



Gem and Jewellery Research and Training Institute

Annual Report

2021

Gem and Jewellery Research and
Training Institute
"Ruwan Sewana"
No. 73/5/A,
Welivita
2022.02.28

Hon. Minister
Ministry of Industries
P.O. Box 570,
73/1
Galle Road,
Colombo-03

Hon. Minister,

Annual Report 2021

In terms of sub section 14 (2) of the Finance Act No.38 of 1971, the following documents are submitted to you.

1. The Administration Report of the Gem and Jewellery Research and Training Institute for the year 2021
2. The performance report as at 31st December.

Yours faithfully,



Prof. P.G.R. Dharmaratne
Chairman
Gem and Jewellery Research and Training Institute



Vision

To be the Regional Centre of Excellence in Research and Training in the Gem and Jewellery Industry while facilitating the Growth and Development of the Industry in Sri Lanka

Mission

To enhance the Competitive capability of Sri Lanka Gem & Jewellery Industry by providing high quality Research & Training services, conducting workshops, Seminars, and by publication of books and papers on related subjects leading to Exploration of Gem Deposits, Technological Innovation, Skill and Competency Development and Quality Improvement for the satisfaction of our Stakeholders

Objectives

Explore gem resource potential areas of Sri Lanka and harvest these resources through sustainable methodologies, and contribute to the national economy by producing tradesmen with training in new technological methodologies.

2.1. Composition of the Board of Directors

The composition of the Board of Directors for the year 2021 was as follows.

01	Prof. P.G.R. Dharmaratne	Chairman of the Board of Directors From 27.12. 2021 to date
02	Mr. Y.K.T.P. Weerasinghe	Chairman of the Board of Directors From 03.01.2020 to 26.12.2021
03	Mr. I.S.H.J. Ilukpitiya	Member of the Board of Directors From 28.08.2020 to 30.06.2021
04	Mr. Amila Indika	Member of the Board of Directors From 21.01.2020 to 13.10.2021
05	Mrs. Prabha Malalasekera	Member of the Board of Directors From 22.01.2020 to date
06	Mr. R.M.D.K.G.N.B. Ranatunga	Member of the Board of Directors 2021.10.14 to date
07	Mr. Anura Walpola	Member of the Board of Directors From 26.02.2020 to 31.12.2021



Senior Management



Prof. P.G.R. Dharmaratne

Chairman

(From 27.12.2021 to date)
B.A.Sc (SL), M.Sc (Newcastle),
Ph.D(Leeds), F.I.E, F.G.G, F.G.A, C.Eng



Mr. Y.K.T.P. Weerasinghe

Chairman

(Until 2021.12.26)



Mr. B.G.R.W. Wasantha Gamlath

Director General (Acting)

(From 23.11.2021 to date)
M.Sc (Gem), B.Sc (SP) (Physics) FGA,
MGA (SL), MBA(Reading)



Mr. Thilak Dharmaratne

Director General

(until 07.11.2021)
B.Sc., M.Sc.(Oceanography, UK), M.Sc.
(Gem.SL), M.PM (Project Mgt.SLIDA), Dip in
Mgt.(NIBM), MGA(SL), MGSSL(SL) M (IGSL)



Mr. B.G.R.W. Wasantha Gamlath

Director (Training and Development)

M.Sc (Gem), B.Sc (SP) (Physics) FGA,
MGA (SL), MBA(Reading)



Mr. R.M.N.P.K. Nalin Jayasinghe

Director (Research) / Acting

M.Phil(Gem.), M.Sc(GIS & RS), B.Sc.
(Geology), MIGSL, MGSSL, MGASL



Mr. S.L.J. Muhandiram

Assistant Director (Finance)

MPAcc(USJP), B.com (SP)Accountancy 2nd
lower Hons (USJP), CBA(ICASL), ADV.Cer
(Procurement)(ICTAD)



Mrs. J.H.I.S. Jayamaha

**Assistant Director
(Administration and Human Resources) Acting**

Mrs. J.H.I.S3 Jayamaha
B.Sc. Chemistry (Special)(USJP)

3 . Chairman's Review of Opportunities and Challenges of the Year under review

3.1 Opportunities

- **Increase in the demand for research and training**

Local and foreign demand for the institution's services is growing. The high demand for skilled workers in this sector has led to the growth of this demand. The increased demand for the services is also the result of the recent measures taken towards improving the quality standards of the services delivered by the Gem and Jewellery Research and Training Institute. It also has the opportunity to satisfy the needs of the rapidly growing training market in the North and East areas.

- **Unfulfilled needs**

There are requirements that the service providers have not yet fulfilled for the field. Under the circumstances, there is a slowdown in systematic gem exploration, identification of primary gem deposits, upgrading of extraction technology and the transmission of quantitatively advanced technology to the industry as a whole.

- **Technological advancement**

There is also scope for the invention and introduction of new machinery for activities such as gem mining and color enhancement of gems.

- **Growth of the institution**

The institution also needs to be upgraded to have the capacity to offer degree courses in gem and jewellery in the Asia-Pacific region for serving the clients from various parts of the world.

- **Other potentials**

There are opportunities for providing various service for this sector by the relocation of Geuda heat treatment plants to other locations in Sri Lanka and establishment of research facilities.

- **Joint programs for the development of the industry**

There are opportunities to collaborate with the Central Environmental Authority on eco-friendly approaches to the gem industry, to cooperate with the National Gem and Jewellery Authority on research projects, and work together with other government agencies for various development projects.

- **Promotional programs**

Opportunities are open for the institution to launch publicity campaigns about its services, through awareness programs, magazines, leaflets and audio-visual presentations on gem and jewelry.



3.2. Challenges

- **Infrastructure facilities**

Urgent steps need to be taken to introduce modern equipment and machinery, training units and thereby providing the training, knowledge and skills required for the industry's advancement. The gem cutting unit and the gem laboratory in the jewelry training units require introduction of state-of-the-art machinery. Further, a metal standardization unit should be set up and related courses should be introduced. Since diamond cutting is a unique industry in this industry, it is necessary to establish a relevant training unit to impart knowledge and take steps for related development activities.

- **Physical resources**

There is a shortage of vehicles required to carry out the work of the research and training division of the institute in a broader manner. There is also a need to upgrade laboratory facilities to meet current needs.

- **Backwards attitudes of employees**

Employees' having a negative attitudinal psychological background from the recent past.

- **Duplication of the institute's services by sister institutions.**

Examples: - training, laboratory services, etc. of the institute.

- **Human Resources**

According to the cadre plan approved by the Department of Management Services, our institution has a cadre of 136 employees and it currently employs 78 employees. Due to the limited training opportunities available locally for the research and training staff of the institute and the limited number of officers with subject knowledge in this field, there are less opportunities for referring the officers for training. Therefore, it seems that our staff is not sufficient to fulfil the present day demands of the industry. This situation is not conducive to the future of the industry and may affect the training demand of the institution. The solution to this situation is to provide local and foreign training opportunities to the staff of the institute as much as possible.

- **Financial Resources**

At present, the contribution of the Treasury to the funds required to carry out the activities of the institution in an expended manner is minimum and a suitable Cess tax system has not been set up to serve this purpose.

