FOURTEENTH KERALA LEGISLATIVE ASSEMBLY

COMMITTEE
ON
PUBLIC UNDERTAKINGS
(2016-2019)

SIXTY EIGHTH REPORT
(Presented on 25th June 2018)

SECRETARIAT OF THE KERALA LEGISLATURE
THIRUVANANTHAPURAM
2018

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SIXTY EIGHTH REPORT

On

KERALA MINERALS AND METALS LIMITED

(Based on the Report of the Comptroller and Auditor General of India for the year ended 31 March, 2009 and 2013)

1334/2018.

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INTRODUCTION

I, the Chairman, Committee on Public Undertakings (2016-2019) having been authorised by the Committee to present the Report on their behalf, present this 68th Report on Kerala Minerals and Metals based on the Report of the Comptroller and Auditor General of India for the year ended 31st March 2009 and 2013 relating to the Public Sector Undertakings of the Government of Kerala.

The aforesaid reports of the Comptroller and Auditor General of India for the year ended on 31st March 2009 and 2013 were laid on the Table of the House on 25-3-2010 and 10-6-2014 respectively. The consideration of the audit paragraphs included in this report and the examination of the departmental witness in connection thereto was made by the Committee on Public Undertakings constituted for the year 2016-2019 at its meeting held on 7-6-2017. For obtaining more clarification, the Committee undertook a visit to KMML on 29-6-2017.

This Report was considered and approved by the Committee (2016-2019) at its meeting held on 19-6-2018.

The Committee places on record their appreciation for the assistance rendered to them by the Accountant General (Audit), Kerala in the examination of the Audit Paragraphs included in this Report.

The Committee wishes to express thanks to the officials of the Industries Department of the Government Secretariat and the Kerala Minerals and Metals for placing the materials and information solicited in connection with examination of the subject. The Committee also wishes to thank in particular the Secretaries to Government Industries and Finance Department and officials of the Kerala Minerals and Metals who appeared for evidence and assisted the Committee by placing their views before it.

C. DIVAKARAN,
Chairman,
Committee on Public Undertakings.

Thiruvananthapuram,
19th June 2018.

REPORT
ON

KERALA MINERALS AND METALS LIMITED

Audit Paragraph 2.2.1-2.2.42 (2008-09)

2.2.1 The Kerala Minerals and Metals Limited (Company) was incorporated in February 1972 with the objective of carrying on the business of mining and processing of minerals and metals. Production facilities installed were fully integrated with the two Units viz., Mineral Separation Unit (MS Unit) and Titanium Dioxide plant (TP Unit).

The IT Resource management vests with EDP department headed by Joint General Manager (EDP), directly under the Chairman and Managing Director (CMD) and assisted by Manager (EDP) and one Assistant. There were 244 PCs, three Servers and accessories connected over LAN and Oracle RDBMS[1], Power Builder, Adobe PageMaker, Symantec Antivirus and MS Office Applications. The Company has an optical fiber backbone for establishing network connectivity inside the Company with structured cabling to connect the Personal Computers (PCs) to the network. The databases for various applications were maintained in Oracle[2] RDBMS.

2.2.2 The Company has developed from 1999-2000 onwards several need-based Applications by using Application development tool Power Builder[3] and Oracle database. It had computerised Purchase, Stores, Production, Marketing (Domestic/Export Sales), Finance, Attendance Management/HR Management and Pay roll management (THP) and Management Information System (MIS module). The company had two different mail Servers (kmml.com and kmmlmail.com) for external email communication.

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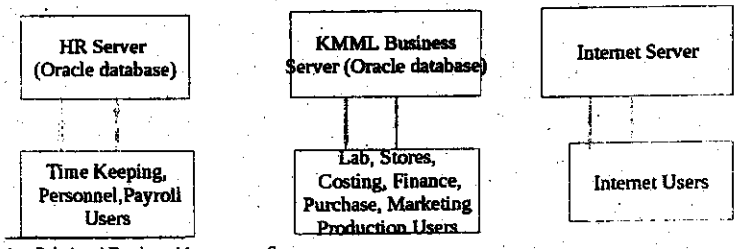
[1] Relational Database Management System

[2] RDBMS software by Oracle Corporation

[3] An Application development tool by Sybase Inc.

2.2.3 The data flow diagram is indicated below:

Dataflow Diagram



1 Relational Database Management System
2 RDBMS software by Oracle Corporation
3 An Application development tool by Sybase Inc.

Audit Objectives and scope

2.2.4 The main objective of audit was to ensure that computerisation contributed to achieve business objectives effectively and efficiently. Other objectives were to evaluate:

(i) the process of system development life cycle and its management;

(ii) adequacy of IT security; and

(iii) adequacy and effectiveness of built in controls in the system to ensure data integrity.

Scope of audit included review of the performance of all major Applications developed in-house (purchase, stores, sales, pay roll and Finance) and their utilisation in business processes, test check of transactions processed through the System for the year 2006-07 to 2008-09 and performance of IT assets. Risk Assessment and preliminary study was carried out in October 2008 and Final Audit carried out during April 2009 to May 2009.

Audit Methodology

2.2.5 The audit methodology included:

i. data collection through questionnaire;

ii. discussions with Officers and end users of the applications;

iii. examination of files and documents including system documents, inspection and checking of Computer and related infrastructures, simulation of possible threats and business process; and

iv. data analysis using CAAT[4] tool IDEA[5], data analysis using Microsoft Access[6] and Oracle SQL[7] and cross checking with manual records wherever required.

Audit Criteria

2.2.6 The criteria considered for assessing the achievement of audit objectives were Best practices in Information Technology (IT) system development, Input and internal controls for data entry in various modules/ documents and monitoring thereof, adherence to Business rules, Manuals and Procedures, Accounting Standards and various Statutory Acts and Rules.

Audit Constraints

2.2.7 Adequate documentations in respect of system requirement, business process, application development, testing and formal acceptance were not available except in the case of Time Office, Human resource management and Payroll (THP) application and therefore audit had to depend on interviews with key personnel and end users for information in many cases.

Audit Findings

2.2.8 The following observations highlight that the Company could not achieve optimum maturity level even after ten years from the commencement of the automation project.

Absence of Strategic IT Plan

2.2.8.1 A well established Strategic IT plan would work as a baseline for systematic development of IT infrastructure in a time bound manner to improve the efficiency of the business operations of an enterprise.

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[4] Computer Aided Audit Technique.

[5] A CAAT tool by Caseware Inc.

[6] RDBMS by Microsoft Corporation.

[7] Structured Query Language.

The Company did not have any approved and documented IT policy and IT Plan (till April 2009) since initiation of the computerisation project (1999). It was only on 5 May 2009; a formal IT policy paper (signed by CMD) containing only operational procedure was issued and made available to Audit. This did not have the approval of the Board (30 May 2009). Lack of planning has resulted in indefinite continuation of system development process even after completion of 10 years.

The company in its reply (August 2009) stated that IT policy document has been prepared but is yet to be submitted to the Board of Directors.

Deficient System Development

2.2.8.2 No documentation in respect of User Requirement Specification (URS) and System Requirement Specification (SRS) was made in respect of Sales, Purchase, Stores and Finance modules developed in-house by the Company. This led to an ad-hoc system development approach followed by the Company to meet immediate requirements. No document to support formal testing, acceptance and post implementation review of the modules were available.

The Company replied that proper documentations could not be done during initial phases of IT system development due to non-availability of IT infrastructure and IT manpower. However, detailed manuals incorporating user requirement specification and features of each module are under preparation (August 2009).

Inadequate System Security

2.2.8.3 A scrutiny of the system security revealed the following deficiencies:

- User Ids were not programmed for locking up on specified unsuccessful sign-in attempts.
- There was no password policy specifying the structure and length of password, changing of passwords at intervals, secrecy to be maintained etc. As a result, current password length ranged from 2 to 11 characters.
- Users were not forced to change the initial passwords set by DBA. None of the users changed their passwords even after six months.

- It was also seen that User names and passwords for the applications were stored in a user defined table (Muser) without encryption allowing DBA/Programmer to access the table and view all user passwords including that of heads of the department who are the Business Process Owners (BPOs).
- Full version of Application Development Tool (PowerBuilder) including source code was installed at the users end instead of compiled version whereby the user access is restricted to the desired level exposing the application at client machine to the risk of unauthorised access and manipulation of programs by the end users.

The management stated (August 2009) that the security lapses pointed out in audit are being addressed in the proposed IT policy pending approval of Board of Directors and the development tool will be removed after installation of compiled version.

Lapses in System Maintenance

2.2.9 Access to the three basic commands insert, update and delete (DML)[8] for data manipulation in database tables should be granted to selected authorized users at appropriate levels. However, it was observed that all the users were able to run these data manipulation functions without audit trial due to deficient programming (hard coding of database username and password and installation of source code at client side) leading to a serious threat in database management.

2.2.10 According to the Management, the Applications were subjected to version change at least 10 times a year. However, no documented and approved version control procedure was in existence with the result that different departments were using different versions as indicated from the fact that the CENVAT statements generated from the Accounts department was different from the one generated from the version supplied to Auditors.

The Company stated that Users can be prevented from applying DML by installing compiled version of application and removing development tool for Data Manipulation Language which can manipulate data which action is in progress. Further, single compiled version for each module is being introduced for version control.

[8] Data Manipulation Language which can manipulate data.

Purchase Module

2.2.11 The purchase module processes and stores transactions in respect of purchase requests, purchase enquiry processing, quotations, price comparison statements, purchase order etc. An analysis of this module indicated the following deficiencies:

2.2.12 The System did not provide for capturing freight charges as a part of material cost in respect of stores & spares. This was against business rules and requirement under Accounting Standard 2 (AS 2) which states that the cost of inventories should comprise of all costs of purchase incurred in bringing the inventories to their present location and condition. The non-compliance to AS 2 led to continuous qualification by Auditors in their Auditors Report to the shareholders for the last three years.

The management replied that the details of transportation cost of stores and spares were not available in several cases at the time of valuation which is not correct as it indicates management failure in adhering to the requirement of Accounting Standard.

2.2.13 For an efficient scheduling of purchases, lead-time for purchase of each item should be fixed. Though data was available for generating lead-time the system did not provide for a facility for reporting the appropriate time for initiating purchase orders. A test check of purchase orders during 2008-09 revealed that :

(i) Out of 2,257 purchase orders issued, 1,700 were initiated through system from request stage and 557 at purchase orders stage. This means, the system provides for initiation of purchase quantity at two different stages which is not proper.

(ii) In 1,674 cases out of 1,700 purchase orders issued, the indenting departments indicated that they required the material within 20 to 90 days from the date of requisition.

(iii) Only in 60 cases supplies were made in time.

(iv) In 241 cases the delivery was done with a delay upto 320 days from user requirement date.

(v) In 887 cases, purchase orders were issued after user requirement date, and the supplies were made with a delay upto 663 days.

The management is yet to initiate corrective action.

2.2.14 Though, columns were provided in the purchase indent forms for capturing present stock level, quantities pending quality checks and un- executed quantities against previous purchase orders and the same were available in the system, these were not generated and printed on the indents. Instead, these were collected from the system and manually filled in exposing the system to the risk of unintended human errors or deliberate manipulations. The Company stated that suitable modifications in the program are being done.

2.2.15 CENVAT credit can be availed by the company on capital goods and raw material inputs based on documents like invoice and bill of entry immediately on receipt of goods in factory. It was observed that:

2.2.16 Even though the system provided for capturing CENVAT eligible materials in the material master (Table MITEM), the database manager failed to update this field with the result that the system was not able to generate automated CENVAT eligible statements based on Stores Inward Book (SIB). As a result credit for CENVAT could not be availed in time (ie. by 5th of next month). The delay in taking CENVAT credit amounting to ₹ 39.06 lakh in 60 out of 7,936 cases during 2008-09 ranged from 35 days to 145 days.

2.2.17 Besides, the Management was deprived of the required information for decision making on the materials for which credit was not taken due to the incomplete data.

STORES MODULE

2.2.18 The stores module maintains records like Stores Inward Book (SIB) and Stores Receipt Notes (SRN), Material Issue Notes (MIN) and generates Stores ledger and other MIS for inventory control. The following deficiencies were noticed during audit:

2.2.19 The system was enabled for FSN (Fast/Slow/Non-moving) analysis of inventory. There were 16 items valued at ₹ 2.33 lakh that continued to be

classified as fast moving even though it was non-moving for more than five years. Further, 2,787 items valued at Rs. 7.97 crore were classified as slow moving even though it was non-moving for three to five years as on 31 March 2009. This indicated that FSN Categorisation was not subjected to review during the last several years.

The management replied that action is in progress for FSN categorisation.

2.2.20 As per the decision taken by the Board in its 154th meeting held on 2 September 2002 the value of non-moving stock were to be written off after retaining value of Re.1 per item. The total provision for non-moving inventory was ₹ 1.64 crore (2006-07) which was not reviewed thereafter. The under provision towards non-moving stock in the accounts for 2007-08 was to the extent of ₹ 7.25 crore as indicated below:

Provision required on 31-3-2008 for stock non moving for more than 3 years	₹ 889.60 lakh
Accumulated provision in accounts	₹ 164.25 lakh
Under Provision as on 31-3-2008	₹ 725.35 lakh

Company stated that the non-moving items in the stock includes insurance spares which may be required at any time and in other cases the usability has to be ascertained before making provision. However, the fact remains that the non-moving stock was not reviewed after 2006-07.

2.2.21 In order to reduce the investment on inventory, various control levels such as maximum, minimum and re-order quantity were fixed in the system. However, the dates on which such levels were fixed and parameters applied were not available and the levels once fixed were not subjected to review at all. As a result, inventory levels for stores, spares and fuels increased from ₹ 4,858.93 lakh in 2005-06 to ₹ 6,191.59 lakh in 2007-08. Also, the Company's failure to conduct periodical review of the inventory led to accumulation of non-moving stock to the tune of ₹ 8.89 crore as on 31 March 2008. The management stated that corrective action is being initiated.

Sales Module

2.2.22 Sales module processes sales orders. It comprises of two sub-modules-one for domestic and the other for export transactions. However, only 'Domestic sales' module was integrated with finance module. Ledger accounts were automatically posted from sales module and generate documents like Contract Review Record, Dispatch Note, Packing list, Proforma invoices and Commercial invoices. Subsidiary records like Sales register and MIS reports such as monthly off-take, monthly sales analysis etc., were other main outputs.

2.2.23 Export sales module is operated by marketing department. Though the data relating to commercial invoices were available in the system, export invoices were prepared outside the system defeating the very purpose of computerisation. This was due to deficiencies in the database design providing insufficient field length for entering various data items like Vessel/Flight No., Remarks, Port of discharge etc. Non-incorporation of this requirement in the module affected the efficiency in export sale process.

2.2.24 Invoices are created by marketing section against each Dispatch Note. On verification of the database it was noticed that there were two cases of creating more than one invoice against one Dispatch Note as given below:

INVNO	DESPNOTENO	DESPDT	ACCODE	SUBACCODE	AMT	TOTAL	ENT	INVDT
207	DN/202/2009-2010	13-4-2009	3267D101A	3267D101AP	2155102	2155102	JEJ	13-4-2009
208	DN/202/2009-2010	13-4-2009	3267D101A	3267D101AP	2155102	2155102	SE2	13-4-2009
650	DN/652/2004-2005	25-5-2004	3267D159SC	3267D122V	58429.5	58429.5	KKK	25-5-2004
651	DN/652/2004-2005	25-5-2004	3267D159SC	3267D122V	58429.5	58429.5	ANI	25-5-2004

On enquiry it was informed that invoices No. 208 and 651 were duplicate invoices inadvertently generated. Though the duplicate invoices were cancelled in the General Ledger by passing a journal entry, Sales Register generated by the system still showed these duplicates as valid invoices. As a result, the total of sales register for the month of April 2009 showed an excess sale of ₹ 21,55,102. Also, the MIS 'Sales Register Type wise' showed an excess amount in respect of basic amount, central excise and VAT amount. Moreover, MIS 'Monthly Sales

Analysis' showed an excess quantity of 16 MT as lifted by Asian Paints and therefore the MIS itself was giving wrong information involving financial risk as any exaggerated sales quantity may lead to payment of quantity discount at enhanced rates. The duplication of invoice took place on account of lack of system control as it was possible to generate invoices from the same Dispatch note by two persons sitting in two different work stations and therefore requires immediate corrective action.

2.2.25 Where rates were revised in Master table previous rates and rate change details were not available for verifying the correctness of transaction records for sales.

2.2.26 The price master accommodated one rate at a time even when the Company had multiple rates for different customers. It was informed that such situations were handled by changing the rate master just prior to creation of such invoices. The system is exposed to the risk of changing the rate master by end users, which was not appropriate.

The management stated that suitable changes in the program/table structure are being made to address the above deficiencies.

PAYROLL

2.2.27 Payroll of the employees were processed (Batch process) through a COBOL[9] program uploading the inputs (in MS Excel) received from various departments. The program mainly generates documents like pay slip and various statements related to earnings and deductions.

2.2.28 The Company developed (2004) an integrated computer application for Time Office, Human resource management and Payroll (THP) by engaging an external agency (OCL Informatic Limited) at a cost of ₹ 2,29,000. The application has three modules namely Time Office, Human Resource and Payroll. Time Office and Human resource modules were implemented (2006) successfully and the same is working satisfactorily. But the Pay roll module was yet to be implemented (April 2009) despite its being ready to use since October 2006. The Company stated that the pay roll module of THP could not be implemented as complexities in pay structure were not envisaged at the time of its development. Thus the failure was due to improper system development documentation.

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[9] Acronym for a third generation computer programming language (Common Business Oriented Language).

2.2.29 Apart from people deployed in time office and four officials deployed in accounts section for payroll related work, an Assistant Grade-I of EDP section was exclusively assigned the work of processing payroll by incorporating the inputs received from the various sections. All these manual works were avoidable as all inputs required for processing of salary was already available in THP. Pay & allowances given to Assistant Grade-I (EDP) for last three years were as indicated below:

Year	Salary (₹)	Over time (₹)	Total (₹)
2006-07	2,44,277	50,911	2,95,188
2007-08	2,79,758	75,921	3,55,679
2008-09	3,24,611	97,717	4,22,328
Total	**8,48,646**	**2,24,549**	**₹ 10,73,195**

Work related to Pay and allowances done at EDP section was avoidable as fully functional user-friendly software was available with the Company, which could be operated directly by users in Accounts/Time Office and ₹ 10.73 lakh saved towards the pay and allowance for data entry staff.

2.2.30 On review of the infrastructure and process of payment of pay and allowances at MS unit of the Company, it was noticed that the unit had infrastructure (Punching machine for attendance, Computers, printers and trained staff) but the management did not take any effort to implement THP application at MS Unit. The Company stated (December 2008) that the scope of implementation of THP software at MS units was being explored. However, no action was taken till date (31 May 2009). In its further reply (August 2009) it was stated that THP as such could not be implemented in MS Unit as it is covered under Mines Act, 1952. The reply is not tenable since the deviations required could have been accommodated in the THP if proper system study was conducted at the time of development of the software.

Finance Module

2.2.31 Finance module has the provision for journal vouchers, Debit/Credit Note for adjustments and Purchase/Sales returns. This module was integrated with Purchase, Sales and Stores module and generates Ledger accounts and reports like Cash flow statement, Trial Balance, Profit and Loss account and Balance Sheet.

2.2.32 The finance module contains a facility CENVAT ENTRY used for generating CENVAT returns by calling SIBs (Stores Inward Book) from Stores module. But the initial data captured in SIBs did not contain break up of excise elements like Basic Duty, Education Cess and Secondary and Higher Education Cess. So an employee had to be provided additionally for checking the applicable rates and updating the statements which was avoidable had the data been captured initially in the required format. Total avoidable manpower cost on this count worked out to ₹ 6.39 lakh during the period from April 2006 to March 2009. The Company stated that suitable program modifications are being incorporated.

2.2.33 As per the business rules Fixed Assets shall be managed through a Fixed Asset Register. Depreciation shall be calculated on an annual basis and accounted for in this register besides accounting for deletions and additions to such assets. However, while implementing the module, fixed asset management and depreciation requirements were not provided in the system. Statements for fixed assets were prepared outside the system using MS Excel. Further, the program for drawing up Profit and Loss account and Balance Sheet on any date also could not be utilised by the Company so far on account of the above deficiency in implementation.

The Company stated that the required modifications will be included while developing new system.

2.2.34 The annual accounts (i.e. Profit and Loss account and Balance Sheet) for the year 2007-08 was certified by the statutory auditors on 20 September 2008. As per Accounting Rules all the Ledger accounts are to be closed before certification. However, the accounts were open for modifications even after this date. For instance, 48 journal entries (No. 1367 to 1414) were passed and posted in the accounts upto 26 September 2008 ignoring the Accounting Rules prescribed.

Further, the auditor's certificate to the effect that the financial statements were in agreement with the books of accounts of the Company on the date of certification was also found to be wrong on account of the above mentioned deficiencies. The Companies Act, 1956 expressly prohibits alterations in balance of any account after certification, and if done would tantamount to re-opening of accounts.

Even though the system was having provision for closing the accounts, no procedure was fixed and documented for such closure. The Management could not produce any authority regarding the re-opening of final accounts for the year 2007-08 for editing and postings.

The Company stated that due to some technical reasons delay has occurred in closing accounts for posting in 2007-08 and steps would be taken to lock the accounts in time in future.

Management of Bank Accounts

2.2.35 The table created for monitoring banking transactions could not monitor missing cheque numbers and the system was not capable of generating any list of cancelled cheques for effecting proper monitoring/ internal control due to non-incorporation of 'Cheques lot management' features in the system. Company stated that this feature will be added while going in for online system.

2.2.36 A total of 14,369 records were available in the system for 2008-09. Though the field for date of realisation of cheques was provided in the table, this field was not filled except in 2 records, leading to capturing of incomplete data.

2.2.37 In 47 cases of Bank payments, cheque dates were older than voucher date by more than 180 days. Few examples are given below:

Table :TCHEQUES

ORIGVNO	YEARSET	VDATE	VCHQDDDATE	VAMOUNT
BP9615	11	10-3-2009	8-8-2008	66873
BP7897	11	6-1-2009	2-6-2008	6613
BP9614	11	10-3-2009	14-5-2008	28657
BP7893	11	6-1-2009	10-4-2008	5501

This indicates that these cheques were not supported by vouchers, which is not in order. Reason for not generating vouchers at the time of payment was not available. The system was not designed to ensure that no cheques are prepared without generating a voucher with proper authorisation through the system.

The Company stated that this was due to input error. However Company is yet to initiate remedial measures for ensuring validity of the inputs made in the system.

2.2.38 As on 20 April 2009, as per system 141 transactions in 5 bank accounts pertaining to the period 28 February 2008 to 20 April 2009 with a net debit value of Rs. 5.37 crore were kept unaccounted in the subsidiary/main ledger. This has happened on account of design defects, as the program does not provide for accountal of such items under suspense accounts till its clearance through bank reconciliation. This resulted in generation of distorted monthly financial statements.

2.2.39 Cash Flow Statement was generated based on voucher authorisation dates. Out of total 1,06,067 Bank/Cash vouchers generated during 2007-08 to 2008-09, delays in authorisations of 49,555 cases were noticed. In 199 cases the delay involved was 30 to 60 days and in 42 cases delay was ranging from 91 to 277 days. Delay in authorising Bank/Cash vouchers resulted in unreliable cash flow statement and therefore could not be utilised by the management as a reliable MIS.

The Company stated that the delay was due to advance planning for proper fund management. Reply is not tenable as cash flow statement prepared based on voucher authorisation date would not give reliable information.

