Gem and Jewellery Research and Training Institute Gem and Jewellery Res

Administration Report – (Under Section 14(1) of the Finance Act. 38 of 1971)

01. **Formation of the Institute**

The Institute was formed on 28.07.1995 by the incorporation order (Gazette Notification No. 822) under the National Gem and Jewellery Authority Act No 50 of 1993 for the purpose of assisting of the development of Gem and Jewellery Industries. As provided for in the Incorporation order objects of the Institution is to provide training and research facilities for the regulation of the Gem and Jewellery Industry.

02. **Board of Directors**

During the year under reference (2001) the composition of the Board of Directors of the Institute was as follows:-

Name		Period of Service
1. Mr.W.A.Karunasena	Actg Chairman/GJRTI	(From 10.10.2002-22.01.2001)
2. Mr. S.Wijegoonawardena	Chairman/GJRTI	(From 28.02.2002- to date)
3. Mr. R.J.De Silva	Member	(From 21.03.2002- to date)
4. Mr. T. Piyadasa	Member	(From 25.11.1998 – to date)
5. Mr. S.Weerawarnakula	Member	(From 17.04.2002 – to date)

03 **Organization and functions**

In the year 2002 the activities of the Institute were carried out through its main offices at Ratnapura and Colombo, and the regional centers located in Kandy, Galle, Ehaliyagoda, Monaragala, Badulla and Warakapola. A new training center was opened at Hasalaka in the Kandy district on August 2002.

The Institute carried out Education Training and Research activities under the following powers versed in the Institute.

(i). To carry out surveys of Gem Minerals in Sri Lanka

(ii). To Carry out gemological Research pertaining to-

a. Their location;
b. identification;
c. Methods of enhancing the Gem stones;
d. Any other related field;

(iii) To provide Technical and other advise including invention of machinery for the development of the Gem and Jewellery Industry in areas such as mining, gem cutting, Jewellery making, devices for the treatment of gem stones and making of Jewellery;

(iv). To provide Training in-

a. Gem Cutting;
b. Jewellery making;
c. Gemmology including diamonds;
d. Jewellery designing;
e. Enhancement of gem stones;
b. Any other related aspects of the gem and jewellery industry.

(v) To conduct Workshops, Seminars and publish Papers and books on related topics, work done, etc.;

(vi) To do such other things as are necessary for the proper discharge of the functions of the Institute.

04. Initial Capital and funds of the Institute

At the beginning of the financial year under review the Institute did not have its own funds. The initial capital that should have been made available by the National Gem and Jewellery authority under the Incorporation order was not made available fully. And negotiations made with the said Authority resulted in receiving a sum of Rs. 25 millions by July 2002. This facilitated the Institute to manage its affairs with its own funds without resource to the Treasury, which had severs funding problems.

The Institute also received some assistance for carrying out the training programmes in the provinces. Funds were received for carrying out Jewellery manufacturing programmes at Manaragala and Badulla from the World University service of Canada. It was a continuation of the programme conducted in the previous year as well.

05. Financial Results

The Institute functioned as a service organization during this year too. In the implementation of the education and training programme, although course fees were charged from the participants, there was an element of subsidy in the programme. The Institute received funds from the Treasury only during the first half of the year and no funds have been requested from the Treasury from May 2002.

Income and expenditure figures, relating to the activities of the Institute in the current year as compared with the figures of the previous year, are as follows:-

	2002 (Rs)	**2001 (Rs.)**
Total Income	10,179,992	11,205,341
Total Expenditure	15,738,795	13,822,214
Difference before Income Tax	5,558,802	(2,616,873)

The annual accounts for the year as at 31st December 2002 attached.

06. Education Training and Research Activities

i. Training Programme

Training centers located in Colombo Ratnapura Kandy, Ehaliyagoda, Galle, Badulla, Monaragala and Hasalaka conducted training courses during this year.

The intake of the students was curtailed in view of the need to phase out the subsidy due to the financial difficulties faced by the Institute. Funds released from the Treasury has been reduced during the first part of the year and our attention was drawn to phasing out the element of subsidy, with a view to making the training programme self sufficient within a reasonable period of time. In view of the above the intake of trainees has come down from planned 500, to around 400.

II. Number trainee in 2002

The course wise and location wise brake up of number of trainees in 2001 and 2002 can be seen in the schedule blow (fig.1)

It is observed from the perusal of these figures that the No. of persons who underwent training in gem cutting increased from 28 in 2001 to 49 in 2002 and in Heat Treatment from 22 to 36.

