

# CAN THE ORGANIZATION OF THE EMERALD MARKET BE IMPROVED IN COLOMBIA?

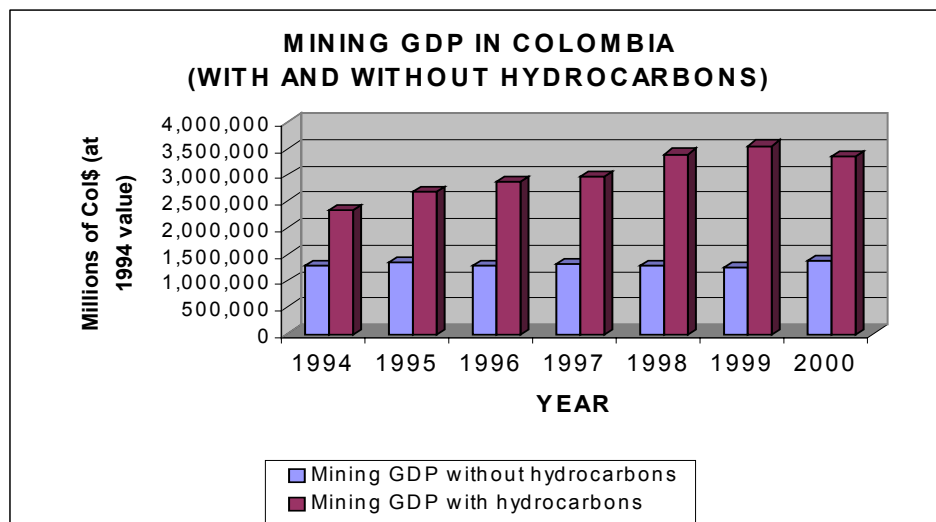
By Luis Ernesto Rodriguez

## Abstract

*The emerald mining industry in Colombia plays an important role within the national economy. Although it contributes towards the GDP and creates employment, it does generate problems within the community in some regions. The modus operandi of the emerald market has long preoccupied the government, given its level of informality with the consequent minimisation of revenues derived from exploitation. A better-organised emerald market in Colombia would enhance the government take as well as the image of the Country in the international market place. The objective of this paper is to define the present situation within this sector in Colombia. It also draws some tentative recommendations on how to organise the marketing of these precious stones, whose quality is recognised as the best in world-wide in a more effective way*

## 1. INTRODUCTION

The mining activity in Colombia has historically played an increasing role in the Country's economic growth. It's share of the GDP has risen from 3.45% in 1994 to 4.51% in 2000. The participation of the emerald sector within the overall national mineral GDP was 0.48% and 0.11% for 1994 and 2000, respectively.<sup>1</sup>



The Graph No. 1 shows the variation in the mining GDP, with and without hydrocarbons. Source : Colombian Administrative Department of Statistics

<sup>1</sup> Colombian Administrative Department of Statistics (DANE-Departamento Administrativo Nacional de Estadística).

<<http://ukplus.com/ukplus/clickcounter.jsp?id=267111&brand=IE&search=google&pg=0&location=>>

In 1994, the emerald activities generated 8,4% of the country's earnings from revenue in terms of foreign exchange, which decreased to 1,1% during the following year.<sup>2</sup>

Colombia is one of the largest emerald producers in the world (in terms of value). The Colombian emerald industry has, on average, 60% of the global market.<sup>3</sup> The national gem production grew by an average of 35% annually during period 1991-2001. The average annual production during this period was 6,2 million carats. In addition this industry generates 28,268 jobs distributed between jewellers, miners, carvers, and merchants.<sup>4</sup>

The emerald sector in Colombia has a series of characteristics that make it unique in the national mining context. Firstly, the official production and export statistics that the Ministry of Mines and Energy produces are an approximation to the real values of the total production, since the majority of stones are smuggled and therefore do not provide revenues for the Country. Secondly, production and commercialisation are controlled by a small numbers of individuals who have acquired access to the mines by force.<sup>5</sup>

The need to commercialise the emerald industry through a "bourse" has long been discussed at a government and commercial level. Although the State and the private sector have shown interest in creating this organisation, no advance has been made, which shows perhaps, so there seems to be no alternative to continue with the present scheme of commercialisation for the time being. This study will attempt to find an answer to this question. Some information that is included here, comes from data that the author collected in the labour field as a public servant.

