

BIO-DATA

PROF. D. C. PANIGRAHI
DEPARTMENT OF MINING ENGINEERING
INDIAN SCHOOL OF MINES
DHANBAD – 826 004

EXECUTIVE SUMMARY

A summary of achievements in different areas is as follows:

a) National and International Recognitions:

- Conferred National Mineral Award-1998 by the Ministry of Mines and Minerals, Govt. of India in recognition of distinguished services in the field of Mining Technology.
- Conferred the 'ASPIRE' recognition by Tata Iron and Steel Company Ltd. in 2005 for successfully improving workplace environment in one of their deep coal mines at 650m depth in 2003-2004.
- Conferred honorary membership of International Advisory Board for the International Journal of Archives of Mining Sciences in 2002 by Polish Academy of Sciences, Poland
- Conferred an honorary membership (one of the eleven members) of International Mine Ventilation Committee representing eleven leading mineral producing countries of the world in 1997, viz. USA, UK, Canada, Germany, France, Japan, Australia, South Africa, Poland, China and India.
- Conferred an honorary membership of International Bureau of Mining Thermophysics in 1998.
- Won an international bid in 2005 and as a result India will be the first country in Asia to host the 9th International Mine Ventilation Congress in New Delhi.
- Invited by the Pennsylvania State University, USA in 1997 and more than 10 organisations in India to deliver lectures on advanced research areas of Mine Ventilation, Mine Fires etc.
- Invited to Chair a Technical session on "Mine Fires" during the 7th International Mine Ventilation Congress at Krakow, Poland in 2001.
- Appointed as a member of Expert Committee for reopening of sealed off fire areas after New Kenda mine disaster in 1994 in which 55 persons had died.

b) Academic achievements:

- Edited a book containing papers of reputed authors from 9 countries and the book has been published by A. A. Balkema, Rotterdam, Netherlands in 2001.
- Published 63 papers in International Journals, National Journals and important Proceedings in the area of Mine Ventilation Engineering.
- Completed 8 research projects as Project Leader and Co-ordinator, and submitted the reports as single/main author and presently executing 2 research projects as Project Leader and Coordinator.
- Guided 6 research students for Ph.D. degree in Mining Engineering, 11 students for M. Tech. in Mining Engineering and presently guiding 3 students for Ph.D. degree in Mining Engineering.

c) Service to the Industry:

- Successfully completed 70 industry sponsored consultancy projects as Project Leader and Co-ordinator for solving the real life problems of industry and submitted the reports as single/first author. Presently executing 16 projects as Project Leader and Co-ordinator. These projects have been sponsored by 15 different companies. **The solutions to these real life problems are implemented by the mining companies for improvement of workplace environment in underground mines, which in turn provide the miners the required safety and better quality of life at their working places.**
- Developed an industrial grade software "VENTSYS" for designing of mine ventilation systems. It has been purchased and used by 9 different mining companies.
- Developed course modules for Executive Development Programmes on Mine Ventilation related topics and trained 384 executives from 12 different mining companies.

Continued next page

d) Development of laboratory and other administrative/organisational activities:

- Developed a laboratory on “Mine Gases and Mine Fire Control” and it is equipped with sophisticated instruments for carrying out advanced research on emission of mine gases and mine fire control.
- Organised one International Symposium on Mine Environment and Ventilation in 2000. Participants from 10 countries attended the symposium. Organised one National Seminar on “Role of Indian School of Mines in the development of Indian Mineral Industry in the new millennium”.
- Dy.-Coordinator, Centre of Advance Studies on Innovative Mining Systems during 1997-2002 and Mine Safety Management during 2004-2007 funded by UGC for carrying out research in new frontier areas of Mining Engineering.
- Vice-chairman, Computer Society of India, Dhanbad Chapter; and involved in the academic and research activities of a number of organisations.
- Vice-Chairman, Central Purchase Committee of the Institute.
- Vice-Chairman, IIT-JEE from Indian School of Mines, Dhanbad.
- Chairman of a number of important committees in the institute.

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BIO-DATA

1. **Name** : **PROFESSOR DURGA CHARAN PANIGRAHI**
2. **Father's name** : Late Harihar Panigrahi
3. **Address with telephone/Fax/e-mail No. etc.)** :
- a) **Official** : Professor
Department of Mining Engineering
Indian School of Mines
Dhanbad – 826 004, JHARKHAND
Telephone : 0326-2210024/25/26/27 (PBX)
Ext. 5235
Fax : 0326-2210028/2206396
E-mail : dc_panigrahi@yahoo.co.in
: d_c_panigrahi@hotmail.com
4. **Nationality** : Indian
5. **Date of birth** : 29.03.1961
6. **Educational qualification** :