2.2.40 As per Accounting Standard- 3 "an enterprise should prepare a cash flow statement and present it for each period for which financial statement is presented. The cash flow statement should report cash flows during the period classified under operating, investing and financing activities". However, the report generated by the Finance module was not in this form and the Finance department was manually preparing it by using MS Excel for annual financial statement.

2.2.41 On review of sub-ledgers data, it was noticed that account No. 3,26,700 (Sundry Debtors-TiO2) was showing debit balance of Rs. 2,40,319.17 from the year 2000-01. However in the place of Account name "???" was entered instead of customer name. Since logs were not available, deliberate correction carried out could not be ruled out. The Company stated that the balance related to the period prior to 2000-01 for which details of the customer is not available.

2.2.42 Cost accounting and cost audit are mandatory in respect of KMML under section 209 (1) (d) of the Companies Act, 1956. Cost accounting system adopted for determination of cost by the unit was on actual basis. The cost records were prepared based on the financial accounting and books. Though the system provided for 38 cost centres, cost centre-wise booking of expenditure was done only in respect of raw materials. Consumption statements in respect of stores and spares do not represent the actual cost since freight and handling charges were not booked as part of cost of stores and spares. As the initial booking of expenditure other than materials was not cost centre-wise, calculation of depreciation was not programmed in the application and apportionment of expenditure was not incorporated with reference to the accepted basis of apportionment. Cost accounts were written up outside the system on an annual basis just to meet the statutory requirements. Consequently the management could not utilise various MIS reports cost centre-wise/department-wise for decision making and cost reduction plan. This has also resulted in avoidable expenditure on manpower to the extent of ₹ 15.26 lakh (towards salary and allowance for Costing Assistant) for preparation of cost records for the last three years.

The Company stated that action for booking freight and handling charges 'cost centre-wise' has been initiated and possibility for generating cost records through the system is being explored.

The matter was referred to the Government (July 2009), their reply is awaited.

CONCLUSION

Lack of a long term and comprehensive IT policy and need based casual implementation of IT systems resulted in ad-hoc and disintegrated management of the system. An IT system, which can take care of almost all important business processes, is available; but none of the modules is complete and self-supporting requiring human intervention at various stages of the modules defeating the very purpose of computerisation. This has not only caused avoidable expenditure but also affected efficiency, transparency, speed and security badly. Even after lapse of 10 years since the commencement of the project and after spending an amount of ₹ 80 lakh for hardware alone, the Company could not achieve all the business objectives efficiently through computerisation so far. Even now a vision about the integrated IT System and a time bound implementation plan are still lacking and the project is going on without any ending.

RECOMMENDATIONS

(i) The Company should frame long term IT Plan and IT directions to optimise resources efficiently.

(ii) Initiate action for implementation of integrated software in both TP and MS units with uniform rules to handle identical functions to derive the benefits of enterprise wide information for management decision-making.

(iii) Initiate corrective action for removal of program design defects and database level risks.

(iv) Create definite procedures for closure of books of accounts to ensure that ledger accounts are not re-opened for postings/editing after certification of accounts by Auditors.

(v) Fix Control levels for management of inventory.

(vi) Incorporate necessary amendments in program for segregation of tax components in source documents.

(vii) Ensure that all modules comply with the business rules and accounting standards wherever required.

(viii) Document all essential existing business process and system specification.

(ix) Eliminate human intervention completely by suitably modifying the program.

(x) Formulate password policy and Business Continuity Plan and circulate among users. Strengthen security of the system by ensuring Physical and logical access controls.

(xi) Ensure that the same version of the software is used in all departments.

[The Audit paragraph 2.2.1-2.2.42 contained in the Report of the C &AG for the year ended 31 March 2009]

The notes furnished by the government on the Audit Paragraph are given in Appendix II.

AUDIT PARAGRAPH 2.1-2.9.9.2 (2012-13)

2.1 Introduction

The Kerala Minerals and Metals Limited (Company) was incorporated in February 1972 with the objective of carrying on the business of mining and processing of minerals and metals. The main product of the Company is Titanium Dioxide Pigment (TDP) which constitutes 88 per cent of total production and other minerals like Rutile, Zircon and Sillimanite constitute remaining 12 per cent. TDP is mainly utilised in the industries engaged in manufacture of paints, printing inks, plastic, paper, rubber, textile, ceramics, etc. Approximate annual demand of TDP is two lakh MT. The Company is the sole producer of Rutile grade TDP in India.

There are two Units in the Company viz., Mineral Separation (MS) Unit and Titanium Dioxide Pigment (TDP) Unit. The Company uses beach sand from which Ilmenite is separated in the MS Unit and this Ilmenite is used for manufacturing TDP in TP unit. The installed capacity of the TP unit is 40,000 MT per annum.

2.2 Organisational Setup

The Company is managed by a Board of Directors (BoD) consisting of 10 Directors nominated by Government of Kerala (GoK). The Managing Director

is the Chief Executive Officer of the Company who is assisted by three Executive Directors. General Managers, Deputy General Managers and Assistant General Managers assist the Executive Directors.

2.3 Financial Position and Working Results

The financial position and working results of the Company for the five years from 2008-09 to 2012-13 is shown in Annexure 8. The authorised share capital of the Company as on 31 March 2013 was 35 crore against which the paid up capital stood at 30.93 crore wholly subscribed by the State Government. The accounts of the Company have been finalised up to 2012-13 and the reserves and surplus as on 31 March 2013 was 577.27 crore. The net profit of the Company was fluctuating from 46.74 crore in 2008-09 to 154.08 crore in 2011-12 and then declined to 75.94 crore in 2012-13.

2.4 Scope of Audit

The working of the Company was last reviewed and the results were included in the Report of the Comptroller and Auditor General of India for the year ended 31 March 2004 (Commercial), Government of Kerala. The Report was discussed by the Committee on Public Undertakings (COPU) and its recommendations were included in its 53rd Report (2006-2008). This Performance Audit was conducted to assess whether the Company was carrying out its production, procurement, marketing and financing activities in most efficient, economic and effective manner. The present Performance Audit covered the activities for five years from 2008-09 to 2012-13.

Deficiencies and operational issues are mentioned in the paragraphs related to respective functions.

2.5 Audit objectives

The main objectives of the Performance Audit were to ascertain whether:

- Prudent material, marketing and financial management was in place;
- Utilisation of available resources including human resources and infrastructure was efficient, effective and economical and
- The execution of new projects was effective, efficient and economical.

2.6 Audit Criteria

The audit criteria, derived from the following, were adopted to assess the audit objectives:

- Annual Performance Budgets/ Capital Budgets/Plan documents of the Company;
- Detailed Project Reports in respect of major capital works;
- Guidelines/norms prescribed for Materials Management;
- Marketing/Human Resource Policy of the Company;
- Policies and guidelines prescribed for Management Information System (MIS)/ Internal Control/Internal Audit/Corporate Governance and
- Best practices prevailing in the industry.

2.7 Audit Methodology

The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of Review of Agenda notes, Board Minutes and minutes of other committee meetings, tender files and procurement files, pricing and discount schemes, etc. MIS reports/Internal Audit Reports/Project Reports/Cost Audit Reports/Cost Records, financial statements, target and achievement and norms prescribed for performance of different streams of production were also analysed. In addition, an IT audit of the information system of the Company[1] was carried out using IDEA software. Audit also interacted with the functional heads and key officials of the different units/departments and issued audit queries for their comments.

An Entry Conference was held with the Company/Government in April 2013, wherein the scope, objectives and approach of the Performance Audit were discussed Field audit involving scrutiny of Company's records was conducted during March-August 2013. The findings were reported to the Management and GoK besides discussing in the Exit Conference held in November 2013. The reply of the Company has been received in November 2013 and considered while finalising this performance audit report.

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[1] The Company developed several need based Applications by using Development tool Power Builder and Oracle database from 1999-2000 onwards. It had computerised purchase, stores, production, marketing, finance, HR mangement, payroll and costing functions.

2.8 Acknowledgement

Audit acknowledges co-operation and assistance extended by the staff and management of the Company in conducting this performance audit.

2.9 Audit Findings

The Audit findings are discussed in succeeding paragraphs.

2.9.1 Operational Performance

2. 9.1.1 Analysis of operating performance

The production and sales performance of TDP for the five years ending 2012-13 is indicated in the following Table:

Table 2.1 : Production and Sales Performance

Year	Production (MT)	Sales of TDP		Gross Sales of all minerals (₹ in crore)	Net Profit (₹ in crore)
		Qty in MT	Amount (₹ in crore)		
2008-09	35486	39158	442.45	463.59	46.74
2009-10	35908	37266	489.08	519.04	92.45
2010-11	36879	36614	552.13	584.69	62.59
2011-12	29117	24812	519.08	617.01	154.08
2012-13	26974	24883	511.07	610.93	75.94

From the above Table it could be seen that though the Company earned profit during these years, the sales in quantity of TDP was steadily declining except during 2012-13 when it increased marginally.

The Company's sales volume decreased from 39,158 MT in 2008-09 to 24,883 MT in 2012-13. The amount earned from the sale of TDP fell from 2011-12. The profit fluctuated touching a high of 154.08 crore in 2011-12 before again falling drastically to 75 .94 crore in 2012-13.

The Company's share in domestic market also declined from 31,820 MT (63.16 per cent) in 2008-09 to 22,437 MT (12.38 per cent) in 2012-13 though demand of TDP In India increased from 62,000 MT in 2008-09 to 200,000 MT in 2012-13. The poor market share of the Company despite enjoying monopoly in domestic production is another indicator of its poor performance in keeping its production cost within competitive level.

The Company stated (July 2013) that the competition due to increase in imports as a result of reduction in import duties led to reduced sales. The reply was not acceptable as the rate of customs duty for TDP was five per cent during 2008-09 and enhanced to 10 per cent in 2009-10 which remained the same up to the period 2012-13.

2.9.1.2 Analysis of cost of production

The sharp decline in profit during 2012-13 by more than 50 per cent when compared to the previous year was due to high cost of production of TDP. Though the selling price per MT increased from 86,000 in April 2008 to 2,12,000 in September 2011, the cost of production per MT also increased from 88,685 (2008-09) to 1,68,351 (2012-13). The cost incurred to generate one rupee of sale increased from 0.86 (2009-10) to 0.96 (2012-13).

Audit analysed the elements of cost per MT as per the cost statements for the period 2010-11 to 2012-13 and noticed that cost of production per MT increased by 45.87 per cent during the period and power, fuel and utilities alone increased 70.15 per cent during the same period.

To find out the minimum production required to match the cost with revenue (Breakeven Point-BEP). Audit worked out the contribution per MT of TDP and did a cost-volume profit analysis from the Cost statements pertaining to TDP for the above three years and found that the production above the breakeven level, which leads to profit, has come down drastically from 13,987 MT to 6,114 MT. Any further reduction in production beyond BEP level would lead to loss. Audit observed that reduced production coupled with underutilisation of available capacity in turn increased cost per MT and reduced profit as discussed in detail in succeeding paragraphs.

Audit noticed that the recommendations of the COPU, while considering the Audit Report for the year 2004, to ensure regular functioning of the existing Cost Reduction Committee was not adhered to and Committee was not functioning during the period covered in the present audit.

2.9.2 Production Management

2.9.2.1 Capacity utilisation

The Company produces five different grades[2] of TDP using raw Ilmenite obtained from MS unit and outside purchase. The capacity utilisation level of 40, 000 MT was decreasing from 2011-12 onwards as shown below:

Table 2.2: Capacity utilisation

Year	Installed Capacity[3] (MT)	Targeted production (MT)	Actual Production (MT)	Percentage of actual production to	
				Installed capacity	Targeted production
2008-09	40000	38779	35486	88.72	91.51
2009-10	40000	38082	35908	89.77	94.29
2010-11	40000	41167	36879	92.20	89.58
2011-12	40000	34640	29117	72.79	84.06
2012-13	40000	32250	26974	67.44	83.64

The major reasons for shortfall in production were inefficient operation of plants and excessive down time[4] as discussed in paragraph 2.9.3. The low capacity, utilisation increased the cost per MT as explained below:

2.9.2.2 Under-absorption of fixed cost due to underutilisation of capacity

Fixed cost like depreciation, employee costs, administration overheads remain the same irrespective of the quantity produced. Therefore, capacity utilisation needs to be maximised to minimise cost of production per MT. Audit, however, noticed that the capacity utilisation during 2011-12 and 2012-13 was

[2] RC800, RC800PG, RC808, RC813 and RC822

[3] Based on the capacity of U400 Plant from which raw pigment converted to finished pigment.

[4] Breakage of production.

72.79 per cent and 67.44 per cent respectively as compared to the average capacity utilisation of 90.23 per cent during the three years from 2008-09 to 2010-11. The low capacity utilisation resulted in increase in cost per MT of TDP and consequent unabsorbed cost of production amounting to 65.36 crore during the two years 2011-2013.

Analysis of consumption of power during the review period revealed that during the first three years the power consumption was 1817 units per MT on an average but during 2011-12 and 2012-13 the power consumption per MT increased to 2141 units and 2235 units respectively due to low capacity utilisation. This resulted in excess consumption of 20.65 Million Units (MU) at a cost of ₹ nine crore[5].

The Company replied (November 2013) that the decrease in production during 2011-12 and 2012-13 was due to shortage of raw Ilmenite and that extra cost was not incurred in absolute terms.

The reply was not acceptable as the Management is responsible for timely procurement of Raw Ilmenite/Beneficiated Ilmenite so as to avoid plant shut down. Further, the low capacity utilisation was also due to break-down of different plants in the TP Unit. The under-absorption of fixed overheads due to low capacity utilisation ultimately resulted in increase in unit cost of production.

2.9.3 Production Performance

2.9.3.1 Performance of Mineral Separation Unit

The Company had a Mineral Separation (MS) Unit with a capacity to produce 53,000 MT of Raw Ilmenite per annum from the raw sand. Heavy minerals like Rutile, Zircon and Sillimanite are also recovered.

The Company had its own laboratory to analyse the recoverable mineral content in the raw sand fed into the Wet/Dry Mills. The Company, however, had not fixed any standard for recovery of the minerals from the raw sand processed. Audit worked out the quantity of recoverable minerals from the total quantity of 5,31,993 MT raw sand processed in the Dry Mill based on laboratory report prepared at the time of loading different lots and compared it with the actual recovery. Audit found that there was gross under recovery of different minerals valuing 670.48 crore.

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[5] Worked out on the basis of average cost of power.

The Company replied (November 2013) that there was no short recovery of Ilmenite as the plant was designed for 90 per cent recovery of Ilmenite. But based on the design parameters of the Plant, the shortfall in recovery of other minerals resulted in loss of 45.89 crore.

However, with better production measures, loss of 45.89 crore could have been avoided.

2.9.3.2 Performance of Titanium Dioxide Pigment plant

The production of TDP from raw Ilmenite involves the following four different processes and routed through following four plants:

Table 2.3: Production process and Capacity

Name of Plant	Process involved	Production capacity per annum in MT
IBP	Beneficiation of raw Ilmenite. This consists of equipment for reduction of raw Ilmenite in Roaster, leaching of reduced Ilmenite in Digesters and conversion of leached Ilmenite to Beneficiated Ilmenite (BI) in Calciner.	55000
U200	Chlorination of BI to Titanium Tetrachloride (Tickle)	90000
U300	Oxidation of Titanium Tetrachloride to raw pigment	38000
U400	Conversion of raw pigment to finished pigment	40000

The deficiencies noticed by Audit in the functioning of these plants[6] are summarised below:

- **Chlorination Unit (U 200)**

In the Chlorination unit (U 200) of TDP, Beneficiated Ilmenite is routed through chlorine and calcined petroleum coke at 800° - 900° to obtain Titanium Tetrachloride (Tickle). Impurities are removed and further treated with mineral oil and distilled to obtain pure Tickle.

[6] Except U300

As per norms, 0.535 MT of BI is to be fed in to U200 plant to produce 1 MT of Tickle. Based on this, out of 1,20,755 MT of BI processed, the Company should have produced 2,25,709 MT of Tickle during the three years period from 2010-11 to 2012-13. Due to increase in impurities in BI the actual production was, however, only 2,19,739 MT resulting in loss of production of 5,970 MT of Tickle valued at 22.77 crore[7].

It was replied (November 2013) that the norm for tickle production was based on consumption of Q Grade Ilmenite having low percentage of metallic impurities. The decline in rate of production of tickle was attributed to procurement of raw Ilmenite having higher percentage of impurities from private parties when compared to Q Grade raw Ilmenite obtained from Company's mine.

The fact, however, remained that the Management failed to explore procurement from other sources like Indian Rare Earths Limited having better quality of raw Ilmenite for processing in the Plant.

➢ **Titanium Dioxide Pigment Finishing Unit (U400)**

In the TDP finishing Plant, the raw pigment slurry obtained from Oxidation Unit (U300) is passed through different sub-sections viz., sand milling and classification, treatment with various chemicals, filtration, drying, micronisation, scrubbing, cooling and bagging the finished TDP.

There was low capacity utilisation of the U400 Plant. The major reason was shortage of input feed resulting from shortage of Raw/Beneficiated Ilmenite as well as shutdown in the upstream plants. The loss of margin due to lack of input feed of raw pigment slurry for the five years ending 2012-13 was 96.84 crore as shown below:

[7] Valued at the rate of 38,145 being average of cost of production of Tickle during the period 2010-11 to 2012-2013.

Table 2.4 : Loss of margin

Period	Loss of stream hours[8] due to lack of input feed	Equivalent Loss of Production (@5.75 MT per hour)	Average Margin (per MT)	Loss of Margin (in crore)
2008-09	813	4675	15597	7.29
2009-10	715	4111	27652	11.37
2010-11	700	4025	19712	7.93
2011-12	2270	13053	40927	53.42
2012-13	3863	22212	7578	16.83
Total	**8361**	**48076**		**96.84**

The Company accepted (November 2013) that the major reason for the low capacity utilisation of the U400 Plant was shortage of feed material as well as shut down in the upstream plants.

2.9.3.3 Inefficiencies in the operation

On analysing the operational performance, Audit found several operational inefficiencies contributing to increase in cost of production as detailed below:

- **Excessive down-time**

A detailed analysis of the down time of each of the production plants, from IBP to U400 with reference to the actual stream hours[9] available during the five years up to 2012-13 revealed excessive down time in each of the plants. Considering the achievable 297 days per annum of operation of IBP Calciner, normal downtime worked out to 68 days[10] per annum. Similarly, achievable operation of Pigment Production Plant (U200, U300 and U400) was 311 days per annum and normal downtime worked out to 54 days per annum. As the Company

[8] Amount of time that the stream remains inoperative.

[9] There are two production lines in all plants except U400. The Company works in three shifts and stream hour per day is 24 x 2-48 hours.

[10] 365-297

had to incur fixed overheads irrespective of the number of hours the plant operated, the unproductive fixed overheads incurred amounted to 64.21 crore[11] as detailed in Annexure 9.

The reasons for excessive down times were shortage of BI, frequent repairs and problems in U200 Plant.

➢ **Shut down of U300 on account of problems in U200**

Chlorine gas liberated during oxidation in 111300 is used in U200 for chlorination.

In the absence of storage, both these plants have to be operated simultaneously and any problem in U200 forces to shut down U300 also.

Audit noticed that the shutdown in U300 plant due to problems in U200 plant had a generally increasing trend during the five years ended 2012-13. The total down time in U300 plant during the review period due to problems in U200 was 6995 hours resulting in loss of production of 17,086 MT Raw pigment valued at 192.61 crore. This was attributed to the increase in frequency of the bed draining[12] of chlorinators due to impurities/high silica content in BI. Audit, on further verification, noticed that the downtime in U300 Plant was disproportionate to the downtime in U200 plant due to bed draining of chlorinators.

Audit recommends that the Company should explore the possibility of creating facilities for liquefying and storing chlorine gas liberated from U300 plant.

The Company while acknowledging the audit recommendation stated (November 2013) that the chlorine gas liberated at U 300 is a mix of gases such as chlorine, nitrogen, oxygen, carbon dioxide etc. and the mix cannot be technically liquefied.

The reply was not acceptable since the Company was purchasing liquid chlorine.

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[11] 25.55 crore in IBP, 9.02 crore in U200, 10.34 crore in U300 and 19.30 crore in U400 Plant.

[12] Removal of impurities from the chlorinator vessel.

➢ **Failure to replace Tickle Pre-Heaters**

The Central Power Research Institute (CPRI), Bangalore, after conducting energy audit reported (February 2008) that the thermal efficiency of the Tickle Pre-Heaters used in U300 Plant was as low as 4.35 per cent and recommended to replace the existing with energy efficient ones to achieve considerable reduction in LPG consumption.

The Original Equipment Manufacturer (OEM) for the tickle Pre-Heaters, Selas Fluid Processing Corporation (SFPC), USA, offered (August 2010) furnace with guaranteed thermal efficiency of 76 per cent which would enable savings of 975 tons of LPG per annum and the landed cost of two furnaces was around 8.90 crore. Ignoring the possibility of huge savings in the consumption of LPG, the Company did not initiate effective action for replacement of the tickle Pre-Heaters even after a lapse of more than five years. The failure in replacement of the Pre-Heaters deprived the Company of the benefit of savings in cost of LPG to the extent of 13.24 crore[13] from August 2010 to March 2013.

It was replied (November 2013) that the e-tender for the tickle Pre-Heaters was floated (August 2013) and due to lack of offers the validity of the same has been extended up to December 2013.

2.9.3.4 Excess Consumption of Chemicals

➢ **Hydrochloric Acid**

The raw Ilmenite is first processed in the Rotary Roaster in the Ilmenite Beneficiation Plant (IBP) to get reduced Ilmenite. The reduced Ilmenite is then leached in the Digesters using Hydrochloric Acid. The spent Hydrochloric acid is regenerated in the Acid Regeneration Plant and is used again in the Digesters. As the regenerated acid would be of lesser concentration, Hydrochloric acid with higher concentration procured from external sources is used as makeup acid to improve the concentration of acid used for leaching.

The norm fixed for usage of makeup Hydrochloric acid for the production of one MT of Beneficiated Ilmenite (BI) was 0.65 MT whereas the actual consumption during the year 2008-2009 was 0.84 MT. The Company raised the

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[13] 975 MT x 2 years 8 months x (average rate of 50945) = 13.24 crore.

norm to 0.85MT in the subsequent year. Even after revision of the norm, the actual rate of consumption during 2009-10 to 2012-13 ranged from 0.94 MT to 1.30 MT which far exceeded the norm. The excess consumption for the four years from 2009-10 to 2012-13 was 34,160 MT resulting in extra expenditure of 9.94 crore[14].

The Company stated (November 2013) that higher consumption of Hydrochloric Acid was due to low quality of outsourced Ilmenite and action has been initiated to overcome the raw material shortage.

Audit noticed that during the four years period upto 2012-13, the Company processed 2, 18, 241 MT of Ilmenite. Out of this, purchase from outside was only 46, 312 MT (21 per cent) and rest was met from own production of MS Unit. Further the Company was aware of excess iron content in outsourced Ilmenite and had fixed higher norms.

➢ Liquid Chlorine

The BI obtained from IBP is subjected to chlorination in the U 200 Plant to produce Titanium Tetrachloride (Tickle). The Tickle when subjected to oxidation in the U 300 Plant produces raw Titanium Pigment. The gaseous chlorine liberated during the oxidation process is recycled to U 200 Plant.

The norm fixed by the Company for usage of makeup chlorine[15] for the production of one MT of tickle is 0.10 MT. The actual rate of consumption of the chlorine exceeded the norm showing an increasing trend during the last five years ending 2012-13 and ranged from 0.11 MT to 0.14 MT. The excess consumption during the above period was 7135 MT of Liquid Chlorine resulting in extra expenditure of 4.90 crore[16].