## **2. WHO ARE THE PARTICIPANTS?**

### **2.1 In the mines**

Particular concessionaires operate the mines. The mineral rights are granted throughout the concession system. There are 55 concession contracts, but only in four of these contracts, is the emerald production significant.

The more important emerald producing companies in Colombia are Prominas of Zulia Ltd, Coexminas Ltd, Esmeracol Ltd and Tecminas Ltd. The mines of Coexminas and Tecminas produce stones of the highest quality, which are those that obtained the best prices in the Colombian market. Promines and Esmeracol are the producers of the

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<sup>2</sup> "Unidad de Planeación Minero Energética UPME" *Estadísticas mineras*".  
<[ftp://www.upme.gov.co/boletin/estadisticas\\_me\\_1996-2001/estadisticas.html](ftp://www.upme.gov.co/boletin/estadisticas_me_1996-2001/estadisticas.html)> (last visited on 12 Apr. 2002)

<sup>3</sup> Mining Journal, Bogotá Emerald Bourse, in Vol. 330 (No. 8469) MJ p. 162 ((1998).

<sup>4</sup> "Unidad de Planeación Minero Energética UPME", <  
[ftp://www.upme.gov.co/boletin/estadisticas\\_me\\_1996-2001/estadisticas.html](ftp://www.upme.gov.co/boletin/estadisticas_me_1996-2001/estadisticas.html)>, (last visited on 10 Apr. 2002)

<sup>5</sup> See Mining Journal, supra note 3.

greater volume in terms of carats. The national market is mainly supplied from their production.<sup>6</sup>

The personnel with experience of the mines play a decisive role in development, since normally they know where the tunnels with emerald bearing veins exist. Personnel for the mines are contracted on the basis of shareholders' recommendations.

In the emerald mining activity there also exist, two other main participants. They are as follows:

- ◆ The subcontractors who develop mining works (tunnels) in areas considered to have the best potential within the main concessions and,
- ◆ The “Guaqueros” who carry out informal mining activities, searching for emeralds in the waste or materials already exploited by the companies. The number of Guaqueros amounts to more than 50.000 at peak production times.<sup>7</sup>

## 2.2 In the Commercialisation

The participants in the commercialisation are:

- ◆ The partners or shareholders of the mining companies,
- ◆ The employees for the mines (e.g. workers, supervisors, controllers),
- ◆ The street retailers, known as the “Avenida Jimenez market”. This place is located in the Center of the Capital of Colombia, Bogota and this is where the transactions of emeralds between sellers and buyers are carried on a large scale. This could be considered as another specific characteristic in the market of emeralds as trust still exists between the parties concerned. A buyer is guaranteed that the emerald that he has bought is of the quality stipulated.

## 3. NATIONAL AND INTERNATIONAL SUPPLY

As was mentioned before, Colombia is the largest emerald producer (in value) in the world. The following table shows the production distribution in percentage by countries:

Table No. 1. Emeralds World Production

COUNTRY	PRODUCTION
Colombia	60%
Zambia	15%
Brazil	12%
Russia	4%
Zimbabwe	3%

<sup>6</sup> “Minercol, Empresa Nacional Minera”, <http://www.minercol.gov.co/concurso/index.htm> (last visited 12 on Apr. 2002).

<sup>7</sup> “Unidad de Planeación Minero Energética”, Industrialización y Comercialización de Minerales en Colombia.