Degree	Year	University/Institution	% of Marks	Remarks
B. Tech (Mining Engg.)	1984	Indian School of Mines, Dhanbad.	4.16 in a 5.00 point scale	-
M. Tech (Mining Engg.)	1990	Indian School of Mines, Dhanbad.	By Research	Thesis adjudged Excellent (Direct relevance to industry)
M. Tech (Industrial Engg. & Management)	1992	Indian School of Mines, Dhanbad.	4.86 in a 5.00 point scale	2 nd Rank
Ph. D. (Mining Engg.)	1994	Indian School of Mines, Dhanbad.	By Research	Thesis adjudged Excellent (Direct relevance to industry)

7. **Field of Specialisation** : Underground Mine Ventilation Engineering and design of workplace environment in underground mines (Under the major area of Mining Engineering)

8. Experience: 21 years and 2 months

Institution/ Organisation	Duration	Position held and Salary drawn	Duties performed
Tata Iron and Steel Co. Ltd. (Raw material division in coal mines)	02.07.1984 to 21.09.1987 (3 yrs 3 months)	Asstt. Manager (Old scale : 3500/-Basic)	Technical and managerial administration for production of coal, maintenance of safety in underground coal mines. Handling of nearly 600 workers and six graduate engineers.
Central Mining Research Institute, Dhanbad	22.09.1987 to 10.06.1992 (4 yrs 9 months)	Scientist (Old scale : 2200-4000-Basic)	Execution of research projects and consultancy services offered to solve the real life problems of industries.
Indian School of Mines, Dhanbad	11.06.1992 to 24.09.1998 (6 yrs 3 months)	Asstt. Professor (Old scale : 3700-5700-Basic)	Teaching at undergraduate and postgraduate levels, research at postgraduate and doctoral levels, execution of research projects and consultancy services offered to solve the real life problems of industries.
Indian School of Mines, Dhanbad	25.09.1998 to till date (7 years 3 months approx.)	Professor Rs.18400-500-22400 (Present basic: Rs.21400/-)	Teaching at undergraduate and postgraduate levels, research at postgraduate and doctoral levels, execution of research projects and consultancy services offered to solve the real life problems of industries, and other administrative jobs.

9. Details of administrative contributions:

- Chairman, Academic Course Renumbering Committee.
- Expert Member, Jharkhand Public Service Commission, Ranchi.
- Dy. Coordinator, Centre of Advanced Studies on Innovative Mining Systems & Mine Safety Management funded by UGC: Centre of Advanced Studies on Innovative Mining Systems during 1997-2002 was funded by University Grant Commission, New Delhi for carrying out research in the new frontier areas of Mining Engineering. Further UGC funded this centre from 2004-2007 for carrying out research in the area of Mine Safety Management. In this Centre all the faculty members of the Department are involved for carrying out their research in diversified areas under the main thrust area.
- Vice-Chairman, Central Purchase Committee of the School.
- Vice-Chairman, IIT-JEE from Indian School of Mines, Dhanbad.

- Vice-Chairman, Computer Society of India, Dhanbad Chapter for the year 2002-2003.
- Incharge, Mine Ventilation Section of Department of Mining Engineering.
- Incharge, Mine Ventilation and Environment Laboratory.

10. Awards/Prizes/Honours won:

- The National Mineral Award - 1998 by the Ministry of Mines and Minerals, Govt. of India in recognition of distinguished services in the field of Mining Technology.
- Conferred the 'ASPIRE' recognition by Tata Iron and Steel Company Ltd. in 2005 for successfully improving workplace environment in one of their deep coal mines at 650m depth in 2003-2004.
- Nominated as an honorary member of International Advisory Board for the International Journal of Archives of Mining Sciences in 2002 by Polish Academy of Sciences, Poland.
- Conferred an honorary membership (one of the eleven members) of International Mine Ventilation Committee representing eleven leading mineral producing countries of the world in 1997, viz. USA, UK, Canada, Germany, France, Japan, Australia, South Africa, Poland, China and India.
- Conferred an honorary membership of International Bureau of Mining Thermophysics in 1998.
- Appointed as a member of Expert Committee for reopening of sealed off fire areas in New Kenda Colliery after the disaster on 25.01.94 in which 55 persons had died.
- Awarded with Gopabandhu Memorial Shield for securing 1st position of the University in Intermediate Science.

11. Details of Publications:

a) Book edited :

“Mine Environment and Ventilation”

Publishers :

A. A. Balkema, Rotterdam, Netherlands, Year : 2001, Printed Pages : 546,
ISBN 90 5809 233 X.

&

Indian edition : Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, Year : 2001, Printed
Pages : 546, ISBN 81-204-1458-6.

Contains papers of reputed authors from 9 countries, viz. **USA, Australia, Germany, Japan, China, South Africa, Poland, Bulgaria and India.**

b) Research papers published : Total nos : 63 (International : 35, National : 28)

List of publication given in ANNEXURE – I between page nos. 10-15.

c) Significant research projects executed and reports submitted with single/first authorship:

- 8 projects completed as Project Leader and Coordinator.
- 2 projects under execution as Project Leader and Coordinator.