- **Establishment of training institutes by the private sector**

Private sector involvement in education in the field of gems and jewelery has gradually increased.

- **Lack of incentivizing in some sectors of the industry**

Examples - Cutting Service Division



4. Report of the Board of Directors

● 4.1. Objective

The Gem and Jewellery Research and Training Institute was established by Gazette Notification No. 882 dated 28th July 1995 in accordance with Section 25 (1) of the National Gem and Jewellery Authority Act No. 50 of 1993. The main objective of the Institute is regulation, promotion and development of the Gem and Jewellery Industry through research and training facilities in the industry.

4.2. Powers of the institution

Conducting surveys on gem minerals and their deposits in Sri Lanka and carrying out scientific research on the following related matters.

1. To conduct surveys on gem minerals in Sri Lanka
 - a) Location of gems
 - b) Identification of gems
 - c) Methods of enhancing gem stones.
 - d) Any other related aspects and gemmological research.
2. To provide Technical and other advice 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.
3. To provide training in -
 - (a) Gem cutting
 - (b) Production of Jewellery;
 - (c) Gemology including diamonds;
 - (d) Jewellery designing;
 - (e) Enhancement of gem stones;
 - (f) Any other related aspects of the gem and jewellery industry
4. To conduct Workshops, Seminars and to publish Papers, Books on related topics, work done etc.
5. To do such other things as are necessary to facilitate the proper discharge of the functions of the Institute.



TRAINING DIVISION



4.3 Activity and efficiency

4.3.1. Training Division

The main objective of the training division is to implement training courses and other development activities based on the concept of "from mining to market" to engage skilled craftsmen and skilled professionals who have the potential to lead the gem and jewellery industry towards strategic development. The achievement of these goals is expected to:

- Improve the efficiency and performance of the gem and jewellery industry
- Increase industry's recognition by producing high quality and quantitative products
- Enhancing market opportunities through product diversification
- Increase revenue generation and employment opportunities through acceleration of industry operations.

To this end, the Training Division has implemented the following programs and projects in the year 2021.

1. Progress of training courses aimed at value chain activities.

Many training programmes were implemented to conduct a number of Certificate Courses, National Vocational Qualification (NVQ 04) Courses and Diploma Level Courses aimed at producing skilled craftsmen as well as professionals in the field of gems and jewellery. Training programs planned at the beginning of 2021 had to be revised in the middle of the year due to the failure of carrying out the functions of the institute properly owing to the unexpected closure of the country for most of the year in the face of the COVID epidemic. Accordingly, the target student enrollment had to be revised to 265 and the progress made (286 students) has significantly decreased as compared to the other years. Also, the studies of 337 students in the courses that were not finished in the years 2019 and 2020 had to be continued in the year 2021 as well.

Courses in the field of gem	Courses in the field of jewellery
Diploma in Gemology (Dip. PGSL)	Diploma in Jewellery Design and Manufacturing Technology (Dip. PJSL)
Basic Gemology (Certificate Course)	Jewellery Designing (Certificate Course) Computer Aided Jewellery
Gemology (Certificate Course)	Designing(Certificate Course)
Geuda Heat Treatment(Certificate Course)	Jewellery Manufacturing Course (NVQ 03/04)
Gem Cutting & Polishing Course (NVQ 03/04)	Costume Jewellery Manufacturing (Certificate Course)
Gem Colourgrading & Marketing (Certificate Course)	Jewellery Stone Setting Course (NVQ 03) (Certificate Course)

Table I - Training Courses conducted in 2021

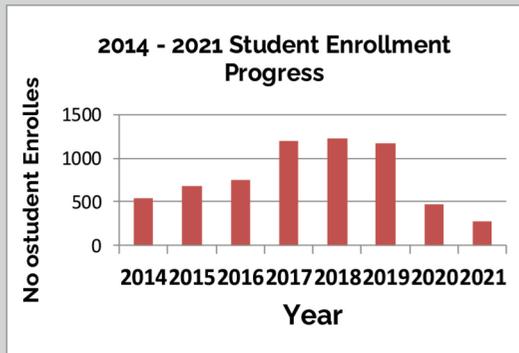


Despite the COVID epidemic this year, it has been possible to enroll about 286 in the courses.

Course	No. of students enrolled
Diploma courses	12
Certificate Courses on gemmology	136
Certificate courses in the field of jewellery	87
Total number of students in the year 2021	286
Number of students continuing into 2021 from the years 2019 and 2020	337

Table II – Enrollment for Training Courses for the year 2021

1.1 Progress in students enrollment



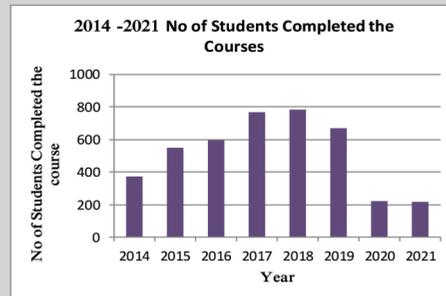
Year	No. of students enrolled
2014	540
2015	674
2016	757
2017	1200
2018	1220
2019	1165
2020	465
2021	286

Students enrollment for training courses

1.2 Progress of students who have completed the course

A total number of 217 students, out of the students enrolled in the year 2021 and those who enrolled in the years 2019,2020 but continued studies in to 2021, have completed the academic activities and final examination in 2021.

Year	No. of students who completed the courses
2014	370
2015	550
2016	596
2017	768
2018	783
2019	669
2020	221
2021	217

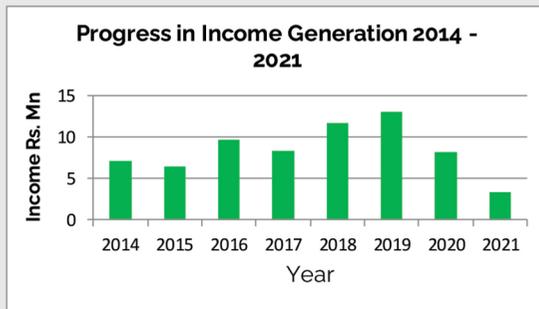


Progress in completion of courses by students



1.3 Progress in income generation

A total number of 217 students, out of the students enrolled in the year 2021 and those who enrolled in the years 2019,2020 but continued studies in to 2021, have completed the academic activities and final examination in 2021.



Growth in income from the courses

Year	Income Rs. Mn.
2014	7.12
2015	6.42
2016	9.68
2017	8.26
2018	11.72
2019	13.06
2020	8.2
2021	3.3

1.4 Cluster of training centers in operation

In the year 2021, the institute successfully operated 08 training centers including the head office in Kaduwela to conduct training courses to introduce the skilled craftsmen required for the gem and jewelery industry. *These training centers are as follows.*



2. Educational Development Programs

2.1 Establishment of Quality Management System (QMS)

Establishment of Quality Management System (QMS) in accordance with the standards of the Tertiary and Vocational Education Commission (TVEC) for ensuring the quality of the courses and the institution commenced in the year 2020 and within the institution, development of the written manuals in accordance with those standards, such as the Quality Policy Manual, Process and Procedure Manual, Rules and Regulations, the supplementary records used in ISO 9001: 2008 and IWAZ: 2007 quality certification were completed during this year. To accomplish the same, the service of an expert consultant was obtained and it is possible to establish and maintain this Quality Management System (QMS) in the year 2022. This overall quality management approach ensures the quality of our academic activities.

