need to fear a price war," 1996; Bates, 1996a). Some market analysts go even further in their interpretation of the present state of the rough diamond market. For example, Bates (1996b, p. 49) talked about "Life after single-channel marketing" and Even-Zohar (1997, p. 25) referred to a "multiple-channel marketing system."

Scriven (1997) is the most specific of all those writing on this subject and stated (p. 70): "When the Argyle diamond mine ceased selling its rough to the Central Selling Organisation (CSO) in June 1996 and began its independent rough marketing strategy, many in the diamond industry observed that the single-channel rough marketing system had come to an end. A multiple channel for rough marketing in the small cheap goods was widely acknowledged. The multiple channel is clearly a reality operating in India more than in any other diamond center."

[In this paper, we use the word "channel," in agreement with Even-Zohar (1997) and Scriven (1997), where others noted above have used the word "tier." The word "tier" (defined as "a row, rank or layer of articles, especially, one or two or more rows, levels or ranks arranged one above another") implies a hierarchy in which one entity (one of the "tiers") is more important than another. However, in the present world diamond environment, we believe that each of the major entities is of approximately equal importance, or could be in the future. Accordingly, we use the word "channel"

because we feel that this word is more appropriate to the parallel entities that comprise the present diamond pipeline.]

The rise of the Indian diamond-cutting industry has broadened the gem-diamond spectrum. In recent years (between 1990 and 1996) the supply of low-quality rough diamonds primarily from Argyle and Russia for cutting in India has increased significantly and this has been accompanied by a decrease in prices. In contrast, the supply of larger, better-quality rough diamonds, although exhibiting some variability, has been more tightly controlled by De Beers and prices have remained firm. This divergence applies to both parts of the diamond pipeline: the upstream or rough end and the downstream or polished end (see Sevdermish *et al.*, 1998, for a discussion of the divergences between the price of polished, better-quality, small gems and Indian polished near-gems since 1980).

An extremely wide and divergent price/quality gap has developed, particularly in the United States since 1991, between cheap India-cut and expensive diamond jewelry. "Never has the product range in this market been so broad, spanning from the ubiquitous \$99 one-carat tennis bracelet, at one end, to the \$10 million *parure* at the other" (Marketing to the masses, 1996, p. 3). In view of the fact that "divergent trends" can be found in each of the main parts of the diamond pipeline (*i.e.*, rough and polished), then divergent trends can be expected to occur through the entire length of the pipeline, from the mine to the consumer, *i.e.*, "total divergence." Total divergence would indicate an independent, separate and self-contained diamond channel, or one capable of functioning as such.

THE CURRENT MULTI-CHANNEL DIAMOND PIPELINE

We use the following criterion for identifying new channels in the diamond pipeline: *If a significant amount of rough diamonds can flow from the mine to the consumer (as polished diamonds) without passing through the CSO, then these diamonds pass through a channel other than the single-channel diamond pipeline* (Fig. 1). By this criterion, there are two new channels, one through India (even though India has only an insignificant amount of local rough diamond production), and one through Russia (even though Russia

does not cut all the diamonds, *e.g.*, near-gems, that it produces). When these channels are added to the existing channel (Fig. 1), there are now three independent, separate and self-contained channels through which diamonds move in 1998 (Fig. 4).

Each of the three channels has its own characteristic organization and distribution system for rough (upstream) and polished (downstream) diamonds. These three channels comprise a **multi-channel diamond pipeline** (or simply **multi-channel pipeline**) which we define as *a metaphor describing a conduit in which intermediaries are aligned in the distribution of rough and polished diamonds from the mine to the consumer, and in which any one of several trading centres or organizations, at present mainly Belgium and Russia, has acquired the role for rough diamonds comparable to that formerly dominated by the CSO.*

Diamonds do not always move sequentially along the entire length of one of the three channels from the upstream (sorting and valuation) to the downstream (retail marketing) ends, as the network of crisscrossing and transchannel lines and arrows in Figure 4 shows (this representation of channel linkages is greatly simplified). Which channel a diamond actually follows in the multi-channel pipeline, and whether it changes from one channel to another at some stage, is a function of many competing commercial, and in some case political, forces. Diamonds may even follow a braided, tortuous path from the mine to the consumer. Even so, they generally remain within a specific channel, as we use the term, as the following example will illustrate.