Details are given in ANNEXURE – II at page no. 16.

d) Significant industry sponsored consultancy projects executed and reports submitted with single/first authorship for solving the real life problems of industry:

- 70 projects completed as Project Leader and Coordinator.
- 16 projects under execution as Project Leader and Coordinator.
- Projects sponsored by 15 different companies.

Details are given in ANNEXURE – III between page nos. 17-22.

12. Places where the research work of last 5 years has been referred/cited in Books, Review, etc.

- Referred in technical papers by authors from India and abroad.
- Referred in text books by reputed authors.

Details are given in ANNEXURE – IV between page no. 23.

13. Guidance to research students:

- a) Research students already guided for Ph.D. degree in Mining Engineering: 6 nos.
- b) Research students presently guiding for Ph.D. degree in Mining Engineering: 3 nos.
- c) Students already guided for M. Tech. degree in Mining Engineering: 11 nos.

Details are given in ANNEXURE – V at page nos. 24-25.

14. Industrial grade software developed and used by the mining industry:

Developed a computer software ‘VENTSYS’ for designing mine ventilation systems and the software has been purchased by 9 mining companies, viz. SCCL, HZL, CMPDIL (HQ), CMPDIL (RI-II), TISCO, IISCO, BCCL, SECL and WCL.

15. Executive Development Programmes conducted: 384 Executives trained from 12 companies

Details are given in ANNEXURE – VI at page no. 26.

16. Membership of International/National Professional Bodies:

- i) Honorary member, International Mine Ventilation Committee.
- ii) Honorary member, International Bureau of Mining Thermo-physics.
- iii) Fellow, Institution of Engineers (India).
- iv) Member, Mining, Geological and Metallurgical Institute of India.
- v) Member, Indian Society for Technical Education.

17. International/National symposium/seminars organised:

- Organised an International Symposium on “Mine Environment and Ventilation” during 11-12 December, 2000 and participants from 10 countries, viz. **USA, Australia, Germany, Japan, China, South Africa, Poland, Bulgaria, Czech Republic and India** presented their papers.
- Organised a National Workshop on “Role of Indian School of Mines in the development of Indian Mineral Industry in the new millennium”. More than 200 participants attended the Workshop.

18. Other international accomplishments (Invited lectures delivered abroad and chaired any scientific conference abroad):

- i) Invited by the Department of Mining Engineering, Pennsylvania State University, USA in 1997 to deliver lectures on “Simulation of Climatic Condition in Highly Mechanised Longwall Faces”.
- ii) Nominated as an honorary member of International Advisory Board for the International Journal of “Archives of Mining Sciences” by Polish Academy of Sciences, Krakow, Poland in 2002.
- iii) Submitted an international bid in July 2005 during 8th International Mine Ventilation Congress held in Brisbane, Australia, for hosting 9th International Mine Ventilation Congress in New Delhi, India. The International Mine Ventilation Committee accepted the bid and offered the 9th International Mine Ventilation Congress to India. Therefore, **India becomes the first country in Asia to host this Congress.**
- iv) Invited to Chair a Technical session on “Mine Fires” during the 7th International Mine Ventilation Congress at Krakow, Poland in 2001.

19. Development of laboratory for research on mine fires:

- Developed a major laboratory on “Mine Gases and Mine Fire Control”. This laboratory is equipped with micro-processor based gas chromatograph with automatic sampling valve and other advanced accessories, BM22 multi-guard multigas detector, MX-2000 multigas detector, Haldane apparatus, Graham Lawrence apparatus, toximeter, oxymeter, explosimeter, NO_x meter, desorbometer, C2000 for CO₂ measurement and other set ups for carrying out research on underground mine ventilation and mine environmental engineering.

This laboratory is also equipped with Thermal Imagery Camera, Thermal IR gun, Polish Sz index apparatus, Russian U-index apparatus, Critical Air Blast apparatus, Wet Oxidation Potential Difference apparatus, Crossing Point Temperature apparatus and other accessories for early detection and control of mine fires due to spontaneous combustion and other extraneous causes.

20. Invited lectures delivered in India and other academic accomplishments:

- Invited by a number of organisations, viz. Central Mining Research Institute, Dhanbad; Indian Institute of Coal Management, Ranchi; Central Mine Planning and Design Institute Limited, Ranchi; South Eastern Coalfields Limited, Bilaspur; Singareni Collieries Company Limited, Hyderabad; Uranium Corporation of India Limited, Jaduguda; Hindustan Zinc Limited, Udaipur; Tata Iron and Steel Company Limited, Jamadoba; and Bharat Coking Coal Limited, Dhanbad; to deliver lectures on advanced research areas of Mine Ventilation, Mine Fires etc.
- Reviewer of technical papers for the Transactions of Mining, Geological and Metallurgical Institute of India.
- Reviewer of technical papers for the Journal of Institution of Engineers (India) (Mining Division) etc.

