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|  | P.R. CHANDNA | Date of Birth: 29 th March 1953 Member : AusIMM, IOD & IIM, Indian Passport : F7230716 Email: prchandna@hotmail.com ; |
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| <u>EDUCATIONAL/ PROFESSIONAL QUALIFICATIONS:</u> | | |
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| 1. | All India Higher Secondary Examination, 1969 | KV IIT, Powai, Mumbai, India |
| 2. | B.E. (Metallurgical), 1974 | MREC (Now MNIT), Jaipur, University of Rajasthan, India |
| 3. | Industrial Engineering & Business Management, 1977 | NITIE, Mumbai, India |
| 4. | Organizational Effectiveness, 1982 | SIET, Hyderabad, India |
| 5. | Diploma in Management Examination, 1988 | AIMA, New Delhi, India |
| 6. | Certified Corporate Director, 2009 | WCFCG, London, UK |

PROFESSIONAL MEMBERSHIP:

- Member, *Institute of Directors*, India.
- Life Member, *Indian Institute of Metals* (IIM), Kolkatta, India.
- Member, *Consultancy Development Centre* (CDC), New Delhi, India – An associate of FIDIC.
- Member Sectional Committee on Light Metals & Alloy (MTD-7), Bureau of Indian Standards (BIS), India.
- Member Australian Institute of Mining & Metallurgy (MAusIMM).

DISSERTATION: *“Effective engagement of board in Risk Management.”*

EXPERIENCE:

I am a Certified Corporate Director and First Class graduate in Metallurgical Engineering, with business management, having held various top technical, and managerial & general management positions and also led EPC and multi-disciplinary projects execution & management, in the Engineering Consultancy, Contracting, EPC, Project management, and Metals & Mining, Chemical, Fertilizer, Cement, NG-CNG/PNG industries. I have in depth appreciation of national and international business environment in these industries.

More than three and half decades of professional career in the base metals & mining and metallurgical engineering industry working on around forty multi – disciplinary Green field & Brown field/ De-bottlenecking/ Expansion/ Start up & Commissioning/ Performance improvement projects – from *concept to commissioning* and Operations & Maintenance of process plants in India and overseas. This experience includes:

- *Trained at smelter plants at Norzink AS, Norway and Noyelle Gaudault, France with experience of more than 12 years in non-ferrous smelters operations & maintenance, PPC, technology audits, benchmarking, budgeting & cost control, including six years as Assistant Plant Manager working in Zinc & Lead Smelters and associated Pyro, Hydro Metallurgical and chemical process plants, Waelz kiln, Sulphuric acid, Mercury Removal and fertilizer & phosphoric acid plants operations. I have been rewarded with appreciation letters for trouble shooting during breakdowns and reviving back the plant into operation within the shortest period and highest productivities/ productions achievement during operations. I was also associated with the execution and commissioning of a pioneer Environmental Mercury removal project right from the discovery of mercury in the smelter sulphur off gases utilized for manufacture of Sulphuric acid at the Zinc Smelter Hydro metallurgical plant.*
- More than 22 years in consulting – management & engineering, projects execution – from concept to commissioning, due diligence, financial & economic appraisals, preparation of bankable feasibility reports, technology selection & absorption, market surveys, EPC, project management, procurement, contract management, construction, and commissioning of zinc, lead, cadmium, gold, silver, copper, cobalt,

nickel, tin, titanium sponge, copper rod plants, Iron & Steel, Cement, hydrated & quick lime plants, railway siding, and Natural Gas – Piped / CNG supply and distribution systems. *I have been rewarded with number of appreciation letters & rewards for executing projects within budget and ahead of time schedule.*

I have visited numbers of Pyro & Hydro metallurgical process based smelter plants for Lead, Zinc, Cadmium, Copper & Cobalt Solvent extraction & Electro win (SX -EW) plant, Sulphuric acid, Mercury Removal & Recovery, Silver & Gold Refineries, Integrated Secondary Copper Refineries & Copper rod plants (CCR), abroad in *Norway, France, Central Africa - DR Congo, and USA.*

I have represented governing councils of Consultancy Development Centre (CDC), and Consulting Engineers Association of India (CEAI) – both an associate of FIDIC. I am also a member of CDC. I am also trained internal auditors for Total Quality Systems (ISO 9000 - 2000) in the company.

I have also served as Honorary Treasurer/ Secretary/ Joint Secretary, etc., of Indian Institute of Metals (IIM) and organized number of International Seminars/ Conferences/ Exhibitions on Metallurgy, Metals & Minerals.

I was also associated with Vigilance function as Vigilance officer in MECON Limited.