A gem-quality diamond may visit a half dozen or more countries as it passes through various stages from the mine to the ultimate consumer. It may have been mined in Botswana, sorted and valued by the CSO in England, sold to a sightholder in Belgium, polished in Israel, manufactured into jewelry in Thailand, purchased by a wholesaler in Hong Kong, and sold to a resident of Japan who purchased it in Martinique while on a Caribbean cruise. And yet it is still considered to have remained in just one channel, in this case, the Traditional Gem Channel (Channel 1; Fig. 4).

In certain cases, the route followed by a particular stone is determined by its gemological characteristics regard-

less of where it was mined. For example, an extremely large and valuable stone would likely be cut in New York and sold in a "first-world country" or in the Middle East, whereas a near-gem would likely be cut in India and end up in inexpensive jewelry in the United States, which is the largest consumer of such stones.

Among the major diamond-producing countries, only in Russia is it likely that a stone purchased at retail will traverse all of the steps, from the mine to the consumer, without leaving the country in which it was mined. Some diamonds mined in South Africa are cut and made into jewelry in that country. However, most such diamonds would have been processed and sold through the CSO, even though the sight might have been in Johannesburg. As such, we consider such diamonds to have left the country. Polished diamonds purchased in Brazil likely were mined and polished in that country and would have bypassed the CSO; however, Brazilian gem production is not a major factor in world markets.

The Traditional Gem Channel (Channel 1)

Development

The Traditional Gem Channel consists of the generally higher-value production that remains in what was the single-channel diamond pipeline (Fig. 1), following diversion of small, low-quality near-gems to the Indian Channel. This channel has been described by Bruton (1978), Shor (1993), Miller (1995) and Sevdermish and Mashiah (1996) from varying perspectives.

Over the years, some aspects of this channel, such as the sight process, have barely changed since it was inaugurated in 1935 (Shor, 1993). A few changes have occurred, the affects of which have been of a local nature: Amsterdam and certain cities in Germany were major cutting centres in the 1930s, but they did not regain this status after World War II. Today, the main cutting centres for diamonds in this channel are Israel, Belgium, New York and Russia.

Since 1960, there have been important changes in the geographic sources of rough diamonds for this channel, as discussed above, but this has had no effect on the downstream end of the channel. Further, at various places

along this channel, diamonds from the other channels are incorporated: gem-quality rough diamonds from the Belgian Diamond Centre, and polished gems from Russia, as well as a limited amount from India (see Fig. 4).

Recent Changes

In the last decade, certain trends have appeared, mainly in the marketing of polished diamonds ("Grantham: CSO eventually..." 1995), that indicate significant changes in this channel are in progress. Historically, following their actual cutting and polishing, polished stone movement in this channel has followed a sequence of long-established steps that include trading among various polished dealers, brokers and wholesalers frequently in bourses (an exchange or meeting place) in various parts of the world. Now, the middle and downstream levels of this channel are shrinking, *i.e.*, the pipeline is becoming "shorter," primarily as a result of intense competition. The phenomenon takes several forms:

- brokers, wholesalers and other middlemen are being bypassed as large retailers go directly to the cutting centres, thus eliminating the middlemen margins (Shor, 1993);
- some large retailers are taking positions in jewelry manufacturing facilities ("Israeli polished brokers intent..." 1995); and
- the function of the bourse as a place for trading diamonds is diminishing as consolidation in jewelry retailing has left fewer retail buyers requiring the services of brokers who use this facility ("Measures for growth," 1996).

Whereas formerly diamonds of all sizes and qualities were supported equally by De Beers in the single-channel pipeline (Fig. 1), in 1998 the primary emphasis in this channel is on larger and better-quality stones. Most of the

polished diamonds emerging from this channel are probably 20 points (pt; 1 pt = 0.01 ct) or larger. This is the size range on which De Beers plans to concentrate its future promotions ("Marketing to the masses," 1996; Shor, 1998). We consider 20 pt to be the division between "large" and "small" polished stones.

Status

The largest portion (by dollar value) of the world's polished diamonds traverses this channel. In 1996, this amounted to about 50-55% of the world's diamond trade (based on wholesale value of polished diamonds at cutting centres; calculated from Even-Zohar, 1997, p. 40). On a carat basis, about half of the world's rough diamonds entered this channel in 1996, down from approximately 80% in 1990. However, much of this total was diverted to the Indian Channel (again see Fig. 4). We estimate that about 50% of the world's retail diamond jewelry sales of \$51.5 billion in 1996 contained diamonds from this channel.