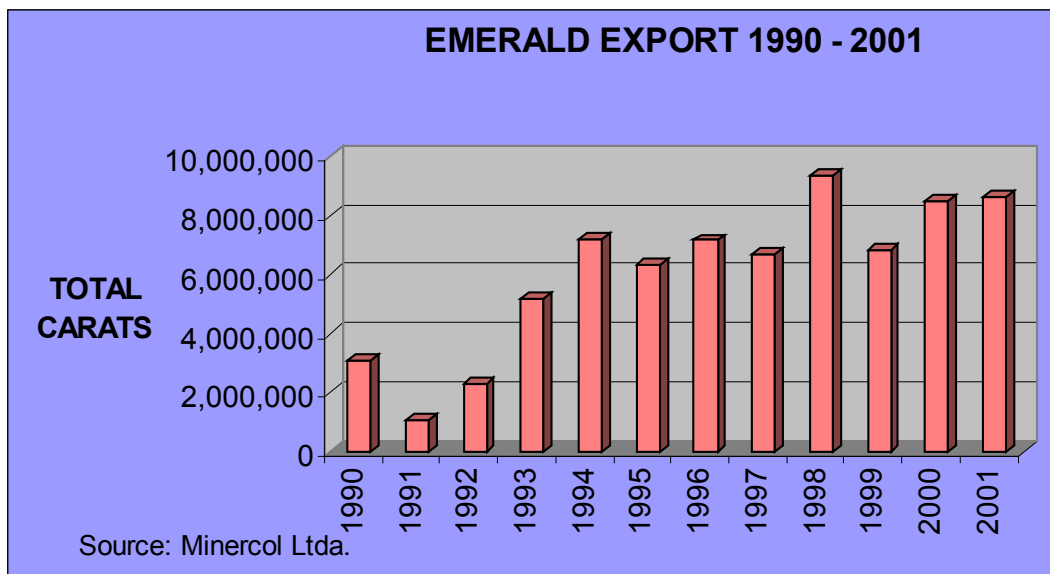
Madagascar	3%
Others – Pakistan, Afghanistan, Australia, Tanzania	3%

Source: Statistics from Ministry of Mines and Energy of Colombia.

The official statistics indicate that the national production, in carats, has growth from 1991 at an annual rate average of 35%.

The histogram in Figure No. 2 shows that in 1991 the production (in terms of export) was 1.07 million carats and rose to 8.6 million carats in 2001.<sup>8</sup>