The Company replied (November 2013) that the naturally occurring ferrous form of iron in the outsourced raw Ilmenite which was carried over in the BI led to the excess consumption of makeup chlorine. The fact, however, remains that the failure of the Management in procuring raw Ilmenite having required quality resulted in the excess consumption of chemicals.

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[14] Worked out on the basis of weighted average purchase rate.

[15] Chlorine purchased from external sources.

[16] Worked out on the basis of weighted average purchase rate.

2.9.3.5 Other deficiencies

Premature failure of new Refractory lining for Chlorinator

The U200 Plant consists of three chlorinators. The refractory lining of the chlorinators was being done using indigenous bricks of silica and alumina costing 14.40 lakh. In order to extend the life of the refractory linings and to ensure simultaneous and continuous operation of the three chlorinators, the Company decided to replace the indigenous bricks with electro cast zirconia based bricks on experimental basis without ascertaining its technical suitability. The Company procured the zirconia based bricks at a cost of 96.95 lakh from SEPR Refractories, Palakkad on nomination basis and the relining was completed in March 2012. Though the firm assured a minimum life of one year, the Company did not obtain any guarantee from the firm.

On putting the chlorinator into operation (April 2012), there was increase in internal temperature and the chlorinator could be operated only at a lesser load. Consequently, the average production rate was only 6.34 MT of tickle per hour as against the rate of 6.67 MT per hour from other chlorinators. During the above period (April-October 2012) the chlorinator was under shut down for 55 days. The refractory lining failed prematurely in October 2012. Request of the company to replace the defective material was also not acceded to by the supplier. Thus, the operational life obtained from the new refractory lining was only 150 days as against the minimum assured life of one year. Thus going for the new refractory lining without assessing its technical suitability and without insisting on performance guarantee resulted in unproductive investment of 96.95 lakh.

The Company replied (November 2013) that the new refractory lining for chlorinators was only an experimental effort and that legal action was proposed against SEPR.

Audit, however, observed that the selection of the refractory material as well as the supplier was purely arbitrary without resorting to global tender. The progress in legal action proposed against SEPR was awaited (December 2013).

2.9.4 Project Management

The Company had implemented following three projects during the period covered in audit:

Table 2.5: New projects

Sl. No.	Name of project	Total Cost (in crore)	Objective
1	Capacity Augmentation of IBP	29.41	Self-sufficiency in BI
2	Zircon Silliminate Plant	16.99	Improvement in Recovery of Heavy Minerals
3	Effluent Treatment Pond	37.24	Effluent storage

Audit findings on the above projects are summarised below:—

2.9.4.1 Capacity Augmentation of Ilmenite Beneficiation Plant

The plant was initially equipped with a stream of one Roaster, one Calciner and four Digesters with a total production capacity of 37,000 MT per annum of Beneficiated Ilmenite (BI).

During the period 2003-2008, four more Digesters were procured and commissioned. As the number of Digesters in Operation became eight, the Company initiated (October 2008) a project for augmentation of capacity by procuring one Roaster and one Calciner and allied equipments at an estimated cost of 32.37 crore (actual cost 29.41 crore). Though additional stream of one Roaster, one Calciner and four Digesters had enhanced the production capacity to 74000 MT of BI, the Company restricted the capacity augmentation to 55,000 MT due to limitation in the capacity of the existing Acid Regeneration Plant (ARP) for processing spent Acid. Though the capacity augmentation was targeted by January 2010, the project could be commissioned only in February 2011 mainly due to the delay in completion of civil and structural works. The delayed commissioning of the additional stream resulted in extra expenditure of 6.13[17] crore due to procurement of 11,266 MT of BI from private firms.

[17] 11266 MT x 5444 (difference between external purchase price and variable cost of BI from IBP).

A review of production performance of the plant during the five years ending 2012-13 revealed that the capacity utilisation of the plant in 2008-09 was 32,125 MT (86.82 per cent). While operating the plant with two streams during 2011-12 and 2012-13, actual production of BI was only 32,301 MT and 36,126 MT respectively and remained less than 50 per cent of the production capacity. Moreover, the Company had to procure 5611 MT of BI from outside sources at an average cost of 50,675 per MT against which the cost of production was 35,089 per MT only even after the capacity augmentation resulting in extra expenditure of 8.75 crore[18].

The underutilisation of the IBP after the capacity augmentation also resulted in steep increase in consumption of furnace oil during the last two years ending 2012-13. The excess consumption of furnace oil during 2011-12 and 2012-13 compared to that during 2010-11 worked out to 974.67 KL resulting in extra expenditure of 3.56 crore.

It was stated (November 2013) that the original plant had a capacity to produce 30,000 MT of B1 only. The Company also admitted the excess consumption of furnace oil.

The above contention was not acceptable. As per the Detailed Project Report (DPR) for the capacity augmentation, the IBP Calciner had the total capacity to produce 37,000 MT of BI. Further, procuring 5611 MT of BI from outside sources was not justified after augmentation of the capacity.

2.9.4.2 Zircon Silliminate Plant.

The Company initiated (October 2008) the project for modification of the existing Zircon plant at an estimated cost of 21.05 crore to increase the rate of recovery of Zircon from 8-12 per cent to 40 per cent and for recovery of Silliminate. Audit found that the Zircon-Silliminate Plant scheduled to be completed by April 2010 was put into operation only in December 2010 due to delay in completion of civil and structural works by the contractor and consequent delay in installation of plant and equipments. Further, problems in the froth floatation system were also occurred. The short recovery of Zircon and Silliminate resulted in loss of 67. 84 crore.

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[18] 5611 MT x 15586 (being the difference between external purchase price and variable cost of BI from IBP).

The Company replied (November 2013) that the Plant was completed within a period of 14 months as against the scheduled time of completion of 15 months.

The reply was not tenable as the targeted period of 15 months was to be reckoned from the award (December 2008) of consultancy agreement.

2.9.5 Effluent Treatment

Wastes in the form of liquid, gas and solid are generated during the manufacturing process of Titanium Dioxide. The major wastes in terms of volume are (i) slurry generated from Effluent Treatment Plant (ETP) and (ii) iron oxide slurry from the ARP.

When the ponds for storing iron oxide and ETP slurry were on the verge of filling up, the Company constructed new secured landfills (ponds constructed above surface) at the instance of Kerala State Pollution Control Board (KSPCB) and Supreme Court Monitoring Committee (SCMC). The new ponds for the storage of iron oxide generated in the ARP and the ETP sludge were commissioned in March 2009 at a cost of 37.24 crore.

As the pH value of the water samples taken from around the factory premises was low and the area has become acidic, the Chairman, KSPCB directed (July 2011) the Company to take preventive measures. However, the measures were yet (December 2013) to be fully taken by the Company.

Many public interest litigations have been filed against the Company alleging that its functioning was without necessary safeguards for environmental protection without compliance to statutory directions and that the Company was causing hazard of radiation, depletion of ground water, deprivation of the water for local people and pollution of surface, sub-surface and groundwater.

Further, the Central Pollution Control Board (CPCB) had directed (September 2012) the Company to carry out an environmental investigation through a reputed institution on the four non-capped old ponds to assess environmental risks, damages occurred and the need for rehabilitation. The environmental investigation was not yet completed (December 2013).

The iron oxide pond and more particularly the ETP pond are on the verge of filling up within one or two years. Effective steps have to be taken at the earliest for disposing of the iron oxide (hazardous waste) and ETP wastes stored in its premises as otherwise the accumulation 'would create serious risks on sustainability of the Company.

The Company replied (November 2013) that efforts were taken for disposal of iron oxide to competent end users by inviting tenders and action initiated for installation of a suitable filter system for dewatering iron oxide for dumping it to the new pond. Further efforts were also underway for marketing ETP solids.

Considering the adverse environmental impact and pending litigations, Company needs to address the issue urgently.

2.9.6 Purchase and Inventory Management

2.9.6.1 Procurement of raw material and stores

System of procurement

The Purchase procedure approved by the BoD in September 2001 regulates the purchase of raw materials, stores and spares so as to make purchases at the most competitive rates through fair competition. As per the purchase procedure, an exhaustive vendor list shall be prepared covering all the 38,608 items of materials required by the Company. The Company follows limited as well as open tenders based on the nature of purchase.

- Limited tenders for purchase of items valuing less than 10 lakh with minimum three quotations.
- Open tenders -for all annual contracts and all purchases above 10 lakh or if the approved vendor list for an item to be procured by limited tender is not sufficient to get competitive response.

For all major purchases, the Company assesses the annual requirement and orders are placed for staggered delivery in 12 months. The Materials department invites tenders and the Tender Committee consisting of representatives from Materials, Finance and user Departments evaluates the bids and finalise the tender. The Materials department places orders with the successful bidder with the approval from the Managing Director. This is not required to be approved by the BoD.

System deficiencies

The Procurement activities of the Company were managed by a computerised system using Oracle software and Power Builder application. Audit analysed 65,584 enquiries, 87,360 quotations, 37,437 purchase orders and 84,874 Stores Receipt Notes using IDEA software to check the effectiveness of the controls in the system which revealed the following deficiencies:

2.9.6.2 Failure to develop Vendors for all items

The Vendors list prepared by the Company contains vendors for only 15,287 items as against 38,608 items of materials required by the Company. Further, only one vendor each was registered for 4,903 items and two each for 1,929 items. The Vendor lists were not being updated periodically. Due to the absence of sufficient Vendors, competition could not be ensured. Audit noticed that out of the 13,950 limited enquiries issued to approved vendors during the period covered in audit, 3,181 enquiries were send to one vendor only and 1151 enquiries were send to two vendors only. Against 3181 single enquiries made, 3108 quotations were received of which 2609 quotations were accepted and purchase orders were issued. Thus, purchases worth 45.04 crore were made on single quotations without ensuring competitiveness of the rates.

The Company replied (November 2013) that many items in the Management Information System had become redundant and updation of the same was in progress and vendor development was also given priority. It was further stated that the purchases were made on single bid basis where only Original Equipment Manufacturer (OEM) supply could be possible.

However, the fact remained that the Company was violating its own purchase procedure and competitiveness was not ensured in all purchases.

2.9.6.3 Procurement through limited tenders violating the monetary limit

Though the monetary limit for limited tenders was restricted to 10 lakh, out of 2609 purchase orders placed on the basis of limited tenders, value of 69 Purchase Orders placed ranged between 10 lakh and 203.07 lakh as per database

maintained in Oracle, violating the purchase procedure and total purchase value stood at 23.94 crore. Thus, these purchases were made without ensuring competitiveness of the rates obtained and resulted in irregular procurement of materials.

Company replied (November 2013) that spare equipments/subsequent replacements for spare parts supplied by OEMs were to be procured from the same party on limited tender basis for interchangeability even though the value exceeds 10 lakh.

However, Audit noticed that the Company did not have an approved policy for such procurement and even the spares having approved drawings and high value equipments like motors, front end loaders etc. were also purchased from single sources without floating open tenders.

2.9.6.4 Extra expenditure due to deficient procurement

On scrutiny of records relating to procurement of raw material, stores and spares Audit noticed various deficiencies leading to extra expenditure of 21.14 crore in the procurement as discussed below:

Failure to execute agreement and consequent non-recovery of extra cost on risk purchase

Audit noticed that the Company did not have a system of executing agreement with the suppliers and as a result some of the suppliers, after supplying a portion of the ordered quantity, stopped supplies citing increase in market prices. Resultantly, the Company procured the short/non-supplied material at higher rates from alternate sources incurring extra expenditure of 16.53 crore in the procurement of raw materials and chemicals during the period 2008-09 to 2011-12 as detailed in Annexure 10.

The Company while accepting the audit finding intimated that valid agreements would be executed with suppliers in future.

- **Undue delay in finalisation of tender and consequent non-acceptance by the party**

The offers were valid for a specific period stipulated in the bid and the Company should have finalised the tenders and place orders within the validity of the offers. Audit, however, noticed instances where the Company failed to finalise the tender within the validity period and orders were placed after the expiry of the validity period. As a result the bidders refused to accept the order and the Company had to procure the material at higher rates obtained in subsequent tender/next higher bidder. Failure of the Company to place orders within the validity period of the offers resulted in extra expenditure of 8.38 crore in purchase of four items as detailed in Annexure 10.

The Company replied (November 2013) that the Company with a unique process and the resultant requirement for raw materials with stringent specifications had to maintain an ethical and cordial relationship with the available suppliers to ensure that all the sources are accessible at all times. In case of sodium silicate, the order could be placed only after the completion of supply in the previous order and in case of Calcined Petroleum Coke (CPC); the party provided a limited validity period for the prices. In respect of magnesium, it was stated that the offer of Minerals and Metals Trading Corporation (MMTC) was not valid for three months as stipulated in the bid and that the stipulated technical specifications were not confirmed by MMTC.

However, the fact remained that the Company could not obtain the validity period extended so that a valid purchase order could be placed. In respect of procurement of magnesium, Company could have obtained confirmation regarding the technical specifications after clarifying with MMTC.

- **Extra expenditure due to allowing price increase though the prices were firm**

The purchase orders stipulated that the prices were firm during the tenure of the contract. The Company, however, allowed enhancement in prices as demanded by the suppliers of petroleum coke and liquid oxygen during the validity period. The extra expenditure incurred on account of this worked out to 1.23 crore as detailed in Annexure 10.

It was replied (November 2013) that the price revision for NPF grade petcoke was allowed on the basis of the terms of agreement and based on the price of M/s Reliance, the only producer of the material in the country. Price revision for Liquid oxygen was made for a major additional quantity required on urgent basis due to break down of the captive oxygen plant.

Audit, however, noticed that the terms of tender with respect to validity of price had been subsequently reduced from 12 months to three months and repeat orders were given without floating fresh tender and also the Company has not instituted any mechanism to monitor the price of M/s Reliance. The price revision for liquid oxygen was not on any additional quantity but on the original ordered quantity.

➢ Deficiencies in vendor updation and vendor evaluation

Audit noticed instances where the registered vendors backed out from their offer citing errors in their original offer. As a result the Company had to procure the spares at higher rates from the same/alternate vendors incurring extra expenditure of 3.42 crore as shown below:

Table No. 2.6: Extra expenditure on purchase of spares

Item	Original offer		Actual procurement		Quantity	Extra expenditure (in crore)
	Name of Vendor	Rate (in lakh)	Vendor	Rate (in lakh)		
Radiant coil assembly	UNI Abex Alloy products	22.01	UNI Abex Alloy products	45.21	2 nos.	0.46
Inlet stand pipes	Titanium Tantalum products	26.08	ASE Apparatebau Gmbh	100.10	4 nos.	2.96
				Total		**3.42**

The management while accepting the observation stated (November 2013) that the purchases were made from OEMs.

However, the fact remained that the original lower prices were quoted by the listed vendors and the purchase of radiant coil assembly was made from the same firm at higher rates and in case of inlet stand pipes, the lower rates offered by the listed vendor was not honoured by the firm and hence extra expenditure had to be incurred.

2.9.6.5 Failure to ensure quality of Calcined Petroleum Coke for regulating payment

The Company uses Calcined Petroleum Coke (CFC) as fuel in the chlorination plant and the average consumption during the last five years was 9,926 MT per annum. During the five years ended 2012-13, the Company procured 49,631 MT of CPC with 3.5 per cent Sulphur and 1 per cent Ash at a total cost of 110.48 crore. Audit noticed that though the price of CPC was determined by the sulphur and ash content in it, the Company did not have a mechanism to ascertain the same in the CPC supplied and to regulate payments accordingly. Increase in the sulphur content and slippage to the lower grade having high sulphur and ash content would give a minimum price advantage of 3364 per MT to the supplier and the financial impact of the same would be 16.70 crore in respect of 49,631 MT procured.

The Company while accepting the observation stated (November 2013) that the Company did not have the facility to analyse sulphur content and action for outsourcing the same was in progress.

2.9.6.6 General lapses in procurement

Audit noticed following general lapses and deficiencies in the finalisation of tender and issuing of Purchase Orders:

➢ In the IT system, the lab module was not integrated with other modules to enable the system to generate the payment advices/debit notes to the suppliers based on the actual quantity accepted and the quality parameters as per the lab report.

The Company while endorsing the audit observation replied (November 2013) that the existing system was designed in such a way that lab module was not integrated for the incoming materials. In the proposed higher end ERP integration would be possible.

➢ Penalty was not imposed on suppliers delivering inferior quality materials resulting in rejection after quality analysis so as to recover the expenditure incurred by the Company on chemical analysis and handling and storage of the materials.

The Company replied (November 2013) that in case of rejection of consignments the loading/unloading and transportation charges, if any, incurred by the Company are recovered from the supplier.

However the fact remained that no specific clause for penalising the supply of inferior quality supplies were incorporated in the terms and conditions of purchase order in order to restrict the supply of substandard materials which had to be accepted with deviations in times of scarcity for the continuous operation.

2.9.6.7 Inventory control

On an analysis of master table of materials, stores and spares, Audit observed that out of the 38,608 items:

- Stock levels (maximum/minimum and reorder levels) were not fixed for 28,118 items.
- Stock of 2170 items for which stock levels were fixed exceeded the maximum level. The cost of the excess stock worked out to 4.98 crore.
- Stock of 2306 items for which minimum level was fixed fell short of the minimum level.
- Classification based on the consumption value of inventory was not specified for 22,022 items.
- Classification based on the criticality of inventory such as Vital, Essential and Desirable (VED Classification) was not specified for 21,937 items.
- 12,672 items valuing 13.44 crore were, not issued for consumption for the last five years and 1345 items valuing 2.71 crore were not issued for consumption for the last three years.

- Paper bags were overstocked and the stock as on 31 March 2013 was sufficient to cater to the requirement upto 13 years as per the current level of production.

The Company while accepting the audit findings replied (November 2013) that a committee has been formed for reviewing all non-moving items and the stock of paper bags could be depleted within two-three years based on projected sales and further purchases will be made only after considering the present stock.

2.9.7 Marketing Management

The Company is the only producer of Rutile grade TDP in India and has been selling five grades of pigment in the domestic as well as foreign market. The low import duty (10 per cent) on TDP caused increased competition from multinational companies in the domestic market. In domestic market the products are being sold through Stockists as well as directly.

2.9.7.1 Sales Performance

The Company has not adopted any long term marketing policy and did not have a system of marginal costing for facilitating effective marketing and pricing decisions. The marketing measures including the price fixation is being generally reviewed and fixed on a monthly basis by Marketing Promotion Committee[19] (MPC). The Company's marketing can be broadly classified into domestic and exports.

The table below compares the Company's actual sales with budgeted sales of TDP for five years ended 2012-13.

Table No.2.7: Comparison of actual and budgeted sales

Year	Budgeted sales (MT)	Production (MT)	Actual Sales (MT)			Percentage of actual sales to budgeted sales
			Domestic	Export	Total	
2008-09	44352	35486	31820	7338	39158	88.28
2009-10	40452	35908	32982	4284	37266	92.12
2010-11	40452	36879	30760	5854	36614	90.51
2011-12	39064	29117	20721	4091	24812	63.52
2012-13	39064	26974	22437	2446	24883	63.70

Source: Annual Accounts of the Company for respective years.

[19] Consisting of The Managing Director, Executive Directors (Finance/TSP/MS), Joint General Manager (T), HOD (Finance) and HOD (Marketing).

As could be seen from the above Table, total sales showed a decreasing trend. The actual sales vs the budgeted sales also recorded gradual decline and reached 63.70 per cent in 2012-13 from 88.28 per cent in 2008-09.

The shortfall in achievement of target was mainly due to absence of an effective pricing policy, lack of synchronisation of sales plan with actual production, which ultimately led to non-execution of sales orders as discussed in paragraphs 2.9.7.2 to 2.9.7.4.

The Company replied (November 2013) that in a volatile market, it is bound to adopt flexible marketing strategies rather than long term policy and non achievement of target was not attributable to lack of synchronization of sales plan with production but due to the melt down of global economy in the recent times.

The reply was not acceptable as the demand for Titanium Dioxide in the domestic market increased from 61785 MT in 2008-09 to 2,00,000 MT in 2012-13 and Company's sales decreased from 39,158 MT to 24,767 MT.

2.9.7.2 Absence of pricing policy

The Company did not have a well defined pricing policy to regulate the prices considering the profit margin based on cost data available with the Company to achieve maximum sales. The MPC failed to analyse the variable/fixed cost and the profit margin per MT to take timely decision on fixation of selling price and instead fixed the prices after ascertaining the selling price of the competitors in the domestic market.

On an analysis of monthly sales and stock position: Audit noticed that the price of RC 822[20] registered an increase of 146.51 per cent from 86,000 (April 2008) to 2,12,000 (September 2011). However, the monthly domestic sales declined from 3378 MT (April 2008) to 1596 MT (September 2011). The MPC, however, pegged the price at 2,12,000 for a long period i.e. upto July 2012 and the monthly sales further declined to the minimum of 897 MT (September 2012) which led to piling up of stock upto 6785 MT(March 2013). When the price started declining in August 2012, the monthly domestic sales increased from 1021 MT to 3605 MT (March 2013).

[20] This grade constituted 80 pet cent of total sales.

Audit further noticed that the Company had a profit margin of 61,532 per MT at the selling price of 2,12,000 (2011-12) and the MPC should have reckoned this fact in order to avoid steep fall in sales and consequent accumulation of stock. In order to liquidate the stock the Company sold 684 MT (March 2013) at a negotiated average selling price of 1,39,314 per MT to three parties[21] as against the normal selling price of 1,60 000 per MT resulting in a loss of 1.41 crore.

The Company replied (November 2013) that to be competitive in market it requires market to market pricing strategy than a marginal cost/cost plus approach.

The reply was not acceptable since the Company had a profit margin of 61,532 per MT at the selling price of 2,12,000, and it could have further reduced the selling price to maintain the sales volume. When the Company reduced price in August 2012 to 2,06,000 and continued price reduction up to 1,60,000 in March 2013, the sales volume increased from 1021 MT to 3605 MT during the corresponding period.

2.9.7.3 Failure to plan production in line with sales order

The U200 plant is having an installed capacity of producing 90,000 MT of Titanium Tetrachloride (Tickle) per annum. Though the Company produces tickle mainly for its captive use in the production of TDP, it also sells tickle to other firms based on the orders received. Audit noticed that though there was sufficient profit margin as well as spare capacity for producing Tickle, the Company did not execute the orders in full. The profit margin of Tickle, as per Cost Audit Report, during the review period ranged between 23,000 to 48,800 per MT. The position of actual production and sale of Tickle during the five years ended 2012-13 was as below:

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[21] M/s Chimica, Italy, ESSAR International, Mumbai and Chemcoat India Limited, Thane.

Table No. 2.8: Production and sales of tickle

Year	Installed Capacity	Actual Production	Under utilised capacity	Targeted sales	Sales order Received	Sales order Executed	Sales order Cancelled	Margin (per MT)	Loss (in crore)
				(in MT)					
2008-09	90000	82857	7143	2000	919.61	909.36	10.25	36916	0.04
2009-10	90000	83642	6358	1200	738.35	717.5	20.85	33636	0.07
2010-11	90000	86232	3768	1200	2410.98	1822.54	588.44	23207	1.37
2011-12	90000	69235	20765	4400	3765.11	1893.31	1871.8	48836	9.14
2012-13	90000	64272	25728	4400	2215.95	2063.82	152.13	48954	0.74
Total	**450000**	**386238**	**63762**	**13200**	**10050.00**	**7406.53**	**2643.47**		**11.36**

The Company was not able to achieve 60 per cent of the sales target for Tickle. Failure of the Company to plan production in line with the orders in hand despite sufficient capacity resulted in cancellation of orders and consequent loss to the extent of 11.36 crore.

The Company replied (November 2013) that though they could not sell tickle as per the sales orders received, that quantity was converted in to Titanium Dioxide Pigment.