The Indian Channel (Channel 2)

Development

The modern diamond-cutting industry in India began slowly in the late 1950s, but did not gain momentum until the mid 1960s (Shor, 1993; Sevdermish *et al.*, 1998). In 1966, India's share of the world's polished diamond market by value was a mere 1.9% in dollar terms, but within 15 years (in 1981) it had reached almost 30%; since 1992 it has been about 35-40% (Sevdermish *et al.*, 1998). To produce this large percentage (by value) of the world's polished diamonds, in the past 5 years India has imported a staggering 70-100 million carats (Mct) of rough, mostly near-gem, diamonds annually. Essential to the success of the Indian Channel are the low

wages paid in that country.

Growth of the Indian sector of the trade was accompanied by a huge increase in world rough production (mainly from Russia, Botswana and Australia), a broadening of world demand for diamonds, and a trend toward cheaper jewelry containing diamonds that are cut in India. Indian-cut diamonds are characteristically small (average size is 2.5 pt) and of poor quality. Since the late 1980s, about 70% of the world's supply of polished diamonds by weight has come from India. A minor amount (possibly as much as 20% by weight) of the stones cut in India today are larger (typically 0.1-0.5 ct) and many of these enter the Traditional Gem Channel (Channel 1) after polishing, as indicated in Figure 4.

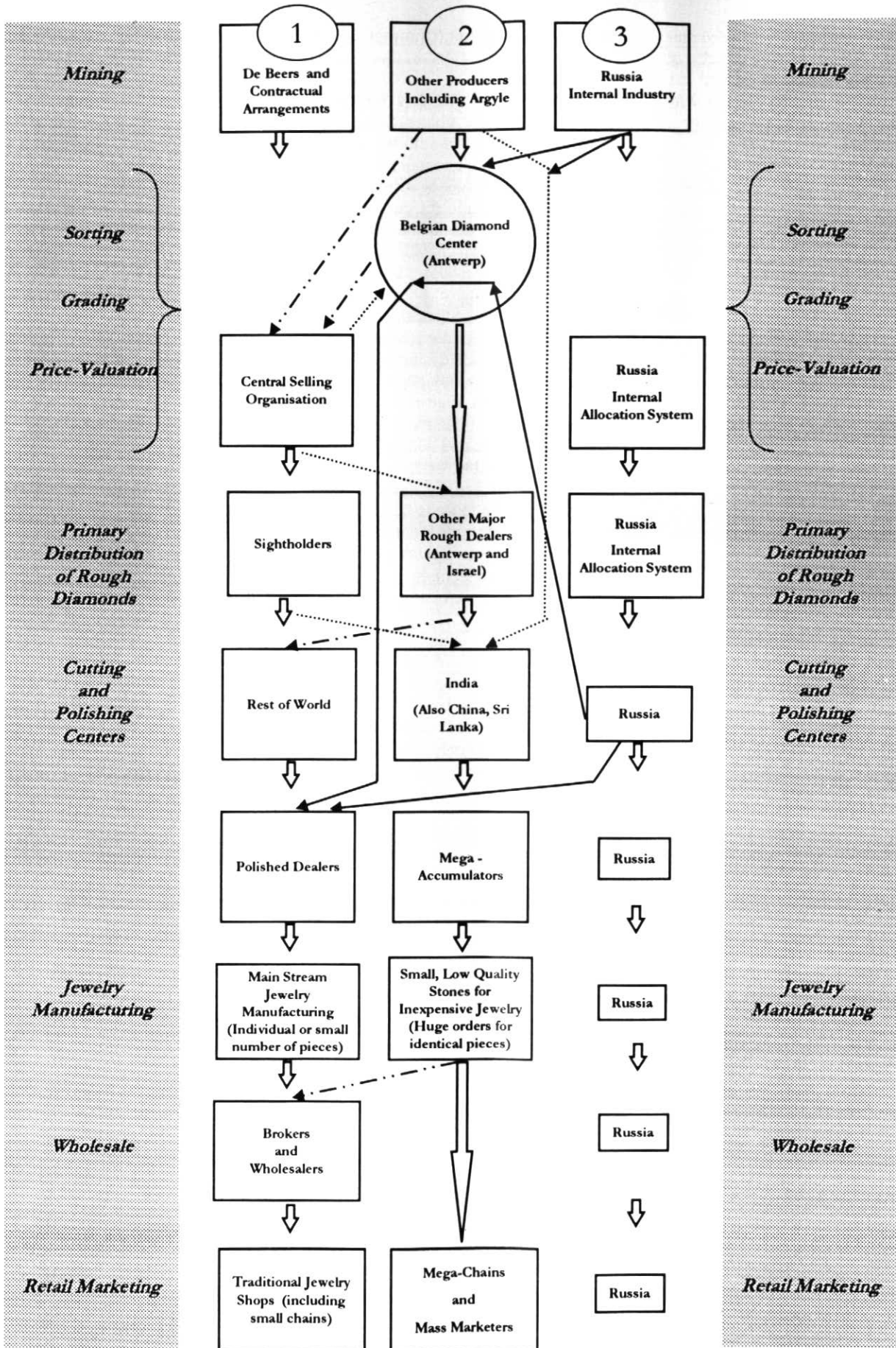
Until 1992, most of the diamonds cut in India were supplied by the CSO, either directly to indigenous Indian sight-holders or indirectly through Antwerp. Since then, as a consequence of "leakage" from Russia and the decision to market Argyle diamonds independently of the CSO as discussed above, rough diamonds have been obtained from numerous sources. In 1997, about 30% was supplied directly by the CSO and another 30% was imported from sight-holders in Antwerp and Israel. The remaining 40% was obtained from the open market (Mehta, 1997), including the Argyle mine directly or through the open market in Antwerp, Russia directly or through rough dealers in Antwerp, and by direct purchases in West and Central Africa.