Graph No. 2

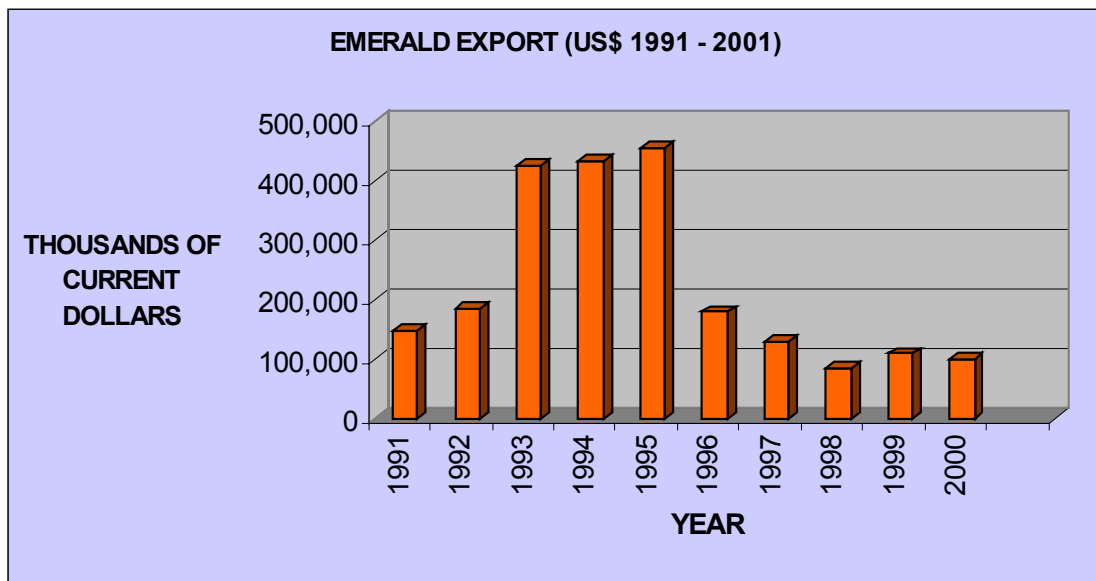


Graph 3 shows that exports (supply), in dollars, grew until 1995. From 1995 onwards exports decreased, due to reasons that until now have not been officially been identified and confirmed. It is suggested that this phenomenon may be accounted for, at least in part, by illegal exportation of the gemstones. The exports by 1995 were 4.8 times greater than those of 2001. In 1995 the exports were valued at US\$456 million while in 2001 the output dropped to US\$95 million.<sup>9</sup>

<sup>8</sup> See UPME, supra note 2.

<sup>9</sup> See UPME, supra note 2.

Graph No. 3.

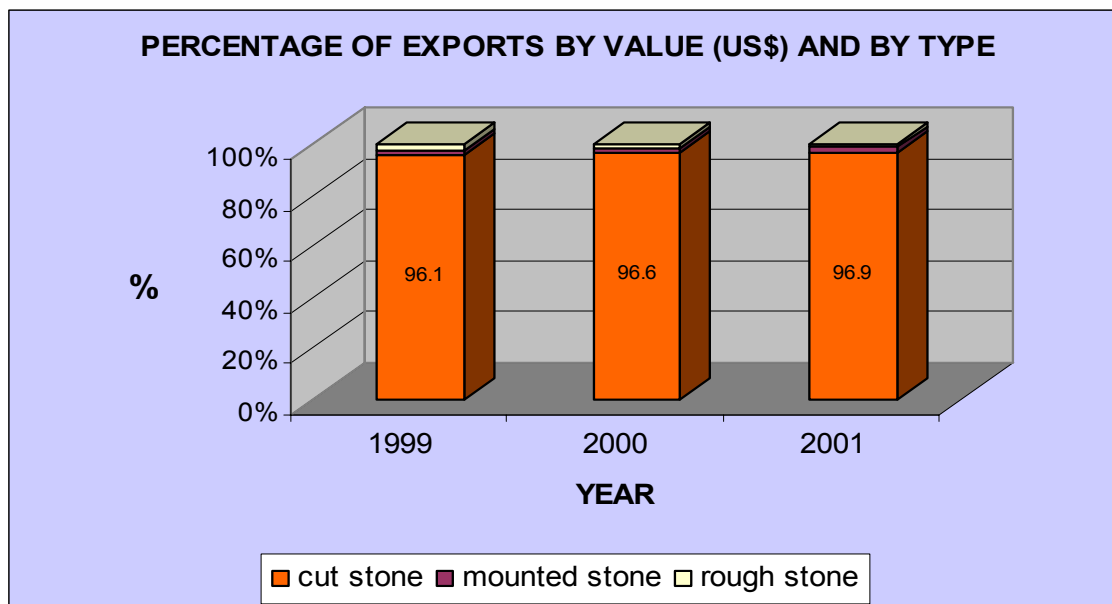


Source: Unidad de Planeación Minero Energética UPME

During the 1999-2001 period, of the total exports (US\$ 280 millions), 96,6% comprised cut stones, 1,6 % mounted stones and 1,8 % rough stones.<sup>10</sup> (See Graph No 4.)