The reply was not acceptable as the production capacity of Tickle was 90,000 MT per annum and actual production was only 69,235 MT and 64,272 MT during the last two years and the average stock of TDP was 5937 MT. In View of the tight competition in TDP market and good margin available from tickle sales, the cancellation of sales orders lacked justification.

2.9.7.4 Failure to maintain minimum stock

On a test check of sales orders received by the Company, Audit noticed that the customers in their orders clearly mentioned delivery schedules (date-wise), the grade, quantity and location Company, however, failed to plan production in line

with the orders leading to cancellation of orders for 4286 MT of TDP during the five years ended 2012-13 as below:

Table No. 2. 9: Demand and sales of TDP

Grade	Orders received (MT)	Sales (MT)	Orders not Executed (MT)
RC822	118159	115732	2427
RC813	7094	5716	1378
RC800PG	14862	14486	376
RC808	1511	1430	105
Total	**141626**	**137364**	**4286**

The cancellation of orders was due to insufficient stock. Although RC 822 and RC 800 PG grades constituted more than 90 percent of the sales volume, the monthly stock of RC 822 ranged between 18 MT and 872 MT for 36 months and that of RC 800 PG ranged between 0 MT and 99 MT for 30 months during the period covered in audit. In respect of RC813 the monthly stock varied from 0 MT to 99 MT for 41 months during the review period.

Failure to maintain minimum stock of the TDP resulted in cancellation of sales orders to the tune of 11.53 crore during the last five years.

The Company replied (November 2013) that during a period of high demand it would be difficult to cater to the requirements of customers in a uniform manner and difficult to maintain buffer stock as required.

The reply was not acceptable as the Company was holding huge volume of stock of RC 822 during the last two years without maintaining minimum stock for the other grades which ultimately resulted in cancellation of confirmed sales orders and loss to the Company.

2.9.7.5 Domestic vis-a-vis Export Sales

The Company had been exporting TDP and details of quantity sold, price per MT, margin per MT, etc., for domestic and export sales for the five years ending 2012-13 are as below:

Table No. 2.10: Export and domestic sales

Particulars	2008-09		2009-10		2010-11		2011-12		2012-13	
	Export	Domestic	Export	Domestic	Export	Domestic	Export	Domestic	Export	Domestic
Quantity sold (MT)	7338	31820	4284	32982	5854	30760	4091	20722	2330	22437
Average selling price/MT (in)	96137	104201	107701	124264	134494	140759	156971	198843	148627	184491
Cost of sales (in)	89838	88204	99538	96612	121924	121047	155449	156058	176913	176913
Margin per MT ( )	6299	15997	8163	27652	12570	*19712*	*1522*	42785	(-) 28286	7578

Source: Compiled by audit from the Cost Audit Reports.

The margin on export sales was much lower as compared to the domestic sales. The export of TDP during 2012-13 resulted in cash loss to the extent of 6.59 crore[22] as the export margin was negative during the year.

Company admitted (November 2013) the audit observation and stated that it was decided to partially meet the requirement of their export clients in order to maintain overseas presence that was already established.

2.9.8 Financial Management

Loans /investment in other Public sector Undertakings

The Company extended loans to the tune of 43.05 crore to four PSUs and investments to the extent of 35 crore in two PSUs as per the directions of the State Government during the period from 2008-09 to 2012-13. The total amount outstanding as on 31 March 2013 was 98.72 crore[23].

Of the above, loan amounting to 3.05 crore was interest free. Though loan of 30 crore extended to Kerala State Textile Corporation Limited (KSTC) carried

[22] 28286 x 2330 MT.

[23] Loan - 63.55 crore and Investment - 35.17 crore.

interest at seven per cent, KSTC had not paid any amount towards interest or principal so far. The loss of interest (at seven per cent) to the Company on this account worked out to 2.10 crore per annum.

Further, loan of 23.52 crore extended to different PSUs are doubtful of recovery, especially those[24] advanced to Kerala State Cashew Development Corporation Limited 9.78 crore and Kerala State Cashew Workers Apex Industrial Co-operative Society Limited (2.36 crore). The Company had already written off 0.34 crore and provided 1.86 crore towards doubtful loans. The Company availed a Cash credit of 50 crore (availed 21.58 crore in May 2013) from Banks during the year 2012-13 for meeting its working capital requirements and incurred 0.87 crore towards interest.

The Company replied (November 2013) that the financial assistances were extended as per the direction of the Government and actions were already initiated to recover the amounts from the PSUs. It was also stated that though the sanctioned cash credit was 50 crore, the average availment was around 10 crore only.

However the fact remained that a major portion of the cash balance of the Company was eroded due to Government directions which was against the financial interest of the Company.

2.9.9 Human Resource Management:

2.9.9.1 Payment of excess wages due to poor productivity

The Company had deployed 1125 employees on an average in TP Unit during the period covered in audit who were distributed among production, maintenance and administrative departments.

Audit reviewed the utilisation of manpower in Production department and found that the labour productivity had decreased in the last two years as detailed below:

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[24] These entities were incurring losses and running on budgetary support.

Table No. 2.11: Excess wages paid

Year	Production of TDP (MT)	Capacity utilisation (per cent)	Normal man hours worked	Overtime hours worked	Total man hours	Man hours utilised per MT	Total wages paid (in crore)	Excess wages (in crore)
2008-09	35486	88.72	822056	145924	967980	27	30.06	0
2009-10	35908	89.77	782813	161197	944010	27	34.60	0
2010-11	36879	92.20	797712	190564	988276	27	40.91	0
2011-12	29117	72.79	786751	170202	956953	33	53.41	9.53
2012-13	26974	67.44	722060	150316	872376	32	55.57	9.18
Total			**3911392**	**818203**	**4729595**		**214.55**	**18.71**

As could be seen, the man hours utilised per MT of production was 27 during the first three years. When the production was reduced during 2011-12 and 2012-13 the man hours utilised increased to 33 and 32 hours per MT respectively. The unproductive wages paid by the Company on account of lower labour productivity worked out to 18.71 crore.

The Company accepted the audit observation and stated that the increase in man hours utilised was mainly due to the low throughput from the pigment production unit which was due to various reasons like raw material shortage and technical issues.

However, the fact remains that the management's failure in arranging the required raw materials and utilising the plant in optimum level has resulted in excess wages and the engagement of workmen on overtime could have been avoided.

2.9.9.2 Other deficiencies/irregularities

A review of the position of manpower revealed that as on April 2013 there was a shortage of 368 employees in TP Unit and excess of 225 employees in MS Unit in workmen category The pay rolls are managed using COBOL data base of THP system. Audit analysed 14,46,942 records using IDEA software and noticed the following deficiencies/irregularities:

As per the provisions of the Factories Act, 1948 and Kerala Factories Rules 1957, the total hours of work in any day shall not exceed 10 hours, total hours in a week including overtime shall not exceed 60 hours and total hours of overtime in a quarter shall not exceed 50 hours. If a worker is engaged for shift work continuously for three shifts, his next shift shall not commence before a period of 16 hours has been elapsed. The Company, however, engaged its employees on overtime violating the above provisions as detailed below:

- Out of the 1393 employees, 1156 employees worked on 242848 days in excess of the prescribed maximum working hours of 10 per day.
- Overtime of 135065 hours was allowed to 905 workers in 13652 man days during off days.
- During the period of five years 1979 days compensatory off for continuous four or more shifts working was given to 134 employees. This had resulted in overtime of 3 1664 hours.
- Instances of workers working for more than 56 hours in a week, overtime exceeding more than 50 hours in a quarter were also noticed.
- Overtime wages were to be calculated on the basis of 240 hours of work in a month whereas the Company reckoned 180 hours only. This was pointed out in the Report of Comptroller and Auditor General (Commercial) for the year 2009. This mistake has not been rectified so far (November 2013). The non-rectification of the method of calculation had resulted in an extra expenditure of 10.53 crore during these five years.

The Company replied (November 2013) that the restrictions imposed by the Factories Act on overtime work is not fully workable in the absence of leave reserve and off reserve and the requirement of manning the operation continuously. The mistake in method of calculation of the overtime wages could not be rectified as the trade unions did not agree for any change in the existing practices.

The reply was not acceptable as the management failed to abide by the provisions of Factories Act and to deploy the available man power optimally.

Conclusion

- Under-utilisation of the available capacity led to increased cost of production, declining market share and stock accumulation.
- The existing infrastructure could not ensure the extraction of heavy minerals at the optimum levels.
- The Company violated its own purchase procedure and procured materials of high value on limited tender basis, instead of inviting competitive open tenders.
- The Company failed to ensure supply of ordered quantity at quoted price by the suppliers and allowed short/non supply of materials resulting in procurement of same at enhanced prices even from same suppliers.
- The Company failed to comply with the provisions of Factories Act and Rules while engaging employees on overtime and could not regulate the expenditure on this head in accordance with the level of production.
- The Company failed to synchronise the production according to sale orders and lost margin due to disposal of accumulated stocks at negotiated prices.
- There was lapse on the part of the Company in taking timely decision in fixation of price. Despite having a cost data it prolonged the higher price which adversely affected the sales and resulted in reduction in sales and accumulation of stock.
- Extension of loans to and investment in other PSUs resulted in blocking up of its funds in unproductive manner.

Recommendations

The Company may:

- develop a mechanism for periodical assessment of cost of production with cost data and investigate the reasons for increase in cost of production;
- utilise the capacity of plants at optimum level to avoid under absorption of elements of cost especially in view of increasing power cost and employees cost;

- ensure that employees are engaged on overtime to utmost necessity and benefits are derived from such additional expenditure;
- make periodical revision of registered vendors and explore possibility of finding new vendors with price advantage through wide publicity or using of web enabled e-tendering system;
- incorporate a clause in open tenders and limited tenders for raw materials, stores and spares insisting the successful bidders to execute an agreement for uninterrupted supply and also make a provision for imposing penalty in case of breach and to keep the price fixed during the validity of agreement;
- should scrupulously follow the approved purchase procedures of 2001 and take action to make required modifications to ensure most competitive tenders, using of software for evaluation of tenders, etc. and
- should utilise the available cost data effectively, price the products to optimise the sales in view of competition and to avoid accumulation of stocks.

[The Audit Paragraph 2.1-2.9.9.2 contained in the Report of the C&AG for the year ended 31 March 2013]

The notes furnished by the Government on the Audit Paragraph are given in Appendix II.

Discussion and Findings of the Committee

1. The Committee noted that even though Kerala Minerals and Metals Limited is a profit making company, quantity wise turnover was less and its profit was due to the increase of price in world market. The Committee remarked that Kerala Minerals and Metals Limited procures raw materials for production of Titanium Pigment by mining their own land and hence has no investment of their own. The witness disagreed with the remark of the Committee that KMML has no investment of its own and that they are only trading the minerals excavated from the earth and hence no contribution to the industry is made; and further explained that KMML produces its main product ie, Titanium Pigment by converting raw Ilmenite through elaborate chemical processes which needed investment in production.

2. The Committee evaluated that in 2011-12, the profit was ₹ 154 crore but in 2012-13 it drastically reduced to ₹ 75 crore and enquired about the reason behind the fluctuations in profit. The witness replied that due to several reasons there were fluctuations in the quantity and trade of the end product of the company ie, Titanium dioxide. He admitted that production and sales were less during some years which led to a decline in profit. He further explained that the profit fluctuations faced by the company was a reflection of price escalation which occurred in the international market. When stock accumulated, the company was forced to reduce the price. He claimed that the company adopted an aggressive pricing policy and at present operations were being carried out accordingly. He added that in addition to the expense during the production of Titanium dioxide pigment, the company has to bear labour cost while conducting mining process.

3. The Committee criticized the company for not maintaining financial discipline. The witness explained that the existing problems were being solved to an extent and that the strategic advantage of the company was the availability of raw materials in abundance. The witness further brought to the notice of the Committee that the profit rate of those companies which had to purchase raw materials from outside sources are facing decline. He further added that the value addition made by KMML on its product was not meagre.

4. The Committee enquired about the modernization programme carried out by KMML during 1998-1999. The witness answered that technological modernization and the capacity upgradation of the existing pigment plant were carried out during that period. The witness further explained that the proposed mineral industrial complex project aims at converting Ilmenite to high value added Titanium. He also mentioned about the proposed project which intends to convert minerals like Silicon, and Sillimenite into value added products and also about the project to convert Titanium sponge into value added products like plates, tubes etc. for making rockets by VSSC.

5. When the Committee enquired whether studies have been conducted about duration of mining process to be carried out at Chavara and about the availability of resources there, the witness explained that research study about the mining process of KMML in Chavara had been conducted by Atomic Energy

Research Board. According to them that area has an abundant deposit of black sand and beach wash. The Committee observed that under such conditions there is scope for a mega project.

6. The Committee pointed out the allegation, that after acquiring adjacent land KMML failed to pay compensation to the land owners and enquired about the violation of agreement to rehabilitate the inhabitants after acquiring their land. The witness explained that KMML had assured rehabilitation of the inhabitants only in Kovilthottam area. The initial plan was intended to evict people from that area during mining time and after the completion of the mining process allow them to re-occupy the land. The witness admitted that they were not able to carry out the rehabilitation since the mining process has not been completed as expected and agreed to rehabilitate people soon after the completion of mining.

7. To a query about the measures taken to reduce depreciation, the witness replied that several measures had been taken to overcome the depreciation. He further added that the variation in production quantity depends upon the availability of raw materials and the problems of the machineries.

8. The Committee enquired if any wornout or replaceable equipments were being used and about the fund allocation from Government for replacement of such equipments. The witness replied that due to a gas leak the plant had to be shutdown for 45 days during 2014-15 and that led to a loss of ₹ 24 crore. During 2015-16 the profit was meagre due to agitation of contract workers. He further explained that wornout equipments have been located and the amount needed for their replacement has been included in the company's yearly capital budget. He added that KMML plans to take up improvement projects which were delayed for years, with the support of Industries Department and mega projects were implemented with the aid of Government. The witness assured the Committee that KMML would solve the present problems within one or two years and render the company full fledged.

9. The Committee pointed out the shortfall in recovery of other minerals from the raw sand processed, resulting in a loss of ₹ 45.89 crore. The witness replied that due to lack of proper facilities, only 8% of Zircon/Sillimanite could be recovered during the period of audit. The machinery has been improved at present and the recovery raised to 40% and a project has been submitted to government by the company to improve the recovery from 40%.

10. The Committee probed into the present position of the legal action against M/s SEPR. The witness pointed out that inorder to improve the life of Chlorinater, specialised zirconia bricks were tried but were able to get only one month life. Legal action was not initiated as there was a doubt whether it would be legally sustainable; since it was not possible to prove that the technical default occured was mainly due to the wrong materials supplied by M/s SEPR and besides it also affects the internal operating system of the company. Due to these reasons the management decided not to go for litigation.

11. The Committee enquired about the company's failure to execute agreement and consequent non-recovery of extra cost on risk purchase. The witness clarified that the provision to realise the loss incurred, due to the premature stopping of the supply of consuming items by the suppliers (M/s SEPR), was not incorporated in the agreement. He added that valid agreement would be executed in future incorporating the above provision.

12. The Committee enquired about the payment of excess wages due to poor productivity and the witness explained that the man-days depends upon the man power utilized and that when the production decreases, that productivity also decreases but the company was not in a position to reduce the number of employees.

13. To a query of the Committee about the overtime allowance paid to employees, the witness replied that need for giving overtime arose when there occurred a delay in the recruitment process and would be able to solve the overtime related problems after the completion of recruitment process.

CHAPTER I

Recommendations of the Committee on the basis of Audit paragraph

14. The Committee observes that selection of the refractory material of Chlorinator and its supplier was done without assessing the technical stability and without insisting on performance guarantee. The Committee vehemently criticizes that this arbitrary selection of the company without resorting to global tender resulted in an unproductive investment of ₹ 96.95 lakh. The Committee

recommends that the company should abide by the procurement rules of Store Purchase Manual and seeks explanation for not realising the loss from the supplier M/s SEPR Refractories. The Committee also seeks the reason for not initiating legal action against the supplier who delivered wrong materials with technical default.

15. The Committee recommends that valid agreement should be executed in future incorporating the provisions for fixed price, uninterrupted supply of materials from the suppliers and also incorporating the provision to impose penalty and realise the loss incurred from the supplier in case of premature stopping of supply of items as per the contract.

16. The Committee observes that the company did not initiate steps for replacement of the Tickle Pre-Heaters even after a lapse of more than five years. The Committee wants to know whether the Tickle Pre-Heater was retained as per the directions of the Central Power Research Institute. The Committee directs to furnish the details in this regard and the present position in replacing the Tickle Pre-Heater.

17. The Committee recommends to utilise the capacity of the plants at optimum level and to ensure that employees are engaged on overtime duty only in need and that maximum benefits are to be derived from such extra expenditure. The Committee insists strongly that the overtime related problems in the company are solved as early as possible.

CHAPTER II

The Committee visited KMML, on 29-6-2017 and after a detailed discussion with the Company officials made the following recommendations:

Recommendations of the Committee on the basis of visit to KMML

18. The Committee suggests that KMML should not constrain as a mere separation unit of Ilmenite and hence it should start new units for new products.

19. The Committee suggests that KMML should give emphasis to by-products in addition to mineral separation. It also suggests to take up mega projects similar to that of China and Japan with the aid of government.

20. The Committee observes that KMML is not in a state to supply adequate amount of Titanium needed in the open market and that they are also not being able to utilize their facilities to foster the mineral industry in Kerala. The Committee recommends to increase the domestic production of Titanium Dioxide Pigment by enhancing the existing potential of the Company. The Committee recommends to establish a mineral industrial complex in Chavara as early as possible after conducting feasibility study. It strongly recommends to submit a detailed project report within six months to the government for according administrative sanction for the construction of Mineral based Industrial Complex with the aid of KIFBI as early as possible; by which maximum utilization of mining, production and other related activities in the mineral industry can be brought together.

21. The Committee observes that even after acquiring land from the local inhabitants five years back for mining purposes, the Company failed to award adequate compensation to the land owners. The Committee vehemently criticizes the Company for evicting local inhabitants without compensation. The Committee strongly recommends to re-habilitate or to award adequate compensation to the local inhabitants who had been evicted from their land for mining purposes and to solve their problems urgently. The Committee wants to be furnished a detailed report on the measures taken for the redressal of the above mentioned grievances.

22. The Committee observes that due to the accumulation of solid waste material, the local inhabitants have become susceptible to serious diseases. The Committee points out that the presence of huge quantities of harmful chemicals in the deep soil contaminates the ground water leading to severe drinking water related problems to the people in the vicinity. The Committee recommends to chart out a permanent solution for removing the dumped waste from the area.

23. The Committee finds that the Company is supplying drinking water to only seven nearby wards and recommends that drinking water should be supplied to all nearby places hit by water pollution.

24. The Committee recommends to submit new project proposals before the government inorder to utilize the maximum capacity of the plant and to increase the production capacity of KMML. It insists that after submitting new projects to the government, proper follow up action should be taken to facilitate approval without delay.

25. The Committee exhorts to settle all disputes concerning labourers and to solve the problems of the local people as well as the labourers, through fruitful discussions with the government, thereby maintaining a healthy atmosphere in the area. It also recommends to enhance the Company's production target to 80-85%.

26. The Committee recommends to consider the possibility of a consortium of KMML, TTPL and IREL for strengthening the mineral Industry.

27. The Committee recommends to renovate all outdated machinery using modern technology and to increase the productivity of the company using new machinery.

28. The Committee recommends drastic settlement of disputes regarding appointment of skilled and unskilled labourers from the local inhabitants and from others by appointment on strict proportionate basis. It also directs to maintain proper record for all kinds of appointments. The Committee suggests to elucidate the favourable attitude of the management in appointing local inhabitants of the territory before the court and file a separate suit for it.

29. The Committee observes that excess labourers were appointed by KMML violating the provisions of Factories Act & Rules. The Committee wants to be furnished with the Company's standing order and the documents regarding these appointments.

30. The Committee appraises that KMML carries out mining process without environment clearance certificate from the Central Government and that it has achieved only the sanction for lease from the State Government. The Committee directs to furnish all authentic documents relating to mining process like reports, government orders, order sanctioning lease from the government etc.

31. The Committee understands that the benefits of the amount donated to Collector's Mining Area Welfare Fund by KMML as part of its social commitment is reaching only a few people. It directs to effect adequate amendment in the policy of the company inorder to enable the whole inhabitants of Kollam district to avail the benefits.

Thiruvananthapuram,
19th June, 2018.

C. DIVAKARAN,
Chairman,
Committee on Public Undertakings.

1334/2018.

APPENDIX I

SUMMARY OF MAIN CONCLUSIONS/RECOMMENDATIONS

Sl. No.	Para No.	Department Concerned	Conclusions / Recommendations
1	2	3	4
1	14	Industries Department	The Committee observes that selection of the refractory material of Chlorinator and its supplier was done without assessing the technical stability and without insisting on performance guarantee. The Committee vehemently criticizes that this arbitrary selection of the company without resorting to global tender resulted in an unproductive investment of ₹ 96.95 lakh. The Committee recommends that the company should abide by the procurement rules of Store Purchase Manual and seeks explanation for not realising the loss from the supplier M/s SEPR Refractories. The Committee also seeks the reason for not initiating legal action against the supplier who delivered wrong materials with technical default.
2	15	Industries Department	The Committee recommends that valid agreement should be executed in future incorporating the provisions for fixed price, uninterrupted supply of materials from the suppliers and also incorporating the provision to impose penalty and realise the loss incurred from the supplier in case of premature stopping of supply of items as per the contract.

1	2	3	4
3	16	Industries Department	The Committee observes that the company did not initiate steps for replacement of the Tickle Pre-Heaters even after a lapse of more than five years. The Committee wants to know whether the Tickle Pre-Heater was retained as per the directions of the Central Power Research Institute. The Committee directs to furnish the details in this regard and the present position in replacing the Tickle Pre-Heater.
4	17	Industries Department	The Committee recommends to utilise the capacity of the plants at optimum level and to ensure that employees are engaged on overtime duty only in need and that maximum benefits are to be derived from such extra expenditure. The Committee insists strongly that the overtime related problems in the company are solved as early as possible.
5	18	Industries Department	The Committee suggests that KMML should not constrain as a mere separation unit of Ilmenite and hence it should start new units for new products.
6	19	Industries Department	The Committee suggests that KMML should give emphasis to by-products in addition to mineral separation. It also suggests to take up mega projects similar to that of China and Japan with the aid of government.
7	20	Industries Department	The Committee observes that KMML is not in a state to supply adequate amount of Titanium needed in the open market and that they are also not being able to utilize their facilities to foster the mineral industry in Kerala. The

1	2	3	4
			Committee recommends to increase the domestic production of Titanium Dioxide Pigment by enhancing the existing potential of the Company. The Committee recommends to establish a mineral industrial complex in Chavara as early as possible after conducting feasibility study. It strongly recommends to submit a detailed project report within six months to the government for according administrative sanction for the construction of Mineral based Industrial Complex with the aid of KIFBI as early as possible; by which maximum utilization of mining, production and other related activities in the mineral industry can be brought together.
8	21	Industries Department	The Committee observes that even after acquiring land from the local inhabitants five years back for mining purposes, the Company failed to award adequate compensation to the land owners. The Committee vehemently criticizes the Company for evicting local inhabitants without compensation. The Committee strongly recommends to re-habilitate or to award adequate compensation to the local inhabitants who had been evicted from their land for mining purposes and to solve their problems urgently. The Committee wants to be furnished a detailed report on the measures taken for the redressal of the above mentioned grievances.