Centre	Courses Conducted	No. of Trainees 2001	2002
Colombo	Gemmology	16	16
	Gem Cutting & Polishing	09	03
	Colour Grading & Marketing	-	10
	Geuda Heat treatment	05	16
	Jewellery Manufacturing	21	18
	Jewellery Designing	29	18
	Stone Setting	38	20
	Identification of Rough Stones	-	-
Ratnapura	Gemmology	06	15
	Gem Cutting & Polishing	16	28
	Colour Grading & Marketing	-	-
	Geuda Heat treatment	09	20
	Jewellery Manufacturing	11	24
	Jewellery Designing	02	-
	Identification of Rough Stones	-	09
Kandy	Gem Cutting & Polishing	03	04
	Jewellery Manufacturing	14	16
	Jewellery Designing	12	16
	Stone Setting	21	10
Ehaliyagoda	Gem Cutting & Polishing	-	14
	Jewellery Manufacturing	03	-
	Geuda Heat Treatment	08	-
	Stone Setting	-	13
Matara	Jewellery Manufacturing	23	-
	Stone Setting	10	-
Monaragala	Gem Cutting & Polishing	-	-
	Jewellery Manufacturing	-	17
Badulla	Jewellery Manufacturing	-	24
Warakapola	Jewellery Manufacturing	-	05
Galle	Jewellery Manufacturing	12	12
	Plating	02	-
Hasalaka	Jewellery Manufactur	-	✳ 13

✳ The programme is still in progress

Fig. 1

07. Course fees and the No. Of Trainees

These figures in respect to course fees in relation to No. of trainees during 2001 and 2002 are as follows.

	Total No of Trainees	Course Fees (Total) Rs. Million
2001	270	1.39
2002	341	2.23

08. Research Programme

8.1 Gem Exploration

1. **Two research projects in two different areas were conducted for the identification of unknown gem deposits in Kegalle district.**
   The main objective of the two research projects is to explore and evaluate the possibilities of gem mineral deposits in Galigamuwa and Galapitamada in Kegalle District. The Preliminary investigations conducted at Ballapana revealed that the deposits mainly consists with Corundum crystals and investigations, were carried out in order to;

   a. Study the Geology and mineralogy of the primary corundum mineralization in the Ballapana – Gangoda (Polgahawela) area.
   b. To describe the geology, petrology and major-element geochemistry of bedrocks, in order to evaluate the process, of the corundum genesis. Preference will be given to the corundum bearing rocks.
   c. To find more primary deposits in the area, where similar geological conditions are present.
   d. To trace the occurrence of quality gem deposits in the vicinity.

   Accordingly, Geology and Geomorphology of the said area were studies and the relevant map has been completed. Further, a new location of primary deposit was identified in Galapitamada. This area is mainly consist of well-shaped corundum crystals and further investigations are to be carried out in order to confirm the presence of gem minerals, its volume and the extent.

8.1.2 Value Enhancement of Gemstones

(1) Heat Treatment of Ottu stones
A series of heat treatments were carried out for ottu stones including "Pita ottu" (outside ottu) and Atul ottu (inside ottu), to obtain the optimum heat treatment conditions for maximum results. These treatments carried out a temperature range of 1600^0C - 1680^0C under reducing conditions with soaking periods varying from 25 – 40 minutes. Necessary temperatures and conditions were obtained by controlling the L.P. and Oxygen gas regulators.

Results show that,

- ✷ Colour of Pita ottu did not enhance.
- ✷ Colour of Atul ottu was enhanced.
- ✷ When heat treated ottu stones with khata (dark brownish patches), dead milky was formed.
- ✷ When ottu stones with yellow patches, heat treated blue was enhanced only places where yellow colour was not present.

(2). Heat Treatment of Madagascar purple sapphire

A series of heat treatments carried out for Madagascar purple sapphire to obtain the optimum heat treatments conditions to remove the blue and brown over castted colours. Heat treatments were carried out using a "Lakmini" furnace, at 900^0C - 1750^0C temperature range under the oxidizing conditions with soaking periods varying from 02 to 03 hours. Necessary temperatures and conditions were obtained by controlling the L.P. and Oxygen gas regulators.

Results show that the brown overcastted colour is completely remove at 1000^0C - 1100^0C temperature range. Blue colour (more them 60%) removed at about 1500^0C. Temperatures higher than 1600^0C, blue colour will be developed. According to these results, to obtain maximum results, stones should be heat treated at 1500^0C- 1550^0C temperature under oxidizing conditions for 2-3 hours.

2. Heat treatment of Zircon gem varieties

A series of heat treatments carried out for four colour varieties (green, dark green, greenish, yellow, raddish brown) of zircon. An electric furnace was used for these experiments and stones heated at 400^0C, 500^0C, 600^0C, 700^0C temperatures with one our soaking period.