Graph No. 4

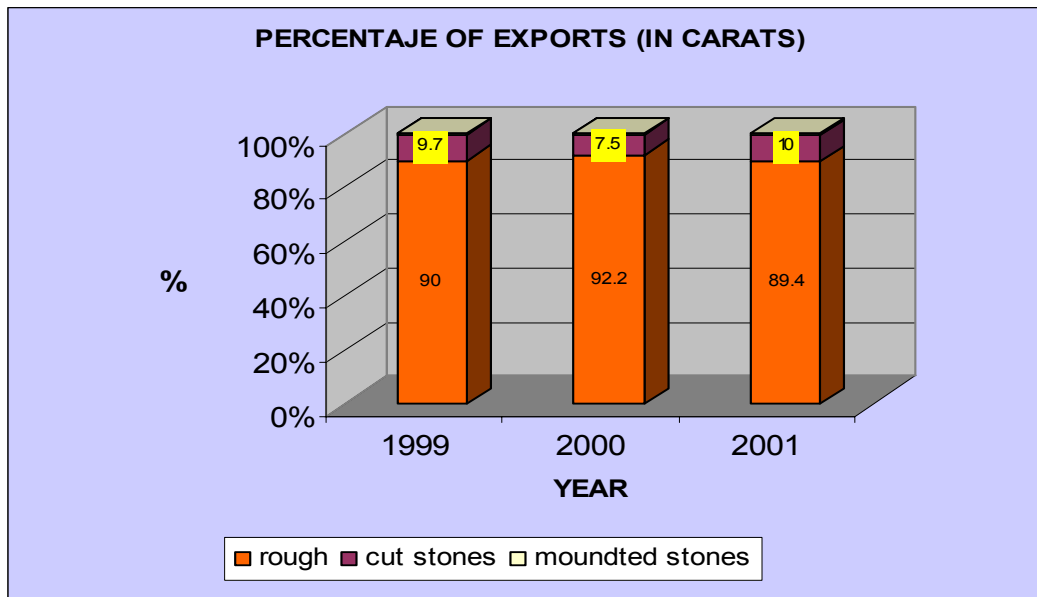
<sup>10</sup> See UPME, supra note 2.



Source: Unidad de Planeación Minero Energética UPME.

Nevertheless, the same information indicates that the exports of rough emeralds represent 90,4% of the volume exported (carats). This highlights the fact than the supply (emeralds) with added value through cutting is greater than the supply for rough emeralds. This also indicates the low income derived from the export of uncut emeralds.

See graph No. 5.



Source: Unidad de Planeción Minero Energética UPME.

#### 4. NATIONAL AND INTERNATIONAL DEMAND<sup>11</sup>

At an international level, the United States and Japan (industrialised countries) were the main purchasers of Colombia's emerald exports in last three years, with 70,4 % and 21,7 % respectively.<sup>12</sup>

The emerald demand at a national level is not known precisely. However, given the country's actual economic condition we can assume that it is marginal. In the mining zones of exploitation within the Muzo and Cozcues municipalities in Colombia, the demand for emeralds is greater when the offer increases. The economic theory explains that the value of normal goods is greater, as the quantities offered in the market approach zero (*ceteris paribus*). In the case of rough emeralds<sup>13</sup> (in mining zones) this law is not fulfilled.

According to the observations of the author, this fact is explained in terms of production, which is sporadic during the life of the mining operation. The demand increases due to the interest of some international merchants for buying part of the production offered in the market place because of the high reputation of the product's quality. One of the problems that most frequently affects the demand for emeralds is related to the quality of oils used to improve the optical gem characteristics. At the same time the demand of emeralds is affected by the fact that the buyers are not informed about the type of products (oils) that are used. These factors have contributed to the "distrust" of the quality of the gemstones that at the same time produce a diminution in the demand.<sup>14</sup>

<sup>11</sup> Crowson P., *Inside Mining* 16-36 (Mining Journal Books Ltd.) (London, England: 1998)

<sup>12</sup> See UPME, *supra* note 2.

<sup>13</sup> Emeralds in brute are those that have not had any added value, for example treatment with oils or benefit (deals).