2.2 Establishment of training course standard levels conforming to the National Vocational Qualifications (NVQ) standards.

Relevant preliminary work as scheduled on TVEC has been implemented to identify existing and desired job opportunities in the gem and jewelry industry based product market and thereby build National Vocational Qualification Levels (NVQs) for gemology and jewelry design training courses through the Tertiary and Vocational Education Commission. A committee appointed by the University of Vocational Technology (UNIVOTEC) is currently in the process of preparing the NVQ L 4, 5 standards for gemology and National Apprenticeship Board (NAITA) is in the process of developing NVQ L 4 standards for jewellery design.

2.3 Curriculum Review, New Curriculum Development, Printing of Institutional Student Hand Books with Course Tutorials and Notes

The institute pays special attention to the various positive changes that are taking place in the gem and jewellery industry and in the manufacturing market and in consideration of such knowledge, regularly takes action to design training courses, revise syllabuses and conduct training courses with the latest technology. During the travel restriction period of 2021, preparation of books containing course tutorials and notebooks required for the core training courses conducted by the Division was carried out through the Institute's Training Academic Staff. These Gemology heat treatment, gem cutting and polishing and Gemmology books will be put into the process of printing and provide to the students use.

3. Student's certificate awarding ceremony

The institute currently conducts training courses in line with the National Vocational Qualification Level (NVQ Levels) and at Diploma level. For the first time by the institute, it had been planned to hold a Certificate Award Ceremony in 2021 for the trainees who complete these courses. However, it was not possible to conduct this programme in the qualitative manner intended by the institute following rules and regulations imposed as per the epidemic situation. But the program has been re-scheduled to be held in 2022.



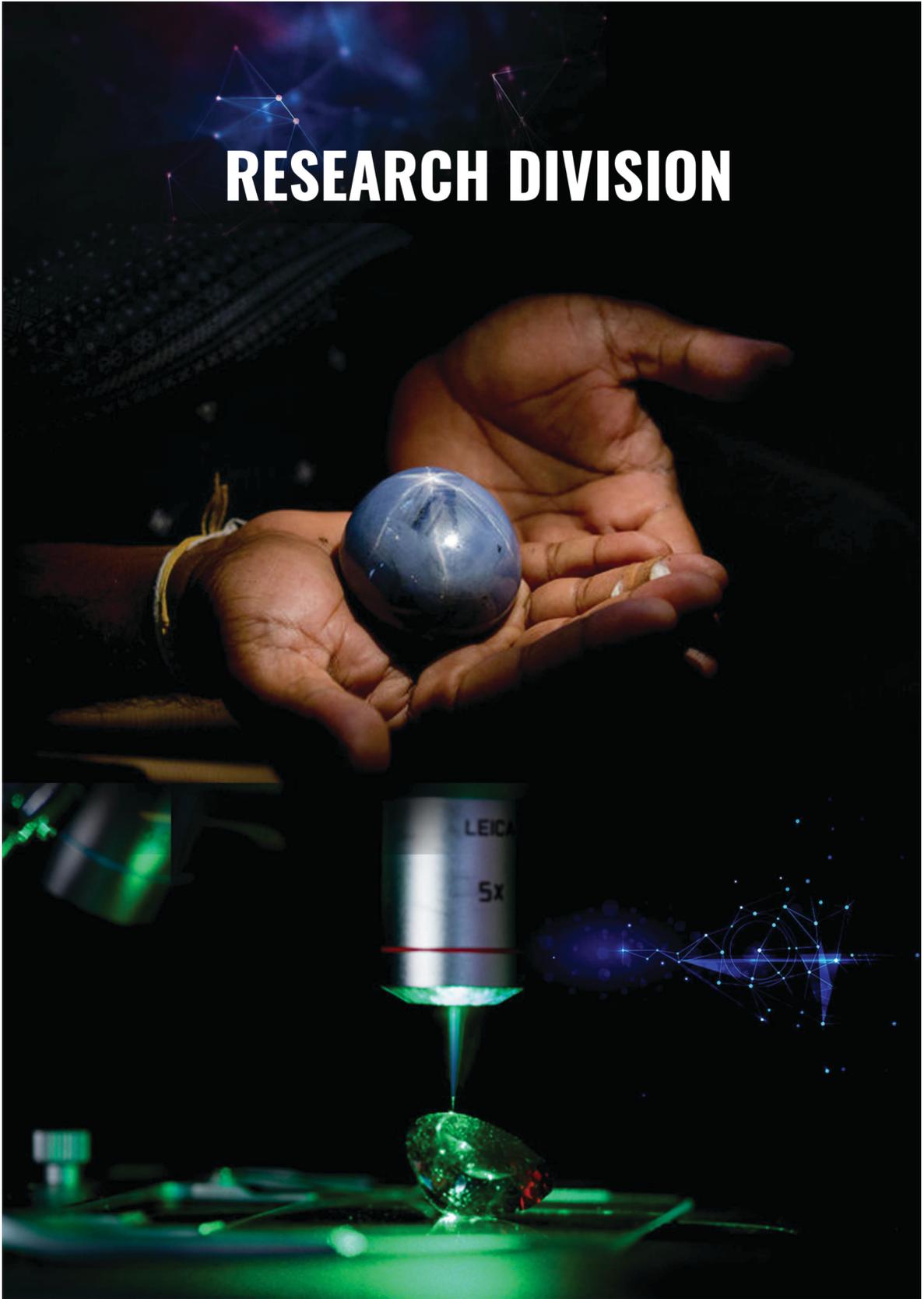
4. Student Career Guidance and Entrepreneurship Development

Through this initiative, we provide the necessary support for the development of entrepreneurship for 10 students who have successfully completed our Gem Carving and Fashion Jewellery Courses and aspire to develop as Entrepreneurs. Our organization coordinated all the activities related to obtaining the financial facilities required to procure the machinery to carry out the business activities, preparation of the business plan, entering the market, and providing the knowledge required for marketing. The first workshop for students is scheduled to be held by the Industrial Development Board in February 2022.