21. Declaration:

I hereby certify that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted.

Date :

Place : Indian School of Mines, Dhanbad

(D. C. Panigrahi)

Professor

Deptt. of Mining Engineering

ANNEXURE - II

Significant research projects executed and reports submitted with single/first authorship

Sl. No.	Name of the author(s)	Title of the reports	Sponsoring Agency	Year of completion
1.	D. C. Panigrahi	Computer modelling of underground environment in mechanised longwall faces in India coal mines.	Centre of Advanced Studies, UGC	1993
2.	D. C. Panigrahi and M. K. Singh	Computer modelling of air flow distribution in mine ventilation network by using linearised flow equations.	UGC	1995
3.	D. C. Panigrahi and A. K. Mukhopadhyay	Performance analysis of axial flow mine ventilation fans.	UGC	1996
4.	D. C. Panigrahi and V. K. Saxena	Development of an objective model for fire risk rating of Indian coals.	UGC	1997
5.	D. C. Panigrahi and M. K. Singh	Computer aided planning of subsurface mine environment to combat heat and humidity problems in Indian mines.	AICTE & TISCO	1998
6.	D. C. Panigrahi, G. Udaybhanu and V. K. Saxena	Development of handy method of coal categorisation and prediction of spontaneous fire risk in mines.	Ministry of Coal	1999
7.	D. C. Panigrahi and J. K. Pandey	A study of airborne respirable dust (ARD) concentration at work places in chromite mines of Sukinda belt, Orissa.	World Bank through Ministry of Environment and Forest	2003
8.	D. C. Panigrahi R. M. Bhattacharjee and A. K. Varma	Studies on problems of spontaneous heating in coal pillars and development of techniques for its prevention, early detection and control	Ministry of Coal	2005
9.	D. C. Panigrahi and T. K. Chatterjee	Development of Smart MEMGAS sensor for improvement of safety in mines	AICTE	Work is in progress
10.	D. C. Panigrahi, N. K. Mahalik and H. B. Sahu	Investigations and modelling studies for classification of coal seams with respect to their proneness to spontaneous combustion for improvement of safety in mines	MHRD	Work in progress

ANNEXURE - III

Significant industry sponsored projects executed as Project Coordinator and Leader, and reports submitted with single/first authorship for solving the real life problems of industry

Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
1.	D. C. Panigrahi and N. C. Karmakar	Computer simulation studies of ventilation system of Sijua Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	February 1995
2.	D. C. Panigrahi and N. C. Karmakar	Investigation into the degree of gassiness of Mahuda bottom seam of Bhatdee Colliery, BCCL.	Bharat Coking Coal Ltd.	February 1995
3.	D. C. Panigrahi	Investigation into the degree of Mahuda top seam of Murlidih Colliery, BCCL.	Bharat Coking Coal Ltd.	August 1995
4.	D. C. Panigrahi	Investigation into the degree of Victoria west Colliery, Chanch Victoria Area, BCCL	Bharat Coking Coal Ltd.	December 1995
5.	D. C. Panigrahi	Computer simulation studies on reorganisation of ventilation system of Digwadih Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	April 1996
6.	D. C. Panigrahi	Assessment of noise and dust pollution around Sonepur Bazari project, ECL.	Eastern Coalfields Ltd.	April 1996
7.	D. C. Panigrahi	A study of ventilation system of Jamadoba Colliery with reference to relocate the existing booster and to improve the environmental condition in Dungri north section of 16 seam.	Tata Iron and Steel Co. Ltd.	December 1996
8.	D. C. Panigrahi	Computer simulation studies on reorganisation of ventilation system of Malkera Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	February 1997
9.	D. C. Panigrahi	A study of ventilation system and computer simulation for short term as well as long term ventilation planning of Balaghat Mine of MOIL (1st Phase)	Manganese Ore India Ltd.	July 1997
10.	D. C. Panigrahi	A study of ventilation system of no. 3,4 and 5 levels of Balaghat mine and their connection with lower working levels (2nd Phase), MOIL.	Manganese Ore India Ltd.	July 1997
11.	D. C. Panigrahi	Interaction with the management of seven coal mines of Coal India Ltd. for possible location of sensors and monitors of telemonitoring system.	Electronic Corporation of India Ltd.	December 1997
12.	D. C. Panigrahi	A study of ventilation system and recommendations to reduce heat and humidity problems in 4 seam workings of Industry Colliery, BCCL.	Bharat Coking Coal Ltd.	January 1998
13.	D. C. Panigrahi	A study of ventilation system and computer simulation of a few critical alternatives for improving ventilation in 11 seam of Digwadih Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	February 1998