1	2	3	4
9	22	Industries Department	The Committee observes that due to the accumulation of solid waste material, the local inhabitants have become susceptible to serious diseases. The Committee points out that the presence of huge quantities of harmful chemicals in the deep soil contaminates the ground water leading to severe drinking water related problems to the people in the vicinity. The Committee recommends to chart out a permanent solution for removing the dumped waste from the area.
10	23	Industries Department	The Committee finds that the Company is supplying drinking water to only seven nearby wards and recommends that drinking water should be supplied to all nearby places hit by water pollution.
11	24	Industries Department	The Committee recommends to submit new project proposals before the government inorder to utilize the maximum capacity of the plant and to increase the production capacity of KMML. It insists that after submitting new projects to the government, proper follow up action should be taken to facilitate approval without delay.
12	25	Industries Department	The Committee exhorts to settle all disputes concerning labourers and to solve the problems of the local people as well as the labourers, through fruitful discussions with the government, thereby maintaining a healthy atmosphere in the area. It also recommends to enhance the Company's production target to 80-85%.

1	2	3	4
13	26	Industries Department	The Committee recommends to consider the possibility of a consortium of KMML, TTPL and IREL for strengthening the mineral Industry.
14	27	Industries Department	The Committee recommends to renovate all outdated machinery using modern technology and to increase the productivity of the company using new machinery.
15	28	Industries Department	The Committee recommends drastic settlement of disputes regarding appointment of skilled and unskilled labourers from the local inhabitants and from others by appointment on strict proportionate basis. It also directs to maintain proper record for all kinds of appointments. The Committee suggests to elucidate the favourable attitude of the management in appointing local inhabitants of the territory before the court and file a separate suit for it.
16	29	Industries Department	The Committee observes that excess labourers were appointed by KMML violating the provisions of Factories Act & Rules. The Committee wants to be furnished with the Company's standing order and the documents regarding these appointments.
17	30	Industries Department	The Committee appraises that KMML carries out mining process without environment clearance certificate from the Central Government and that it has achieved only the sanction for lease from the State Government. The Committee directs to furnish all authentic

1	2	3	4
			documents relating to mining process like reports, government orders, order sanctioning lease from the government etc.
18	31	Industries Department	The Committee understands that the benefits of the amount donated to Collector's Mining Area Welfare Fund by KMML as part of its social commitment is reaching only a few people. It directs to effect adequate amendment in the policy of the company inorder to enable the whole inhabitants of Kollam district to avail the benefits.

APPENDIX II

NOTES FURNISHED BY GOVERNMENT ON THE AUDIT PARAGRAPHS

(AUDIT REPORT 2008-2009)

Audit Para. No.	Reply furnished by Government
2	3
2.2	**2.2 Information System Review on Computerisation** Action Taken **1. IT Policy and IT Plan.** Detailed IT Policy has already been made and duly got approved by the Board of Directors. IT Plan – both long term and short term – has already been prepared and updated with modifications as and when required. **2. System Development.** The development of modules like Purchase, Stores and Finance etc has been started during 1998. In those days the steps of software development activities are not much formulated and propagated to industries like KMML. Moreover the scenario of IT facilities-like infrastructure and IT man power were so thin to handle the software development activities in a professional manner. This led to the lack of proper documentation during the initial phases. In the subsequent software development stages all the relevant steps has been exercised including SRS, Testing of software user acceptance etc. **3. System Maintenance.** All the modules have been compiled to executables as proposed by the CAG audit report and a single package of each module with proper revision numbers are used at all locations and made the version control foolproof. **4. Purchase Module.**

2	3

In the case of valuation of inventory viz Raw materials, we could allocate the proportionate transportation cost to the Raw materials and we could arrive a reasonable cost of inventory while finalizing the accounts whereas in case of stores and spares, in several cases the details of transportation cost is not available at the time of valuation. Moreover for security, there is no provision given for subsequent correction of SRN valuation to incorporate the transportation cost to the stores and spares.
Due to this practical difficulty we are forced to treat the transportation cost separately and accounted as revenue expenses. Action is already initiated to incorporate transportation cost as part of inventory valuation of stores and spares.

4. Stores Module.

The classification of Fast/Slow and non moving items is already reviewed on the basis of CA audit report.

5. Sales Module.

Actual invoice is already taken through the export module and all the transactions are being done in our database itself. The invoice number is generated from our database only and hence the chance of duplication is prevented.
Export invoices are taken prior to shipment for filing shipping bills.
Hence it will not tally with the actual date of shipment/ dispatch. In order to overcome this discrepancy we may incorporate the Excise" ARE "number and date in the commercial invoice and the aforesaid ARE date shall be considered for computing the Export sale volume.

6. Payroll Module.

Even though a fully integrated payroll module is available in THP module, the payroll module could not be implemented due to various constraints. Revision of wages is based on Long Term agreements which are implemented with retrospective effects for periods as long as 55 months and so. Rework of salary for such long periods ***even after the normal wage revision period of four years*** were not envisaged in the integrated payroll module. DA pattern of Officers is as per Govt. of Kerala DA and is revised periodically with retrospective effects and requires recalculation of entire Officers payroll for long periods which are also not envisaged in the integrated payroll module. There are also frequent changes in the rules and regulations which affect Payroll preparations including statutory compliances which require changes in the program.
Considering the above, action has already been initiated to modify the system to incorporate all the above conditions and to make the payroll system suitable for online operation.

7. Finanace Module.

Provision for generating profit and loss account and balance sheet on any day is already included in the finance module. Certain statements are generated outside the system to satisfy the statutory requirement and even the data is taken from the system itself.

Action taken on Recommendations

1. IT policy has already been made and got approved by the Board of Directors. IT plan has been made with both long terms and short term activities.

3

2. Implementation of integrated software in MS unit with TP unit is already started. Completed the implementation of Finance, Stores and Purchase modules has been completed and the system already satisfactorily put in online operation.

3. Action has already been taken for rectifying the program design defects and data base security risks.

4. Already implemented the procedure for closure of book of accounts and prevented the chances of reopening the same after certification.

5. Inventory levels are efficiently controlled and resulted in lowering the inventory cost.

6. Provision is already incorporated to segregation of tax components in the respective modules.

7. All the modules are made comply with the standard business rules.

8. All the business requirements and procedures are being documented.

9. Programs are modified to eliminate the human intervention/ to make the human intervention to a minimum extend.

10. Formulated the password policy and already incorporated in the IT policy. Password policy stresses on the length and type of password characters, and password expiry and password renewal process etc. All the steps have been taken – both physical and logical – to strengthen the system security to the maximum extend.

11. Functional modules re made executables and same executables and same application is distributed among the users and the version control is achieved to the best level.

In view of the above the audit observation may please be dropped.

JAPABALAN OLIVER
Additional Secretary to Govt.
Industries Department
Govt. Secretariat, Tvpm.

NOTES FURNISHED BY GOVERNMENT ON THE AUDIT PARAGRAPHS

(AUDIT REPORT 2012-2013)

Sl No.	Audit Paragraph		Reply furnished by Government
1	2		3
1	2.9.1.1		The company had sold/marketed TDP equivalent to the quantity available for sales from 2008-09 to 2010-11. Though sales during 2011-12 was comparatively low (24812 MT), the Company could obtain higher profit since KMML could maintain a higher cost in par with the International market. This was so owing to the scarcity of Raw Ilmenite worldwide resulting in higher International price. It is to be noted that average cost of production during the above period was Rs.1,50,470/MT against the company's price of Rs.2,12,000/- Mt (September 2012 to March 2012). However due to lower production (27014 MT) in 2012-13 and increase in input cost, average cost of production had risen to Rs.1,68,357/MT. In the meantime, though there had been a down surge in the International prices (more than 25%), KMML could not reverse the price to acceptable levels. Moreover due to inflow of Chinese pigment at alarmingly low price and their acceptance in the market, KMML have lost the market share of many customers including Berger Paints and consequent reduction in sales.

1	2		3
2	2.9.1.2		By periodic review/monitoring of consumption parameters, the company could contain the consumption of major raw materials within the standard fixed. The cost of production during the first quarter of 2015-16 has come down to Rs.140000/-. Further, the company has constituted a Strategic Level Team and 5 Cross Functional Level Teams for studying and evaluating various cost

	2		3
			reduction proposals. The Board has also constituted a Sub Committee for implementing cost control measures.

P.C. KASSIM

NOTES FURNISHED BY GOVERNMENT ON THE AUDIT PARAGRAPHS (AUDIT REPORT 2012-2013)

No	Audit Paragraph	Reply furnished by Government
1	2	3
	2.9.2 2.9.2.1	**Production Management** **Capacity Utilization** The KMML Company's production decreased during 2011-12 & 2012-13 was due to shortage of the basic Raw Material for production. The basic Raw material is Raw Ilmenite. There was limitation in mining in the MS Plant during that period as the concentration of Raw Ilmenite in Raw Sand decreased considerably in the mining area and new area for mining could not be developed due to land acquisition issues at MS plant area. Hence production of Raw Ilmenite from M S Plant reduced considerably. Following were the other problems experienced during that period. a) Availability of Raw Ilmenite from M S Plant during the year 2010-11 was very low (38748 MT) compared to previous years (44000 MT to 45000 MT). This gradually increased in the subsequent years. b) For a production of 35000 MT of TiO_2, about 69000 MT of Raw Ilmenite is required of Quilon grade (57% to 58% TiO2 content) or equivalent BI/SR is required (42000 MT of Beneficiated Ilmenite or Synthetic Rutile). c) Hence the required of BI/SR is met by out-sourcing the balance BI/SR over and above the production at IBP during the period. d) Higher production of TiO_2 was achieved during 2008-2011 in range of 35000 to 36000 MT and the requirement of BI was met using the production at IBP and balance by out-sourcing (details of BI production & SR outsourcing given in table below). e) During the year 2010-11, Raw Ilmenite out-sourced was 17696 MT (from Tamil Nadu & IRE, Orissa). TiO2 content of this out-sourced RI was much inferior compared to Quilon grade (out-sourced RI contains TiO2 in the range of 50.5% to 53% where as TiO2 content in Quilon grade RI is 57 to 58%). f) The Raw Ilmenite available at Indian Rare Earths, Chavara is Quilon grade and is equivalent to KMML MS Plant grade (57% to 58% TiO2 content). IRE, Chavara did not supply Raw Ilmenite to KMML during 2009-2010 & 2010-11and has supplied only 1391 MT & 3340 MT during 2011-12 & 2012-13 respectively as they have similar mining issues as experienced at KMML . g) Quantity of Raw Ilmenite out-sourced from outside Kerala during 2010-11, 2011-12 & 2012-13 were 17696 MT, 6013 MT & 13100 MT respectively for which TiO2 content ranged from 50.5 % to 53%. This is much inferior to Quilon grade. This includes the Raw Ilmenite supplied by Indian Rare Earths material that came from Orissa which has very low TiO2 content ie. 50.5%. h) Scarcity of Raw Ilmenite from MS Plant (Quilon grade) experienced from the year 2010-11 onwards. Based on this, 17696 MT of inferior quality RI was out-sourced. i) Please note that the quality of out-sourced Raw Ilmenite was very much inferior compared with Quilon grade Raw Ilmenite. Outsourced Raw Ilmenite was having 32-33% total Iron compared to 24-25% Iron in Quilon Grade Raw Ilmenite. Other impurities such as Silica, Alumina, etc was also double the content compared to Quilon Grade (Silica was in the range of 1.2% to 1.8% in the outsourced RI compared to 0.7 to 0.8% in Quilon Grade). KMML plant was designed to process Raw Ilmenite as per Quilon Grade specification & resultant Beneficiated Ilmenite consumption standards are fixed accordingly. The process upsets by using above inferior quality feed material (RI) has resulted in more contamination in BI (increase in % of Silica & Iron Fe_2O_3) affected the production rate at Pigment Plant as well as consumption ratio at Chlorination plant (0.535 to 0.55 MT). j) More over, outsourced RI was nil during the first 3 months of 2012 (April, May June 2012). Outsourced material receipt improved after June 2012. k) Receipt of Raw Ilmenite was very low during the above months as well as till August 2012. Subsequently, the receipt from M S Plant improved after starting mining from Kovilthottam area. l) During these years, KMML has processed all the available Raw Ilmenite (MS Plant + outsourced) which comes to 50879 MT & 61865 MT respectively and

1	2	3
		produced equivalent BI. The availability of outsourced BI was also limited during these years. m) During the three years from 2008-09 to 2010-11, Synthetic Rutile out-sourced was 10197 MT, 16055 MT & 11315 MT respectively which is having 95% TiO_2 content along with BI produced at KMML with a TiO_2 content of 90-91%.The out-sourced SR was having a cost of approximately Rs 32,000/- per MT during 2009 which increased to Rs.58000/-during 2011 and Rs.62000/- per MT. During earlier months of 2012, the market cost was Rs.1.2 Lakhs. n) During the subsequent years, availability of Synthetic Rutile was limited. SR out-sourced during 2011-12 was 5285 MT and SR was not out-sourced during 2012-13. More over, it was informed from Materials dept that the offered price for SR in the Market was Rs.1.2 Lakhs approximately. Hence, not out-sourced as it is double than previous years due to the high market price.
	2.9.2.2	**Under absorption of fixed cost due to under utilization of capacity** Higher percent of Iron & Silica in the out-sourced RI, cannot be substantially reduced as per the process adopted at IBP. Moreover, Silica will not come down in the leaching process. Both these, have contributed for higher percentage of Fe2O3 (Iron) & Silica in the Beneficiated Ilmenite compared to the BI produced using Quilon grade Raw Ilmenite. This affected the BI quality and partially affected the system in U 200 (Chlorination Plant) causing system chocking in U 200 affecting rate of production as well as increased percentage of shutdowns than earlier. > Non-availability of SR for out-sourcing as well as high price (exorbitant price) for out-sourced SR. All the above reasons have resulted in the low capacity utilization, low Annual Production which resulted in increase in Cost of Production per MT. Table below shows Receipt of RI from MS Plant, RI Out-sourced, BI/SR outsourced, equivalent BI production and TiO2 Production: Please note that the quality of materials received as noted in the table below: ➢ MS Plant - Quilon grade - 57 to 58 % TiO2 content ➢ IRE Chavara - Quilon grade - 57 to 58 % TiO2 Content ➢ IRE Orissa - Inferior - 50.5 to 53 % TiO2 content Details given in the table below:

Year	RI from MS Plant	RI from IRE Chavara	RI from Outside Kerala, TN & Orissa	Total RI	Eq. BI (Theorectical)	Actual BI produced in MT	BI /SR Outsou-rced	Total of BI+SR	Equivalent TiO2 pdn (theoretical)	Actual TiO2 produced MT
A	B	C	D	E	F	G	H	I	J	K
2008-09	42510	4112	1967	48588	29447	32125	10197	42322	35268	35517
2009-10	44281	NIL	5406	49687	30113	31073	16055	47128@	37650	35931
2010-11	3874	NIL	17696	5644	34209	34340	11319	45665	35986	36879

71

1	2	3

	8			5				9 *		
2011-12	4347 5	1391	6013	5087 9	30835	32301	5285	3758 6 **	29174	29117
2012-13	4542 5	3340	13100	6186 5	35978	36126	0	3612 6 ***	27162	27012
	Stock carried	over to 2013-14	RI->	2500 MT		BI stock	As on 01/04/2014	1000 MT		

Details for column (I) in the above table is given below:
@: Original standard ratio : 0.535 ; This gradually increased as below due to increase of impurities in BI such as Iron & Silica
** Standard ratio: 0.54 ; * Standard ratio : 0.545 ; *** Standard ratio : 0.55*

Remarks of increase in Power consumption:

It may kindly be noted that power consumption cannot be directly correlated with per MT production. At higher production, the unit cost will be low and if the total production comes lower the unit cost will be high.

Most of the electrical drives have to be run whether plant is at low production rate or at higher production rate. Every time it is advantageous to run the plant at maximum rate of production while plant is on line.

But during the above period, plant was not in a position to operate at the maximum production rate due to the reasons noted above (shortage of RI as well as availability of poor quality out-sourced RI. Hence, the shortage of Raw Ilmenite as well as Beneficiated Ilmenite and usage of inferior quality of the material (RI), which was only available in the market, was the reason for the lower capacity utilization which is noted in the report. Hence the low production is the reason for the excess power rate. Please note that electrical equipments in Oxygen plant and Utilities have to be continuously on line. Steam, water, Air, etc is required continuously in plant even if the plant is under production or not, steam required to keep some material under temperature and air & Nitrogen are required for maintaining the level system in storages. Hence stopping such sections when not in need is not possible. Moreover, frequent stopping & starting of Oxygen plant is not advisable since it will affect the performance.

	2.9.9.3 Rule 3.1	**Production performance** **Performance of Mineral Separation Unit** The company differ with audit on the premises on which loss has been calculated for under recovery of minerals. The data with which comparison has been made to arrive at total loss is not correct. Recoverable minerals considered do not reflect the actual recoverable quantity. The quantity of recoverable minerals mentioned by the audit is a theoretical quantity without considering the design parameters of the plant. It is to be noted that the plant is designed for 90% recovery of Ilmenite, 80% recovery of Rutile, 40% recovery of Zircon and 10% recovery of Sillimanite. Audit has in the case of Sillimanite considered only the production after commissioning of the Zircon/Sillimanite Plant. In practical the percentage of zircon /sillimanite could

1	2	3

not achieve designed capacity due to low grain size[rutile/zircon/sillimanite] of feed material and the installed machineries in plant was not capable. To achieve the prescribed /guaranteed quality of mineral produced machinery was adjusted and this also lead to under recovery. Similarly audit should have considered the percentage of recoverable Zircon also after commissioning of the Zircon/Sillimanite Plant. In fact there is a drastic increase in Zircon recovery after commissioning of the Zircon/Sillimanite circuit. Before commissioning, the average recovery was 8% and after commissioning the recovery increased to 29.3%. The actual comparative table is given below:

Mineral	Percentage recoverable mineral content as per lab report	Theoretical Recovery (MT)	Designed Plant efficiency	Practical Recovery (MT)	Actual Production (MT)	Percentage of actual recovery	Shortfall/ Excess (MT)	Price per MT as per audit report (Rs.)	Money Value in crore
Ilmenite	39.2 to 47.6	229685	90%	205817	214373	104	8557	4877	4.17
Rutile	3.5 to 5.9	24606	60%	14764	12888	87	-1876	55300	-10.37
Zircon	14.8 to 16.6	31209	40%	12484	9173	73	-3311	105000	-34.76
Sillimanite	8.3 to 16.6	24771	10%	2477	1604	65	-873	8564	-0.75
									-41.71

In the above table the production for Zircon for 2011-12 and 2012-13 is only considered as in the case of Sillimanite, since the new Zircon Plant was commissioned during the end of the financial year 2010-11.

The Company has informed that such a loss was foreseen and anticipated by the company and it is for these reasons that additional equipment were procured and is being installed and commissioning of the plant is expected soon.

In view of the higher demand and margin on sale, Company has already decided to explore the possibility of installing plant and equipments to augment facilities for a better recovery efficiency and enhanced capacity. Also it was decided for exploring the areas where more efficient technologies can be adopted for process improvement and manpower/cost saving. In this regard a consultant is being engaged for study and preparation of Report.

The installed capacity of MS Plant for Ilmenite production is 61500 MT at present.

	2.9.3.2	**Performance of Titanium Dioxide Pigment plant** **Chlorination Unit (U200)** Kindly note that India Rare Earths Limited has also supplied Raw Ilmenite to KMML during that period but it was the material they produced at IRE Orissa which is of poor quality, ie, about 50.5% TiO2 content and balance metallic impurities. Please note that Quilon Grade Material (57% to 58% TiO2 content) is available at Chavara area only and IRE Chavara has similar mining issues as in KMML during that period. So, IRE has not supplied RI from IRE, Chavara. Due to non-availability at IRE, Chavara, KMML out-sourced RI from outside Kerala and the quality of material received from out-side Kerala was inferior compared to Quilon grade. This was procured to minimise plant stoppage and in order to continue production. Please also note the remarks of KMML for points in Audit Report 2.9.2.1 & 2.9.2.2 given above which are the detailed of reasons.

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		From the above, it can be inferred that KMML has taken all efforts to get Raw Ilmenite and to minimise plant stoppage in order to continue production. **Titanium Dioxide Pigment Finishing Unit (U400)** Primary reason for the loss of input material for U 400 is the shortage of sufficient quantity of quality Raw Ilmenite to produce quality BI. There was no abnormal shut down for plants except due to reasons attributed by the quality of Raw Ilmenite.
	2.9.3.3	**Inefficiencies in the operation** **Excessive Down-time** It is a real fact that there was severe shortage of BI due to lack of Raw Ilmenite which has been already noted above. Moreover, outsourcing of BI/SR was examined and it has high cost, approximately double of the current price (noted above). Hence outsourcing of BI was not done during the initial months of 2012. Regarding the down time, there was routine shutdowns as well as shut down caused due to poor quality of Raw Ilmenite and resultant product BI. This has severely affected the operation in U 200. Hence lack of quality RI & shortage SR was the basic reason for above. **Shut down of U300 on account of problems in U200** Please not that liquefying this mix is not technically feasible as different gases has different liquefying temperature. Moreover, this has been already given for their Audit query. Moreover, Tickle is the feed materials for running U 300 plant and proportionate production & supply of Tickle is also needed simultaneously. Both the plants are interconnected also. More over, the liquid Chlorine which KMML is purchasing from Chlor-Alkali plant where pure Chlorine is generated during the process. Hence the above suggestion is not technically feasible. **Failure to replace Tickle pre-heaters** The existing Titanium Tetra Chloride pre-heaters (2 No.s) commissioned in 1984 was designed for Silica tubes. Due to the high failure rate of silica tubes and consequent down time for the plant, these tubes were replaced with inconnel tubes. However the original furnace housing and burner system were retained without any modification. Furnace temperature of the old tickle pre-heaters with silica tube was around 1000 deg.cel but the technological modification has bring down the furnace temperature to 400 deg.cel. Hence there is opportunity improve the efficiency and thus saving in fuel (LPG). In view of the above, a proposal was put up to board for the installation of compact and energy efficient tickle pre-heaters. 202nd BoD meeting held on 18/10/2010 had approved to install compact and energy efficient tickle pre-heaters through public tendering which includes design, engineering, fabrication, inspection, shop testing, painting, packing & forwarding,supply,supervision during commissioning and demonstration of performance of Tickle pre-heaters. An estimated amount of Rs 10 Crores is allocated in the capital expenditure. An open tender was invited on 04/12/2010 and the only bidder was M/s Selas fluid Processing Corporation, USA, the supplier of our existing furnaces. The bid received was evaluated and clarified different points with the help of our various departments, as the equipment is very critical.

