

Brief Bio-data

1. Name: **Dr. Manoj Namdeo Bagde**

2. Date of Birth: **01.04.1970**

3. Current Position & Address: Sr. Principal Scientist, CSIR-CIMFR Nagpur Research Center, 17/C, Telankhedi, Nagpur 440001. Email: mnbagde@cimfr.nic.in, Telefax:0712-2510604

4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/Institute	Subject
1.	Ph. D.	2004	VSB-TU, Ostrava, Czech Republic	Mining Geo-mechanics
2.	M. Tech	1995	IIT Delhi	Rock Mechanics
3.	B. E.	1993	VRCE Nagpur	Mining Eng.

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Scientist	CSIR-CIMFR	29.03.1996	Till date	R & D
Visiting Fellow	McGill University, Canada	07/2010	07/2011	R & D
Ph. D. Scholar	VSB-TU, Ostrava, Czech Republic	02/2002	06/2004	R & D

6. Work Area(s)/ Specialization: **Rock Mechanics & Mining Technology, Strata Control & Instrumentation, Mining Methods & Ground Support, Rock Structure Stabilization including old tunnels and ancient caves, Backfill designing in hard rock mining & Rock Fatigue etc.**

7. Major contributions: (Max. 100 words):

- Developed rock mass classification system as well as estimation of rock mass strength and modulus using fractal dimension and image analysis technique.
- Modified Rock fall Hazard Rating System (RHRS) to identify failure risk of natural rock slope surface and to plan stabilization measures at the World-heritage site of Ajanta caves.
- Research carried out related to the fatigue behaviour of the rock which helped in mitigation measures to be planned to prevent rock burst related hazards in deep coal mines.
- Through scientific studies and application of the Numerical modelling, optimum support system and stoping parameters were designed in the case of number of MOIL mines.

8. No. of Research Publications:

- Papers in Journals: **International Journals:11 & National Journals :9**
- In conference proceedings: **International :30 & National :42**
- Invited lectures delivered: **5**
- List of best 05 publications
- **Bagde MN.** (2016). Characterization of failure modes & planned stabilization measures for the Ajanta Caves in India. Int. J. Rock Mech & Min Sci, 81:12-18. (Citation 2).
- **Bagde MN, Petros V.** (2009). Fatigue and dynamic energy behavior of the rock subjected to cyclical loading. Int. J. Rock Mech & Min Sci, 46:200-209.(Citation 188).
- **Bagde MN, Petros V.** (2005). Fatigue properties of intact sandstone samples subjected to uniaxial cyclical loading. Int. J. Rock Mech & Min Sci, 42:237-250. (Citation 325).

- **Bagde MN**, Petros V. (2005). Waveform effect on fatigue properties of intact sandstone in uniaxial cyclic loading. *Rock Mech & Rock Eng*, 38 (3):169-196. (Citation 115).
- **Bagde MN**, Raina AK, Chakraborty AK, Jethwa JL. (2002). Rock mass characterisation by fractal dimensions. *Engineering Geology*, 63(1-2):141-155. (Citation 92).
- Books/Chapters authored/edited:
- Muthereja IL, Raina AK, **Bagde MN** & Manekar GG. (Editors). Proc. National Summit on “Sustainability of UG Mines in India”, December 15-16, 2017, Nagpur, Organized by Indian Mine Manager’s Association, Nagpur Branch.
- **Bagde MN** & Tiwari MS. (Editors). Proc. of the National Technical Meet on “Advances in Mining Technology” October 1-2, 2011, VNIT Nagpur, Organized jointly by VNIT Mining Alumni Association and VNIT, Nagpur.

9. List of 5 Major Contract R&D Projects:

- **"Estimation of Rock Mass Strength and Modulus based on Fractal Approach"**. Sponsored by Ministry of Water Resources, Govt. of India. (April 2004-September 2007).
- **"Feasibility and application of bio-fuel as well as low cost and diluted ANFO for cost effective and safe blasting practices in opencast metalliferrous mines in India"**. Sponsored by Ministry of Mines, Govt. of India (2010-2016).
- **"Analysis of backfill failure into adjacent stopes"** under BOYSCAST Fellowship at Dept. of Mining and Materials Eng., McGill University, Canada from July 2010 to July 2011.
- Designing stoping operations in thick & wide orebody at Kandri mine of M/S MOIL Ltd.
- Advice on removal of boulders and slope surface stabilization at Ajanta Caves of ASI.

10. (a) Name of Patents/Copyrights applied /granted/commercialized: NOT Applicable

(b) Technologies/Products /knowhow/Services developed: **Know-how in the area of:**

- Stabilization at ancient world heritage sites, caves, monuments and tunnels.
- Designing of mining, stoping methods and support in adverse conditions.
- Support Design and Instrumentation Monitoring in hard rock mining.

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships:

- **BOYSCAST Fellowship** of DST, Govt. of India for the year 2009-10.
- **Czech Govt. Scholarship** (2002-04) - PhD. at VSB-Technical Un., Ostrava, Czech Republic.
- **Honorary Professor**, CSIR-AcSIR-Academy of Scientific and Innovative Research.
- Received twice best paper awards from ISRMTT published in INDOROCK 2013 & 2014.
- Total citations to his research publications stands at more than 825 with i10-index at 7.
- Registered Professional Engineer – Engineering Council of India
- Chartered Engineer (India) and Member – The Institution of Engineers (India) ,
- Life Member – IMMA(I), MGMI, ISRMTT, IGS, MEAI, ISRM

12. Societal Contributions:

- Know-how developed in area of underground mine backfilling will be helpful towards management of surface wastes generated from mining activities and save environment.
- Development of guidelines for safer application of Ammonium Nitrate Fuel Oxygen (ANFO) with Bio-fuel and used/diluted diesel as a replacement in opencast metal mines.
- **Stabilization of ancient world heritage sites, caves and monuments:** Studies carried out at Historic UNESCO World Heritage Monument at Ajantha Caves helped in planning stabilization measures considering conservation and preservation of the ancient caves.