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Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
14.	D. C. Panigrahi	Collection, analysis and interpretation of samples from sealed off fire area of Jambad seam of Bahula Colliery, ECL.	Eastern Coalfields Ltd.	March 1998
15.	D. C. Panigrahi	A study of self ignition characteristics of 6 Nitro-1 Diazo - 2 Napthol - 4 Sulphonic Acid with respect to auto - oxidation.	B.L. Organics Ltd.	July 1998
16.	D. C. Panigrahi	An integrated study of ventilation system of Jamadoba and Digwadih Collieries, and computer simulation for locating a booster fan in some circuit for optimal utilisation of intake air of Jamadoba Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	September 1998
17.	D. C. Panigrahi	Simulation studies for extending the central drift of Jamadoba Colliery, TISCO.	Tata Iron and Steel Co. Ltd.	October 1998
18.	D. C. Panigrahi	An investigation into degree of gassiness of III Seam Salanpur Colliery, Katras Area, BCCL.	Bharat Coking Coal Ltd.	December 1998
19.	D. C. Panigrahi	Assessment of improvement and a study of some critical alternatives for further improvement in the ventilation system of Balaghat Mine, MOIL.	Manganese Ore India Ltd.	January 1999
20.	D. C. Panigrahi	An investigation into degree of gassiness of VII seam of Mudidih Colliery, BCCL.	Bharat Coking Coal Ltd.	February 1999
21.	D. C. Panigrahi	An investigation into degree of gassiness of XA seam of Kankanee Colliery, BCCL.	Bharat Coking Coal Ltd.	April 1999
22.	D. C. Panigrahi	A study of genesis of carbon monoxide gas and investigation into degree of gassiness of V-top seam of Baheraband Mine, Hasdeo Area, SECL.	South Eastern Coalfields Ltd.	August 1999
23.	D. C. Panigrahi	A study of spontaneous heating characteristics of Jig rejects for its use in pneumatic stowing.	Indian Iron and Steel Co. Ltd.	September 1999
24.	D. C. Panigrahi	A study of presence and genesis of carbon monoxide gas in different seams of Bijuri Colliery, Hasdeo Area, SECL.	South Eastern Coalfields Ltd.	November 1999
25.	D. C. Panigrahi	A study of presence and genesis of CO gas in Bijuri 'C' seam of Somna Colliery, Hasdeo Area, SECL.	South Eastern Coalfields Ltd.	November 1999
26.	D. C. Panigrahi	An investigation into degree of gassiness of V and VI combined seam of Busserya Colliery, Kusunda area, BCCL	Bharat Coking Coal Ltd.	January 2000
27.	D. C. Panigrahi	An investigation into degree of gassiness of IV seam top of East Katras Colliery, Katras Area, BCCL.	Bharat Coking Coal Ltd.	January 2000

Continued next page

Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
28.	D. C. Panigrahi	An investigation into degree of gassiness of VII seam of Angarapathra Colliery, Katras area, BCCL.	Bharat Coking Coal Ltd.	February 2000
29.	D. C. Panigrahi	Computer simulation of ventilation system and recommendations to improve ventilation in 14 seam West Section workings of Jitpur Colliery, IISCO.	Indian Iron and Steel Co.	February 2000
30.	D. C. Panigrahi	Computer simulation studies for improving ventilation systems of 11 seam both in 6 and 7 pits, and Digwadih Collieries, TISCO.	Tata Iron and Steel Co. Ltd.	March 2000
31.	D. C. Panigrahi	An investigation into degree of gassiness of IX seam of 2 pit, Katras Choitodih Colliery, BCCL.	Bharat Coking Coal Ltd.	July 2000
32.	D. C. Panigrahi	A study of ventilation system and computer simulation for short term as well as long term ventilation planning of Ukwa Mine, MOIL.	Manganese Ore India Ltd.	July 2000
33.	D. C. Panigrahi	A study of ventilation system and computer simulation for short term as well as long term improvement in ventilation of Jaduguda Mine, UCIL.	Uranium Corporation of India Ltd.	April 2001
34.	D. C. Panigrahi	An investigation into degree of gassiness of VII seam workings of Tetulmari Section, 7/8 incline of Mudidih Colliery, BCCL.	Bharat Coking Coal Ltd.	May 2001
35.	D. C. Panigrahi	A study of fan characteristics and hangwall lode ventilation system of Jaduguda Mine, UCIL	Uranium Corporation of India Ltd.	April 2001
36.	D. C. Panigrahi	An investigation into degree of gassiness of IX seam in 2 pit area of Kankanee Colliery, Sijua area, BCCL	Bharat Coking Coal Ltd.	December 2001
37.	D. C. Panigrahi	A study of ventilation system of Narwapahar Mine and computer simulation studies for improvement of workplace environment in the mine, UCIL	Uranium Corporation of India Ltd.	December 2001
38.	D. C. Panigrahi	A study of ventilation system of Victoria West Colliery and recommendations for improvement of UG environmental condition, BCCL.	Bharat Coking Coal Ltd.	January 2002
39.	D. C. Panigrahi	A study of ventilation system of Turamdih mine after dewatering and design of the system to achieve comfortable workplace environment in the mine, UCIL	Uranium Corporation of India Ltd.	June 2002
40.	D. C. Panigrahi	A study of ventilation system and computer simulation on reorganisation of ventilation network of Digwadih Colliery, TISCO	Tata Iron and Steel Co. Ltd.	August 2002

