

1. Name : **DR. C. SAWMLIANA**
2. Date of birth : **25th February 1971**
3. Current Position and Address : Principal Scientist
Blasting Department
CSIR-CIMFR, Dhanbad
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4. Educational Qualifications :



Sl. No.	Degree/Certificate	Year of Passing	University/Institute	Subjects
1	Doctor of Philosophy	2007	Indian School of Mines (ISM), Dhanbad	Mining Engineering
2	Master of Technology	1997	Banaras Hindu University (BHU), Varanasi	Mining Engineering (Rock Mechanics)
3	Bachelor of Engineering (BE)	1995	Bengal Engineering College (Calcutta Univ.)	Mining Engineering
4	Master of Science (Disaster Mitigation)	2011	Sikkim Manipal University, Gangtok, Sikkim	Disaster Mitigation
5	Pre-University (Science)	1991	North Eastern Hills University (NEHU)	Science

5. Work Experience :

Sl. No.	Designation	Institution/ Company	From	To	Nature of Work
1	Teacher	St. Paul Higher Secondary School, Aizawl, Mizoram	June 1997	August 1998	Teaching Science
2	Project Fellow	CSIR-CIMFR	Sep. 1998	June 1999	Collection of field data and assistance to scientists
2	Scientist-'B'	CSIR-CIMFR	July 1999	June 2002	R&D works related to rock
3	Scientist-'C'	CSIR-CIMFR	July	June	blasting in

4	Senior Scientist	CSIR-CIMFR	2002 July 2006	2006 June 2009	mining and various civil construction projects.
5	Principal Scientist	CSIR-CIMFR	July 2009	Till date	

6. Area of specialization : Design of rock excavation using explosives and blasting, controlled blasting in mines & quarries, civil constructions and demolition blasting.
7. Honours/Awards received :
- (a) Banaras Hindu University (BHU) Gold Medal for standing First in the M. Tech (Mining) Examination in the year 1997.
 - (b) ZONET Award, 2007: Received for "Exemplary Citizen for the Mizo Youth" given by the Zonet Cable Network of Mizoram.
 - (c) STAM Award 2012: Received for "Contributions in Applied Science for the state of Mizoram" given by the Science Teachers Association of Mizoram.
 - (d) Received Appreciation Letter (Citation) from Engineer-in-Chief & Secretary to the Government of Mizoram, Public Works Department (PWD) for excellent work at Midumkham Hilly Road Widening Project using Controlled Blasting, under the World Bank Funded Mizoram Road Construction Project.
 - (e) CSIR Technology Award-2012: Included among the Team Members of CIMFR Highwall Mining Group, which received 'CSIR Technology Award-2012.
8. Fellowships/Scholarships : Nil
9. No. of Research Publications : 65
- Papers in Journals : 34
 - Papers in Conference proceedings : 31
 - Invited Lecture :

➤ List of best 05 Publications :

- (i) Sawmliana, C. and P. Pal Roy (2003): Improving fragmentation of coal during ring-hole blasting in Blasting Gallery Panels. *The 29th annual Conference on Explosives and Blasting Technique, Nashville, Tennessee, U.S.A., February 2-5, 2003.*
- (ii) Sawmliana, C., P. Pal Roy and V. M. S. R. Murthy (2003): Model tests and field experiments for fragmentation assessment during ringhole blasting in BG panels, *International Journal of Fragmentation and Blasting (FRAGBLAST)*, A. A. Balkema, The Netherlands, Vol. 7, No. 4, 2003, pp. 257-268.
- (iii) Sawmliana, C. , P. Pal Roy, R. K. Singh and T. N. Singh (2007): Blast induced air overpressure and its prediction using artificial neural network. *TIMM (Mining Technology)*, 2007, Vol. 113, No. 2, pp. 41-48.
- (iv) Sawmliana, C., Rakesh Kr. Singh and Pijush Pal Roy, Sanghriima Chawngthu and Ramhluna Khiangte (2008): Controlled blasting at Durtlang-Leitan: a successful blasting operation in sensitive and hilly area. *The 42nd U.S. Rock Mechanics Symposium, June 29 – July 2, 2008, San Francisco, USA, ARMA 08-119.*
- (v) Sawmliana, C., P. Pal Roy and R. K. Singh: Successful application of bamboo-spacers in smooth wall blasting technique for construction of highway in hilly terrain- a case study, *Proc. 9th International Conference on Rock fragmentation by Blasting (Fragblast'9)*, Granada, Spain, September 13-17, 2009.

