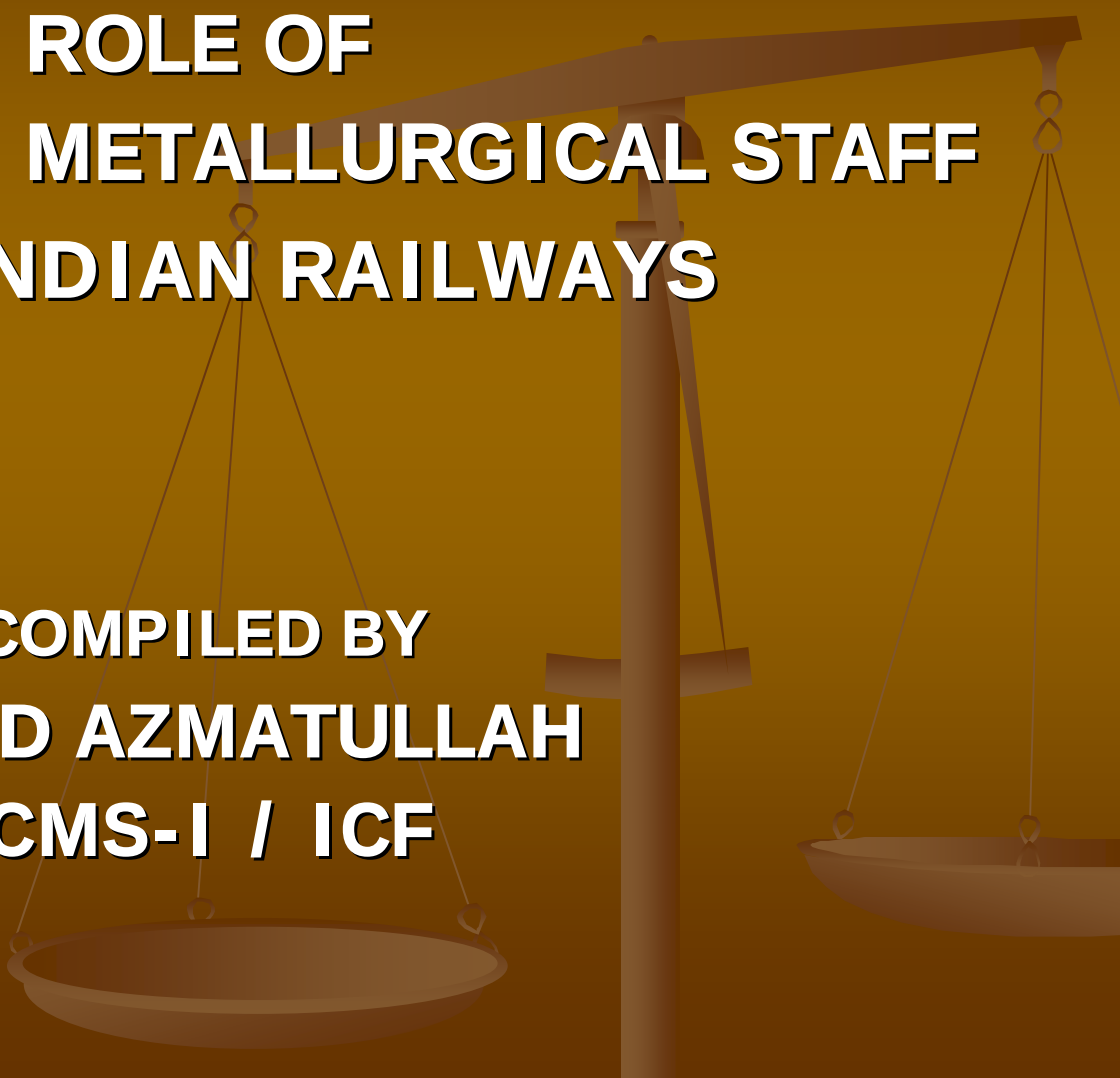


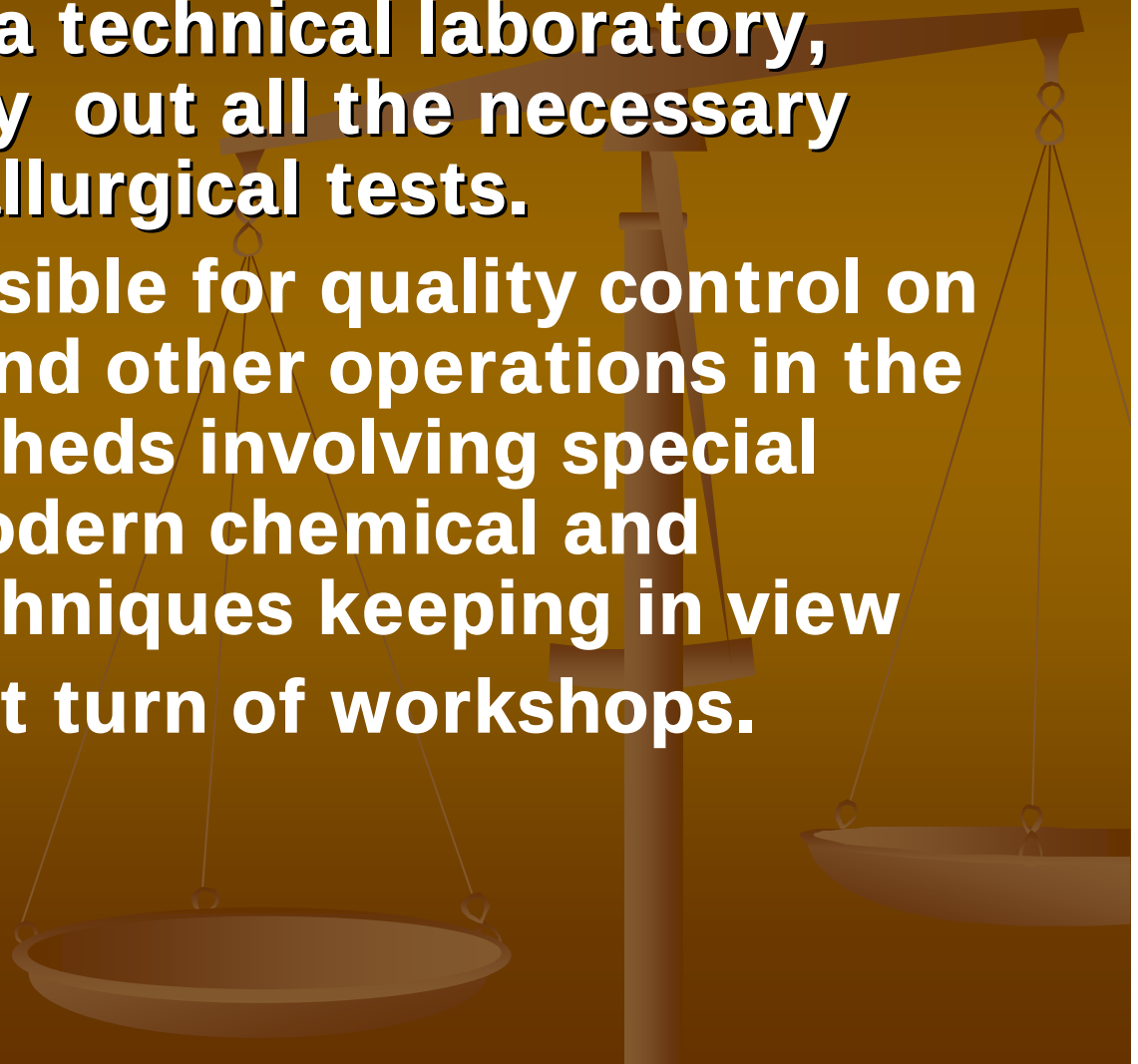


ROLE OF CHEMICAL AND METALLURGICAL