Employee Participation in External Training Programs - 2021

	Training Centers	Name of the training program	Participants
1	Institute of Geology Sri Lanka (IGSL)	Accurate positioning of global navigation satellite systems for geological exploration.	1. Mr. R.M.N.P.K. Jayasinghe Director (Research) Acting 2. Mrs.M.K.C. Jayamali (Research Officer) 1. Mrs.B.G.I.P. Samaradasa (Management Assistant) 2. Ms.M.P.B.H. Hemachandra (Management Assistant) 3. Mrs.S.K. Vithanage (Management Assistant) 4. Mrs P.A.K.N.. Perera (Management Assistant) 5. U.A.D. Mrs. Rupasinghe (Management Assistant) 6. Mr.K.V.K. Kumara (Management Assistant) 7. Mrs.I.D.N. Priyanjika (Management Assistant)
2	Skills Development Fund (SDFL)	How to minimize audit queries in government agencies?	1. Mrs.N.C. Wijesinghe (Assistant Director-Curriculum) 2. Mrs.J.H.I.S. Mrs. Jayamaha (Assistant Director-Curriculum) 3. Mrs. Wijewardena (Research Officer) 4. Mrs. M.K.C. Jayamali (Research Officer) 5. Ms. Nadeeka Manthiriratne (Research Officer) 6. Ms. Rangi Seneviratne (Program Officer) 7. Mrs. Rangika Lakshanthi (GIS Assistant) 8. Mrs. H.A.N. Priyadarshani (Internal Auditor) 9. Ms. H.M.N.N.K. Wijeratne (Audit Assistant) 10. Mrs.U.A.D. Rupasinghe (Management Assistant) 11. Mrs.B.G.I.P. Samaradasa (Management Assistant) 12. Ms.M.P.B.H. Hemachandra (Management Assistant) 13. Mrs. S.K. Vithanage (Management Assistant) 14. Mrs.P.A.K.N. Perera (Management Assistant) 15. Ms.K.A.N.E. Rodrigo (Management Assistant)

RESEARCH DIVISION



1. Project: - Exploration and Assessment of Gem deposits of Sri Lanka

This project is being implemented at the Divisional Secretariat level to contribute the existing gem deposits to the national economy of Sri Lanka. In this exercise, gem potential maps and detailed reports pertaining to each Divisional Secretariat are produced.

1.1 Gem deposits around Getahetta and Marambe, in Eheliyagoda DSD

The Getaheththa Igneous Gem Occurrence, a specific gemstone deposit, is found in the vicinity of Getaheththa and Marambe (Figure 1).



Figure 1- A geode-like gem corundum pocket obtained from the igneous gem deposit in Getahetta, with the possibility of containing Corundum crystals

In this study, it was identified that there are secondary gem deposits which are located in the flood plains of the Ghatahetai Oya and the Kalu Ganga Flood Plains. (Figure 2)

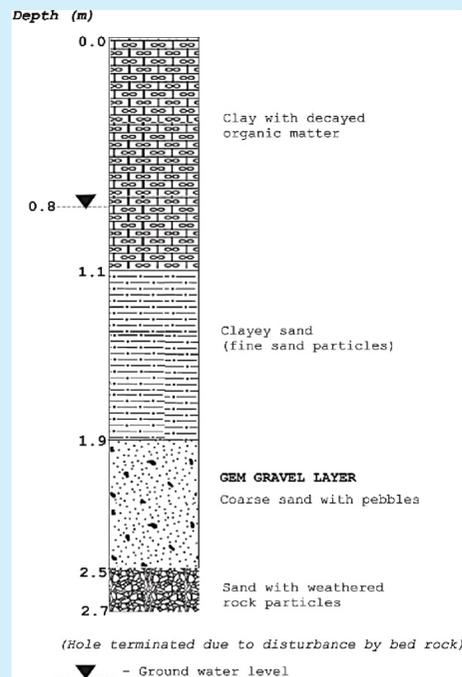


Figure 2- A vertical section of a gem deposit located in the Eheliyagoda Kiriporuwa area.

1.2 Mapping of gem potential in Niyagama Divisional Secretariat

Areas with high probability of finding gems were identified through the preliminary studies required for the implementation of the above project in the Niyagama Divisional Secretariat Division of the Galle District. Figure 3 shows the basic gem potential map prepared based on those observations, geological maps and topographic features.

