Annexure VIII

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002

PROFORMA FOR SUBMISSION OF INFORMATION AT THE TIME OF SENDING THE FINAL REPORT OF THE WORK DONE ON THE PROJECT

1. Name of the Principal Investigator and Address: K. A. Bulbule
   Dept. of Chemistry
   KLE's S.Nijalingappa College
   Bangalore.
2. Name and Address of the Institution: KLE's S.Nijalingappa College, Bangalore.
3. UGC approval number & date: **MRP(S) 137/08-09 KABA 023/UGC SWRO dated 3-4-2009**
4. Date of implementation June 2009
5. Tenure of the Project 1 year
6. Total Grant Allotted Rs.97500/-
7. Total grant Received Rs.93500/-
8. Final Expenditure **Rs.1, 30,602=00**

9. Title of the Project: **"Advantages of COREX process of production of Iron and steel over the traditional Blast furnace process, positive economic and environmental impacts and A/V documentary/Teaching Aid on the COREX process production of Iron"**

10**. Objectives of the project**:

- To study the production of Iron and steel by traditional Blast furnace at VISL Bhadravati
- To study the production of Iron and steel by traditional Blast furnace at Tat Steel at Tatanagar, Jamshedpur
- To study the production of Iron and steel by traditional Blast furnace at JSW
- To study the production of Iron and steel by traditional Blast furnace and steel by COREX process
- Comparison of Blast furnace process and COREX process.
- Economics of the COREX process over the Blast furnace
- Environmental benefits of COREX process over Blast furnace process.
- To make A/V documentary on the process of Blast Process and COREX process.

11. **Whether objectives were achieved**: Yes: Beyond expectation, all the objectives have been achieved

All the above objectives have been achieved

12. **Achievements from the project:** All the above objectives have been achieved. Besides, the A/V documentary prepared certainly going to reach and educate thousands of students and teachers all over the state

13. **Summary of the findings:**

Karnataka State is rich in mineral wealth especially of Gold, Iron, Manganese, Copper etc.
Iron is the backbone of all the infrastructure and Blast Furnace is the backbone of Iron Industry.
For centuries Iron has been produced by Blast furnace which is impure and needs to be refined by converting the same in to steel by 'open hearth' process or LD process or electric arc furnace etc. These processes are not only non economic but also environmentally unsound. Once Blast furnace starts working, it continues to work for years. Process uses expensive coke, lot of energy and water.
Alternate route has been found to overcome the disadvantages of Blast furnace process.The unique alternate method is known as COREX process. There are only three countries practicing the alternate method of production of Iron. The method is practiced in

- South Korea
- South Africa
- South India- Torangallu of Bellary Dist., Karnataka

In this MRP executed, sincere attempts have been done to study mineral wealth of Karnatak particularly of Iron deposits, blasting at the mining area transportation of the ore to the Jindal Steel Works, Torangallu where the actual production of Iron takes place.
In the COREX process the ore can be mixed with relatively cheaper coal as reducing agent. In place of hot air blast, directly oxygen is injected. The COREX plant can be started and shut down within an hour. Since, oxygen is used iron obtained is as good as steel and free from S,P, and other metals and non metals. Every part of Blast furnace COREX furnace. Each step of the above furnace has been professionally filmed edited. Professional narration, with pleasant background music and to cater to the needs of deaf and dumb audience it is subtitled in English.
Seven hours of video film is brought down to 40 minutes explains the historical background of mining of Iron in India and ends up with our first Prime Minister's vision statement of " Industries are the temples of modern India, Industrialize or Perish"
The literature survey, amazing animation, actual flow of molten Iron coming out of the furnace leaves and indelible impression in the minds of students, teachers, consumers of iron and steel.

Principal investigator **Registrar/principal**

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002

Executive Summary of the Minor Research Project

MRP(S) 137/08-09 KABA 023/UGC SWRO dated 3-4-2009

"Advantages of COREX process of production of iron and steel over the traditional blast furnace process, positive economic and environmental impacts and A/V documentary /teaching aid on the COREX process production of iron"

Karnataka State is rich in mineral wealth especially of Gold, Iron, Manganese, Copper etc.
Iron is the backbone of all the infrastructure and Blast Furnace is the backbone of Iron Industry.
For centuries Iron has been produced by Blast furnace which is impure and needs to be refined by converting the same in to steel by 'open hearth' process or LD process or electric arc furnace etc. These processes are not only non economic but also environmentally unsound. Once Blast furnace starts working, it continues to work for years. Process uses expensive coke, lot of energy and water.
Alternate route has been found to overcome the disadvantages of Blast furnace process.The unique alternate method is known as COREX process. There are only three countries practicing the alternate method of production of Iron. The method is practiced in

- South Korea
- South Africa
- South India- Torangallu of Bellary Dist., Karnataka

In this MRP executed, sincere attempts have been done to study mineral wealth of Karnataka particularly of Iron deposits, blasting at the mining area transportation of the ore to the Jindal Steel Works, Torangallu where the actual production of Iron takes place.
In the COREX process the ore can be mixed with relatively cheaper coal as reducing agent. In place of hot air blast, directly oxygen is injected. The COREX plant can be started and shut down within an hour. Since, oxygen is used iron obtained is as good as steel and free from S,P, and other metals and non metals. Every part of Blast furnace COREX furnace. Each step of the above furnace has been professionally filmed edited. Professional narration, with pleasant background music and to cater to the needs of deaf and dumb audience it is subtitled in English.
Seven hours of video film is brought down to 40 minutes explains the historical background of mining of Iron in India and ends up with our first Prime Minister's vision statement of " Industries are the temples of modern India, Industrialize or Perish"
The literature survey, amazing animation, actual flow of molten Iron coming out of the furnace leaves and indelible impression in the minds of students, teachers, consumers of iron and steel.