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		Certain deviations from our tender on the commercial terms like terms of payment, LD, compensation for reduced efficiency etc were noted in the offer received. Hence an approval note was put up in the 205th BOD meeting held on 27/06/2011, to invite the party for commercial discussions on their terms which are different from the tender specifications, for opening the price bid in anticipation of validity extension and to negotiate with M/s Selas Fluid Processing Corporation for better price. Board directed to place this item in the next BoD. The item was again placed in the 206th BoD meeting held on 20/09/2011 and Board directed to place the item to the project/purchase subcommittee. Meantime the party extended the validity of their offer up to 12/04/2012 and they have clearly mentioned that further extension of validity is possible only with price escalation. Later 209th Board meeting held on 30/06/2012 had reviewed the status of the project and decided to re-tender, in view of the expiry of the validity period. As per the 209th Board decision, expression of interest (EoI) was invited from prospective parties in order to finalize the specifications. EoI was invited for getting the latest technical specifications for the item and it includes new design of tubes, compact design, higher efficiency etc. M/s Selas Fluid Processing Corporation is the only party participated was not willing to take up erection activities and structural modification, and the suggestions from the party are also incorporated in the revised tender document. This equipment is such a critical one for the operation of Titanium Dioxide Pigment Plant hence it is required to ensure that parties shall have proven track record and experience in the furnace design especially in the field of pre-heating titanium tetrachloride with aluminum chloride, before placing the order for the equipments. Any failure or delay in commissioning the systems will result complete shutdown of the entire plant which will results in huge loss of production which will be much higher than the expected savings.The replacement also includes major replacement and structural modification works. Draft tender document prepared on the basis of EoI was put up in the 211th meeting of Board of Directors held on 02nd January 2013 for approval. Board authorized Managing director to constitute an internal multidisciplinary technical committee to evaluate the draft tender documents and further authorized to approve the same based on the recommendation of the internal multidisciplinary technical committee. Internal multidisciplinary technical committee so constituted has recommended certain modifications in the draft tender document. The recommendations of technical committee were approved and are incorporated in the tender document. Global e-tender for the tickle pre-heaters was published on 16/09/2013 with offer submission period of 60 days. Prospective parties citing various reasons viz Digital Signature Certificate (DSC) procurement, online payment etc. requested to extend the bid submission date further. Accordingly the bid submission period was extended further up to 11/12/2013. Techno commercial offers were opened on 16/12/2013.Offers were received from M/s Linde Engineering India Pvt. Ltd, Vadodara and M/s Global Engitec Canada against

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		the tender. It may kindly be noted that execution of this project includes replacement of existing equipments in the running plant and it shall be carried out during annual shutdown time, and the risk involved in replacing the existing unit is very high. Scope of the tender is to supply the items and all associated activities are to be carried out by KMML.Since as per the Expression of Interest invited earlier, party was not agreeing to carry out all the associated activities The structural modification involved in this work is really huge and for the replacement of each unit will require minimum of 15 days with the existing two streams under shutdown, an engineering consultancy service is required. Hence approval was accorded to invite e-tender for consultancy services, to execute the project. A tender was invited for engaging engineering consultancy to execute the ongoing projects on 05/06/2013.M/s FEDO,Kochi and M/s KITCO,Kochi ware the bidders.But the online payment towards the EMD and tender fee made by M/s KITCO,Kochi was a failure.Hence considering the single tender,approval was accorded to re-tender for consultancy services.On re-tender offers were again received from M/s KITCO,Kochi and M/s FEDO,Kochi. But the online payment towards the EMD made by M/s FEDO,Kochi was a failure.After techno-commercial evaluation ,price bid submitted by M/s KITCO,Kochi was opened and a board note put up to place the work order and approval obtained for engaging engineering consultancy services which also includes the evaluation of the offers for ongoing projects. Mean time the validity of the offers received for compact and energy efficient tickle pre heaters was on the verge of expiry. Approval was accorded to ask bidders to extend the bid validity further by 120 days from the date of validity expiry i.e. 13.06.2014.Accordingly the parties were requested to extend the validity of their bids. M/s Global Engi-tech Canada informed that they are extending the bid validity ,as requested by us. The other bidder M/s Linde Engineering Pvt Limited ,Vadodara informed that bid validity can be extended only on the base of price implication / escalation and also requested to send them the procedure to submit the revised price bid. Further M/s Linde Engineering India Pvt. Ltd, Vadodara intimated that they are withdrawing their bid. Kindly be noted that there is no provision in the e-tender portal to submit the revised price bid and also as per our procedure revised price bid is not acceptable with out any major change in scope of work. 203rd Board meeting held on 03/11/2010 directed that when only single tender qualifies, re-tender should be resorted to, based on guidelines. Since out of the two bidders for the compact and energy efficient tickle pre-heaters, one bidder has withdrawn and the bid becomes the single tender. Considering the above, approval has been accorded to invite re e-tender for the subject project and will be published in the e-tender portal during August 2014.
	2.9.3.4	**Excess Consumption of Chemicals** **Hydrochloric Acid** Earlier the ratio was fixed at 0.65 MT of HCl when TiO2 in RI was 57-58% (Quilon grade). Subsequently the ratio was revised to 0.85 MT considering the depletion of the average TIO2 % in Raw Ilmenite from 58% to 54-55% when partial out-osurcing /low outsourcing. It may please be noted that KMML procured 1967 MT & 5406 MT of Raw Ilmenite from outside Kerala (inferior to Quilon grade) during 2008-09 & 2009-2010 respectively due to shortage of material. Hence, the revision of ratio to 0.85 MT.

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		During the subsequent years from 2010-11 to 2012-13, procurement of out-sourced Raw Ilmenite from outside Kerala was much higher – 17696 MT, 6013 MT & 13100 MT during the receptive years due to non- availability of Quilon grade Raw Ilmenite. Details of quality has been already explained in the KMML's comments for para: 2.9.2.1 & 2.9.2.2 given above. This higher percent of impurities has made a depletion of TiO2 percent in Raw Ilmenite from 58% to 50.5% resulted in higher consumption of Hydrochloric acid. The ratio was not further revised as the procurement of Raw Ilmenite with low TiO2 percent will come down once supply of Quilon grade Ilmenite from M S Plant & IRE Chavara improves on starting mining at Kovilthottam and other areas near MS Plant. **Liquid Chlorine** Kindly note that management has taken maximum effort to make the availability of Raw Ilmenite in order to keep the plant running and continue production. Please note KMML's explanation given for the Audit Report findings as per Para: 2.9.2.1 & 2.9.2.2. This also gives the details of Raw Ilmenite availability, procurement and receipt from various sources during the five years (2008-09 to 2012-13) are given along with explanation. It may kindly be noted that the naturally occurring Ferrous form of Iron in the out-sourced Raw which was carried over in the BI led increase in the Iron (Fe2O3) content in Beneficiated Ilmenite. This led to reduction in TiO2 content in BI. This BI has been used in the Chlorination plant for producing Tickle. The increased metallic impurities (mainly Iron & other metal fractions) compared to BI produced from Quilon grade Raw Ilmenite can only be removed by reacting with Chlorine. Hence, the excess consumption of Chlorine is used for removing the higher percentage of metallic impurities in BI.
	2.9.3.5	**Other deficiencies** **Premature Failure of new Refractory lining for Chlorinator** The 198th Board of Directors meeting held on 18th June 2010 approved an action plan for the capacity expansion of the pigment plant. Detailed procedures were also suggested for various activities to be undertaken. Action to improve the availability of the chlorinators by improving the life of chlorinator refractory lining from the existing 3 to 4 months to one year using electro fused Zirconia bricks was one among the activity. KMML contacted M/s SEPR Refractories, Palakkad and had extensive discussions with them. Based on that SEPR proposed a refractory lining with electro fused zirconia bricks. The entire design including the selection of material was under the scope of supplier. The material supplied by SEPR is a proprietary item and hence dimensional checks alone were done by KMML. The entire activities were taken forward, fully knowing that the same is on experimental basis. The replacement of lining of chlorinator was only one among the action plan proposed for the capacity expansion of pigment plant. The de-bottle necking and releasing of any latent production capacities were also proposed which would have ensured sufficient infrastructure for additional capacity for tickle production. KMML is a high-tech plant with guarded technology. The titanium Dioxide manufactured by the company is required to meet stiff competition from giants like DuPont both in the area of quality and price. It is therefore essential that the company has to carryout developmental works to maintain its competitive edge. This was only an attempt in

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		that direction . Unfortunately, the lining did not yield the targeted life. As known to all, developmental activities may not be successful every time. We had placed the purchase order which includes the design and engineering of a suitable refractory lining for our chlorinator only as an experimental effort and as a part of developmental activity to achieve the competitive edge. Competitive edge can only be gained by R&D efforts /developmental activities and are essential for the survival in the current global scenario. After the failure, M/s SEPR was informed to identify and sort out the problem occurred. Accordingly a competent person from M/s SEPR inspected the chlorinator and submitted the report by confirming the following points. 1. Mortar used in between the bricks may be one of the probable path of failure and as a corrective action they suggested to avoid mortar during next lining. 2. Corrosion of 12.4% in WRT DCL bricks (Zone A) and 32.1% in FC 41 brick (Zone B) is normal after 6 months of chlorinator operation. 3. Dense castables to be used in the top dome region instead of EFXLITE-11 castables used by them. All the above points are totally against their confirmation during the technical discussions and it also proves that the selection of bricks, castables, mortar etc made by M/s SEPR was wrong and which lead to the premature failure. The company had informed M/s SEPR to take urgent steps to reline the chlorinator with suitable bricks/mortar as the chlorinator lining failed due to wrong selection of bricks, castables, mortar etc done by them, at their risk and cost. The company's repeated request to reline the chlorinator at their cost and risk was dishonored by M/s SEPR and they have informed that all the requirements as per the said purchase order and work order are delivered and hence they will not be responsible for any replacement of materials. This is totally unacceptable to the company, since it is clearly mentioned in the work order that development and design of a suitable refractory system, including the bottom bed for our chlorinator is under M/s SEPR's scope. In view of their rejection to reline chlorinator at M/s SEPR's cost, legal opinion was obtained by the company's legal department from Compan's external legal council. Accordingly activities has been taken by the company to proceed with legal action against M/s SEPR and associated activities are proceeding. It may also be noted that Chlorination of Beneficiated Ilmenite is a complex process and the technology is known to KMML only in India. Therefore KMML not in a position to publish the details of vessel lining or its operating condition in public domain. Hence open tender for the subject work was not resorted to.
	2.9.4 **2.9.4.1**	**Project Management**

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		Capacity Augumenation of Ilmenite Benefication Plant Kindly note the following points with regard to production in IBP. Regarding 37000 MT /30000 MT capacity: 1) As per original DPR prepared by MECON during the initial Project period (prepared during October 1976), the capacity of Digester section in IBP has been projected as 37000 MT in the sizing calculation of Digesters. In the above DPR, it is also written that "considering the batch type operation of Digesters, four (4) Digesters will be necessary for meeting the production capacity of 30000 MT". 2) KMML has adopted the Technology of M/s Benilite Corporation of America, USA for the Ilmenite Beneficiation Plant (IBP) at KMML. 3) On behalf of M/s Benilite Corporation of America, M/s Multi Resources International Corporation has provided an Operation Manual for KMML which was pepared during September 1977 indicates that the capacity of IBP at KMML is 30000 MT per annum. The Operation Manual provided by M/s Multi Resources International Corporation also indicates that the plant is designed in accordance with BCA Cyclic process and the normal capacity of the plant is 30000 MT per annum of Beneficiated Ilmenite. 4) Based on the above documents, KMML prepared an Operation & Maintenance Manual in 1985 during trial run & commissioning of the plant also indicated the capacity as 3000 MT per annum. **From the above documents, it can be confirmed that the original production capacity of IBP is 30000 MT per annum of Beneficiated Ilmenite.** 5) Please note that subsequent to the commissioning of 5th & 6th Digesters by 2005 & 2006, the production rate has increased gradually. 6) Commissioned Additional Roaster & Calciner as capacity Augmentation during February 2011. 7) Kindly note that the there were severe scarcity for Raw Ilmenite during 2010-11 during the year and it may be noted that the receipt of RI from MS Plant was only 38748 MT against previous years receipt of 44000 to 45000 MT (refer table above). Hence, during the year 2010-11, 17696 MT of RI was out sourced. That too inferior quality compared to Quilon grade as explained for Para: 2.9.2.1 & 2.9.2.2. 8) Total RI Requirement for production of 55000 MT of BI is 90000 MT of Raw Ilmenite. But the availability during the years 2011-12 & 2012-13 was 50879 MT & 61865 MT respectively. This included the receipt from M S Plant (Quilon grade: 57 to 58% TiO2 content) and outsourced RI (50.5% to 53% TiO2 content) – refer table above. 9) Plant has processed all the available Raw Ilmenite received during those years and converted to BI. 10) BI produced during 2010-11, 2011-12 & 2012-13 by the mix of outsourced RI affected the quality of Bi by increase in Iron & Silica content. **Hence it may be noted that after the capacity augmentation in IBP during 2011, the plant could not be run in full capacity during the years 2011-12 & 2012-13 due to shortage of Raw Ilmenite.** 11) Please note that Furnace Oil is used as fuel in two Rosters & two Calciners. 12) Since sufficient RI was not available for continuous operation during each month, Roaster & Calciner were run intermitsently during receipt of RI. Due to this, there was intermittent heating up /idling of Roaster & Calciner at low fire. Hence the furnace Oil consumption was high and increased above the standard fixed. **The above are the reasons for increased consumption of Furnace Oil during the years 2011-12 & 2012-13.** The major problems during the years from 2011-12 & 2012-13 were shortage of Raw Ilmenite. There were severe process problems by use of inferior quality RI.
	2.9.4.2	**Zircon Siliminate Plant** It would be inappropriate to quantify losses on theoretical basis alone. It is desirable that the technical and practical aspects be considered while evaluating project implementation and Industrial Management eg. audit does not account the delays in slowdown of projects due to labour unrest, non availability of labour and unforeseen reason which normally go unrecorded or is not put in paper. Inspite of sincere efforts of the concerned, for reasons not attributable to management or implementing agencies, projects are delayed. These are some factors go unnoticed and unrecorded in the heat of project work.

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		The Detailed Project Report for improving capacity of MS Plant including recovery of Zircon and Sillimanite was prepared by M/s KITCO in November 2007. Govt. of Kerala vide GO (MS) No. 156/2008/ID dated 04-10-2008 accorded sanction for the project. immediately on getting Govt. approval, various works were initiated. LOI for Civil and Structural work was awarded on 23-09-2009. The Zircon/Sillimanite Plant was commissioned and capitalized from 10-12-2010, within a period of 14 months even though the schedule of project completion as per the DPR was 15 months. As such the delay in completion of Civil and Structural work was no way affected in completion of the project. Due to ageing, continuous use and pressing requirement of concentrated sand the down time of the old wet mill increased and we were unable to spare the plant for major maintenance work. Hence in order to maintain availability of concentrate for the continuous operation of down stream dry mill, a separate wet mill was constructed as a separate work and commissioned on 12-02-2013. The recovery figures indicated in the project report are projections for the purpose of estimation based on mineral sand obtained as beach washings. Subsequently at the time of commissioning and afterwards we were getting land deposits also in which, even though the % content is reasonable, the recovery could not be achieved due to the frequent variation in the assay of the mineral sand. Hence the actual process performance and recovery could not be linked with projections. The recovery of Zircon during the year 2011-12 had been enhanced to 36% but declined to 24% during 2012-13, which is due to change in characteristics of feed sand. It is to be noted that during 2012-13, Company have processed approximately 1.62 Lakh MT of dredged sand in pre-concentration Plant and used the concentrate generated, in the main plant, against 71000 MT of dredged sand during 2011-12. With regard to assay of mineral sand obtained from land deposit by dredging, the unrecoverable grain size is 15 to 20% against 3-6% in beach washings. Hence the recovery has declined considerably during 2012-13. The separation of Zircon is done entirely through a separate circuit. The process circuit of sillimanite is separately functioning as a down stream. Hence the performance of Froath Flotation Section will not affect the recovery of Zircon. However there was some initial problems with the agitator and blower which was rectified subsequently by the party. As the processing of Sillimanite is new as far as KMML is concerned, the main reason attributed with regard to froth generation in flotation cell and low recovery was realized later on, as due to non consistency of feed rate to Sillimanite section, which is mainly because of frequent variation in the rate of feed and assay with regard to % content, grain size etc. Therefore an intermediate slurry holding tank, which was not in the scope of the supplier and not envisaged earlier was fabricated and commissioned for attaining consistency of throughput. Thus the section was stabilized during March 2013. Even though the mechanical system defects were rectified by M/s Mcnally, based on the initial observation on the process problem, actually not because of the failure of Flotation cell, we have withheld Rs. 17.62 Lakh including the entire erection charges. The accounts is being verified and the party will be invited to witness for a throughput (Feed) test. The accounts will be settled and damages/cost due to the company shall be recovered. Since the plant was already stabilized, it is expected that the sillimanite section will break even in the near future. As already stated, the project for Zircon/Sillimanite recovery plant was completed and capitalized within a period of 14 months against the scheduled completion of 15 months even though the Civil and structural work was delayed due to the reasons justified. It is to be noted that had the civil work been completed in time the entire erection would have been completed only by the scheduled period of completion of 15 months. Hence the estimated loss of revenue due to delay in completion of civil work and based on comparison with the actual recovery and the projections in the DPR may not be realistic considering the actual completion period of 14 months for entire project and frequent variation in the nature of feed mineral sand. It may be noted that over the years, for the past two decades, the production and recovery has been consistently increasing and management has been implementing continual performance improvement activities and the same is reflected in the table given below. It may be appreciated that the production of Ilmenite alone which was in the range of 6000 to 7000 MT during 1991-93 has increased to the present level of about 63000 MT of Ilmenite during 2013-14 and as such turnover and profit of M.S.Unit has increased steadily.

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	2.9.5	**Effluent Treatment** KMML has taken the following actions with regard to the directions from the Chairman of the Kerala State Pollution Control Board in 2011. **Acquisition of land near the company.** Company has already acquired about 32 acres of land at north - west area in the year 2004 and the people residing there were rehabilitated. As per G.O.(Rt)37/2014/ID dt.08/01/2014, company is proceeding with action for acquisition of six acres of land at eastern side of the company and three acres at the northern side of the company. This being coordinated by the District Collector, Kollam. Government, vide G.O(MS)34/2014/ID dt 01/03/2014 has also decided for acquiring land of about 150 acres at the North West area outside the company where it is alleged that the soil has acidity. This also is being coordinated by the District Collector, Kollam. 1. **Exploring Possibility for process modification so as to obtain iron oxide as product with neutral pH and disposal of the same through sale to end-users.** As part of finding a technology for the production of saleable iron oxide, an internal committee was formed and the committee has visited a running plant of M/s International Steel Services Inc (ISSI- an American Company), at SAIL premises, Bokaro in Feb 2011. Subsequently , M/s ISSI visited KMML in March and May 2011 for technical discussions and site visit. Accordingly, ISSI has submitted a techno commercial proposal in June 2011. They suggested a 9-12 months completion time and signing a 3-5 years agreement to develop and dispose/market the iron oxide. Their proposal included. The estimated expenditure for ARP revamping and other activities for the production of saleable / disposable grade iron oxide according to the budgetary offer in the preliminary proposal submitted by M/s ISSI was Rs. 900 Lakhs / Stream of ARP including the civil/structural costs. The status of the above activities was submitted before the 205th BoD meeting. During the Board meeting, a proposal from M/s East India Company on the treatment of iron oxide in ponds was also discussed and the Board directed to carry out a technical evaluation of both these proposals by any one of the reputed organizations among CSIR, Indian Institute of Science, Bangalore and Indian Institute of Technology, Chennai. Accordingly CSIR (NIIST, Trivandrum (formerly RRL)) had been entrusted the above task and the conclusion of the report submitted by NIIST M/S.NIIST reported that on the whole, the two proposals address two different issues of iron oxide utilization. The proposal from M/s ISSI seems to be more feasible since it addresses the root cause of the problem of producing required grade iron oxide and requires considerably lesser investments. The report from NIIST was put up by the internal committee in August 2012, for submitting before the 210th BoD meeting. It is still under the consideration of the Board. In addition to this an internal committee is formed in 2014 inview of studying the process and improving the performance of the Acid regeneration Plant to obtain the iron oxide with minimum Chloride content. The study is in progress. 2. **Steps shall be taken for avoiding further spreading of pollution to nearby areas.** KMML has already taken the following measures for the mitigation of the possibilities for further spreading of pollution to nearby areas. i. A caustic dosing system is commissioned for neutralizing the acidity of the iron oxide sludge in the new pond at an estimated cost of Rs.6 crores/annum as cost of caustic for neutralization. Already approx: 1600 MT of caustic (costing Rs 2.3 crores) has been used for this during May and June 2014. ii. The old iron oxide ponds were abandoned in 2008 and thereafter no iron oxide was discharged to the old storage ponds. A scheme is also prepared for the capping of

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		these old iron oxide ponds and submitted for approval from the Kerala State Pollution Control Board vide letter dt 27/02/2014 and 01/04/2014. Approval is awaited. A technical presentation was also done regarding the prepared capping system at the office of the Chairman KSPCB in his presence and detailed the urgency for capping the old Iron oxide pond.The matter was also taken up and discussed with the chairman ,Central Pollution Control Board by MD on 30.06.2014 for their approval. iii. Iron oxide from old pond is continuously disposed to the common disposal site of the Kerala Enviro Infrastructure limited, at Cochin, as directed by the KSPCB and Supreme Court Monitoring Committee 8849 MT has been so for disposed to KEIL incurring a cost of Rs 3.13 Crores So far. iv. Large scale development of green belt in and outside the company is in progress , in co-ordination with the Social forestry Department, Kollam and the Central Plantation Crops Research Institute, Kayamkulam (CPCRI), Horticrop ,Kollam 240 Nos of coconut trees, 2075 Nos of tree saplings and 1000 Nos banana plants were planted. v. An Environmental Impact Assessment (EIA) study is being conducted at the affected areas through the National Institute of Interdisciplinary Science and Technology, Trivandrum(NIIST). Report is expected from the NIIST. Further remedial measures shall be taken based on the recommendations in the report. vi. An EIA study is arranged through the National Environmental Engineering Research Institute, Nagpur NEERI), as per direction from the Govt.of Kerala. The scientists from NEERI has visited KMML on 12.06.2014 and submitted the study proposal. Order for the study is issued. vii. An Expression of Interest was invited from probable end- users of the iron oxide. Numbers of parties have responded and sample were send to five parties for analysis at their end. viii. Proposal is already put up to the project department for the installation of a de-watering filter system for iron oxide to convert the iron oxide to cake form to enable easy disposal / transportation for end-users. Implementation of the project is entrusted with the project Department. 3. <u>Rearrangement of storm water drains to eliminate mixing of effluent to water.</u> The construction of 4 delay pits are in progress for avoiding storm water pollution.One of the pits is completed. 4. <u>Action for earmarking area as buffer zone around the company.</u> As mentioned under point 1.KMML has also sought the guidance of KSPCB for any specific procedure for earmarking the buffer zone. No reply is received on this. 5. <u>Submission of time bound proposal regarding implementation of directions.</u> Reports are periodically submitted to KSPCB and CPCB on implementation. <u>Effluent Treatment Facilities</u> KMML has a well equipped effluent treatment plant since 1984, where all its effluent are treated as per statutory norms and then only disposed to the sea which is the approved outlet. KMML has never dumped any waste to the ground at any time..The ETP sludge and Iron Oxide which is generated in KMML were stored only in lined ponds constructed as per the advice of M/s National Environmental Engineering Research Institute (M/s NEERI), Nagpur and based on the guide lines available at that time. As the old storages as filled up, company constructed new concrete ponds with a 7 liner system and the waste are dumped only in these ponds since 2008. The ETP sludge is declared as non hazardous by pollution control board. In all fields of pollution control measures, viz air pollution, water pollution and other pollutions, KMML have employed effective methods by installing appropriate machineries and it is only based on these measures adopted by KMML, "consent to operate" is granted by the Pollution Control Board. There has been regular monitoring by the authorities of the Pollution Control Board <u>Drinking Water supply to the Local residents</u>

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2		KMML supply about 280000 liters/day of drinking water to the local residents every day. Also contributed Rs. 117 Lakh for Jalanidhi project which is expected to cover the water requirement of seven wards near KMML. KMML shall continue to supply the water till the Jalanidhi project is properly implemented. Effort for conservation of ground water Company has not received any authentic information o the depletion of ground water level due to the consumption of water through tube wells.However , as part of minimizing the consumption of ground water KMML has initiated a project for rain water harvesting and another project for drawing water from the Pallickal River situated at about three Kilometers away. KMML has also arranged an extensive water audit through an external agency in view of minimizing ground water consumption and effluent recycling/reusing .Order placed. Two rain water collecting pond of an area of approximately 9000 M3 made at the Titanium Sponge Plant. There is also natural rain water collecting pond near the company guest house. The Atomic Energy Regulatory Board(AERB) periodically conduct the radioactive studies. Based on their studies at site and vide their affidavit dt.24.02.2014 which they have already submitted to the National Green Tribunal , has indicated that there are absolutely no merits in the various contentions and grounds put forth with respect to radiological safety issues in MS or TP units of KMML . Company has engaged M/s National Institute of Interdisciplinary Sciences, Trivandrum for the EIA study by inviting tenders from various reputed scientific institutions of Government of India. The study was started by NIIST in February 2013 with agreed time duration of six months. However, due to the unfavorable climatic conditions like abnormal rains, the party has requested for providing the more reasonable time for completion of the study. The study is expected to complete by October 2014 as per the information from NIIST. An EIA study is also on way by the National Environmental Engineering Research Institute, Nagpur NEERI), as per direction from the Govt.of Kerala. The scientists from NEERI has visited KMML on 12.06.2014 and submitted the study proposal. Work order to NEERI for the study is given. Company has entered into an agreement with M/s Kerala Enviro Infrastructure Limited(KEIL) , Kochi (the common waste disposal site) in 2010 for disposal of iron oxide and ETP sludge . The disposal has started in the year 2010 itself and is being continued at the cost of KMML (About Rs.4000/MT) . However it is observed that M/s KEIL is able to transfer only about a maximum 100 MT of the material per day and hence only about 8850 MT could be removed to KEIL as on today. Company has requested to increase the disposal quantity, to M/s KEIL is able to transfer the same to the common disposal site. Company is also taking all possible efforts for disposal of these materials from company premises through sale to authorized end users and thus conversion of this material to useful products .A number of scientific studies in co-ordination with various scientific institutes are in progress for production of non-acidic iron oxide and for utilization of iron oxide and ETP sludge, as detailed below.