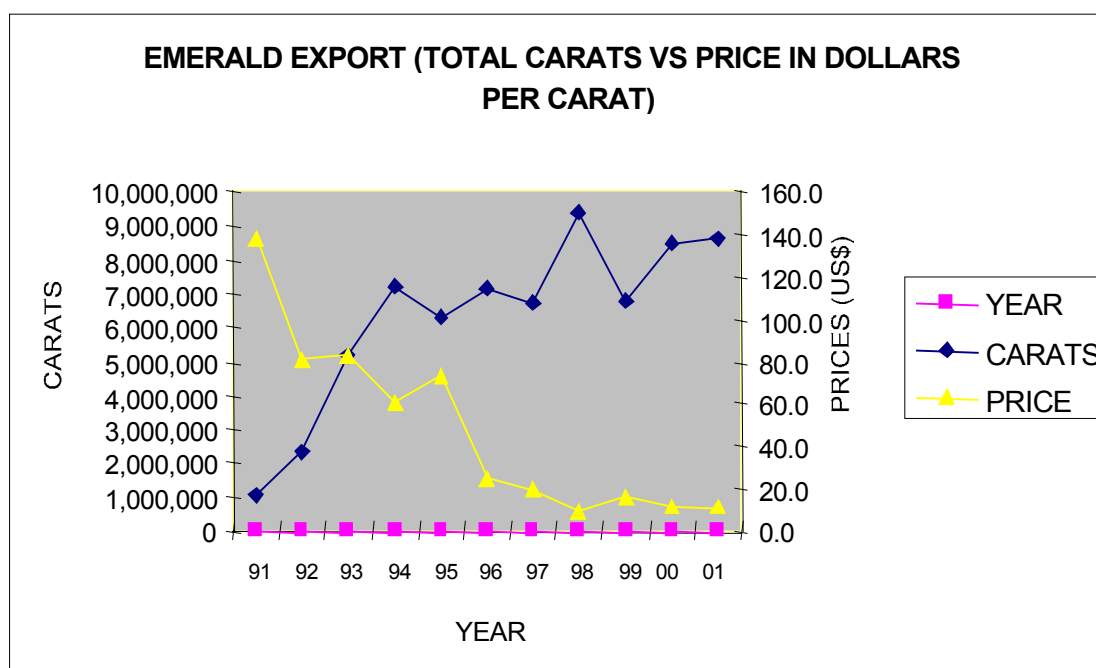
<sup>14</sup> Weldon R., *Colored Gems Emeralds*, <<http://www.jckgroup.com/ns-search/archives/1997/09/jc097-80.html?NS-search-s>> (last visited 12 on Apr. 2002).

## 5. PRICE<sup>15</sup>

The following part of this study provides an analysis<sup>16</sup> of the behaviour of the offer and price of emeralds exported from Colombia. The analysis will attempt to show that the emeralds' price is inversely proportional to the quantities exported. The price for the unit of product, as well as the amounts in dollars received diminishes as the offer (exportation) level grows.

In the period 1995 - 2001, the exports of emeralds reached US\$ 1.152 millions. See graph No 7. In the period analysed the average prices for the cut stones, sold for jewellery dropped 83,7% (in 1995 the prices per carat were US\$72,4 while in 2001 they were only US\$ 11,0 per carat). This is due to the increase in the proportion of the exported stones (measured in carats).<sup>17</sup>

Graph No. 7



Source: Unidad de Planeación Minero Energética UPME.

The previous information is based on the statistics of the Ministry of Mines. The prices for emeralds carved in the Bogota's market, on average are:<sup>18</sup>

- Low quality "Morralla": US\$10/carat
  - To regular quality: US\$100/carat
- These emeralds come from the Coscuez' mine.

<sup>15</sup> See Crowson, supra note 11, p. 37-58.

<sup>16</sup> See UPME supra note 2.

<sup>17</sup> See UPME supra note 2.

<sup>18</sup> This information does not come from official source, but the author has compiled it.



- Good quality: US\$600/carat  
These emeralds come mainly from the Muzo's mine.
- Excellent quality: From US\$10,000 to US\$30,000/carat.  
These emeralds come from the Muzo's Mine and a small percentage from Chivor.

The following are some of the variables that affect the price:

*The physical and chemical characteristics* of an emerald have a direct relation to its demand and its market price. The formation of emeralds requires the appropriate temperature and pressure, and association of chemical components, including aluminium, silicate, beryl, vanadium and chrome. Given a low percentage of these ingredients, and a suitable pressure-temperature regime, emeralds will develop as six-sided (hexagonal) crystals. Often growth is disrupted and the stone is formed with many flaws, or the crystal form is partially or totally suppressed, or alternatively the colour may not be evenly distributed throughout the gemstone. The demand for an emerald that has a uniform distribution of the colour is greater. This type of emeralds is known as "gota de aceite" (Oil drop).