10. No. of Books authored/edited : Nil

BOOK Published: 'Ringhole and Induced Blasting in Blasting Gallery Method' jointly co-authored by Dr. C. Sawmliana, Dr. VMSR Murthy & Dr. P. Pal Roy. Published by V. D. M. Verlarg, German. Cost: Euro \$. 79/-

11. (a) No. of patents granted/applied for : Nil

(b) Technologies developed, licensed and : Nil
/or commercialized

12. Foreign visits :

- (a) Visited Nashville, Tennessee State, USA and presented a technical paper entitled 'Improving fragmentation during ring-hole blasting in coal in Blasting Gallery Panel of underground mines' in the 29th Annual Conference on Explosive and Blasting Technique, 2-5 February 2003, Nashville, USA organized by the International Society of Explosives Engineers (ISEE).
- (b) Visited San Francisco, CA, USA and presented scientific paper entitled 'Controlled blasting at Durtlang-Leitan: a successful blasting operation in sensitive and hilly area' in the 42nd US Rock Mechanics Symposium , 29th June to 2nd July, 2008, Westin, San Francisco, CA jointly organized by the American Rock Mechanics Association (ARMA) and the Canadian Rock Mechanics Association (CARMA).
- (c) Visited Bhutan during 12th – 30th April, 2000 for conducting controlled blasting operation for the Construction of Powder House Cavern at Tala Hydroelectric Project.

13. Details of Professional Membership :

International Society of Rock Mechanics

14. Major Contributions (Max. 150 words) :

- (i) Developed various induced blasting patterns for Hard Roof Management in Underground coal mines, which has helped the mine management to extract the coal safely and economically, which would otherwise lead to close down the mines due to safety problems.
- (ii) Developed for the first time in the country one Modified Angled-cut pattern replacing the conventional Solid Blasting Pattern in Degree-I gassy mines to enhance production of coal per blast from 14-16 ton to 30-35 ton. It got the approval of DGMS, the Regulatory Agency in India.
- (iii) Controlled blasting using bamboo spacers in the ecologically fragile hilly areas of Mizoram for the widening of Aizawl-Thenzawl-Lunglei World Bank Funded road construction project and Kaladan Multi Nodal Transport Project.
- (iv) Controlled demolition of coffer walls using explosive and blasting at Teesta Low Dam Hydroelectric Project, Stages – III & IV of NHPC Limited, Dist. Darjeeling, West Bengal. Controlled demolition of Rail-Over-Bridges (ROBs)

Nos. 111 & 123 of Eastern Railways using explosive and blasting at Kahalgaon, Bhagalpur Dist., Bihar.

- (v) Co-Project Leader in two S& T Projects, More than 100 Consultancy Projects and two Sponsored Projects where works as Principal Investigator of the Blasting Department of CSIR-CIMFR. Also completed one CSIR-CIMFR In-house project.

15. Technologies and Products/services :
- i. Developed : Nil
 - ii. Licensed : Nil
 - iii. Commercialized : Nil

16. Designs and Prototype Developed :

- (i) Swing Angle Compass for measurement of drill holes for induced blasting and ringhole blasting in Blasting Gallery Method of underground coal mines.
- (ii) Fabricated ground vibration measurement attachments for roof of the underground coal mine for monitoring of ground vibration induced by blasting in underground mines as well as in opencast workings.
- (iii) Fabricated Censor's Platform for P&S wave measurement of rocks.

17. Honours and awards won for technological contributions or sociological impact of R&D : Received letter of appreciation from CMD of Cuprum Bagrodia Ltd. for improvement of blast fragmentation at Sharda Highwall Mining Project.



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