DETAILED EXPERIENCE:

YASHAD CONSULTANCY PVT. LTD., INDIA: An Independent Engineering Consultancy organization. Presently, working as CEO & Managing Director, since July 2008. Clients: Rubamin SPRL, D R Congo, Exide Batteries, India and Vedanta Resources Plc., Chanderiya,

CHEMAF SPRL, D R CONGO: D R Congo based Copper & Cobalt metal producing company in Democratic Republic of Congo. I had joined Copper plant on 17/10/2007 as General Manager – Projects Development. I handled projects in Copper & Cobalt - primary metal producing plants based on Solvent extraction & Electro win process (SX-EW), froth flotation plants, Heavy media separation (HMS), washing plants, Cement

plants, Quick & hydrated lime plants, Railway line between Etoile Copper mines to Copper smelter plant at Lubumbashi. Executing scoping studies, bankable feasibility reports, for different mining concessions in Copper & Cobalt, Gold, Limestone, etc.

M/s MECON LIMITED: India's frontline engineering, consultancy, EPC, and Project Management organization. Worked with M/s MECON Limited, since 16/11/1987 to 15/10/2006. Last role as head of three **SBU** (Strategic Business Units), namely, Non-Ferrous Metals, Iron Making & Steel and Management Advisory Services/ Techno-Economic and Estimating units.

- **Deputy General Manager (SBU):** 01/04/2006 to 15/10/2007
- **Assistant General Manager:** 01/04/2000 to 31/03/2006
- **Senior Manager:** 01/04/1995 to 31/03/2000
- **Assistant Engineering Manager:** 01/07/1991 to 31/03/1995
- **Senior Design Engineer:** 16/11/1987 to 30/06/1991

Worked in Non-Ferrous and Ferrous Metals, Project Management and Management Advisory Services/ Techno – Economic and Estimating Sections. Industries covered – Zinc, Lead, Cadmium, Precious Metals Refineries – Gold & Silver, Copper & Secondary Copper Refineries, Tin, Nickel, Titanium, Continuous Cast Copper Rod plants, Compressed NG/ Piped NG & Cross country gas pipelines.

My area of expertise in these industries had been in country's premier metallurgical engineering consultancy organization in Complete Project Engineering, Management and Consultancy; comprising of identification of projects & complete execution, i.e., from concept to commissioning; Capital /project cost estimations, Bankable Feasibility studies; Economic analysis, Process/ technology selection and successful absorption, Technology status review; New technology opportunities/ strategies; Due diligence, Business Planning and Strategy; Market appraisals; Site selection, Detailed engineering, Contract Management, Procurement, Consultancy, Construction & Erection, Start-ups & Commissioning, Project Leader, Project monitoring and Project Management and General Management for the past more than 18 years – **Led a multi – disciplinary team consisting of design, detailed engineering, planning, projects, cost control,**

procurement, inspection, construction and commissioning engineers, finance, etc.

Received numbers of appreciation letters from client as well the management.

M/s HINDUSTAN ZINC LIMITED: (Now M/s Vedanta Resources Plc.):

I had an experience of more than 12 years in operations & maintenance, production, planning & control, bench marking, technology audit, and to optimize the process & production performances, manufacturing costs and improve energy & metal output recovery efficiencies, commissioning and general management of both the Zinc - Lead Smelters plants at Debari and Visakhapatnam (including Pyro & Hydro metallurgical based leach residue plants and associated metallurgical gas based Sulphuric acid plants and fertilizer plants – SSP and phosphoric acid plants) of M/s Hindustan Zinc Limited (now M/s Vedanta Resources Plc).

Worked with M/s Hindustan Zinc Limited, Udaipur, from 01/08/1975 to 15/11/1987:

Assistant Plant Manager (Met.): 1/07/1981 to 15/11/1987

Fluo – Solid Roaster & Acid plant, Zinc Leach Residue plant (Waelz Process), Leaching & Purification and Mercury Removal plants at Lead and Zinc Smelter, Visakhapatnam (AP).

The nature of duties included production, planning, coordination and control within the sections to ensure smooth working, cost control, process and technology improvements, and general administration – **led a team of engineers from multi disciplines, operators/ workmen and finance personnel consisting of around one and half hundred people and achieved excellence in operations and highest productions/ productivities.**

➤ **Assistant Engineer:** 1/02/1977 to 30/06/1981

Fluo – Solid Roaster & Acid, SSP, Phosphoric acid plants, Leaching & Cadmium and Zinc Leach Residue Treatment (Jarosite -Conversion) plant at Zinc Smelters, Debari and Visakhapatnam units.

The nature of duties included control of operatives, shifts and to ensure proper balancing between sections to maintain continuity of operations – led a team of engineers and operators/ workmen.

➤ **Probationer Engineer** from 1st August 1975, for a period of two years:

A reduction of six months in training period was awarded to me on the ground of merit and I was absorbed as Assistant Engineer in advance on 1/02/1977.

During this period I had the opportunity to go around all the units namely, Zinc & Lead Smelting and Mining, Ore dressing, Fertilizer plants – SSP and Phosphoric acid plants, Rock phosphate mines, Project and planning department, Finance, Maintenance, Marketing departments and In-plant training in Zinc Smelter.