Organization

Diamonds in the Traditional Gem Channel (Channel 1) generally follow a specific sequence through the trade hierarchy from the sightholder to the consumer. This involves companies (polishing, jewelry manufacturing, etc.) and

Figure 4 (facing page) The "multi-channel diamond pipeline" as it exists in 1998. Within the pipeline (conduit) there are three distinct channels. 1) The Traditional Gem Channel receives its rough diamonds primarily through the Central Selling Organisation but some rough stones from "Other Major Rough Dealers," and some polished stones from Russia and India, may also enter this channel at appropriate stages. 2) The Indian Channel receives huge quantities of rough near-gem diamonds (which are cut and polished into small, low-value stones) from sources anywhere in the world but mainly from the CSO, Russia and Australia (Argyle mine); many are transshipped through the Belgian Diamond Center (Antwerp). 3) The Russian Channel is the only channel in which it is possible for a significant number of diamonds to be mined, polished, manufactured into jewelry, and sold at retail in the same country. However, at present most of Russia's diamonds are either sold on the world markets as rough or as unmounted polished diamonds.

The interrelationships between the various channels within the pipeline are complex and are indicated (in a simplified way) by crisscrossing and transchannel arrows. Small "boxes" in the Russian Channel indicate lesser importance of the respective activity (*e.g.*, jewelry manufacturing) relative to a similar activity in other channels. Export destinations for Russian rough diamonds (other than contractual to the CSO) and polished gems are indicated with solid lines. Dotted lines indicate transchannel sources of rough diamonds into the Indian Channel (Channel 2). Dashed lines indicate sources of rough and polished for the Traditional Gem Channel (Channel 1) from the Indian Channel and sources other than Channels 1 and 3. (See text for further details.)



individuals (dealers, brokers and wholesalers) each of whom manufactures or trades in a very limited portion of the channel. However, this is not the way in which the Indian Channel operates. The diamond industry in India is essentially controlled by the Palanpuris, "the entrenched diamantaire elite" (Lakhi, 1997, p. 50). Palanpuris are an urban bourgeoisie, originating from Palanpur in the state of Gujarat, and are followers of the Jain religion (about 1.5% of the population of India); their entry into the diamond business dates from 1909 (Shor, 1993; Sevdermish *et al.*, 1998).

In their position as major sight-holders, the Palanpuris supply most of the rough diamonds to the cutting factories, many of which they own. They also enjoy a near monopoly in the international sale of stones polished in India by virtue of their control of a sprawling international sales network for polished diamonds which Lakhi (1997) estimates exceeds 1000 offices. Thus, in India there is considerable vertical integration of the diamond industry. Current expansion downward into jewelry manufacturing will further extend the vertical integration. (See also Shor, 1993, p. 113-125, for the history of the Jains and their relation to the diamond industry, as well as other historical aspects of the industry in India.)