STAFF IN INDIAN RAILWAYS

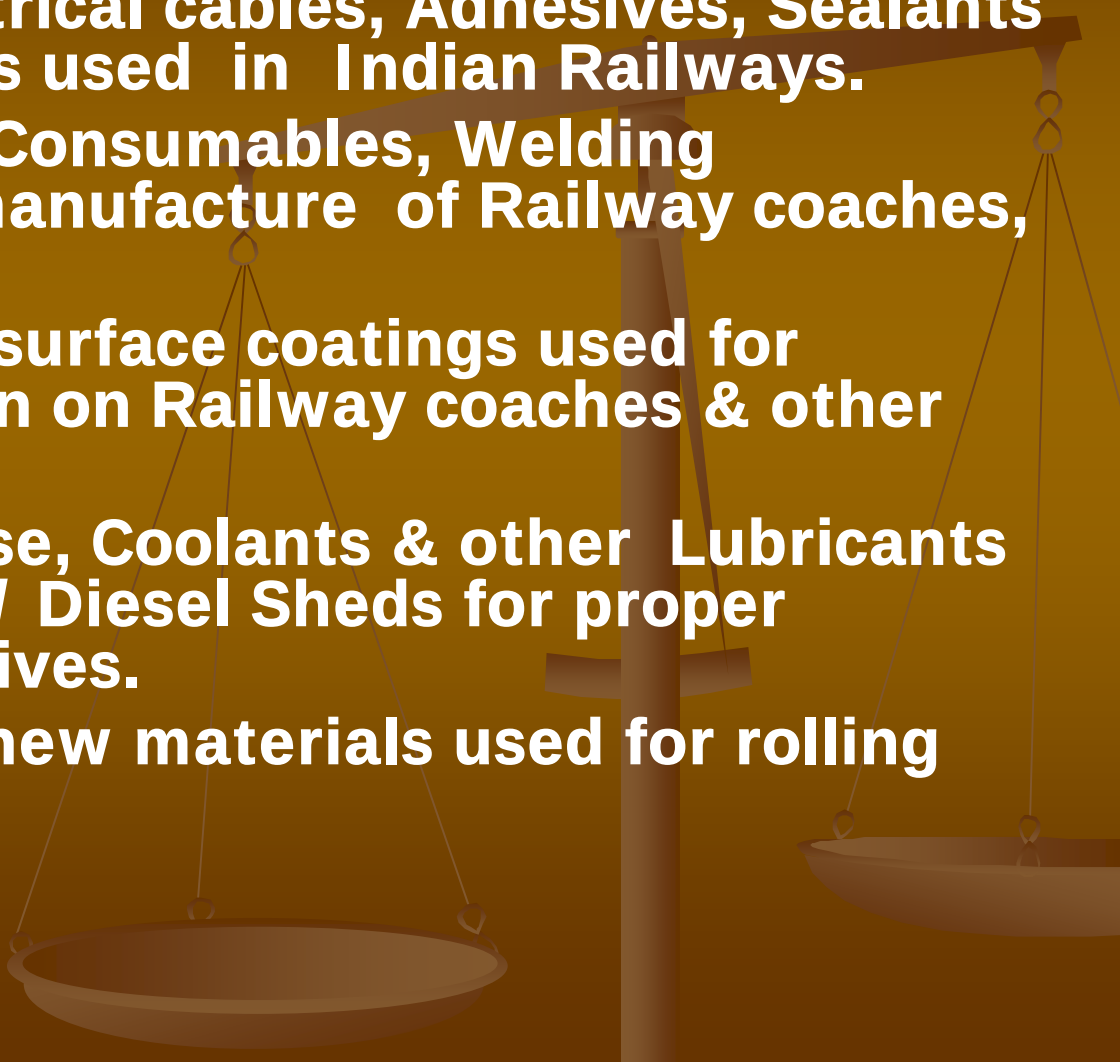
**COMPILED BY
SYED AZMATULLAH
CMS-I / ICF**