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		Expression of Interests was invited from authorized end- users for disposal of ETP sludge in 2013 and twice in 2014 for iron oxide. Tenders were also being invited several times for identifying competent parties who could utilize/dispose these materials. Efforts were also taken for the de-categorisation of these materials as non-hazardous by conducting scientific studies. The ETP sludge was thus de-categorised as non- hazardous by the Kerala State Pollution Control Board. The efforts are being continued. i. It requires that the chloride content in iron oxide to be maintained minimum so as to enable lifting of the same by any end users for further utilization. For scaling up plant/pilot mode, detailed engineering and design for an appropriate system is required. M/s Indian Institute of Chemical Technology (IICT) has been contacted for the same and they expressed willingness to undertake the work and KMML is proceeding with same. ii. The studies on utilizing our iron oxide powder and BI fines for powder coating applications at M/s Asian Paints is in progress. iii. The preliminary studies on possible use of iron oxide for secondary steel at M/s. National Institute of Secondary Steel Technology (NISST), Punjab is completed at a cost of Rs:2.5 Lakhs . Preliminary report is encouraging as the powder is going into the steel Melt. Now second stage is continuing at a cost of Rs: 35 Lakhs to decide a proper mix and to solve other corrosion problems in induction furnace. Director, NISST and representative of Ministry of Steel, GoI have visited KMML and discussed the matter on 27.05.2014. A proposal is submitted by NISST for further studies, which is being evaluated by KMML. iv. Studies have been commenced at M/s National Council for Cement and Building Materials (NCCBM), Haryana on utilization of ETP solids in cement manufacture at a cost of Rs: 20 Lakhs. Presently the chemical and mineralogical studies are completed. This has been taken up as per the recommendation of M/s Malabar Cements. The project duration is 240 days. Expected completion by Dec: 2014. Preliminary investigation is encouraging. Second stage of proper mix for clinker formation is under progress. v. As neutralization of iron oxide is costly, an internal team is constituted for improving/modifying operation of Acid regeneration plant to generate iron oxide with the low chloride. Also the operation of the plant is minimized to reduce this. vi. M/s Jindal steel work, salem had taken trial for use of iron oxide in steel making. They found that chloride content in iron oxide is interfering with their process and creating problems so Lab scale investigations were conducted to find out methods for removing the chloride content. Vii. Vellore Institute of Technology is carrying out studies for use of ETP solids in concrete brick making. The preliminery results indicate the ETP solids can be utilized as replacement of sand up to 24-40% in concrete brick making. Company has filed counter affidavits with documentary evidences and additional statements in the High Court of Kerala and the Green Tribunal, Chennai with respect to the public interest litigations filed against the company.
	2.9.6 **2.9.6.1**	**Purchase and Inventory Management** **Procurement of raw material and stores** **System of procurement**

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		Noted **System Deficiencies**
	2.9.6.2	**Failure to develop Vendors for all items** The process of updation of MIS and development of new vendors are in progress. The Company is now concentrating on the development of new vendors for the critical raw materials / fuels / packing materials since these account for the major expenditure. In this connection, following may please be noted : **LPG :** The company had been able to enlist two more suppliers viz M/s SHV Gas , Tuticorin and M/s Total Gas, Mangalore (alongwith PSU's BPCL, HPCL & IOC) based on which Tenders are now being floated on monthly basis against the earlier procedure of annual Tenders. We had been able to obtain competitive offers since then. **Furnace Oil:** KMML had been earlier procuring Furnace oil from M/s Hindustan Petroleum alone since other PSU's had not been participating in the Tenders. However, we have now coordinated with both M/s BPCL and IOC based on which they also have started participating in the tenders resulting in obtaining competitive discounts. **Liquid Oxygen:** The company had enlisted two more vendors viz M/s Seva Gases , Trichy and M/s Linde which has resulted in obtaining competitive rates. **Product Bags:** These bags are presently being imported. Action has been initiated to indigenize the same based on which trial orders have been placed on two indigenous manufacturers. The company had earlier mentioned that procurement of equipments for replacement of existing ones and its spares are being made from OEM. Hence those items would only have a single vendor or a maximum of two (considering authorized dealer also) . Considering the fact that all the rotating equipment have been standardized after proven service, it is necessary that replacements / spares are procured from OEM's to ensure interchangeability. It is also submitted that as per the approved Purchase Procedure (cl 3.2.5) , Nominated Purchases are permitted from OEM's.
	2.9.6.3	**Procurement through limited tenders violating the monetary limit** Limited Tenders are resorted to cases above Rs 10 lac also for procurement of spare equipments / spares for the existing ones on line to ensure interchangeability. In certain cases where the supplier is a PSU, we have procured items of value above Rs 10 lacs considering the technical requirement and recommendation from the user department. The Audit has remarked that certain other equipments like motors , Front end Loaders were also procured violating the procedure. It is submitted that these were also done based on the specific recommendation of the indenting department duly approved by the Head of Unit / MD.
	2.9.6.4	**Extra expenditure due to deficient procurement** **Failure to execute agreement and consequent non recovery of extra cost on risk purchase-Annexure 10(a)** **Sl. No. 1-V.V. Minerals** The matter (regarding forfeiture of Security Deposit for short supply) is presently under the consideration of the Honorable Sub- Court, Karunagapally. Hence no comments are offered at this stage. **Sl. No. 2-Trinity Coal Trading** M/s Trinity Coal Trading Pvt. Ltd. was placed with an order to supply 1800 MT of the material after matching the rates with the L1 bidder, M/s SreeMeenatchi Agencies. The order was released on the same terms as that of the order placed on M/s SreeMeenatchi Agencies. The party however on receipt of the order did not make delivery of even a single consignment nor did they remit the Security Deposit against the order. Considering the default by the party the EMD submitted by the party was forfeited. Since the order was placed at the same rates and price revision clause it cannot be considered that additional commitment had been incurred for alternate purchase made during the validity period of the order.

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7)		**Sl. No. 3-Rain Calcining and Goa Carbons** Company had issued purchase order no.TP/MTL/CPC/766/2007-08 Dt.19.06.2007 on M/s Rain Calcining Limited for supply of 12852 MT of CPC and order no. TP/MTL/CPC/768/2007-08 Dt.19.06.2007 on M/s Goa Carbon Ltd. for supply of 5508 MT of CPC. The orders were valid up to 18.06.2008. The parties had been supplying material against the said orders and supplied 6231 MT till 31.01.2008. By January 2008 parties had been sending in communication stating that the availability of raw material for effecting supplies as per the specification of KMML is difficult due to the limited availability of raw coke available for manufacturing CPC as specified by KMML. The supplies had become erratic and the company was facing critical stock levels of the material. The matter had been continuously followed up with the suppliers and persuaded them to continue supplies, whereby the parties supplied another 6088 MT from February to April 2008. Meanwhile, as the present orders were to expire by 18.06.2008, the company floated open tender (TP/MTL/CPC/2008-09 Dt.17.03.2008) for procurement of material for the next term of one year during February 2008. It is pertinent to note here that only two parties, the existing suppliers (M/s Rain Carbon and M/s Goa Carbon) had submitted the offer against this open tender. Since M/s Rain Carbon and M/s Goa Carbon were not willing to supply material beyond April 2008, company had no other option but to proceed with the offers received against the new tender and to release new orders at the revised rates. It may kindly be noted that with limited number of suppliers, had the company disputed with the parties, KMML would have ended up with no source for the material even after floating an open tender. Hence the loss estimated due to cancellation of the orders may kindly be reviewed, as this had been done by the company in an abnormal situation to ensure continuous availability of raw material. It is also to be mentioned here that the new orders had been placed with a revised specification as the material confirming to original specification was scarce. **Sl.No. 4-Goa Carbons** The company had floated a tender (TP/MTL/CPC/2009-10 Dt.17.08.2009) for supply of 12000 MT of Calcined Petroleum Coke. Offers had been received from the following parties. 1 M/s Rain Cll Carbon (India) Ltd., Visakhapatnam 2 M/s Goa Carbon Limited, Goa 3 M/s Neo Carbon Pvt. Ltd., Kolkata 4 M/s General industry and Investment Co. Ltd., China 5 M/s Carbon Resources (P) Ltd., Jharkand 6 M/s Indian Oil Corporation Limited, Cochin. Of the above, all the parties except M/s Indian Oil Corporation were technically qualified. M/s IOCL was not technically qualified as the sample submitted by the party was not confirming to our specification. After due approvals, order was released on M/s Rain Carbon (7200 MT) the L1 Bidder at a landed cost of Rs.16,473.41 per MT. Another order for 4800 MT was placed on M/s Goa Carbon at a landed cost of 16,615.03 per MT.

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		Purchase orders are placed on estimated quantity required for a period of one year. The delivery of material is restricted based on the requirement of KMML and it is not the practice that the entire ordered quantity is procured within the validity period of the order. The order validity also cannot be enhanced perpetually to procure the ordered quantities. In the case of alternate purchase (with risk and cost), the required quantities 300 MT for the validity period of the order had been procured from an alternate source. The additional commitment for the same had been recovered from the defaulted supplier, hence the objection on not having recovered the losses for the entire pending quantity may kindly be reviewed. **Sl. No.5-Various Suppliers** It may be noted that the orders for a particular period are released on the estimated quantity requirements. The requirement of the material varies as per the production schedule and targets achieved. It is not the policy that the entire ordered quantity be procured within the validity period of the order. Hence, most often due to shortfall in production there would most often be a balance quantity remaining to be supplied. Further, an order placed against a competitive bidding having fixed price clause cannot be extended perpetually, for procurement of the entire quantity. It would be against good business practice to force a supplier to continue supplies even after the validity period of the order where deliveries were restricted based on the requirements of the purchaser. However when there had been default by any one supplier then the company had forfeited their Security deposit. **Sl. No. 6-Inox-Air Products** Liquid Oxygen is critical raw material procured for the oxidation of Titanium Tetra Chloride to Titanium Di-Oxide in the Oxidation plant of the company. The company has an Oxygen plant having a present depleted capacity of 35 TPD. The balance required is outsourced from private suppliers. The total quantity usually outsourced is 9000 MT per year. Since liquid Oxygen is directly involved in process and the storage facility for the same also being limited (50 MT), arranging liquid oxygen deliveries on a continuous basis from various suppliers is a very challenging task. The numbers of factors involved are numerous including transport delays, breakdown of supplier plants, etc. It may be noted here that the quantity of materials required by KMML is substantial and hence has to depend on major suppliers for our requirement. In case of any failure in ensuring continuous supplies of liquid oxygen, it would directly affect the operation of the plant. Hence, all possible steps and measures are taken to ensure that the material is continuously made available as per production requirements. In the present scenario, it can be seen that the actions for revision of rates and placement of orders were taken to ensure continuous availability of the material. Procurement of only those quantities of materials as required by the production department was done. It was practically not possible to go for tender for finalization of new orders or to do away with supplies from a major supplier, while arranging supply of such a critical raw material on SOS basis. Kindly reconsider the objections raised in view of the various aspects as detailed above which constitute a major part of the decision making mechanism in a process oriented industry. **Undue delay in finalization of tender and consequent non-acceptance by the party-Annexure-10(b)** **Sl. No.1-Sodium Silicate**

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The supply of Sodium Silicate was being effected by M/s Kiran Global Chems against our Purchase Order No. TP/MTL/SDS/3774/2010-2011 Dt. 14.02.2011. However, during the course of the contract period, due to default by the party in effecting timely supplies as per the requirement of KMML alternate procurement of 200 MT of the material was done from another vendor and the additional expenditure incurred was recovered from M/s Kiran Global. Further, since there was still balance quantity remaining to be supplied we had extended the validity of the order from 13.12.2011 to 13.03.2012 and then to 13.07.2012 or till the delivery of the balance quantity is completed. M/s Kiran Global continued supplies and the delivery of the balance quantity were completed by end of August 2012.

The tender TP/MTL/SDS/2011-12 Dt.01.12.2011 was floated for finalizing the order for the next term of one year (from March 2012). M/s Kiran Global was the lowest bidder for this tender also (landed cost of Rs. 8680 per MT).

Meanwhile, M/s Kiran was continuing with the supplies against their earlier order for which the landed cost was only Rs.7803.00. Considering the default by the party earlier in this order and they having offered to complete supplies against this order, the new order had not been released to the party. Further approval had been obtained for releasing the order after completion of the entire quantity against the existing order.

The new order TP/MTL/SDS/1449/2012-13 Dt.11.09.2012 had been released on the party after completion of supplies against the previous order. The party initiated supplies against the new order, However consignments had to be rejected due to poor quality of the material and KMML had to resort to alternate procurement at the risk and cost of M/s Kiran Global, at which time the party questioned the validity of the Purchase Order. It is pertinent to note here that the party was still holding the prices valid in the purchase order and had disputed with the clauses on risk and cost purchase and additional quantity requirements.

Hence, it may be noted that there was no procedural delay in releasing of order for procurement of Sodium Silicate. The Purchase Order could only be released after completion of supplies against the previous order by the same party as agreed by the party itself. Development of alternate vendors for this item is also being explored into.

Sl No.2 Magnesium

Regarding the procurement of magnesium, Tender No.TSP/RM/HPM dt. 22/3/2012 released for procurement of 66 MT was a limited tender sent to the 6 prequalified parties of the previous purchase, after taking approval.

The due date of tender was 17/4/2012 and we had received only one offer before the due date ie from M/s. Shreeji Exports. Mumbai.

Out of the 6 parties, M/s. Stork(India) HKB New Delhi and M/s. Nilkunj have expressed their inability to offer their price. M/s. MMTCL had not responded to our tender. M/s. Shanxi Province Yangquam Metals & Minerals Imp. & Exp.Co.Ltd. China, has informed that they have entrusted M/s. Shreeji Exports to submit the tender. There was no information from M/s. Shanghai Regal Magnesium Co. Ltd., China, even though we tried our best to locate them.

It is in this situation, though the due date of the tender was over by 17/4/2012, we continuously followed up with M/s. MMTCL(PSU) for their offer and received a mail offer dt. 7/5/2012 ,sent at 5.38 pm with a validity up to 3.pm on 9/5/2012. (The validity is not even 2 days). But the offer given by M/s. MMTC was not valid for 3 months as stipulated in the bid,and not conforming to our following tender conditions.

Tender conditions

Sl.No.	Item	KMML enquiry	MMTC's offer
1	Purity	High Purity – 99.95 % Min:	Not Indicated
2.	Technical Specification on composition of Magnesium		

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				Aluminium, Al	40 ppm(0.0040%) max	Not confirmed
				Calcium, Ca	50 ppm (0.0050%) max	-do-
				Copper, Cu	30 ppm(0.0030%) max	-do-
				Iron, Fe	100 ppm(0.0100%) max	-do-
				Manganese, Mn	70 ppm(0.0070%) max	-do-
				Nickel, Ni	10ppm(0.0010%) max	-do-
				Lead, Pb	35ppm(0.0035%) max	-do-
				Silicon, Si	100ppm (0.0100%) max	-do-
				Tin, Sn	15, ppm(0.0015%) min	-do-
				Zinc, Zn	80 ppm(0.0080%) max	Not confirmed
				Magnesium, Mg (by difference)	***99.95% Min***	***Not confirmed***
			3	Acceptance Criteria	a) Shape and weight b) Porosity, foreign material etc. c) Test Certificate d) Rejection clause	Not confirmed Not confirmed Not confirmed Not confirmed
			4	Sampling and Testing Procedure	a) Standard for testing b) SGS Inspection	Not confirmed Not confirmed
			5	Price Validity	Three months from the date of opening of offer - 17/4/2012 Ie. Validity should have been up to 16/7/2012	Offer sent at 5.38 pm on 7/5/2012 with validity till 3.pm on 9/5/2012. (Not even 2 days)
			6.	Payment	After receipt acceptance of material at our end by A/c. payee cheque.	100 % payment within 7 days before the scheduled expected arrival of the vessel.
			7.	EMD	Rs. 2,00,000/- along with offer	Not submitted-

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8.	Security Deposit	5 % total value of the order	Not confirmed.

Without getting a clear clarification on above points we were not in a position to finalize an order for a critical raw material like Magnesium based on MMTCL's offer.

Sl. No.3-CPC

In the tender floated during February 2008 only two parties (M/s Rain Carbon and M/s Goa Carbon) had participated. The bidders had given only limited validity for their offers citing the precarious market situation due to the highly volatile price for the raw material.
The chronological order for the tender evaluation were as follows

Date of Bid opening – 17.03.2008

Validity of offers – M/s Rain Carbon- till 15.04.2008 later extended till 30.04.2008 (for option I & II)

M/s Goa Carbon – till 30.04.2008 later extended till 25.05.2008 (for option II)

Approval for technical evaluation – started on 24.03.2008 and completed on 26.03.2008

Price Bid opening – 01.04.2008

Note for technical recommendation on various options – 11.04.2008 to 17.04.2008

Approval for negotiating with the bidders – 17.04.2008 to 23.04.2008

Date for negotiation -29.04.2008 but conducted on 28.04.2008 with M/s Rain and on 03.05.2008 with M/s Goa Carbon as per request from the bidders.

Letter from M/s Goa Carbon after negotiation is received on 06.05.2008

Approval for releasing order – 08.05.2008 to 12.05.2008

Note: M/s Rain Carbon had not offered the entire quantity required and L2 party also had to be considered for placing orders. Therefore, order finalization could only be initiated after receipt of confirmation from M/s Goa Carbon.

Hence it may kindly be noted that the decision making process has been completed at the fastest possible pace with due intimations to the bidders on the status of their offers. Actions from the bidders on limiting the validity period can be considered only abnormal, basically due to the volatile market situation.

Based on the approval, LoI was released on M/s Rain Carbon on 12.05.2008 for option I and option II material. However, M/s Rain Carbon informed on 14.05.2008 that the same cannot be accepted as the validity of the offer had expired. They also informed that they can supply 3000 MT of option II material as a special case over the next three months under the said LoI. Purchase Order (TP/MTL/CPC/251/2008-09 Dt.21.05.2008) had been released for 3000 MT on M/s Rain Carbon at a basic price of Rs.19,800.00 per MT. Since the quantity offered by M/s Rain Carbon was not enough for meeting our requirement, we had requested M/s Goa Carbon to match the ex-works rate of M/s Rain Carbon, to which they agreed. Hence order (TP/MTL/CPC/403/2008-09 Dt.23.06.2008) was released for 1200 MT on M/s Goa Carbon at basic price of Rs.20,384.71.

Sl. No. 4-Pet Coke NPF

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		M/s Rabi Trading Company, the party had offered to supply at the rate of 1[illegible] MT per month as per the tender condition. However, as per the process requirement, during the evaluation of the offers received we had to revise the specification of the material slightly. Hence orders were released only for restricted quantities initially (M/s SreeMeenatchi (L1) - 2000 MT and M/s Rabi Trading Company (L2) -1000 MT). Later the orders were revised and the quantity was enhanced to the entire tender quantity and split among the L1 and L2 bidders. M/s Rabi Trading Company accepted the order for 1000 MT, however supplied only 279.25 MT and discontinued supplies. It may be noted here that the party could supplies materials as per the revised specification. They could have dishonored the initial purchase order itself if the revision in specification was a constraint for effecting supplies. M/s SreeMeenatchi Agencies had supplied the ordered quantity. It may also be noted that the procurement against an order is done during the validity period of the order which is normally 12 months, extendable by three months for lifting any balance quantity if any. However the procurement of the material is restricted to that quantity which is required for the production requirement and not for purchasing the entire ordered quantity. Since the rates for both the parties were matched before releasing the order there had been no additional commitment on the purchase during the validity period of the order. **Extra expenditure due to allowing price increase though the prices were firm-Annexure-10 (c)** **NPF Grade Pet Coke- Sl No 1-5** The price revision clause for NPF- Petroleum Coke,had been included as the basic price of Petroleum Coke –NPF grade is based on the price fixed by M/s Reliance Industries who are the sole source for the material in the country. Hence it was logical to have included such a clause in the tender enabling all the parties to quote on the applicable rates. As the price revisions were effected on the basis of the price fixed by the sole source in the country, it can only be assumed that the revision in prices were imperative to enable the sourcing of the material. Hence the additional expenditure incurred cannot be considered as a loss, since the additional cost was incurred due to the price revision by the sole source in the country. **Liquid Oxygen –Sl. No.6** Since liquid Oxygen is directly involved in process and the storage facility for the same also being limited (50 MT), arranging liquid oxygen deliveries on a continuous basis from various suppliers on a continuous basis is a very challenging task. The number of factors involved are numerous including transport delays, breakdown of supplier plants, etc. It may be noted here that the quantity of material required by KMML is substantial and hence has to depend on major suppliers for our requirement. In case of any failure in ensuring continuous supplies of liquid oxygen, it would directly affect the operation of the plant. Hence, all possible steps and measures are taken to ensure that the material is continuously made available as per production requirements. In the scenario under review, it can be seen that the actions for revision of rates and placement of orders were taken to ensure continuous availability of the material. Procurement of only those quantities of materials as required by the production department was done. It was practically not possible to go for tender for finalization of new orders or to do away with supplies from a major supplier, while arranging supply of such a critical raw material on SOS basis. In view of the various aspects as detailed above which constitute a major part of the decision making mechanism in a process oriented industry, the para may kindly be reviewed. **Deficiencies in vendor updation and vendor evaluation** **Radiant Coil Assembly** Purchase of Supertherm Radiant coil assembly deployed in the Oxygen preheaters were being procured from M/s Uni Abex alloy Products, Mumbai since inception being a

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		Joint venture of the OEM, M/s Abex Corporation,USA. It is to be noted that this radiant coil assembly is the heart of the Preheater which operates at around 1100 deg C and hence the quality of the same has to be maintained through stringent stage wise manufacturing procedures, as was done for the original supply. Procurement action for 2 sets of the same was initiated in April 2009 on the approval accorded by CMD wherein it was stated that the approximate cost would be around Rs 100 lacs, based on the previous cost. However, since M/s UniAbex had offered only Rs 22, 00,873/ set, we had processed the same and accordingly PO was placed on them. Subsequently, as M/s UniAbex informed that there had been a mistake in their offer and expressed their inability to execute the order, it was felt that the request was genuine considering the previous order rate. **Inlet Stand pipes** This pertains to the procurement of 4 numbers Tantalum Inlet stand pipe for Digesters in the Ilmenite Beneficiation Plant. In this context, the following may please be noted: The MOC of the inlet stand pipe is Tantalum which is an exotic metal; fabrication of which needs expertise and special facilities of welding chamber in Argon atmosphere. • The company had therefore enlisted three indigenous vendors viz M/s Titanium Tantalum Products, M/s Teamco Hitech and M/s Sai Titanium Products for our requirement of fabrication jobs related to Titanium and Tantalum material. • It is to be noted that the company had been earlier procuring these pipes from M/s ASE , Germany , the original supplier of the same. • Considering the criticality of the item and the MOC of the same, the company had initially floated limited Tender on the three indigenous approved parties. • It is however to be noted that the company had to cancel and refloat the tender twice on account of the bidders backing out due to increase in raw material prices. In the second time, KMML had not accepted the party's request to consider material of Chinese origin and hence had to be cancelled. • It is evident from the above exercise of having floated the tender twice, cancellation of order placed etc , that the price of the raw material is highly volatile and unpredictable which has ultimately resulted in the increase in cost.
	2.9.6.5	**Failure to ensure quality of Calcined Petroleum Coke for regulating payment** Company has made available suitable instrument to carry out analysis of sulphur content in the CPC procured, to ensure quality of the product.
	2.9.6.6	**General lapses in procurement** (a) Existing system is designed in such a way that lab module is not integrated for the incoming materials. In the proposed higher end ERP integration is possible. (b) The company places Purchase orders with order validity of one year for procurement of raw materials. As per the present purchase procedure followed by the company, it is required to get a copy of the said purchase order signed by the party as a confirmation of their acceptance of the same. Henceforth, as suggested by audit, company shall take necessary steps for entering into agreements with the party. (c) The orders are finalized on parties depending on the quantity offered by them. If the offer is for lower quantities then the order is restricted within this quantity. Since most of the raw materials required by the company are of very specific nature and of limited availability, the company has to encompass all available sources for such materials.