The vast majority of the diamonds polished in India are exported for manufacture into jewelry abroad and then sold by mass marketers and mega-chains. About 50% of the world's retail diamond jewelry sales today, similar to that of the Traditional Gem Channel, contain diamonds that have traversed this channel.

Justification for a Unique Indian Channel

Clearly, all aspects of the Indian Channel differ from those of the Traditional Gem Channel. This includes: the source of the rough diamonds; who cuts this material; the nature (specifically, small average size and often poor color, clarity and cut) of the polished diamonds; the method by which the channel operates (*e.g.*, vertical integration); and the end use of the diamonds (*e.g.*, for sale by mass marketers). However, only recently has the concept of a separate Indian Channel been gaining recognition and, even where this has occurred, it is mostly in connection with the upstream (rough) end of the market (*e.g.*, Scriven, 1997).

The Russian Channel (Channel 3)

Introduction

During the Soviet era, Russia's diamond trade operated under strict secrecy as, among other things, diamonds were considered a strategic resource. Thus, mine production statistics, such as annual production, grade (ct per ton) of the kimberlite pipes, size of the diamond stockpile, much of which was accumulated in 1980-1990 (Miller, 1995), and the amount and value of polished diamond exports, are estimates at best (see Bond *et al.*, 1992, for a discussion and evaluation of the Russian diamond industry to 1992). In this paper, "Russia" includes other members of the Commonwealth of Independent States (CIS), where applicable. Statistics are more readily available for the post-Soviet period. Some are difficult to interpret, however, and there is limited disclosure in some areas for legitimate commercial reasons. Notwithstanding the above, the gross features of the Russian Channel are discernible (again see Fig. 4).

Rough Diamond Production and Marketing

Shortly after diamond-bearing kimberlite pipes were found in the Siberian republic of Sakha (formerly Yakutia) in 1954, mining started in 1957 at the Mir pipe. In 1959, De Beers and the then Soviet Union entered into their first marketing agreement, the details of which have never been released, whereby Siberian rough diamonds would be marketed, indirectly for political reasons between 1963 and 1990, through the CSO.

Annual rough diamond sales through the CSO rose from 12,600 ct (valued at \$85,000) in 1959 to 7.5 Mct (valued at \$900 million) in 1990 (Lee, 1992). In 1990, Russia formally joined the CSO and under the 1990-1995 contract agreed to sell 95% of its rough exports through that organization; 5% was reserved for Russian sales at independent sights (*i.e.*, "windows") in Moscow. The Russian quota was 26% of the total CSO sales (Miller, 1995).

Starting in 1992, the Russians began to defy the conditions of the contract, as tens of millions of carats of rough diamonds entered the market through "leakage" (see Sevdermish *et al.*, 1998, for a review of this topic). Leakage includes the sale of rough diamonds and also partially cut stones (Helmer, 1996a).

The 1990-1995 contract (extended to 1996) with the CSO did not limit the amount of cut diamonds that Russia could export or use internally (see below); only sales of rough stones were regulated. For most of 1997 there was no formal contract between Russia and the CSO.

Effective 1 December 1997 De Beers and Russia entered into a 13-month agreement, to expire on 31 December 1998, which cedes to the latter much greater influence in the diamond market than heretofore has been available to any other rough diamond producer ("Russia-De Beers contract cedes control to Kremlin," 1997; Schwartz, 1997). This agreement, among other things, allows for Russia to supply, at its discretion, the CSO with a minimum of \$550 million worth of rough diamonds from current production, but up to a maximum of 26% of CSO sales (which in 1997 was \$4.64 billion), greatly expand its outside sales, create its own sales network, select sight-holders (number unspecified) to the CSO, and regulate the volume, assortment and prices of rough diamonds it sells to the CSO.

It is too early to determine the ramification of this agreement. It is clear, however, that the Russian diamond manufacturing industry should be one beneficiary, as they will now have first priority to buy rough diamonds sold by Russia, whereas in the past, they frequently were unable to obtain sufficient material for their needs. Ultimately, it is possible that all diamonds mined in Russia may be cut there (except those not appropriate for economic or technical reasons, *e.g.*, near-gems or very difficult stones) or marketed independently, thus totally bypassing the CSO.