INTRODUCTION

- **C&M Staff are attached to the major workshops with a technical laboratory, equipped to carry out all the necessary Chemical & Metallurgical tests.**
- **They are responsible for quality control on manufacturing and other operations in the workshops and sheds involving special knowledge of modern chemical and metallurgical techniques keeping in view the maximum out turn of workshops.**



DUTIES

- **Chemical & Physical Testing of Ferrous, Non-Ferrous, Rubber, Plastics, Plywood, Composites, FRP materials, Electrical cables, Adhesives, Sealants & all other materials used in Indian Railways.**
 - **Testing of Welding Consumables, Welding processes etc. for manufacture of Railway coaches, bridges, track etc.**
 - **Testing of Paints & surface coatings used for corrosion prevention on Railway coaches & other useful assets.**
 - **Testing of Oil, Grease, Coolants & other Lubricants in Production Units/ Diesel Sheds for proper running of Locomotives.**
 - **Standardization of new materials used for rolling stock.**
- 

DUTIES (contd..)

- **Quality Control of welding of Bogie frames, Under-frames, Shell etc. at Shop Floor for Conventional , Export and LHB coaches.**
- **Welder approval for SAW, MIG, TIG, Spot welding processes**
- **Radiographic testing of Welds (Critical joints), Castings, Forgings etc. for detection of defects.**
- **Ultrasonic Testing of Wheel & Axle during manufacture & running in Railway Coaches for detection of defects.**
- **Magnetic Particle Inspection (MPI) of Spring Steel bars & Springs for detection of defects.**
- **Process control in heat-treatments of Annealing, Normalizing of Forged Components.**
- **Process control in heat-treatments of Hardening and Tempering of Coiled Springs.**
- **Process control in Corrosion prevention & Phosphating**
- **Process control in Paint shop.**
- **Calibration of Measuring & Testing Equipments.**
- **Consultancy to Design Wings of all Engg. Depts. of Indian Railways for selection of proper raw material, process etc.**

PHOTO-DEMO



SPECTROMETER FOR CHEMICAL ANALYSES

PHOTO-DEMO



WEATHEROMETER FOR PAINT TESTING

PHOTO-DEMO



UNIVERSAL TESTING MACHINE FOR TENSILE, BEND ETC.

PHOTO-DEMO



COLLECTION OF SAMPLES FROM BATHS OF CHEMICAL PROCESS

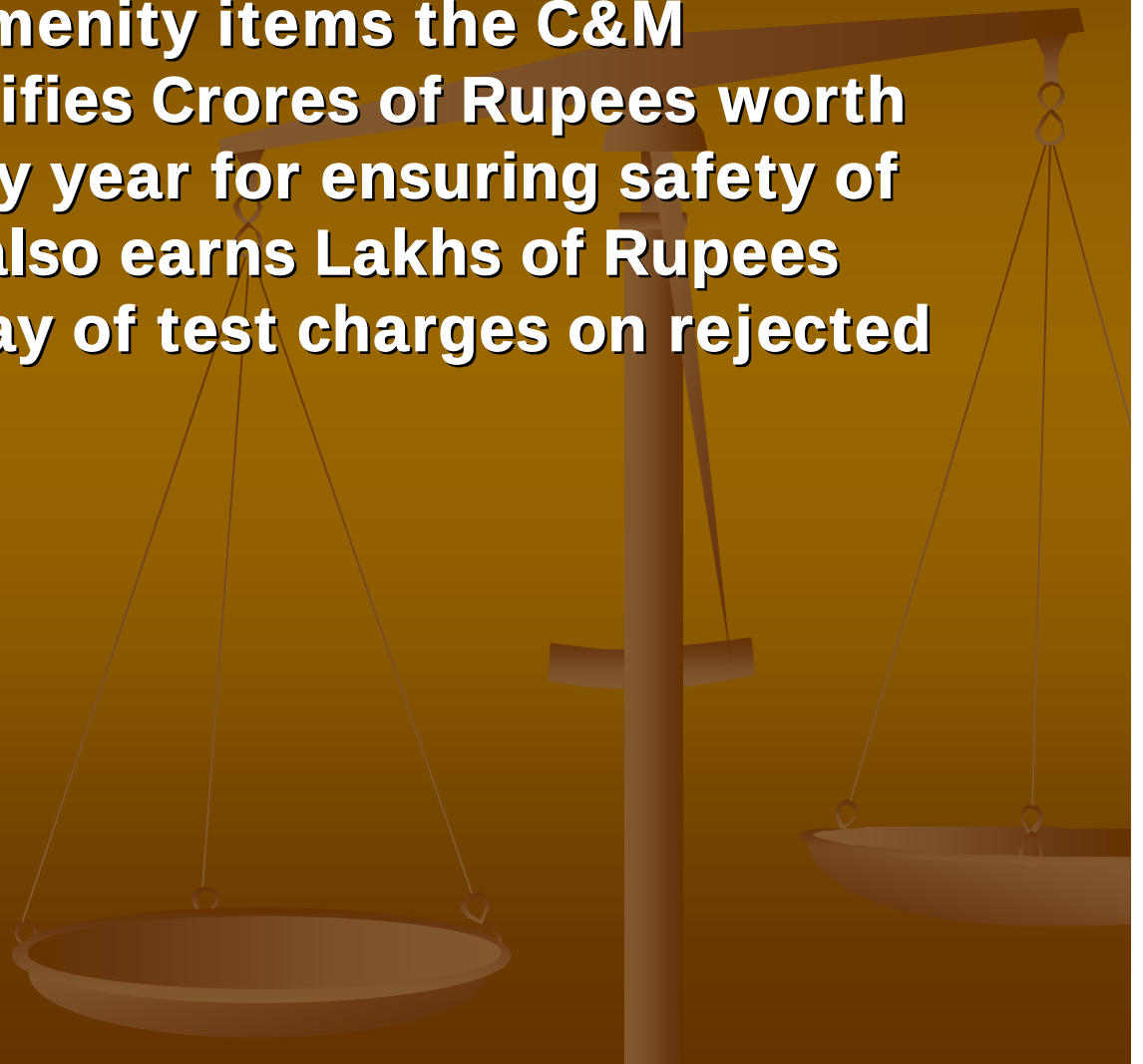
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MAGNETIC PARTICLE INSPECTION OF SPRING BARS