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		Hence restricting participants by specifying higher limit for the minimum offer quantity may result in lower participation and can affect the efforts for development of alternate sources. (d) As per procedure, raw materials are accepted after inspection of the material by the quality control department. In case of rejection of consignments the loading and unloading charges are recovered from the supplier. Transportation of the material is usually in the scope of the supplier, however in case the same is being arranged by KMML then costs for the same are also recovered. As per procedure, raw materials are accepted after inspection of the material by the quality control department. In case of deviation from specifications then payments are released only after pro-rata deductions, as applicable. In case the material cannot be accepted on pro-rata basis, then the same is rejected.
	2.9.6.7	**Inventory Control** • Inventory control (min /max/reorder levels) have been fixed only for consumables and spares that are fast moving and need to be maintained for smooth operation of the plant. All other equipments, refractory materials , raw materials etc are procured based on the specific requirement from the user department and hence stock levels are not fixed for the same. • Review of the Inventory Management system is being done and steps are being initiated to improve the same. It may be noted that all Purchase requests for items valued above Rs 50,000/- are being reviewed by a High Level Purchase Committee comprising of Executive Director, Executive Director (Finance),Head of Unit and Head of Materials before proceeding with the procurement action. • As informed, a committee (from Materials, Finance , Maintenance and Technical service) had been formed to review the non moving stock and further proceedings on the same have been initiated. • Annual purchase of product bags is initiated based on the budgeted production of each grades depending on the projected requirement from Marketing Dept. As informed earlier, we have been procuring Product bags only for RC 822 since 2012 and it is expected that the existing stock of bags for the other grades would be exhausted within 2- 3 years based on the sales projection of Marketing Dept.
	2.9.7 2.9.7.1	**Marketing Management** **Sales Performance** KMML is having an empowered committee consisting of senior management team from different functions called as Marketing Promotion Committee (MPC). While formulating the marketing/pricing policy they deliberate on different micro and macro economic factors along with the costing aspect for concluding into a decision. KMML pricing strategy depends on various micro/macro factors and it is related to market changes in order to be competitive on the current market scenario. Our experience tells us the current pricing strategy is better suited for KMML products than the marginal costing method. All MPC decisions are being ratified by KMML board time to time. Table no.2.7: comparison of actual and budgeted sales. The execution of sales plan also depends on other factors like the common industry trends, prices of TiO2 with other competitors in the market and the appreciation /depreciation of INR with respect to USD etc. along with the production output. Thus the shortfall in achievement of sales target cannot be attributed to the lack of effective pricing policy. As the management have already shared the policy decisions from KMML on different fronts has been taken at time to time by competent authorities after through deliberation of various fronts.
	2.9.7.2	**Absence of pricing policy**

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		-Marginal costing method of price determination is not well suited for an industry which KMML currently serve. The price of TiO2 from KMML cannot vary in any big way with respect to the Market Operating price [MOP]. The MOP largely depends on the competitor prices, industry trends, stock position, import scenario, INR fluctuation and other industry variables. Irrespective of the cost aspect of pricing any manufacturer has to comply with the market realities. The company had fixed price of TiO2 as 212000/MT(Sep 2011) when the international price of TiO2 was in the range of USD 4400-4500. As it is rightly pointed out in the report due to this high price we were able to reap a very high margin of INR 61,532/MT at that time. But over a period of time the international prices started cooling down and INR depreciation also slowed down. This was the time when the recession started hitting the domestic market and the market demand was sluggish. MPC taken a learned decision in this regard and decided to reduce the prices in order to be competitive in the market.
	2.9.7.3	**Failure to plan –Production in Line with Sales Order** The TP plant produces TiO2 in Chloride route and an intermediary to this process is TiCl4. So a buffer stock of TiCl4 is always maintained in order to smoothly cater the production of TiO2. The quantity of the buffer stock is decided with reference to the demand of TiO2 in the market. So when more demand for TiO2 is there, there will be less quantity of TiCl4 available for sale. It is again reiterated that the cancelled/modified CRR is not an actual measure of cancelled order. So the calculation of INR 11.36 crores loss on account of this is largely exaggerated.
	2.9.7.4	**Failure to maintain minimum stock** The report maintains that the failure to plan production in line with orders lead to cancellation of orders in the range of 4286 MT during the audit period. While taking this calculation the cancellation /modification of CRR is taken as one of the measure to arrive at the conclusion. But a cancellation/modification of a CRR is not necessarily due to the cancellation of orders and therefore is largely exaggerated. More over there can be few rare occasions where due to high demand of few grades we concentrate on production of those grades and the minimum buffer stocks of other grades affected. But that may be negligible.
	2.9.7.5	**Domestic vis-à-vis Export Sales** Vide table no 2.10 and comments, the reports suggest that the margin of export sales was lower compared to the domestic sales and resulted a loss of 6.59 crores in the audit period. The export market was created and nurtured by KMML with much efforts and time with an eye to the future expansion plans. The export market gives solid brand equity of our grade KEMOX and is being compared to other MNC giants like Dupont. Kronos, Crystals etc... KMML pigment still enjoys a price premium in domestic market compared to other similar products due to the perceived value of our export house status. The domestic higher realization is partly can be attributed to the export house status of KMML. So although the domestic realization is high compared to export realization KMML has to hold its export market to remain relevent and seen as a quality manufacturer of TiO2 pigment. So by and large it can be observed that the export market still enjoys a definite margin and it caters for a better realization in domestic market as far as KMML is concerned. In light of the above said explanations it can be seen that the losses pointed out in the report are negligible and is based on certain assumptions.
	2.9.8	**Financial Management**

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		As directed by Government of Kerala, the company has provided financial assistances to other PSUs from time to time. The total loan outstanding as on date amounts to Rs. 6355.65 lakhs. Being a Public Sector Company under Industries Department of Government of Kerala, KMML is bound to comply with the Government Directions. The company has granted loans to 4 PSUs to the tune on Rs. 43.05 crores during the period 2008-09 to 2012-13 as per Government directions. It may kindly be noted that the company have already recovered Rs. 2.98 crores during this period. The company is closely following up to recover the loans granted to these companies. The company is following up the matter of repayment of loan given to other companies with the Government and the companies concerned rigorously. Government of Kerala has directed all the concerned organization to repay the loans vide letter no. 17404/H3/2009/ID dated 13th August 2009. Accordingly, the company could realize Rs. 10 lakhs from M/s Sitaram Textiles ltd towards the full settlement of the loan granted to them. During the year the company has collected confirmation letters from majority of the companies to whom the loan is granted. The company has already executed loan agreement with 13 companies and the Government have also directed all the remaining companies to execute the loan agreement at the earliest. In the case of equity investment of Rs. 30 crores in KSTC, the company is closely following up the matter with KSTC for getting the share certificates. It is informed that KSTC has received approval from the Government of Kerala to increase the authorized share capital and share certificates will be issued soon. In the case of loan granted to KSTC we have requested Government of Kerala to repay the loan granted to KSTC either by way of budgetary support to KSTC (letter NO. TP/ED(F)/KSTC/11-12/March dated 23rd March 2012 or repay the dividend @ 75 % related to the financial year 2011-12 (Letter no. TP/ED (F)/G-2/13 DATED 11-04-2013) to KMML. In the case of investment to the tune of Rs. 5 crores in Kannur International Airport, share certificate has already been received. Out of the loan given, the company has written off Rs. 34 lakhs and provided Rs. 186 lakhs in various years based on Government directions. In the case of loan given to Kerala State Cashew Development Corporation Ltd and CAPEX, we have collected confirmation regarding the loan outstanding and Government of Kerala vide letter no. 7871/H3/2012/ID dated 19-06-2013 directed them to execute the loan agreement urgently.
	2.9.9 2.9.9.1	**Human Resource Management** **Payment of excess wages due to poor productivity** The company having continuous manning in the areas of operation, maintenance and support service round the clock for the whole year. Hence we are not in a position to reduce man power on the position which are in continuous operation involving hazardous chemicals which could affect not only the plant personnel but also the local community. KMML could only reduce man power in rare cases of long shut down of the complete unit due to Annual maintenance of 15-30 days, or for some other reasons which requires more than seven days shut down. Practically we are engaging people continuously on 24 hrs x 365 days. The increase in man hour utilized for the year 2011-12 and 2012-13 is mainly due to low throughput from the Pigment production Unit which was due to various reasons like raw material shortage (Raw Ilmenite) and major technical issues. Besides the above, additional man power required for the operation of new equipments in IBP as part of capacity augmentation of synthetic rutile plant has resulted an increase of man hours in 2011-2012 and 2012-2013. In view of the working situations as stated above reduction in capacity utilization will not directly reflect in the man hours utilized.
	2.9.9.2	**2. Other deficiencies/irregularities** The man power position in the operation area was re-assessed internally and based on the same Board of Directors approved creation of 77 posts which is required to keep the plant in operation in the present level of production. However, the same has not yet been approved by the Government. As suggested by Government a manpower study has been conducted by M/s. Centre for Management Development, Thiruvananthapuram and their report is to be received. In the level of unskilled workers also even though available vacancies of 167 were notified in 2010 the same could not be filled up due to order issued by the Hon'ble High Court of Kerala. The post have been re-notified and processing of the same is proceeding. It may be noted here that to recruit 167 workmen, we have obtained necessary

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		Govt. approval and the recruitment activities are entrusted with Kerala Productivity Council. It is expected to complete this recruitment activity by the end of December 2014. Further we have also taking up the recruitment of 61 skilled workers and recruitment is entrusted with the CMD- Trivandrum. This process will also expected to complete by December, 2014. Similarly recruitment process for other vacancies remaining is those to be filled up by PSC which normally is delayed. Projection of manpower in MS Unit seems to be made based on the sanctioned strength fixed in 1981. Subsequently due to expansion and modernization of the unit in the year 2000 the requirement of manpower has increased due to higher level of operations. As per recent manpower study by M/s.CMD the existing unskilled manpower is just above their request as on 1.4.2013. The current available man power in the technical area is highly in-sufficient as no provision has been made for reserve against leave and off. Creation of additional posts based on the comprehensive manpower study by M/s.CMD is the only solution for bringing down the overtime. In the non technical areas like Security, Canteen, OHC etc. overtime is incurred mostly in areas operating in three shifts basis where man to man relieving is required for continuous operation of the shift. In the case of absence of an employee the alternative available is to continue the employee from the previous shift as no leave reserve is available and this results in overtime engagament and four shift continuation. Even though Factories Act imposes restriction on overtime work beyond particular hours it is not fully workable in the absence of leave reserve and off reserve and the requirement of manning the operations continuously. Company had also issued instructions/orders regulating overtime calculation as well as shift arrangement. But as observed by the Audit the same could not be fully implemented through involvement of trade unions and decision at Govt. level. The two orders issued by the Company for regulating overtime engagement and changing the system of overtime calculation by reckoning 240 hours in place of 180 hrs. were freezed at the level of Govt. and also directed to settle the issue by the Labour Commissioner. Even though the Labour Commissioner held meetings of the Management and Trade Unions, the trade unions did not agree for any change of the existing practices. Company has therefore reported the matter to Govt. for consideration and decision. As per recent circular from the Labour Commissioner, the same terms be calculated based on the Cl.4 of payment of Wages Act and Cl.56 of Factories Act. However as there is an instruction from Govt. to take up this matter in the next long term agreement, we may perhaps to wait till next LTA. However we have already initiated the process of discussions with the negotiating trade unions in this regard and we may be able to reach a solution to this issue. **Action taken on recommendations** ● **Develop a mechanism for periodical assessment of cost of production with cost data and investigate the reasons for increase in cost of production.** The company has a system of periodical review of cost of production. Daily cost of production figures are reviewed in the daily meeting chaired by the Head of the unit. Weekly figures are reviewed in the meeting of Head of the Departments chaired by Managing Director. Based on the review, appropriate corrective actions are taken wherever necessary. In addition, as part of cost reduction initiatives, 5 cross functional teams were constituted to study different functional areas and suggest improvements in functional performance and cost reduction measures. The teams have submitted their report which is under active evaluation. In addition, Board of Directors has constituted a Sub Committee for cost reduction initiatives. ● **Utilise the capacity of plants at optimum level to avoid under absorption of elements of cost especially in view of increasing power cost and employees cost.**

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		Necessary steps are already been taken to increase the production to reduce the impact of fixed cost per unit. It is yielding fruitful result and the production for first 4 months of the year has resulted an increase of 14.21% compared the same period of the previous year. **Ensure that employees are engaged on overtime to upmost necessity and benefits are derived from such additional expenditure.** Strict control measures are already initiated to reduce the overtime. It is decided to discontinue the overtime in non technical areas by 1st August 2014. Further, overtime in technical areas will be discontinued with effect from 1st October 2014. Thereafter overtime will be permitted only under essential circumstances after the approval of a committee constituted for that purpose. ● **Make periodical revision of registered vendors and explore possibility of finding new vendors with price advantage through wide publicity or using of web enabled e-tendering system.** The process of development of new vendors are in progress. KMML is concentrating on the development of new vendors for the critical raw materials/fuels/packing materials since these accounts for major expenditure. ● **Incorporate a clause in open tenders and limited tenders for raw materials, stores and spares insisting the successful bidders to execute an agreement for uninterrupted supply and also make a provisions for imposing penalty in case of breach and to keep the price fixed during the validity agreement.** Noted for future compliance. ● **Should scrupulously follow the approved purchase procedures of 2001 and take action to make required modifications to ensure most competitive tenders, using of software for evaluation of tenders, etc.** Presently the company following the approved procedures of 2001. However, steps will be taken to make the required modification in the procedures wherever necessary to ensure the competitiveness. ● **Should utilize the available cost data effectively; price the products to optimize the same in view of competition and to avoid accumulation of stocks.**

ABBEY
Additional Secretary (G...
Industries Department
Govt Secretariat, Tvpm

ANNEXURE 8

Statement showing financial position and working results of The Kerala Minerals and Metals Limited at the close of the year as on 31 March for the five years up to 2013

(Referred to in paragraph 2.3)

(₹ in lakh)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Share capital	3093.27	3093.27	3093.27	3093.27	3093.27
Reserves and surplus	40914.41	45174.12	46188.50	55037.20	57727.06
Share holders' funds	**44007.68**	**48267.39**	**49281.77**	**58130.47**	**60820.33**
Fixed asset (Net)	25192.92	30465.22	34670.00	36936.97	29173.52
Non-current investments	17.60	17.60	3517.60	3517.60	3518.10
Current Assets	32429.76	33035.54	39592.55	46025.65	47728.06
Current Liabilities	13632.60	15250.97	28498.38	28349.75	19599.35
Net Current Assets	18797.16	17784.57	11094.17	17675.90	28128.71
Total	**44007.68**	**48267.39**	**49281.77**	**58130.47**	**60820.33**
Net Sales	41908.91	48398.20	54022.58	57302.87	54763.36
Other Income	1748.02	1654.35	1721.29	2083.52	1565.34
Change in stock level	-2977.67	-1304.10	242.21	6999.77	4568.98
Total Income	**40679.26**	**48748.45**	**55986.08**	**66386.16**	**60897.68**
Raw Material	8015.00	9550.17	11838.74	9948.05	9767.12
Manufacturing expenses	17339.47	19750.60	21826.71	25762.12	28222.96
Employee cost	9735.98	8937.12	14602.73	13203.72	12977.22
Cost of goods sold	35090.45	38237.89	48268.19	48913.89	50967.30
Selling	0.00	0.00	0.00	0.00	0.00
Finance	30.10	19.60	26.71	42.06	364.83
Depreciation and Amortization expenses	884.45	1245.94	1432.02	2021.75	1971.33
Total Expenditure	**36005.00**	**39503.43**	**49726.92**	**50977.70**	**53303.46**
Net Profit	**4674.26**	**9245.02**	**6259.16**	**15408.46**	**7594.22**

Annexure 9

Statement showing unproductive overheads due to excess downtime in the plants of The Kerala Minerals and Metals Limited

(Referred to in paragraph 2.9.3.3)

(₹In lakh)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
IBP Calciner (2 Streams from February 2011)					
Fixed Overheads incurred	1101.85	1386.12	1975.75	2305.68	2554.51
Stream Hours Available	8760	8760	10176	17520	17520
Fixed Overhead per Stream Hour	0.13	0.16	0.19	0.13	0.15
Downtime in Hours	2606	2803	3298	10668	9679
Normal Downtime Hours (68 days)	1632	1632	1632	3264	3264
Excess Downtime Hours	974	1171	1666	7404	6415
Unproductive Fixed Overheads	126.62	187.36	316.54	962.52	962.25
Total Unproductive Fixed Overheads in IBP upto 2012-13					**2555.29**
U 200 Plant (2 Streams)					
Fixed Overheads incurred	850.61	1313.5	1801.91	1497.55	1864.49
Stream Hours Available	17520	17520	17520	17520	17520
Fixed Overhead per Stream Hour	0.05	0.07	0.1	0.09	0.11
Downtime in Hours	4524	3526	3620	5838	5730
Normal Downtime Hours (54 days)	2592	2592	2592	2592	2592
Excess Downtime Hours	1932	934	1028	3246	3138
Unproductive Fixed Overheads	96.6	65.38	102.8	292.14	345.18
Total Unproductive Fixed Overheads in U200 Plant up to 2012-13					**902.10**
U 300 Plant (2 Streams)					
Fixed Overheads incurred	975.48	1167.77	1536.23	1570.93	1860.36
Stream Hours Available	17520	17520	17520	17520	17520
Fixed Overhead per Stream Hour	0.06	0.07	0.09	0.09	0.11
Downtime in Hours	4624	3628	3812	6262	6222
Normal Downtime Hours (54 days)	2592	2592	2592	2592	2592
Excess Downtime Hours	2032	1036	1220	3670	3630
Unproductive Fixed Overheads	121.92	72.52	109.8	330.3	399.3
Total Unproductive Fixed Overheads in U 300 Plant up to 2012-13					**1033.84**
U 400 Plant (Single Stream)					
Fixed Overheads incurred	992.62	1200.59	1919.53	1656.8	1887.82
Stream Hours Available	8760	8760	8760	8760	8760
Fixed Overhead per Stream Hour	0.11	0.14	0.22	0.19	0.22
Downtime in Hours	2772	2663	2346	4134	4958
Normal Downtime Hours (54 days)	1296	1296	1296	1296	1296
Excess Downtime Hours	1476	1367	1050	2838	3662
Unproductive Fixed Overheads	162.36	191.38	231	539.22	805.64
Total Unproductive Fixed Overheads in U 400 Plant upto 2012-13					**1929.60**

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Annexure 10

Statement showing extra expenditure due to deficiencies in procurement in The Kerala Minerals and Metals Limited

(Referred to in paragraph 2.9.6.4)

(a) Failure to execute agreement and consequent non recovery of extra cost on risk purchase

Sl No	Item	Year	Name of the supplier	Ordered Qty (MT)	Rate per MT (Including Transportation)	Supplied Qty (MT)	Purchase from alternate source		Extra expenditure (₹ in crore)
							Quantity (MT)	Rate (in ₹)	
1	Raw Ilmenite	2010-11	V V Minerals	40000	7443	12111	5165	17559	5.22
2	Petcoke-NPF Grade	2010-11	Trinity Coal Trading	1800	7749.17	0	1800	10191.91	0.44
3	Calcined Petroleum Coke	2008-09	Rain Calcining& Goa Carbons	18360	14200	12319	6041	24034	5.94
4	Calcined Petroleum Coke	2009-10	Goa Carbons	4800	16615	3000	1800	27677	1.60
5	Hydrated lime	2008-09 to 2011-12	Various suppliers	25159	-	5712.85	19446.56	-	3.09
6	Liquid oxygen	2010-11	Inox Air products	3000	9555	0	1922	10823	0.24
Total									**16.53**

(b) Undue delay in finalisation of tender and consequent non acceptance by the party

Sl No	Item	Date of tender	Valid upto	Date of order	Subsequent purchase Qty (MT)	Original Landed cost/MT (in ₹)	Landed cost/MT subsequent purchase (in ₹)	Extra expenditure (₹ in crore)
1	Sodium Silicate	12/2011	02.05.12	11.09.12	1816.64	8680	11069	0.43
2	Magnesium	2/2012	09.05.12	16.07.12	66.00	231927	351940	0.81
3	Calcined Petroleum Coke	2/2008	30.04.08	26.05.08	1821.37	24024	32455	1.54
4	Petcoke NPF Grade	2/2011	10.06.11	30.07.12	3845.75	10454.72	12005.28	0.60
Total								**3.38**

(c) Extra expenditure due to allowing price increase though the prices were firm

Sl No	Item	Name of the supplier	Qty purchased (MT)	Original rate/MT	Revised rate/MT	Extra expenditure (₹ in crore)
1	NPF Grade Petcoke	Sree Meenatchi Agencies	1324.83	7770.18	8521.53	0.10
2	NPF Grade Petcoke	Do	97.70	7770.18	8519.41	0.01
3	NPF Grade Petcoke	Do	345.91	7770.18	8522.08	0.03
4	NPF Grade Petcoke	Do	1139.19	7770.18	10186.10	0.28
5	NPF Grade Petcoke	Do	2435.90	7770.18	10187	0.59
6	Liquid Oxygen	Inox Air Products Ltd	1671	7968	9292	0.22
		Total				**1.23**

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