Clearly, since the mid 1970s, Russia has been a major force in the production of rough diamonds. In the period 1990-1996, it was the world's second leading producer by value (about 20-25%) of newly mined diamonds after Botswana, and fourth in terms of volume (about 12 Mct annually) after Australia, Zaire and Botswana (*e.g.*, Janse, 1996). Seventy percent of the production is cuttable, consisting of 30% gems and 40% near-gems (Indian goods) (Meyer, 1990).

Domestic Consumption

During the Soviet period, which ended in 1991, one estimate is that roughly half of all newly mined Russian gem-

quality rough diamonds was exported and half was assigned to the domestic cutting and polishing industry, predominantly for export sales as polished stones (Helmer, 1996b). The Economist Intelligence Unit (1992) estimated that possibly 40% (in terms of rough value) of Russian production was used in the local cutting industry. In 1996, Russian manufacturers were only able to obtain 70% of their rough diamond needs for processing and even less for most of 1997 (Schwartz, 1997). Notwithstanding a lack of precision in the data, it is clear that the amount of rough diamonds polished within Russia is significant.

The domestic Soviet cutting and polishing industry was established by the early 1960s (reported as 1961 by Rothschild, 1992 and as 1963 by Helmer, 1994), and regular and increasing sales of polished diamonds were made in Moscow to selected foreign buyers or through overseas selling offices in Antwerp and elsewhere. For the late Soviet era (to 1991), the number of people employed in diamond facetting (cutters and polishers) is generally given as 16,000 (Even-Zohar, 1990; Bond *et al.*, 1992) but some reports indicate that not all were always active (e.g., The Economist Intelligence Unit, 1992, suggests fewer than 8000 were active in 1992). In general, Russian workers do not produce as much polished goods, on a *per capita* basis, as do their counterparts in Belgium and Israel.

There are no official published data available from the Soviet Union relating to the amount and value of polished diamonds that were exported from that country, but some indications can be gleaned from the literature. In the period 1984-1987, an average of about 620,000 ct of Russian polished diamonds were exported to Antwerp annually (The Economist Intelligence Unit, 1992) but this may not have included all export sales, such as those made to foreign buyers in Moscow. Total polished diamond exports for 1991 from Russia were estimated at 530,500 ct (valued at \$567 million) (Helmer, 1994). This is consistent with the comment by Shor (1993) that Russian manufacturing plants cut and sell some \$500 million worth of polished diamonds yearly. Helmer (1996a) estimated that fully polished goods exported in 1995 amounted to \$400-500 million, in addition to an estimated \$700-800 million of semi-

processed stones.

For 1996, we estimate that about 500,000 ct were fully polished domestically in Russia. This is based on data in Even-Zohar (1997, p. 40) in which he reports the value of Russian polished production at \$800 million, which we value at \$1500 per carat (\$800 million divided by \$1500 = 533,333). These 500,000 ct represent about 10% (by weight) of the world's total polished gem diamonds (exclusive of that polished in India) and we assume that the majority were exported (see below). Another estimate suggests that only about one-half that amount was polished in that time frame (Helmer, 1996c).

Jewelry Manufacture and Retailing

We find no mention in the literature before 1991 of a jewelry manufacturing industry in Russia, although it obviously existed at least in a small way. At that time, Rothschild (1992) noted that some diamonds and jewelry were being sold in the home market (being manufactured in 10-12 factories) but that it was unlikely that sales were significant in the context of world sales.

This conclusion is borne out by the fact that in 1995 Russian retail jewelry sales, both diamond and non-diamond, were about \$800 million but no more than \$320 million was domestically produced. Of this, diamond jewelry was variously estimated at \$100-250 million retail (Helmer, 1996c), which represents an insignificant (less than 0.5%) portion of the world's \$51.5 billion retail diamond jewelry market. In 1996, the total had risen to about \$920 million but the diamond content of these retail sales is not reported ("Russian domestic jewelry market nears \$1 billion," 1997).