Continued next page

Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
41.	D. C. Panigrahi	An investigation into degree of gassiness of VIII seam of Basdeopur Colliery, Sijua Area, BCCL	Bharat Coking Coal Ltd.	September 2002
42.	D. C. Panigrahi	Development of a course module on "Mine Ventilation and Safety" exclusively for TISCO Officers with reference to their existing problems, TISCO	Tata Iron and Steel Co. Ltd.	March 2003
43.	D. C. Panigrahi	Modelling of ventilation system of Narwapahar mine and simulation studies for improvement in the system, UCIL	Uranium Corporation of India Ltd.	July 2003
44.	D. C. Panigrahi	Field investigations and modelling studies for improving subsurface workplace environment in Patia section of Jamadoba Colliery, TISCO	Tata Iron and Steel Co. Ltd.	August 2003
45.	D. C. Panigrahi	An investigation into degree of gassiness of XA seam, 6 pit(M) Mudidih Colliery, Sijua Area, BCCL	Bharat Coking Coal Ltd.	August 2003
46.	D. C. Panigrahi	An investigation into degree of gassiness of VIII/VIIIA seam, Loyabad Colliery, Sijua Area, BCCL	Bharat Coking Coal Ltd.	August 2003
47.	D. C. Panigrahi	Development of a course module on Mine Ventilation and Safety for UCIL officers and offering the module to their officers in UCIL campus	Uranium Corporation of India Ltd.	August 2003
48.	D. C. Panigrahi	Modelling and simulation studies for broad ventilation planning of Milupara Coal Project, Monnet Ispat Limited, Raigarh	Monet Ispat Ltd.	September 2003
49.	D. C. Panigrahi	Field investigations and modelling studies for improvement of workplace environment in UCIL mines	Uranium Corporation of India Ltd.	January 2004
50.	D. C. Panigrahi	An investigation into degree of gassiness of II seam (Bottom) of Milupara Coal Project of Monnet Ispat Limited	Monet Ispat Ltd.	March 2004
51.	D. C. Panigrahi	Investigation into degree of gassiness of VI seam workings of 3 pit, Jogta Section of Mudidih Colliery, Sijua Area, BCCL	Bharat Coking Coal Ltd.	October 2004
52.	D. C. Panigrahi	A study of condition of fire areas for improvement of safety in Jitpur Colliery	Indian Iron and Steel Co.	October 2004
53.	D. C. Panigrahi	A study of condition of fire areas for improvement of safety in Sijua Colliery	Tata Iron and Steel Co. Ltd.	November 2004

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Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
54.	D. C. Panigrahi	An investigation for improving work-place environment in underground workings of Sijua Colliery, TISCO	Tata Iron and Steel Co. Ltd.	December 2004
55.	D. C. Panigrahi	Study of condition of fire areas of Kusunda and Bansdeopur collieries	Bharat Coking Coal Ltd.	December 2004
56.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improving workplace environment in 13/14 seam workings of Bhelatand A. Colliery	Tata Iron and Steel Co. Ltd.	December 2004
57.	D. C. Panigrahi	A study of characteristics of a fire retardant sealant	Calcutta Sealant Co.	February 2005
58.	D. C. Panigrahi	A study of condition of fire areas for improvement of safety in Kusunda Colliery	Bharat Coking Coal Ltd.	March 2005
59.	D. C. Panigrahi	A study of use of FRP blades in main mine ventilators for energy saving in Bhelatand Colliery A. Colliery, TISCO	Tata Iron and Steel Co. Ltd.	April 2005
60.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improving ventilation in Patia Section of Jamadoba Colliery, TISCO	Tata Iron and Steel Co. Ltd.	April 2005
61.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improving workplace environment in UCIL mines	Uranium Corporation of India Ltd.	May 2005
62.	D. C. Panigrahi	A study of condition of fire areas for improvement of safety in Jitpur Colliery	IISCO	May 2005
63.	D. C. Panigrahi	Investigation into degree of gassiness of 15 seam (Jorapokhar Area) Jamadoba Colliery, TISCO	Tata Iron and Steel Co. Ltd.	July 2005
64.	D. C. Panigrahi	Field investigations and modelling studies for renovating the ventilation system of Noonudih – Jitpur Colliery, IISCO	Indian Iron and Steel Co. Ltd.	August 2005
65.	D. C. Panigrahi	An investigation into the ventilation problem of Simlabahal Colliery, Kustore Area, BCCL and computer simulation studies for improvement of ventilation and workplace environment for enhancing production, productivity and safety	Bharat Coking Coal Ltd.	November 2005
66.	D. C. Panigrahi	A study of general atmospheric condition including the condition of fire areas for improvement of safety in Sijua Colliery	Tata Iron and Steel Co. Ltd.	November 2005
67.	D. C. Panigrahi	Field investigations, modelling and simulation studies for reorganising the ventilation system of VK No: 7 Incline	Singareni Collieries Co. Ltd., Andhra Pradesh	November 2005