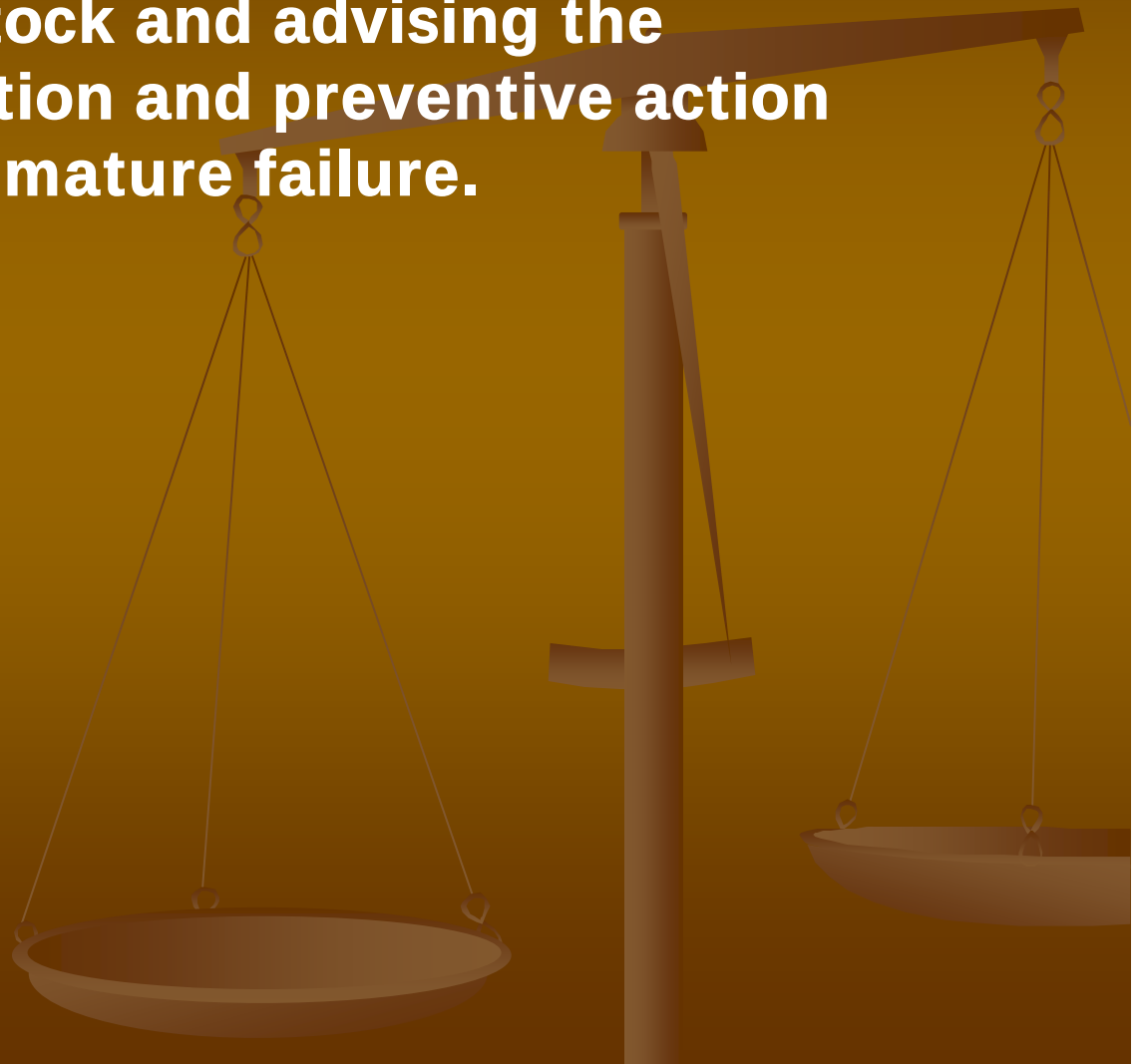
INCOME TO RAILWAYS

- By testing the above mentioned safety, vital and passenger amenity items the C&M organisation certifies Crores of Rupees worth of materials every year for ensuring safety of passengers and also earns Lakhs of Rupees every year by way of test charges on rejected materials.



ADDITIONAL DUTIES

- **Carrying out failure analysis of components used in Rolling stock and advising the necessary correction and preventive action to avoid such premature failure.**



ADDITIONAL DUTIES (CONTD..)