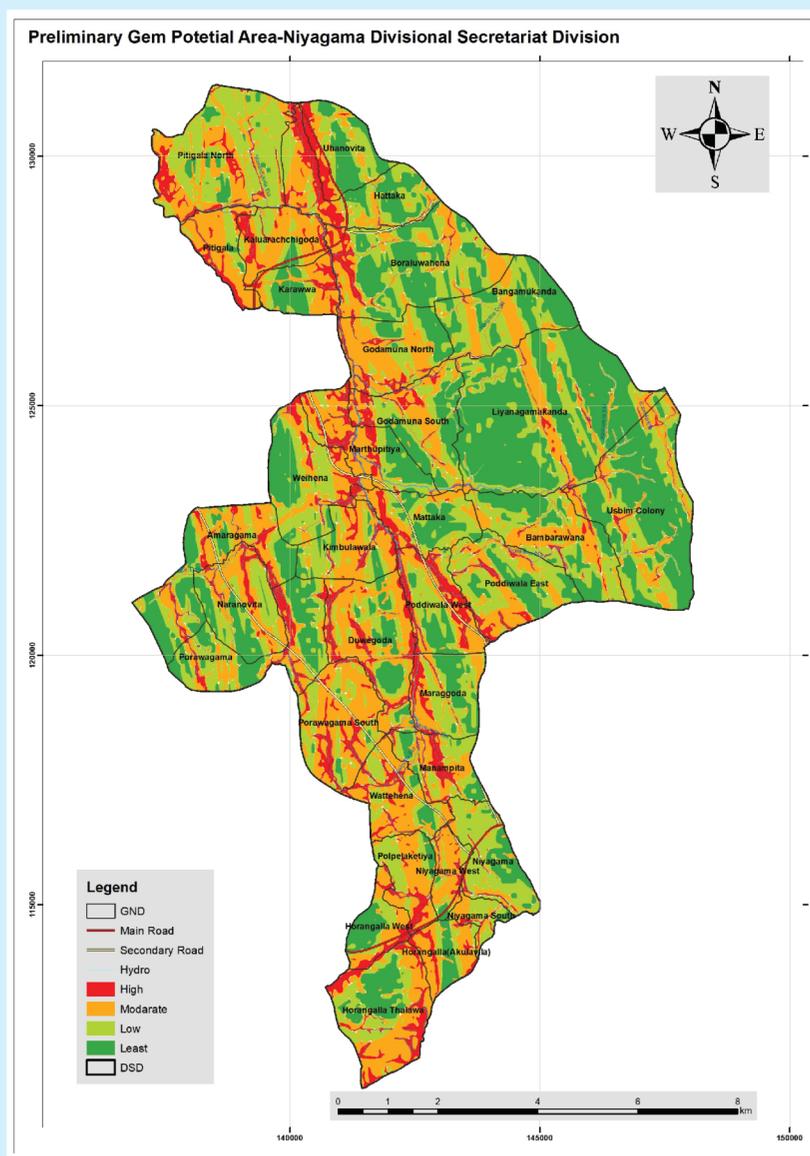


Figure 3- Basic Gem Potential Map of Niyagama Division



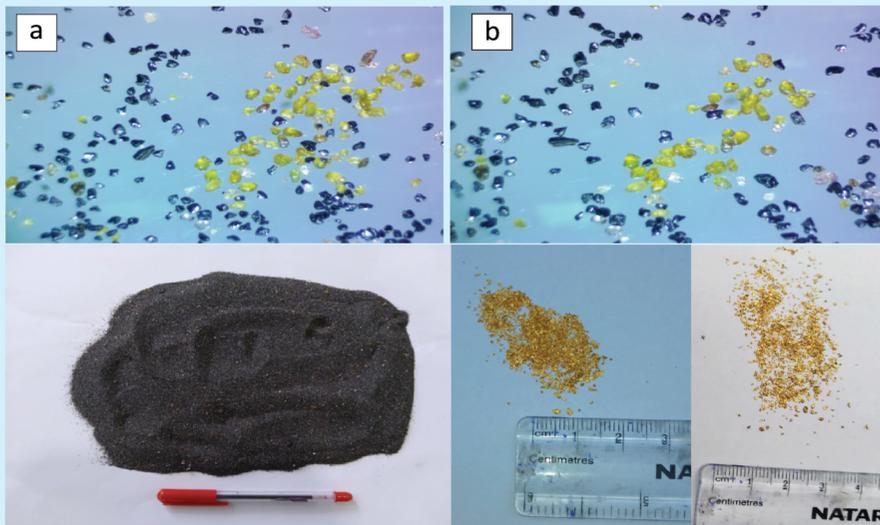


Figure 5- Crysoberyl and Gold enriched in Thawalama gem bearing lands

It was identified through this project that various tiers of the environment are damaged by various gem mining methods and identified that the main reason for this was the improper land reclamation after gem mining. Accordingly, a preliminary report on the project has been prepared and it is expected to complete preparation of Land reclamation methods suitable for the gem industry, and guidelines consisting of the way of carrying out the End Land use.

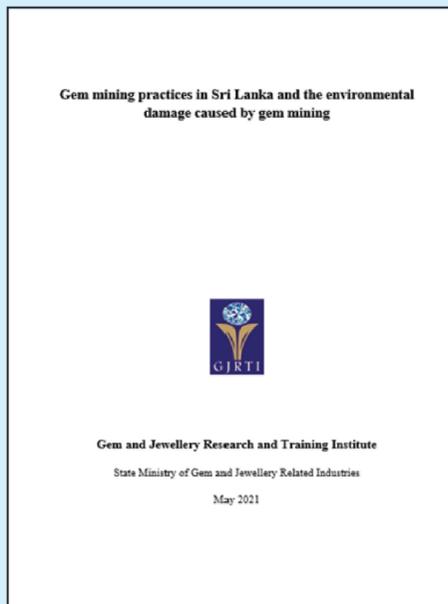


Figure 6 - Report on the environmental damage caused by gem mining



2. Project: - Introduction of new value adding techniques for low quality gems

Under this project, studies were carried out to identify the optimum quality of heat treatment carried out for young geuda using electric furnace. Successful results were obtained by conducting studies under vacuum tube conditions for up to 100 hours.



Figure 7- Conducting heat treatment research by vertical tube furnace

3.1 Adding value to darker spinel

Spinel (Kirinchi), a semi-precious gem, is in great demand in the gem market. Dark gemstones are abundant in the gem mines of Sri Lanka and can be highly valued by increasing the transparency of these gemstones. To that end, the study was launched in 2021 to identify suitable heat treatment conditions.

Heat treatment experiments were carried out on dark specimens collected from the Ratnapura area using the Lakmini gas furnace under antioxidant and oxidizing chamber atmospheric conditions in the range of 6000C to 18000C. It identified a temperature of around 10500C as the optimum temperature for treatment. It has been observed that darker spinel contain more Fe and Zn elements, and darker spinel containing more Mn, Cr, and C have a higher potential for clarity improvement.



Figure 7- Conducting heat treatment research by vertical tube furnace



2.2 Improvement of Gem Heat Treatment Furnace

A new improvement methodology was developed to improve the performance of the gas furnace used for gem heat treatment. Action is being taken with the company that manufactured the furnace to commercialize this furnace.

3. Project: - Project to introduce effective and efficient methods to enhance the color and clarity of gemstones found in Sri Lanka (implemented with funds from the National Science Foundation)

The project was completed in 2021. Two soft copies of its final report were presented to the National Science Foundation. Also, the research paper related to this project was published at the International Science Publication Conference held by the Hanthana Based National Institute and a complete research paper has been submitted to the Geological Society of Sri Lanka.

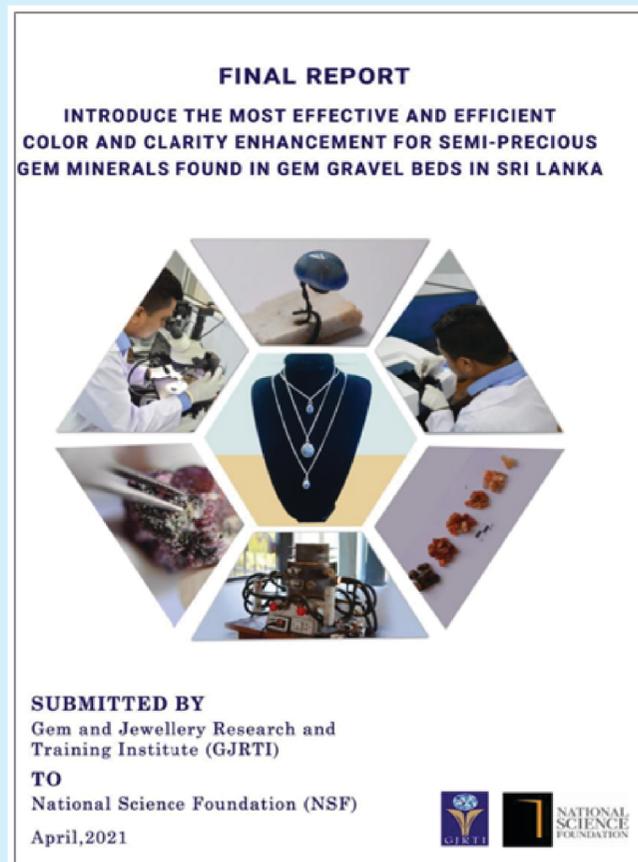


Figure 9- Cover page of the final report



4. Project: - Study on the use of mercury by goldsmiths in Sri Lanka in the extraction of gold from waste.

This project is being implemented in three phases under the direction of the Ministry of Environment and with the financial support of the United Nations Industrial Development Fund (UNIDO) and the Global Environment Fund.

An alternative methods was introduced to the jewelry industry to replace mercury for the extraction of gold from waste.

Accordingly, three alternative methods have been identified at the laboratory level and studies on its use in the jewelry manufacturing industry are to be carried out.

- Separation of gold by using Aqua- Regia.
- Separation of gold by using sodium hypochlorite.
- Extraction of gold by using Siyambala solution.

It was found that the efficiency of the gold separation process using Aqua- Regia was similar to the efficiency of the gold separation process by mercury. However, nitrogen dioxide (NO₂) gas is released during the separation of gold by using Aqua- Regia, and since it is a toxic gas, other gold separation processes are being studied.

Laboratory studies are underway on two new methods.



Figure 10- Separation of gold by using Aqua- Regia.

Two posters have been designed and printed to educate jewelry makers on mercury poisoning and the procedures to be followed in the use of mercury.

5. Project: - Workshops

Two technical workshops on geuda heat treatment were conducted in Beruwala from 02.11.2021 to 04.11.2021 and from 06.11.2021 to 08.11. 2021.

Laboratory studies are underway on two new methods.



Figure 11- Technical workshops on geuda heat treatment held in Beruwala area

6. Project: - Providing technical services

Providing gem deposit survey services for private lands

One survey was conducted on a request for a land in the Eheliyagoda Kiriporuwa area and a Geological Investigation was carried out to determine the exact location of the Gem Corundum Pockets in the vicinity of Eheliyagoda, Getahetta, Marambe and Avissawella. (Figures 12 and 13).