Continued next page

Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
68.	D. C. Panigrahi	A study of condition of fire area for improvement of safety in East Bassueya, Jorangdih, Jayant, Alkusa, Kusunda and Sijua Collieries	Bharat Coking Coal Ltd. and others	December 2005
69.	D. C. Panigrahi	A study of condition of fire areas and interpreting the status of fire for improvement of safety in Noonudih Jitpur Colliery	Indian Iron and Steel Co. Ltd.	December 2005
70.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improving the underground environmental conditions in Uranium mines of UCIL	Uranium Corporation of India Ltd.	January 2006
71.	D. C. Panigrahi	A study on design and application of FRP blades in mine ventilation fans	ENCON (INDIA) Ltd.	Work is in progress
72.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improvement in fire areas vis-à-vis work place environment in Sijua Colliery, TISCO	Tata Iron and Steel Co. Ltd.	Work is in progress
73.	D. C. Panigrahi	Field investigations, modelling and simulation studies to design the ventilation system of Hutti Gold Mines Company Limited (HGML) for improving workplace environment in both short-term and long-term bases	Hutti Gold Mines Co. Ltd., Karnataka	Work is in progress
74.	D. C. Panigrahi	Modelling and simulation studies for designing ventilation system for Seam II and III including Kondkel Section of Milupara underground coal project	Monnet Ispat Ltd.	Work is in progress
75.	D. C. Panigrahi	Modelling the ventilation system of a tunnel with specific site conditions for an underground installation	Airef Engineers (P) Ltd.	Work is in progress
76.	D. C. Panigrahi	Field investigations, modelling and simulation studies to design the ventilation system of PB Project and 5/7 South Balihari Colliery after amalgamation for improving work place environment in both short term and long term bases	Bharat Coking Coal Ltd.	Work is in progress
77.	D. C. Panigrahi	Field investigations, modelling and simulation studies for reducing the main fan pressure of GDK No: 1 incline	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress

Sl. No.	Name of Author(s)	Title of the Reports	Sponsoring Agency	Month & Year of completion
78.	D. C. Panigrahi	Modelling and simulation studies for designing the ventilation system of Peddampetta Shaft Project, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
79.	D. C. Panigrahi	Modelling and simulation studies for designing the ventilation system of Kakatiya Longwall Project, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
80.	D. C. Panigrahi	Modelling and simulation studies for designing the ventilation system of Shantikhami Project, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
81.	D. C. Panigrahi	Modelling and simulation studies for designing the ventilation system of Addriyala Shaft Project, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
82.	D. C. Panigrahi	Modelling and simulation studies for designing the ventilation system of Jallaram Shaft Project, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
83.	D. C. Panigrahi	Field investigations, modelling and simulation studies for recognising the ventilation system of PVK No. 5 Incline, SCCL	Singareni Collieries Co. Ltd., Andhra Pradesh	Work is in progress
84.	D. C. Panigrahi	A study into general atmospheric conditions including the condition of fire areas for improvement of safety in Sijua Colliery, TISCO	Tata Iron and Steel Co. Ltd.	Work is in progress
85.	D. C. Panigrahi	An investigation into degree of gassiness of 2/1 Seam of Jagidh Colliery, BCCL	Bharat Coking Coal Ltd.	Work is in progress
86.	D. C. Panigrahi	Field investigations, modelling and simulation studies for improvement of workplace environment in UCIL mines	Uranium Corporation of India Ltd.	Work is in progress

ANNEXURE - IV

Places where applicant's work of last 5 years has been referred/cited in Books, Review, etc.