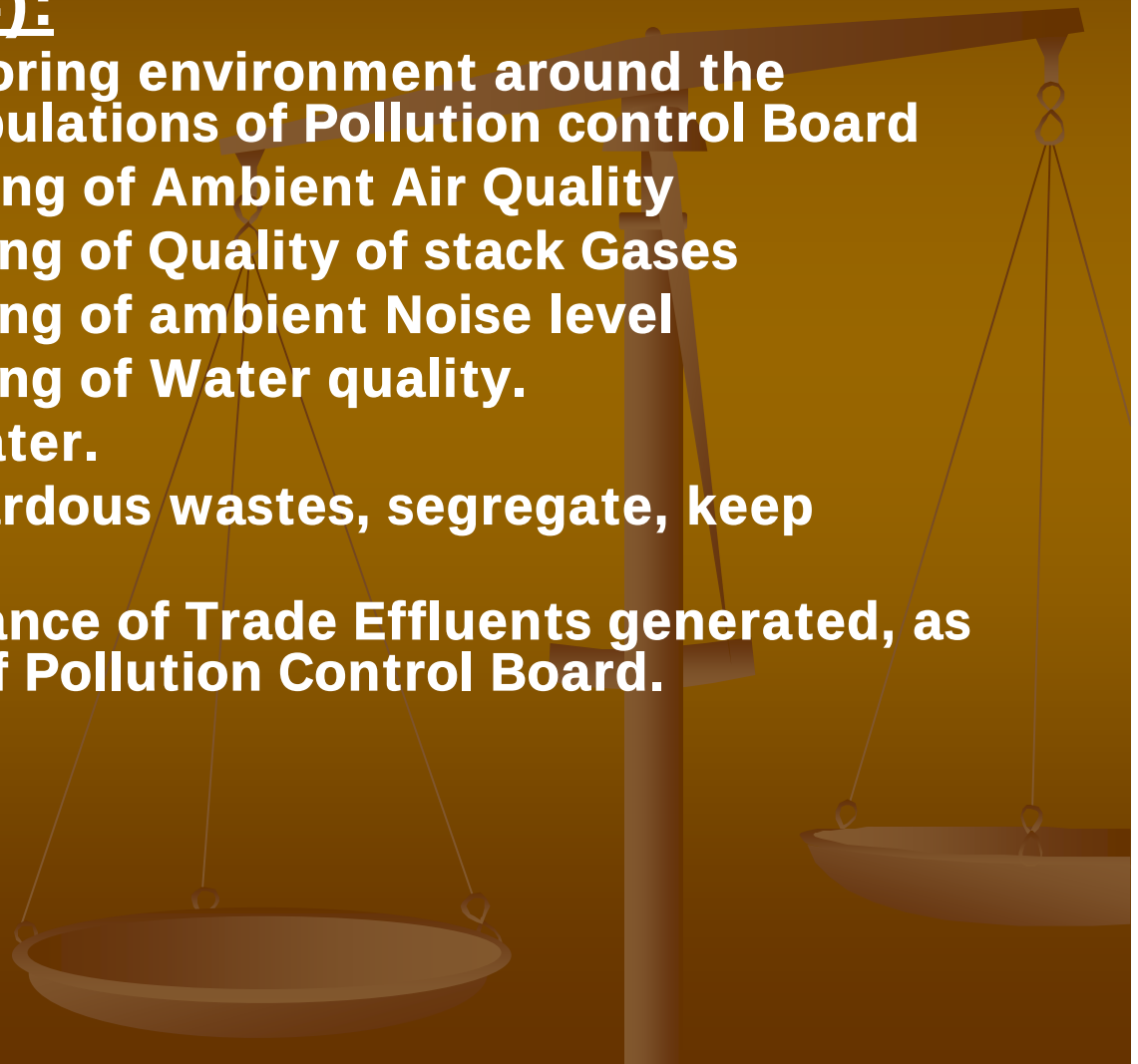
Quality Management Systems (ISO:9000) :

- **Preparation of Quality Manuals and all the related documents.**
 - **Co-ordination for Process Qualification Reports**
 - **Co-ordination for Process Validation Reports**
 - **Conduct Periodical Internal Audits**
 - **Subject to External Audits.**
- 

ADDITIONAL DUTIES (contd..)

Environment Management System **(ISO-14001/2004):**

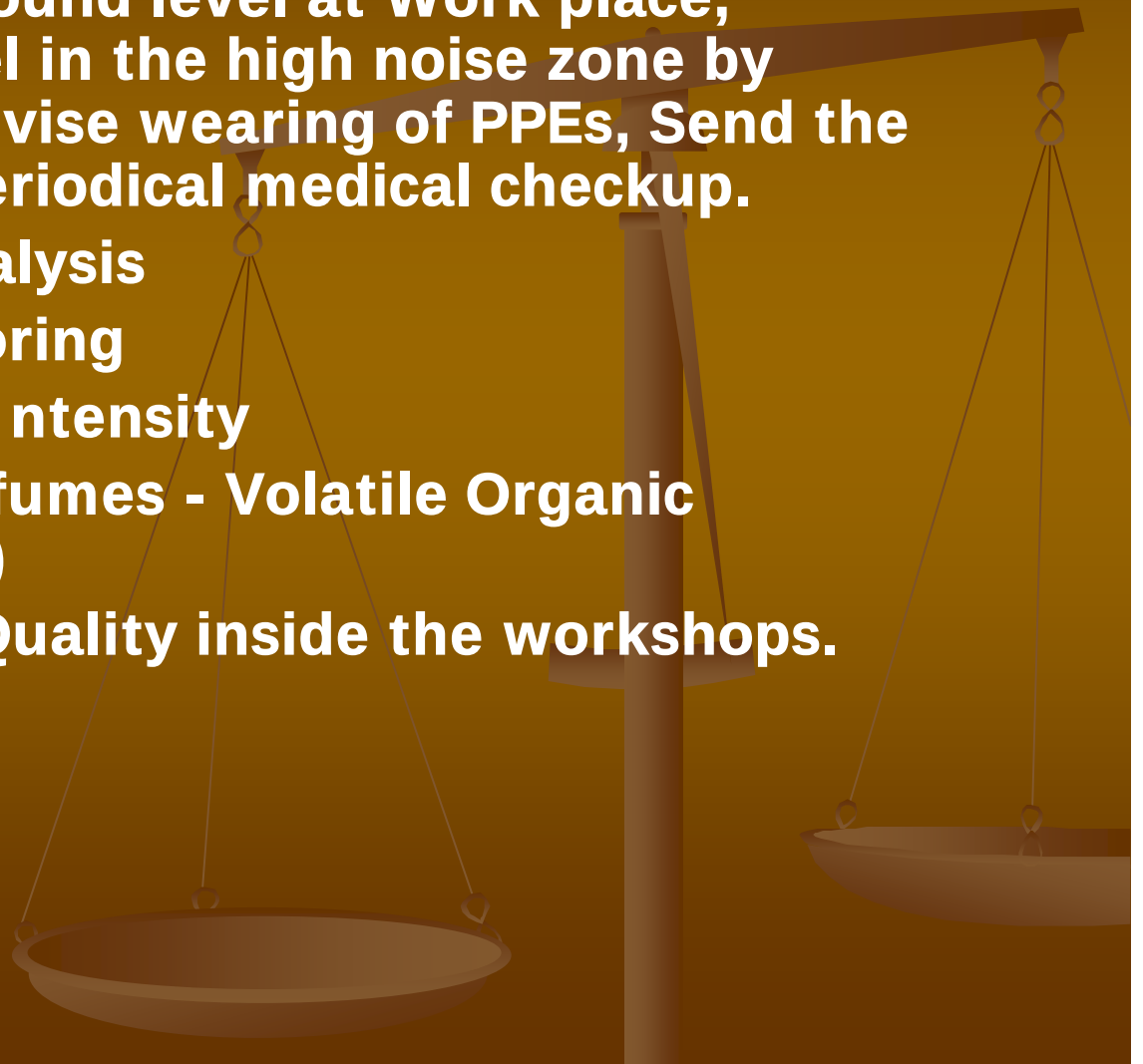
- **Measuring and Monitoring environment around the factory as per the stipulations of Pollution control Board**
- **Measuring & monitoring of Ambient Air Quality**
- **Measuring & Monitoring of Quality of stack Gases**
- **Measuring & Monitoring of ambient Noise level**
- **Measuring & Monitoring of Water quality.**
- **Testing of Sewage water.**
- **Identification of Hazardous wastes, segregate, keep under lock & key.**
- **Operation & Maintenance of Trade Effluents generated, as per the stipulations of Pollution Control Board.**