M/s PROCESS ENGINEERING CORP.:

➤ **Sales / Design Engineer:** 01/09/1974 to 31/07/1975

The nature of duties included pre-selling, designing, preparation of tenders, negotiating technical and commercial terms, system detailing and executing projects, process engineering, market survey, project pre – feasibility studies, evaluation and report preparation.

ASSIGNMENTS/ VISITS ABROAD:

Countries visited:

NORWAY, USA, AND FRANCE

1. From 21/05/1984 to 01/06/1984 at **M/s Norzink A/s, Odda, Norway:**

- ❖ *Training in operation and maintenance of **Mercury removal plant** based on **Boliden – Norzink Process** route for the SO₂ off gases from Zinc Roaster plant.*
- ❖ *Overview of Zinc Smelting hydro-metallurgical operations (**RLE – Roast Leach – Electrowin Process Route**) at Norzink plant for extraction of Zinc, Cadmium and Jarosite leach residue treatment processes and Sulphuric acid plant.*

2. From 02/06/1984 to 06/06/1984 at **M/s Noyelle Godault, France:**

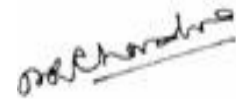
- ❖ *To study and recommend the process of **Pyro – refining of Lead and Silver bullion.***
 - ❖ *An overview of process and operations of sintering and **Imperial Smelting Furnace (ISF)** for the simultaneous extraction of both Lead and Zinc.*
3. From 12/11/1995 to 22/11/1995 at **USA:**
- ❖ *To study operations of **Continuous Cast Copper Rod (CCR)** plants at:*
 - ***M/s Southwire Company, Carrollton, Atlanta, Georgia, USA.***
 - ***M/s Amrod Corp., Newark, New Jersey, USA.***
 - ❖ ***M/s Morgan Construction Company, Worcester, USA***
 - ❖ *To evaluate the plant and equipment and study process and operations of the **Secondary Copper recovery and Continuous Cast Copper rod plants of M/s Southwire Company at Gaston, Columbia, USA – A due diligence study for purchase recommendation to the client in USA.***

PAPER PRESENTED:

- **"Lead Zinc Smelter at Chanderiya - Concept towards realization"** at ILZIC Silver Jubilee Conference - Lead, Zinc and Cadmium Into The 90's New Delhi, 1st-3rd November 1988.
- **"Recent developments in Lead Smelting and Refining Technologies"** NMD'92 Indian Institute of Metals held at Udaipur between 14th-17th November 1992.
- **"Recent developments in Lead Smelting and Refining Technologies"** MECON JOURNAL Vol. 13 No.1 September 1993.
- **"Zinc Metals Industry in India – Role of Consultancy"** Indian Metals Conference organized by Metal Bulletin & Metals Junctions, 23rd – 25th April 2006 at Mumbai.
- **"Indian Zinc Metals Industry"** 10th Zinc & its Market Seminar organized by Metal Bulletin, 24th – 26th May 2006 at London.

TRAININGS IN INDIA:

| SL. No. | Training Programme | From | To | Organisations |
|---------|--|------------|------------|--|
| 1. | Summer Internship in a "Foundry Plant" | 05/06/1972 | 09/07/1972 | M/s Peerless Foundries, Sahibabad, Ghaziabad. |
| 2. | Summer Internship in a "Copper Smelter Plant" | 17/05/1973 | 26/06/1973 | M/s Hindustan Copper Ltd., Khetri Nagar. |
| 3. | "Industrial Engg. & Business Management" | 18/03/1977 | 31/03/1977 | M/s NITIE, Powai, Bombay. |
| 4. | "Operation and Maintenance of Package Boilers" | 01/08/1977 | 03/08/1977 | M/s IAEC, Bhandup, Bombay |
| 5. | "Industrial Safety" | 14/11/1981 | 16/11/1981 | M/s NSC, Bombay |
| 6. | "Computer Appreciation" | 23/03/1982 | 25/03/1982 | M/s Howard Finley, Madras |
| 7. | "Organisational Effectiveness" | 13/09/1982 | 18/09/1982 | M/s SIET, Hyderabad. |
| 8. | "Value Engineering" | 12/09/1983 | 12/12/1983 | M/s R. P. Billimoria Consultants Pvt. Ltd., New Delhi. |
| 9. | "Computer Orientation & PC Application" | 20/04/1987 | 15/05/1987 | M/s NITIE, Powai, Bombay |
| 10. | "Internal Audit of Quality Systems" | 08/09/1994 | 09/09/1994 | M/s CII, New Delhi |
| 11. | "Internal Auditor of ISO 9001 – 2000" | 18/06/2001 | 20/06/2001 | M/s RWTUV, New Delhi |
| 12. | "Contract Management & Contract Strategy" | 10/02/2006 | 11/02/2006 | M/s AIMS, Chennai |

**(P. R. CHANDNA)**