Magnitude

A total of \$7.7 billion of rough diamonds entered the multi-channel diamond pipeline from all the world's diamond mines, including both newly mined diamonds and sales from stock, in 1996. Of this, Russia sold \$2.3 billion or 29.9% (Even-Zohar, 1997). Using Janse's (1996) estimate of \$108 per carat as the average value of Russian rough diamond production (which is similar to the value of \$110 per carat De Beers had been paying Russia; Bond *et al.*, 1992), then about 21 Mct of rough came from this source; about \$1 billion in value, equal to about 9.3 Mct, of the total came from the Russian stockpile

as compared to about 11.7 Mct from new production.

The Russian contribution of \$2.3 billion (for 1996) to the world supply of rough diamonds consisted of three components: 1) \$600 million (about 5.5 Mct) was sold to the CSO and this went to the Traditional Gem Channel (again see Fig. 4); 2) \$1 billion (about 9.3 Mct) of leakage went to the Belgian Diamond Center (and Israel) from which various amounts would have been re-routed to the Traditional Gem Channel and the Indian Channel; and 3) \$700 million (6.5 Mct) was designated for the domestic polishing industry, but some of this undoubtedly was diverted for other purposes. Exported, fully polished goods would have followed two main routes to the Traditional Gem Channel (Channel 1) (Fig. 4): directly to polished dealers in the major centres in the United States, the Far East and Europe; and to the Belgian Diamond Center for resale into the Traditional Gem Channel.

How the Russian Channel Works

The internal workings of the Russian diamond trade, including the structure of the distribution system and the allocation of rough diamond quotas for the domestic polishing industry, were enigmas to the world during the Soviet era. Since then there has been a difficult restructuring of the industry that has involved conflict between many competing economic and political interests (Bond *et al.*, 1992). The re-organization is still evolving. For a discussion of the present state and corporate structure of the Russian diamond industry, see Helmer (1996a,b).

Justification for a Unique Russian Channel

From the above, it is clear that a Russian Channel, which supplies 20-25% of the world's rough diamonds by value, and which polishes about 10% of the world's gem diamonds (exclusive of those polished in India), exists in the framework of a multi-channel diamond pipeline (Fig. 4). Russia has been a major exporter of diamonds since the early 1960s, both as rough and in the polished state. A small amount flows along the entire length of the channel, emerging as jewelry sold domestically.

Unquestionably, today the Russian Channel is "unbalanced" in the sense that the mining and polishing sectors are far more important than the domes-

tic jewelry manufacturing and retail sectors (hence, the latter are represented in Fig. 4 as "small boxes"). At present, using official figures or estimates in the literature, it appears that Russia accounts for about 1-2% of the world's retail diamond jewelry trade by value. However, it is common knowledge that much of Russia's gross national product is not represented in official economic statistics. For example, semi-legal and illegal gems, including diamonds, arrive in Russia from Europe and Asia, owing to the very high taxes (43% excise and 20% VAT) on local jewelry (Teslenko, 1997).

We feel that the retail diamond trade in Russia is significantly larger than officially reported, although we are unable to quantify this suspicion. Russia has been recognized as potentially one of the world's biggest growth centres for diamond jewelry (Helmer, 1996c) which, if this materializes, will make the Russian Channel more closely resemble the Traditional Gem Channel (Channel 1). Actually, we believe that in Russia there already is a large and growing market for diamonds among the *nouveau riche*, both as a symbol of westernization and for investment purposes. The new contract between Russia and De Beers, as a result of which Russian diamond manufacturers will have priority in obtaining rough diamonds, is another step in the emergence of Russia as a major consumer of polished diamonds that will have traversed the entire length of the Russian Channel. Such an occurrence should have a positive and stabilizing effect because such locally consumed diamonds will not enter the world markets. Further, it could fill the gap left by falling sales in recently depressed markets, e.g., southeast Asia. Although nebulous at present, the Russian Channel is certainly the longest, vertically integrated diamond jewelry industry in the world (excluding South Africa and Brazil from consideration).

DISCUSSION

If one properly answers the question, "When did a significant portion of the world's rough diamonds officially stop going through the CSO?", then 1996 marked the effective end of the single-channel marketing system, as well as the single-channel diamond pipeline, because the production from the Argyle mine began to be marketed independently in that year. Further, by virtue of

the most recent contract between Russia and De Beers, 1997 will be recognized as the year that Russia formally emerged as a major independent seller of rough diamonds (above what it requires for its domestic cutting industry) although, *de facto*, it has been a major seller outside the CSO since 1992. It is not surprising that events of this magnitude have reverberated through the international diamond market and have resulted in a complete restructuring of the pathways by which diamonds have moved from the mine to the consumer.