ADDITIONAL DUTIES (contd..)

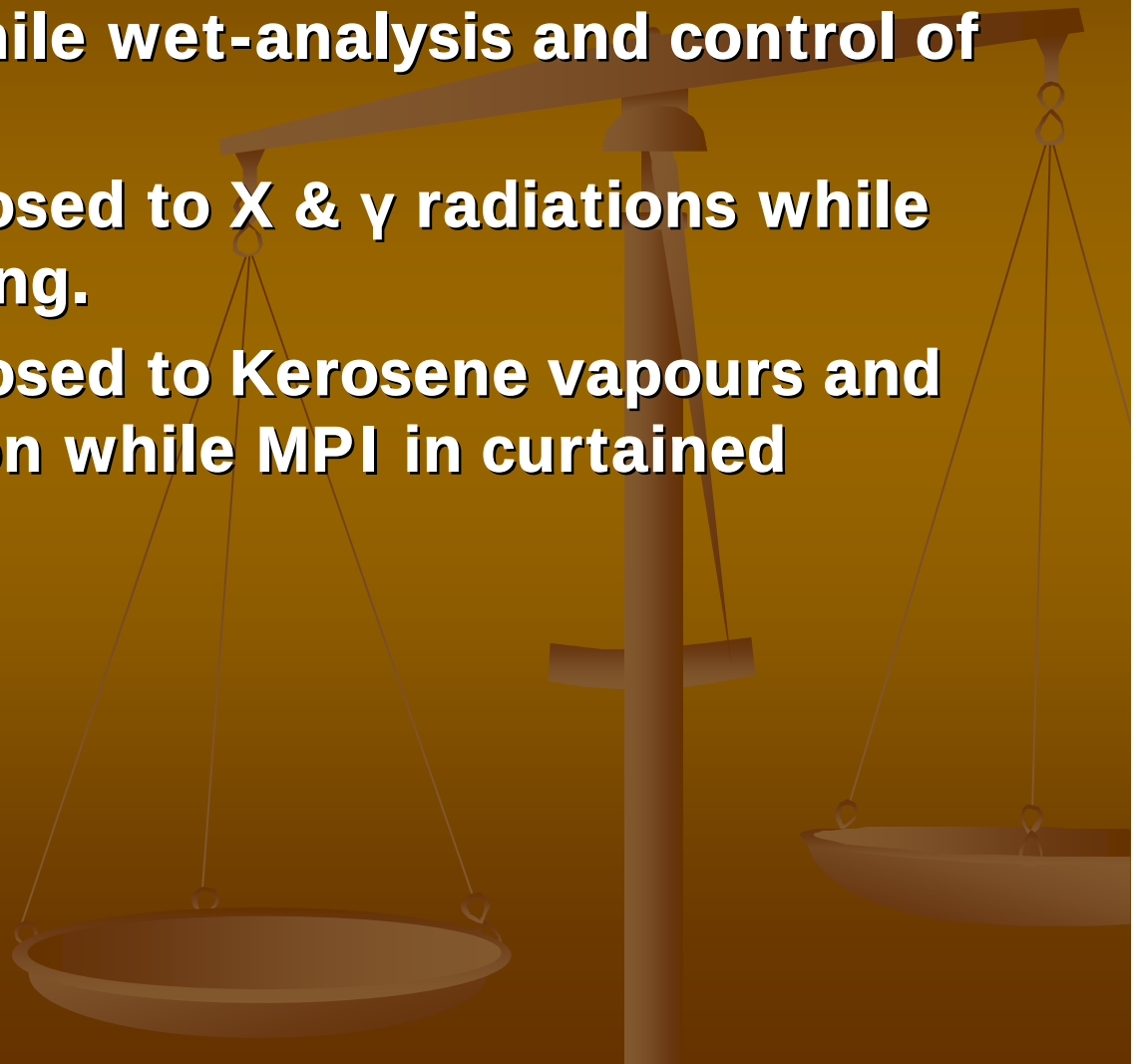
OHSAS - Occupational Health & Safety Assessment (BS-18001/2007):

- **Measurement of Sound level at Work place, Reduce sound level in the high noise zone by Engg. methods, Advise wearing of PPEs, Send the employees for a periodical medical checkup.**
- **Welding fumes analysis**
- **Heat stress monitoring**
- **Checking of Light Intensity**
- **Checking of Paint fumes - Volatile Organic Compounds (VOC)**
- **Monitoring of Air Quality inside the workshops.**



OCCUPATIONAL HAZARDS

- C&M staff are exposed to acid & chemical fumes/vapours while wet-analysis and control of Chemical process.
- C&M staff are exposed to X & γ radiations while Radiographic testing.
- C&M staff are exposed to Kerosene vapours and also Black-radiation while MPI in curtained booths.