Figure 12 – Obtaining samples by drilling in the land in Eheliyagoda Kiriporuwa, Tittawalahenyaya area, and sampling sites



Figure 13 - Geophysical Surveys for Gem Corundum Pockets in Eheliyagoda and Avissawella

7. Project: - Publications

Research paper publications

1. Samaranyake, K.P.R.N., Balasooriya, N.W.B., Illangasinghe, S., (2021), Value Addition of Sri Lankan Dark Spinel through a Heat Treatment Technique. 5th International symposium on Earth Resources Management and Environment, Colombo, Sri Lanka.
2. Raveendrasinghe S.V.T.P., Jayamali.M.K.C., (2021), Geological and Geochemical investigation on Andalusite and chistolite deposit at Balanthota, Ginigathhena, Sri Lanka, 10th Annual Science Research Session, FAS, South Eastern University of Sri Lanka.
3. Rifkhan, M.N.M., Wewegedara W.G.C.N., Jayasinghe R.M.N.P.K., Dharmaratne T.S., Malaviarachchi M.A.S.P.K, Chndrajith Rohana. 2021. Reddish-Brown Zircons of Sri Lanka; A Detailed Study and Development of a New Technique for Yellow to Golden Yellow Colour Enhancement. (Submitted for the Journal of GSSL)
4. Rifkhan, M.N.M., Wewegedara W.G.C.N., Jayasinghe R.M.N.P.K., Dharmaratne T.S., Malaviarachchi M.A.S.P.K, Chndrajith Rohana. 2021. Colour Enhancement of a Certain Type of Opaque Corundum by Heat Treatment Using a Gas Furnace in proceedings of Young Scientists' Conference on Multidisciplinary Research on October 21, 2021. Pp. 80



8. Poster publications

i. Awareness poster about MINAMATA

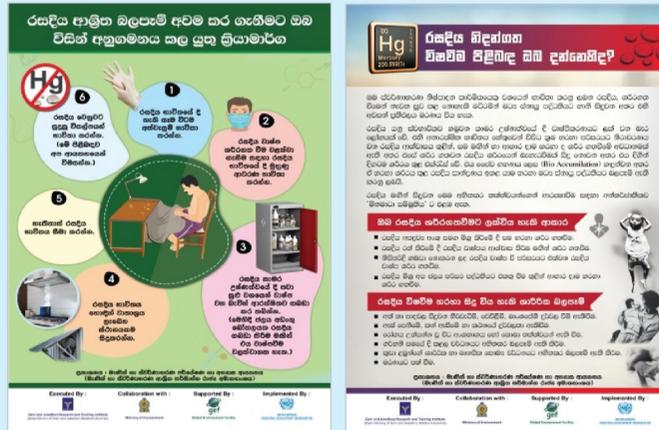


Figure 14- Awareness poster about MINAMATA

II. Awareness poster on Geuda heat treatment

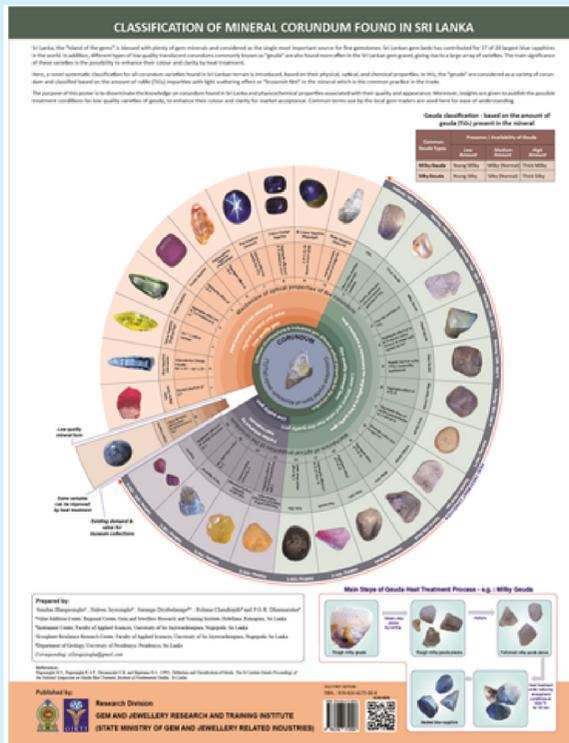
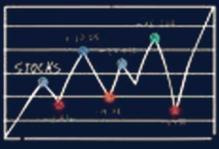
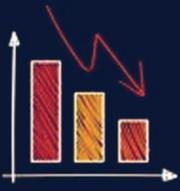


Figure 15- Awareness poster on geuda heat treatment

DEBT



Savings

Reduction

Bills

Accounts Division



Audited financial information for the last 05 years.

Rs. 000

	2017	2018	2019	2020	2021
Operating Revenue					
Treasury Grants Recurrent	62,440.0	79,854.0	85,000.00	77,973.00	77,060.00
Other contributions	38,742.25	37,104.7	35,622.80	29,536.91	22,528.16
Course fees	8,318.48	10,835.1	12,212.03	12,409.64	3,542.50
Income From Services	20.0	76.5	308.0	72.5	12.00
Income From Geological Services					
Total Operating Revenue	109,520.73	127,870.3	133,142.83	119,992.05	103,142.66
Other Revenue	1,849.25	2,114.2	1,690.02	1,042.83	837.49
Interest	506.20	519.4	553.42	457.21	293.71
Other income	29.96	25.59	60.48	4680.0	1564.0
Total Revenue	111,906.14	130,529.49	135,446.75	126,172.10	105,837.39
Less: Expenses					
(a)Personnel and Administration	77,363.08	88,935.0	98,994.18	91,624.36	84691.33
(b)Depreciation and General	35,854.2	38,806.7	41,564.02	28,208.10	33251.66
Total expenses	113,217.28	127,741.78	140,558.20	119,832.46	117,943.00
Surplus (Deficit)	1,311.1	2,787.6	(5,111.45)	6,339.64	(12,105.1)



Figure 15- Awareness poster on geuda heat treatment

Gem and Jewellery Research and Training Institute
Income and Expenditure Statement for the year ended 31st December 2021 **Rs. 000**