*The transparency and the weight* of the emerald are factors that also affect its demand. An emerald of one (1) to two (2) carats<sup>19</sup> is less in demand than an emerald of five (5) to six (6) carats. Amongst the larger stones, an emerald of 20 carats is less in demands than one of five (5) carats. The value in terms of units of weight is greater when the emerald ranges from five to six carats of weight.

The same observations apply when estimating the value of the emeralds, in the mining zones. They achieve higher prices when the owner of the emeralds is a partner in the mining company. This is explained by the generation of expectation - on the part of the purchaser - of buying new gems or emeralds in the future from the same seller at a lower price.

In the event that the employees of the mines find an emerald and they market it, the price that they will obtain would not be similar to the price that the same gemstone would be priced in a normal transaction. This makes a difference in the market prices for gemstones of similar qualities.

## **6. MARKET STRUCTURE**

There is no record of the export value for the Coexminas and Tecminas companies. But these exports are approximately 20 times the value of the exports registered in the Ministry of Mines and Energy.

A single businessman runs the companies Tecminas and Coexminas. He owns 50% and 25% of the Coscuez and Prominas mines respectively.<sup>20</sup> In general the production is bought by the largest shareholder of the company. Also in some cases, the partners or shareholders of the mining companies trade the production among themselves. These transactions, between shareholders, are carried out behind closed doors.

<sup>19</sup> The carat is a unit of weight that is equivalent to 0,2 grams.

<sup>20</sup> Minercol, <http://www.minercol.gov.co/concurso/index.htm> (last visited 09 on Apr. 2002)

Sometimes the emeralds are sold for the shareholders to local merchants but when emeralds are of extraordinary quality, they are sold directly to buyers of recognised international status.

Of the total production (100%) officially collected by Coscuez and Prominas approximately a 20% are distributed between the company's partners in accordance with the number of shares held by each of the partners. The remaining 80% of the production are extracted in a clandestine form by such partners or by workers of the company. The emeralds that are extracted in a clandestine way supply the illegal market.<sup>21</sup>

The buyers of Avenida Jimenez and central offices of Bogota City also participate in the commercialisation. In these places emeralds traded are of little value. The wholesale traders of Japan, India, Israel and EU make purchases and weekly prices fixes are made according to the mine where the emerald come from. These wholesale traders also acquire emeralds of extraordinary quality that are sold again to other merchants.

The employees of the mines (workers, supervisors, controllers, etc) also participate in the commercialisation. They sporadically sell emeralds obtained from within the mine.

## **7. STOCK-MARKET ORGANIZATION**

### **7.1 Proposal for Improvement**

Both the Government and the industry have emphasised the pressing need to organise the emerald market through a Bourse. The main objective would be to strengthen the emerald sector, especially to improve the Colombian participation in the international marketing of this gemstone, through the organisation of the supply.

In practice, the Bourse should be the place where the buying and selling gemstone is carried out. The following are some of the reasons why the government would participate in the organisation of this establishment:<sup>22</sup>

- Greater royalty collection by the State: If the market is organised, the State could control the transactions undertaken realised and would eliminate the royalties and tax evasion.
- To increase and to improve the sector information: The market informality produces some failures to supply information, with adverse consequences for the public finances.

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<sup>21</sup> See supra note 18.

<sup>22</sup> This information was obtained by the author in different work meetings during the last 4 years.