GRADES OF POSTS

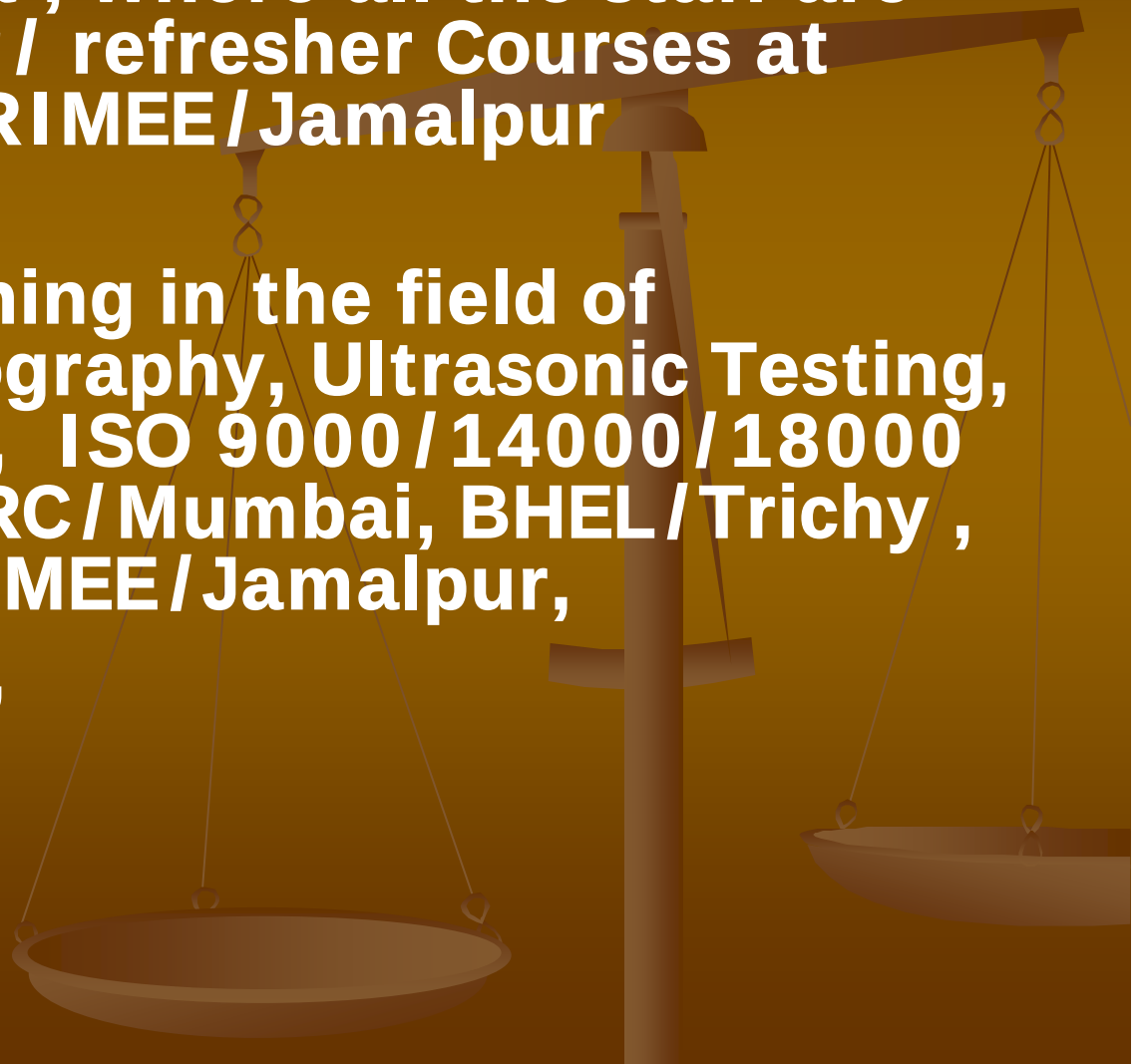
- Qualification for entry Grade of C & M Asst Gr-II is B. Sc (Chemistry) in previous pay of Rs.5000-8000
- Qualification for Grade of C & M Asst. Gr-I is M.Sc (Chemistry) or B.E / B.Tech (Chemical / Metallurgy) in previous pay of Rs. 5500-9000
(Grades in other Tech. cadres with M.Sc or B.E/B.Tech are placed in previous pay of Rs.6500-10500)
- Promotional Grades:
C& M Supdt Gr-II in previous pay of Rs.6500-10500 and
C&M Supdt Gr-I in previous pay of Rs. 7450-11500

STAFF STRENGTH

- The total staff strength is approximately 1700 in the entire Indian Railways, distributed in 15 major Zonal Railways, 7 production units, 30 Diesel sheds and 10 Electric loco sheds across the country.
- CMA Gr-II --- 170 (10%)
- CMA Gr- I --- 340 (20%)
- CMS Gr-II --- 561 (33%)
- CMS Gr- I --- 629 (37%)
- Promotional Avenues for CMS-I is very limited. There are many cases of Staff joining Group-C and retiring in the same Group.
- Total Posts of ACMT (Group-B) --- 56
in Zonal Rlys. & Production units

TRAINING

- Owing to the nature of work, this is the only department , where all the staff are sent for training/ refresher Courses at RDSO/ LKO & IRIMEE/Jamalpur
- Specialized training in the field of Industrial Radiography, Ultrasonic Testing, Welding, Paints, ISO 9000/14000/18000 are given at BARC/Mumbai, BHEL/Trichy , RDSO/ LKO, IRIMEE/Jamalpur, TUV Agents etc.,