	2021		2020	
	Rs. 000	Rs. 000	Rs.000	Rs.000
Operating Income				
Recurrent grants – Treasury		77,060.00		77,973.00
Other Income				
Course fees		3,542.50		12,409.64
Geuda heat treatment service charges		12.0		72.5
Interest income		293.71		457.21
Sundry income		837.50		1,042.83
13-year continuous education programme		1564.00		4,680.00
Operating Income total		83,309.71		96,635.18
Less – operating expenses				
Personnel emoluments		51666.29		57,062.68
Travelling		53.11		56.99
Supplies and consumable items		2800.79		3,487.59
Maintenance expenses		2062.29		1,926.57
Contractual services		25,743.55		27,155.46
Training programme expenses		1908.07		1,598.98
Other operating expenses		443.61		320.25
Total operating expenses		84,677.71		91,608.52
Surplus / (Deficit) From Operating Activities		(1,368.0)		5,026.66
Less: Financial Cost		(13.62)		(15.80)
Grants- Capital Expenditure Portion	17,917.47		22,974.54	
Other Receipts				
Less: Depreciation and Amortization Expenses	17,917.47		22,974.54	
	(28,640.97)	(10,723.50)	(21,645.73)	1,328.81
Other Capital Investment Grants				
Less: Capital Investment Expenditure	4610.61		6,562.36	
Improvements of Capital Assets	(3935.71)		(6,407.94)	
NET Expenditure on Other Capital Investment	(674.90)	(12,105.12)	(154.43)	6,339.67
Non-Operating Revenue				
Add: Gain on Sales of Assets				
Net Surplus (Deficit) Before Extra-Ordinary Items		(12,105.12)		6,339.67
Extra Ordinary Items				6,339.67
Net Surplus / (deficit) for the period		(12,105.12)		
Add:				
Net Surplus / (Deficit) from previous years	(31,479.11)		(37,671.85)	
Less: Prior year Adj.		4275.30		(146.92)
Net Surplus / (Deficit) C/F		(39,308.93)		(31,479.11)



Gem and Jewellery Research and Training Institute
Balance Sheet as at 31.12.2021

Rs. 000

Description	2021		2020	
	Rs. 000	Rs. 000	Rs.000	Rs.000
Non-Current Assets				
Property, Plant & Equipment	129,378	131,650	113,695	114,966
Gratuity Fund	2272		1271	
Current Assets				
Stock & Consumables	3798		3,489	
Books for Sale				
Loan and Advances	1847		2295	
Bank deposits	3980		5912	
Deposits	610		760	
Trade & Other receivables	8429		12377	
Poverty elimination project	3577		3577	
Prepayments	125		83	
Cash and bank	8793	31,159	10061	35,065
Total Assets		162,809		153,520
Liabilities				
Current liabilities				
Payables	599		1527	
Accrued expenses	6727	7,326	5048	6,575
Non-current liabilities				
Minimata project	570		270	
Provisions for Gratuity	14172		15827	
National Science foundation		14,742	6590	22,687
Total liabilities		22,068		29,262
Net total assets		140,741		124,258
Net Assets/Equity				
Contributed Capital	50000		50000	
Reserves – Gem	43772		2111	
Other contributions	850		850	
Staff Circulating Fund (Loan)	1721		1565	
Differed Income – Capital Grants	83706		101,211	
Accumulated Fund	(39,308)		(31,479)	
Total Net Assets/Equity		140,741		124,258



Gem and Jewellery Research and Training Institute
Cash Flow Statement for the year ended 31st December 2021

Rs. 000

Description	2021	2020
Cash Flows From Operating Activities		
Surplus/(Deficit) from Operating Activities	(12,105.12)	6,339.64
Non Cash Movements		
Depreciation	28,640.97	21,645.73
Interest	(293.71)	(457.21)
Write-off Capital Expenses		6,562.36
Differed Capital income adjustments	(22,528.16)	(29,536.91)
Increase/decrease in other Non-current Liabilities	610.55	4,228.18
Income from sale of property, machinery and equipment		
Lease rent	473.48	473.48
Allocation for gratuity	479.25	3,915.28
Capital assets adjustments	(41,660.52)	
Gratuity payments	(2,134.27)	(991.9)
Increase in other current assets	2,866.50	(6,288.6)
Gratuity payables		(1,024.6)
Reserves	41,660.52	
Net Cash Flow from Operating Activities (A)	(3,990.53)	4,865.45
Cash Flow from Investment Activities		
Purchase of Property Plant and Equipment	(3,136.4)	(2,089.8)
Increase in Gratuity Fund	(1,000.7)	251.1
expenditure of capital nature		(6,562.3)
Interest income	450.37	584.5
Decreases in fixed deposits	1,932.2	(416.7)
Distress loan payments	(1,364.44)	(1,122.3)
distress loan receipts	1,827.31	1,480.2
Net Cash Flow from Investment Activities (B)	(1,291.57)	(7,875.3)
Cash Flow from Financing Activities		
Capital grant	5,024.0	9,000.0
Minimata project	300.4	175
National Science Foundation fund	(1,310.4)	(691.6)
Net Cash Flow from Financing Activities (c)	4,013.95	8,483.4
Net Increase /(Decrease) in Cash and Cash Equivalents (a)+(b)+(c)	(12,68.15)	5,473.5
Cash & Cash equivalents balance at the beginning of year	10,061.37	4,587.9
Cash & Cash equivalents balance at the end of year	8,793.22	10,061.4





Chairman,
Gem and Jewellery Research and Training Institute

Auditor General's Report of the Gem and Jewellery Research and Training Institute in accordance with Section 12 of the National Audit Act No. 19 of 2018 on Financial Statements and Other Legal and Regulatory Requirements for the year ending as at 31st December 2021.

1. Financial Statements

1.1 Opinion

Financial Statement of Gem and Jewellery Research and Training Institute for the financial year, ending on 31st December 2021 and Financial Performance Statement ending for the same year, Statement of Changes in Equity and Statement of Cash Flow, notes relevant to Financial Statements, Summarized Important Accounting Policies of Gem and Jewellery Research and Training Institute for the financial year, ending on 31st December 2021 were made under my guidance in accordance with the provisions of the National Audit Act No. 19 of 2018, which should be read with the provisions of Article 154 (1) of the Constitution of the Democratic Socialist Republic of Sri Lanka, and the Finance Act No. 38 of 1971. My Report shall be tabled in Parliament in due course in accordance with the provisions of Article 154 (6) of the Constitution.

I am of the opinion that the financial statements of the Institute reflect a true and fair view of the financial position as at 31 December 2021 and its financial performance and cash flows for the year ending on that date in accordance with Sri Lanka Public Sector Accounting Standards.

1.2 Basis for Qualified Opinion

The audit was conducted by me as per the Sri Lanka Auditing Standards(SLAS). My responsibility under the Auditing Standards has been further described in this report under the caption of the auditor's responsibility of auditing financial statements. I am confident that the audit evidences that I have obtained are sufficient and appropriate to provide a basis for my opinion.

1.3 Other Information of the Institute Included in the Annual Report 2021

Except the information received prior to the date of this audit report which had been included in the 2021 annual report of the institute, the information which has not been included in the Financial Statements and my Audit Report in this regard will be other information. Management is responsible for the other information.

Other information is not covered in my opinion regarding financial statements and I do not express any kind of assurance or opinion on that.

With regard to my audit of financial statements, it is my responsibility to read the other information identified above and to consider whether other information is quantitatively compatible with the financial statements according to the audit or to the best of my knowledge obtained in another way.

If I decide that other information is quantitatively incorrect based on the information received prior to the date of this audit report and the measures completed, I need to report that fact. I have nothing to report in this regard.

1.4 Responsibility of the Management and the Administration on Financial Statements

Preparation of these financial statements according to Sri Lanka Public Sector Accounting Standards and fairly submission, and determination of the internal controls required to be able to prepare financial statements without material misstatement due to fraud or errors is the responsibility of the management.

It is the responsibility of management to determine the continuous existence of the organization in the preparation of financial statements. If not management decides to liquidate or cease the operation of the organization when there is no other option, it is the responsibility of the management to keep accounts on the basis of the continuity of the organization and to disclose the facts relevant to the continued existence of the organization.