Whereas for most of this century (at least since 1934) the industry has resided in a single-channel pipeline maintained by De Beers (Fig. 1), realities of the past 5 years indicate that the pipeline now consists of three channels with much cross-linkage (Fig. 4): 1) the Traditional Gem Channel, 2) the Indian Channel, and 3) the Russian Channel. The multi-channel pipeline will strengthen and become more recognizable in the near future if much of the production, about 5% of the world's gems in 1999 and about 10% after 2002, from new mines in Canada is marketed outside of the CSO. In addition, it is conceivable that Russia will market even less (or even none) of its rough production through the CSO in the future and it may even compete with the CSO for rough diamonds from other countries (e.g., Angola). We recognize that reduced production from the Argyle mine after 2003, or even its closure, will have an effect on the Indian Channel (Sevdermish *et al.*, 1998); however, it is too early to speculate on its impact. We also recognize that De Beers may enter into contractual arrangements with the owners of the Canadian mines for their total production to go through the CSO, or they may even purchase one or both of these mines, but these possible events will not negate the Indian Channel or the Russian Channel.

Notwithstanding the above, at this time De Beers is still the leading factor in the diamond industry. In 1998 De Beers, with its own mines in South Africa and its governmental partners in Botswana and Namibia, controls about half of the world's rough gem diamonds. This percentage likely will decrease in the next decade as the marketing of rough gem diamonds will be characterized by a struggle with other countries (e.g., Russia, Canada, Angola) with major identified diamond deposits vy-

ing for market share. Further, with diamond exploration at all time high levels, additional deposits undoubtedly will be found by organizations that, in the future, may find independent marketing to their advantage.

The ramifications of the multi-channel pipeline are profound, and suggest further rapid and dramatic changes in the world diamond industry from mining to retail, based on present and evolving economic, political and technical realities. These include: producing nations like Russia expanding its diamond mining and domestic jewelry industry; financially powerful and technically advanced international industrial/mining companies like Australia-based BHP and England-based Rio Tinto successfully engaging in diamond exploration and in rough diamond distribution; and, mega-retailers increasing their positions in jewelry manufacturing. New alliances between various producers (some new, including those in Canada) and cutting centres are a distinct possibility, especially since new rough and polished diamond trading bourses, such as in Israel and Russia, have been announced (e.g., Boucher, 1997). The diamond industry as we knew it at the beginning of this decade was built for and operated in the 20th century, and that century is coming to an end. Clearly, continuation of the restructuring of the diamond pipeline is inevitable and irreversible. It is now time for the industry to be prepared for and be willing to accept new directions that will transform it to better serve itself and a rapidly changing world. Thus, the multi-channel diamond pipeline of 1998 depicted in Figure 4 will evolve over time.

CONCLUSIONS

A single-channel marketing system for rough diamonds no longer exists; neither does the single-channel diamond pipeline. Since mid 1996, when production from the Argyle mine was first marketed independently, most analysts of the diamond trade have recognized a two-channel (tier) marketing system for rough diamonds: 1) one supported by De Beers in which the higher-quality (gem) diamonds move from the mine to the cutting centres through the CSO in much the same manner as they have for much of this century; and 2) one in which small, low-value (near-gem) diamonds that are cut and polished predominantly in India are traded in sev-

eral centres outside the CSO, but mainly in Antwerp, and which is receiving minimal support from De Beers at present.

In this paper we extend the concept of two channels for rough diamonds through the entire length of pipeline (to include mining, cutting and polishing, jewelry manufacturing, retail marketing) because we recognize that these extended channels have their own distinctive markets, internal organizations, and distribution systems. We refer to these channels as 1) the Traditional Gem Channel, and 2) the Indian Channel. Further, we have presented evidence for a third unique channel, *i.e.*, The Russian Channel. Perhaps 25% (by value) of the world's diamonds start out (are mined) in the Russian Channel but, at present, only a relatively small portion of these diamonds traverses its full length to be used by the internal Russian jewelry industry.

As a result of the changes that have occurred in the marketing of rough diamonds, especially since 1996, Canadian diamond producers will have numerous choices as to how they can market their rough diamonds. These choices will be dictated by such factors as the quality and size of their rough diamonds and the amount of their production.

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