Results show that for all four colour varieties , best colour enhancement can be achieved at 400^0C - 500^0C temperature range with one hour soasking period. At temperatures higher than 500^0C, colour was reduced.

09. Geuda Heat Treatment Service

Research division of the Institute provided the service of heat treatment of Geuda stones to the gem traders who required such facilities. Accordingly, 83 heat treatment sessions were conducted during the year, charging a fee for the service rendered.

10. Workshops and Exhibitions etc.

10.1 Exhibitions

The Institute participated on several National level and provincial level exhibitions and gave infraction to the public regarding the industry at the work of the Institute.

i. Participated with a educational exhibition stole for the "Central region handicraft trade exhibition", organized by the Department of Small Industries, Central Province, held at Deyyannewela ground , Knandy, from 20th – 24th July, 2002.

ii. Participated with a educational exhibition stole with special attention on " Heat Treatment of Geuda " for the "Exhibition on Gems" organized by the "gemologist Association" held at the public library Auditorium, Colombo on 10th August, 2002.

iii. "Facet" international Gem and Jewellery exhibition conducted in Colombo.

iv. "Navoda lanka" industrial and trade exhibition conducted at Polonnaruwa.

v. Two other local exhibitions held at Ratnapura.

10.2 Workshops

i. Training division conducted a Seminar in the Gem and Jewellery Industry with the assistance of the Chamber of Commerce at Matale.

ii. Conducted a demonstration on "Heat treatment of Geuda" for the members of the Nivithigala small-scale gem traders association at Nivithigala on 14th June, 2002. Number of participants was about 40.

iii. Conducted a one day workshop on "Gem & Jewellery Industries" at the Youth Council center , Monaragala, on 26th September 2002. About 50, Gem Traders. Jewellery Traders, Jewellery Manufactures and Tranees were participated.

iv. Conductd a public lecture on " Four New Gem Varieties from Sri Lanka" (Serendibite, Dunilite- New Olivine, Bromellite, Aluminoenstatite) by Mr. D.P. Gunasekara,Ratnapura, organized by the GJRTI held on 13th December, 2002 at the GJRTI, Ratnapura. Number of participants was about 150.

11. Publications

(i) Hand book of " Heat Treatment of ottu" by S.M.S.Abeyweera, Research Officer,GJRTI, in November, 2002. (in Sinhala medium)

(ii) Leaflet of "Disasters due to Poisonous Gases from Gem pits and ho to prevent it?" by S.M.S.Abeyweera, Research Officer, GJRTI, in November 2002. (in Sinhala medium)

12. Challenges

The Institute is constrained in its efforts to discharge its mandate due to shortage of trained Research personnel, shortage of equipment etc. Action has been taken to recruit a Geologist and to add some laboratory equipment this year. Steps are being taken to gradually overcome the shortcoming and improve the performance of the Institute.

GEM AND JEWELLERY RESEARCH AND TRAINING INSTITUTE

STATEMENT OF INCOME AND EXPENDITURE FOR THE YEAR ENDED 31 DECEMBER 2002

		2002 Rs.	2001 Rs.
Treasury Grants		**5,120,000.00**	**5,450,000.00**
Revenue			
Course Fees - [Note 01]		2,233,968.50	1,399,760.00
Geuda Heat Treatement charges		330,660.00	120,300.00
Total Revenue		**2,564,628.50**	**1,520,060.00**
Add:Other Revenue			
Interest on Treasury bills		2,342,793.88	2,969,498.26
Other interest income		64,213.38	89,028.89
Other income - [Note 02]		88,356.71	1,176,753.71
Total Other Revenue		**2,495,363.97**	**4,235,280.86**
Total Income		**10,179,992.47**	**11,205,340.86**
Less:			
Staff and Administration expenses -[Note 03]	13,560,603.69		
Depreciation and General expenses-[Note 03-1]	1,778,561.43		
Research and Training Devlopment expenses [Note 04]	303,523.86		
Human Resource Development expenses [Note 04-1]	96,106.00		
Total Expenses		**15,738,794.98**	**13,822,213.78**
Surplus before income tax		**(5,558,802.51)**	**(2,616,872.92)**
Less:Provision for income tax		-	-
Surplus After income tax		**(5,558,802.51)**	**(2,616,872.92)**
Add:			
Surplus from previous years	(16,847,531.98)		
Adjustment for previous year	187,201.42		
		(16,660,330.56)	(14,230,659.06)
Balance carried forward		**(22,219,133.07)**	**(16,847,531.98)**