Responsibility of the inspection of the financial reporting process of the institute will be borne by the administration.

Books and records of all its Income, Expenditure, Assets and Liabilities should be properly maintained so as to be able to prepare the annual and periodic Financial Statements of the Institution in terms of Sub-Section 16 (1) of the National Audit Act No. 19 of 2018.

1.5 Auditor's Responsibilities for the Audit of the Financial Statements

My purpose as a whole is to provide a fair confirmation on financial statements that there are no material misstatements caused by frauds and errors and to issue the Auditor's Report, which includes my opinion. Fair certification is a high level of certification, but auditing in accordance with Sri Lanka Auditing Standards does not always guarantee that it will detect a material misstatement. Frauds and errors can result in material misstatements due to an individual or collective influence, and this depends on the impact on the economic decisions made by users based on these financial statements.

As a part of the audit in accordance with Sri Lanka Auditing Standards, I conducted the audit with professional judgment and professional skepticism. Further,

- Appropriate audit procedures were designed and implemented from time to time to identify and assess the risk of material misstatement in financial statements due to fraud or error in providing a basis for my stated opinion. The effects of fraud are higher than the effects of material misstatement, as fraud may involve collusion, forgery, intentional omissions, or the override of internal control.
- An understanding of the internal control of the organization gained in order to plan appropriate audit procedures from time to time, but did not intend to express an opinion on the effectiveness of the internal control of the institute,
- Disclosures related to the appropriateness of the accounting policies pursued by management and the fairness of the accounting estimates were evaluated.
- The relevance of using the basis of the institution's continuous existence for accounting was determined based on the audit evidence obtained as to whether there was a material uncertainty about the continuity of the institute due to events or conditions. If I conclude that there is sufficient uncertainty, attention should be paid to the disclosures that were made in the financial statements in my audit report, and if that disclosure is not sufficient, my opinion should be modified. However, continuous existence may end based on future events or conditions.
- Appropriate and reasonable inclusion of transactions and events, based for the structure and content of financial statements, and the overall presentation of the financial statements, were valued.

I make aware of the administration regarding the important audit findings identified during my audit, internal controlling weaknesses, and other matters.

2. Report of other legal and supervisory requirements

2.1 Special provisions regarding the following requirements are included in the National Audit Act No.19 of 2018.

2.1.1 As per the requirements of section 12(a) of the National Audit Act No. 19 of 2018, all relevant information and explanations for the audit have been obtained by me and, according to my opinion, the auditee-entity had maintained financial reports rationally.

2.1.2 As per the requirements of section 6 (I) (d)(III) of the National Audit Act No. 19 of 2018, financial statements presented for audit are consistent with the preceding year.

2.1.3 As per the requirements of section 6 (I) (d)(IV) of the National Audit Act No. 19 of 2018, recommendations made by the Auditor-General in the previous year had been included in the submitted financial statements.

2.2 Restricting to the action taken, received evidence and obtained quantitative facts, none of the following statements came to my notice.

2.2.1 In accordance with the requirements of Section 12 (d) of the National Audit Act No. 19 of 2018, any member of the Board of Directors of that Institution shall have a direct or indirect involvement in any contract relating to that Institution in a manner other than the normal business condition.

2.2.2 In accordance with the requirements of Section 12 (f) of the National Audit Act No. 19 of 2018, the auditee entity has not acted in accordance with the applicable written law or the general or special instructions issued by the board of directors of the institution, except the following observations:

<u>Reference to Laws, Rules and Regulations</u>	<u>Observations</u>
(a) Treasury Circular. 842 of 19 th December 1978	The register of fixed assets had not been maintained properly by mentioning the date of purchase of fixed assets, cost, inclusion, removal, re-evaluation, and depreciation
(b) Financial Regulation 571 of Financial Regulations of Government of Sri Lanka	Measures had not been taken as per Financial Regulation on two years of overdue refundable deposits of Rs.269,832.

- 2.2.3 In accordance with the requirements of Section 12 (g) of the National Audit Act No. 19 of 2018, the auditee entity has not performed according to its powers, functions, and duties except the following observations

Powers, Functions, tasks

Section 5(3) of Extraordinary Gazette Notification No. 882 dated 28 July 1995 relevant to Section 25(1) of the National Gems and Jewellery Authority Act No. 50 of 1993

observations

Although the skills and instructions to manufacture machinery should be provided for the development of the gem and jewellery industry, those activities had not been implemented

- 2.2.4 In accordance with the requirements of Section 12 (h) of the National Audit Act No. 19 of 2018, the resources of the auditee entity had not been procured and utilized economically, efficiently and effectively within the time frames in compliance with the applicable laws.

2.3. Other Matters

- (a) The project to introduce ways to increase the color and clarity of semi-precious stones, funded by the National Science Foundation, was completed on December 21, 2020. For this project, a presser vesser equipment that was to be purchased in the year 2018 was purchased by the institute from the provision of the National Science Foundation for an amount of Rs 999,895 after the completion of the project on April 29, 2021.
- (b) During the year under review, 16 services were planned to be provided to interested parties in Geuda heat treatment but only one service was provided.
- (c) The Project for Exploration and Evaluation of Gem Deposits in Sri Lanka is being carried out at an estimated cost of Rs.300.65 million during the period 2017-2031, had been planned to explore gem deposits and to issue reports and maps in 50 divisional secretariat divisions of Monaragala, Badulla, Matale, Rathnapura, and Polonnaruwa districts. Although surveys were conducted in 11 Divisional Secretariat Divisions of 04 Districts and final reports and maps were issued in only 08 Divisional Secretariat Divisions.
- (d) Although the details of 112 lands that have been identified as gem-bearing lands from the year 2019 up to now have been provided to the Gems and Jewellery Authority, measures were not taken for auction. As well it is expected to refer identified gem-bearing lands to the Gems and Jewellery Authority and to take 25 percent of the income to the institution

from auctioning them. Although it was expected to use Rs. 174.15 million of that amount for the project between 2022-2031 the implementation of the project by receiving that amount was in an uncertain state.

- (e) According to a memorandum of understanding between the Ministry of Education and the institute in 2019, the institute was providing training to school students for gem cutting and polishing and jewellery production under the "13-year continuous education program". From 2019 to 2021, 185 students participated in gem cutting and polishing and 227 students in the jewellery manufacturing course, but only 96 and 151 students gained respectively the training from the institute.
- (f) An electric furnace purchased at a cost of Rs.10,977,344 in the year 2013 for gemstone heat treatment remained idle for 06 years. During 2020-2021 this furnace was upgraded with spare parts and electrical circuits at a cost of 3,953,540 rupees. During 2020-2021, the machine was used only for 05 research runs in a period of 14 days.
- (g) The Course fee of Rs.1,843,950 due for more than two years had not been recovered by the end of the year under review. Although it was specified that Rs.3,577,394 as receivable from the National Gems and Jewellery Authority for the courses conducted by the institute for the poverty alleviation project, that amount was not shown as a balance in the financial statements of the authority. Recovery of this due balance was controversial.

W.P.C. Wickramrathna
Auditor General