- Demand increase: The transactions that are made through the stock market would have Government support. That support (through the issuance of a quality certificate) would improve the gem's image and consequently the demand and price increase.
- When the demand increases, the prices and the level of government collection also increase.
- Added value: The idea is that the bourse commercialises solely cut emeralds.
- For the Ministry of Mines and Energy an industry with more incomes could facilitate the fulfilment debts obligations by the mining industry to the State.
- With the installation of a Bourse the government would try to avoid the failures of the market. Market failure exists because the agents-plaintiffs, who are generally foreign, dominate the processing of the stones with additional technological development (cutting, assembly and commercialisation) and impose their price for the inputs they make.
- The government would try to avoid the sector's informality: That is to prevent that the emerald commercialisation in Colombia continues through the informal market of the Avenida Jimenez in Bogota.
- Within the Colombian government there is a line of opinion that considers that the main benefit of the Bourse is that it would facilitate the organisation of a system of quality certification. The certificate would provide the needed security to the buyer to the effect that the information on characteristics of the gem that has been bought is accurate and truthful.

The main reasons for the participation of producers and merchants are:

- Producer revenue increase: An increase in the demand can increase the price and therefore the producer's income.
- To improve the sector image: which is the main objective of the producers. At a national level the area in which the emerald mines are situated is considered as an independent republic. The producers have concession contracts with the State and it is expedient the government supports the renewal of contracts.

## **7.2. Antecedents of the Bourse Organisation.**

The first initiative to found an emerald bourse was made by the Minister of Foreign Trade, in 1993. This attempt failed through lack of endorsement by Bogota merchants. These merchants saw a stock market like an instrument to control the market.<sup>23</sup>

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<sup>23</sup> Memories of Ministry of Mines of Colombia. 2001.

The second attempt to organise a stock market was in 1998. With this aim in mind the government summoned the First World-wide Emerald Congress with laboratory representatives' assistance and some mining leaders. Because some of the principal emerald producers did not attend the Congress, the participants focused attention on the illegal use of oil (in the processing) and on how Colombia would approach a solution to this problem.<sup>24</sup>

Despite the availability of incentives for the organisation of the emeralds market - for both the benefit of the government and the producers - the attempts at organisation have failed.

For the government the main preoccupation is that the State is seen as promoting a monopolistic market system with the establishment of a Bourse. For that reason the commitment from the government to the project have not been total.

For the producers a system like the present one proposed involves:

- i) A monopoly in production and the commercialisation, and
- ii) Disorganisation in the mining operations - even with the sponsorship of some industrialists - allows the actual "emerald tzars" to continue controlling the mines (given the problems of public order that could be generated if the State takes part that sector).

For the private sector the existing system is profitable. If Colombia organises a bourse many of the income statistics of this industry would be public. On the other hand, the producers would have to pay the taxes, an aspect that up to now they have successfully eluded.

## CONCLUSION

1. Colombia is the largest emerald producer in the world. This industry, in 2001, contributed 0.11% of the mining GDP and generated exports of US\$95 million and provided over 25,000 people with employment.
2. The emerald industry in Colombia is characterised by the existence of a monopoly in the production and commercialisation. The commercialisation in Bogota (Avenida Jimenez) is informal.
3. The data on production and exports that the Ministry of Mines administers is only an approximation of the real value.
4. The national supply, in 2001, was 8,6 million carats and has grown at a rate of 35% annually from 1992. The exports (in volume) are mainly in uncut stones (89,4%).

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<sup>24</sup> Id.

5. The export value in 2001 was US\$95 million. The income from exports is mainly derived from cut emeralds (96,6%).
6. At an international level the United States and Japan (industrialised countries) were the main purchasers of Colombian's emeralds in last three years, with 70.4 % and 21.7 % respectively, of the total of the exports.
7. During the period 1991-2001 the average prices for the cut stones, sold for jewellery dropped 83,7%.
8. The variables that affect the price depend mainly on the physical characteristics and the weight of the emerald.
9. There are incentives both for government and mining businessmen to organise a bourse. Nevertheless, there are also interests that prevent the establishment of such organisation. For the government the main preoccupation is to support a monopoly. For the private sector the actual system is profitable, but with a scheme of market type bourse the amount of money that the industry turns over would be transparent.
10. At present it seems that it would not be feasible to market emeralds in Colombia through a Bourse.
11. The Emerald market in Colombia is very sensitive, as it is vulnerable to influence through external pressures.

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