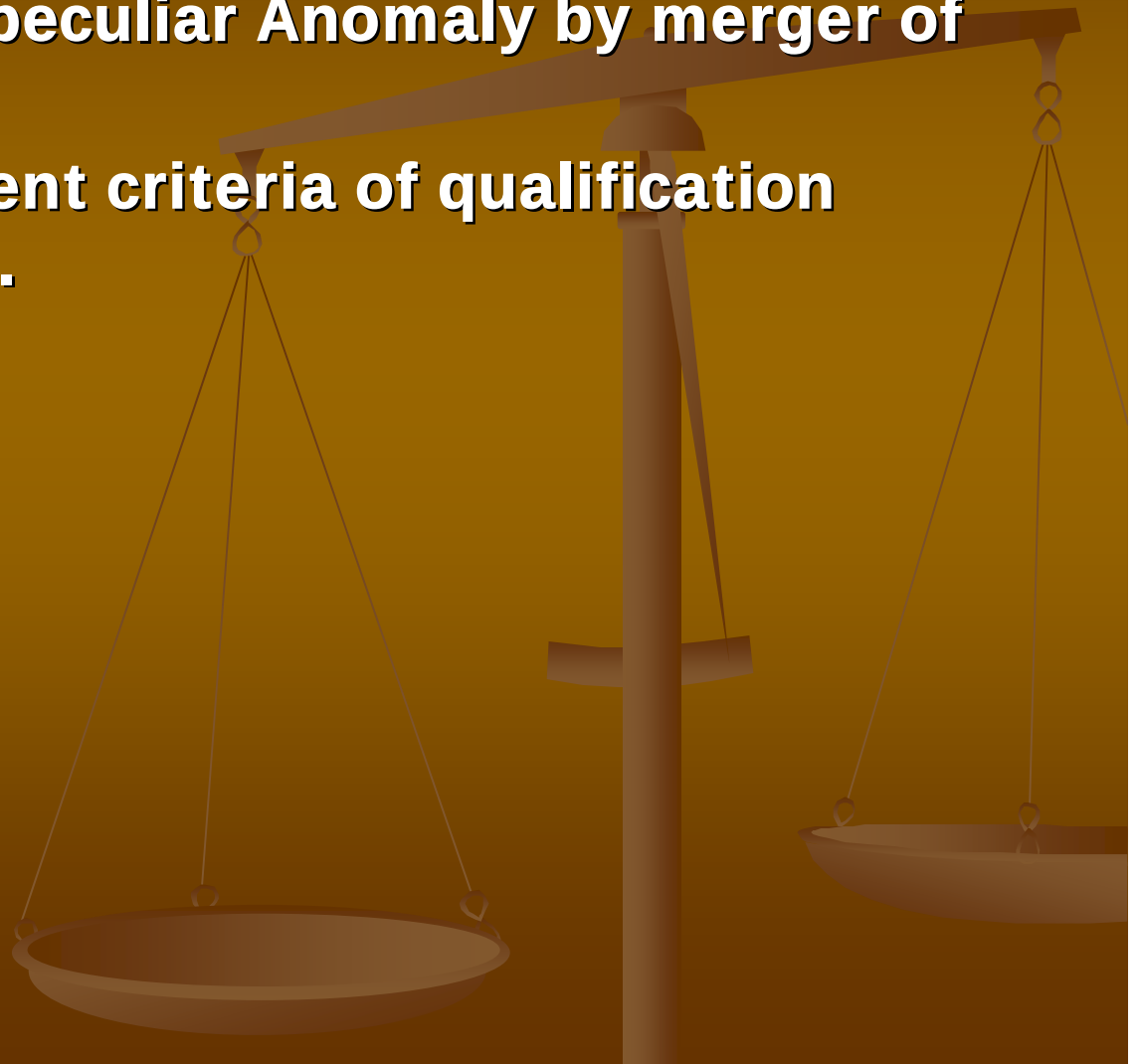


CATEGORISATION OF ORGANISATION

- Since C&M Organisation is placed in the unorganized sector (Non-technical / miscellaneous category), the primary importance to be given for this Organization has been deprived. Placing C&M Staff, who are directly / indirectly responsible for production & maintenance of Railway Rolling stocks, in the unorganized sector is unjustified. Hence it is demanded that C&M Organisation should be declared as Organised Sector (Quality Assurance wing of Mechanical department).
- Since this organization is placed under Non-technical / miscellaneous category, the benefits given to Counter parts in other Mechanical Dept. were deprived to C&M Staff. (e.g. RB's letter No. E (GP) 2003/2/22 dt. 16.06.2003 up gradation of 80 % of group 'B' post of all major departments, was not applied to C&M Organisation).

ANOMALY BY SCPC

- SCPC has created peculiar Anomaly by merger of CMA-II & CMA-I.
- Grades with different criteria of qualification have been merged.



DEMANDS

- C&M Asst. to be upgraded in revised pay to Grade pay of Rs. 4600.
- C&M Supdt. to be upgraded in revised pay to Grade pay of Rs. 5400 Gazetted.
- C&M Asst. recruited with M.Sc or B.E/B.Tech to be upgraded as C&M Supdt. to comply with the spirit of Para: 2.2.21(v) of SCPC Report.
- C&M staff to be redesignated as JE(C&M), AE(C&M) similar to Production/Design staff.
- The C&M Organization should be declared as Organized Category (Quality Assurance Wing of Mechanical Department).
- C&M staff engaged in hazardous works should be given Risk Allowance.
- C&M staff should be given Performance Allowance similar to Production staff.

CONCLUSION

- **Railway Board's Management Service Letter of Dec 2000 observes:**

“Chemical & Metallurgical Organisation of Indian Railways functions as a back bone of entire quality control and preventive maintenance exercise of all the Engineering departments”

- **Railway Board should honour its own observation by immediate awarding of due benefits and privileges to Chemical & Metallurgical Staff, particularly Group C.**