(i) Paper

Paper	Name of the author who has cited	Year of his/her publication	Name of Journal	Volume	Page No.
1) The laboratory researches on the rate of oxygen consumption by coal during its self heating	HE Qilin and Yuan Shujie	2004	International Journal of Achieves of Mining Sciences	Vol.49 Issue 3	370
2) Prusecikova metoda CPT prourcovani nachylnostiuhli K samovzniceni (Published in Czech Republic)	Alois Adamus, Zdenek Tesaf and Recharad Kelar	2004	UHL rudy geoloicky Pruzkum (Published in Czech Republic)	7.11. 2004	33 and 37
3) Climatic and thermodynamic modelling of rapid development drivages	A. J. Crossley and I. S. Lowndes	2001	7 th International Mine Ventilation Congress, Krakow, Poland	ISBN 83-913109-1-4	57 and 61
4) Heat balance of the mining faces of a copper mine	J. Waclawik and W. Turkiewicz	2001	7 th International Mine Ventilation Congress, Krakow, Poland	ISBN 83-913109-1-4	72 and 74
5) Highlights of a few unsolved problems on mine fires	S. C. Banerjee	2000	1 st International Symposium on Mine Environment and Ventilation	ISBN 90 5809 233 X	366 & 369

(ii) Books

Books	Name of the author who has cited	Year	Publisher	Page No.
1) Prevention and combating mine fires	Dr. S. C. Banerjee	2000	<ul style="list-style-type: none"> ▪ Export Edition: A. A. Balkema, Rotterdam, Netherlands ▪ Special Indian Edition: Oxford & IBH Publishing Co. Pvt. Ltd. 	94
2) Prevention and combating mine fires	Dr. S. C. Banerjee	2000	<ul style="list-style-type: none"> ▪ Export Edition: A. A. Balkema, Rotterdam, Netherlands ▪ Special Indian Edition: Oxford & IBH Publishing Co. Pvt. Ltd. 	275-277
3) Mine ventilation	Prof. S. P. Banerjee	2003	▪ Lovely Prakashan	116
4) Mine ventilation	Prof. S. P. Banerjee	2003	▪ Lovely Prakashan	316
5) Mine ventilation	Prof. S. P. Banerjee	2003	▪ Lovely Prakashan	366
6) Mine ventilation	Prof. S. P. Banerjee	2003	▪ Lovely Prakashan	369

ANNEXURE - V

Guidance to research students

a) Research students already guided for Ph.D. degree in Mining Engineering

Sl. No.	Name of the Scholar	Topic of research	Degree	Year of completion
1.	Sri M. K. Singh	Simulation of climatic conditions in mine ventilation networks using linearised flow equations	Ph.D.	1997
2.	Sri V. K. Saxena	Investigation into spontaneous combustion characteristics of coal seams with special reference to Jharia Coalfields	Ph.D.	1998
3.	Sri. D. P. Tripathy	Environmental quality assessment in some fire areas of Jharia Coalfields	Ph.D.	2001
4.	Sri R. M. Bhattacharjee	An investigation into pillar fire problem in bord and pillar method of mining in Raniganj Coalfields and categorisation of pillars with respect to their proneness to spontaneous heating	Ph.D.	2003
5.	Sri H. B. Sahu	Investigation into spontaneous heating characteristics and an approach for classification of coal seams with special reference to Mahanadi Coalfields	Ph.D.	2004
6.	Sri J. K. Pandey	Simulation of strata heat transfer process in area sealed off due to fire in underground coal mines	Ph.D.	2005 (Thesis submitted)

b) Research students presently guiding for Ph.D. degree in Mining Engineering

Sl. No.	Name of the Scholar	Topic of research	For the award of the Degree	Present status of the research work
1.	Sri M. D. Yadav	Study of fire problem in opencast mines and development of a fire retardant/sealant to control the progress of fire	Ph.D.	Presently Continuing
2.	Sri N. K. Mohalik	Development of a model to predict the status of fire in sealed off fire areas and formulation of guidelines for reopening	Ph.D.	Presently Continuing
3.	Sri P. P. Yadav	Development of a risk assessment model for improving safety in underground coal mines of Raniganj Coalfields	Ph.D.	Presently continuing

c) Students already guided for M. Tech. degree in Mining Engineering

Sl. No.	Name of the Scholar	Topic of research	Degree	Year of completion
1.	Sri M.K. Singh	Application of linear analysis for solving fluid flow problems in mine ventilation networks	M.Tech. (By Research)	1995
2.	Sri Manoj Kr. Pathak	Performance analysis of mine ventilation fans	M.Tech. (By Research)	1996
3.	Sri R. R. Singh	A study of deflagration behaviour of P5 explosives	M.Tech. (By Research)	1997
4.	Sri Pratik Dutta	Simulation of heat load in mine ventilation network with variation in geothermal parameters	M.Tech.	1992
5.	Sri P. Chandra	A study of illumination level in opencast mine and development of a prototype model for lighting design	M.Tech.	1993
6.	Sri C. Singh	Prediction of depth of mine fire from the surface by thermal IR measurements	M.Tech	1994
7.	Sri F. Jha	Investigation into fire prone-ness of no. 2 and 3 seams of Chirimiri OCM, SECL and abatement measures	M.Tech	1996
8.	Sri P. B. Choudhury	A study of thermal conductivity of coal and coal measure rocks of Jharia Coal-fields by using KEMTHERM QTM-D3 apparatus	M.Tech	1997
9.	Sri P. Y. Dhekne	Development of an artificial cooling system and assessment of its performance	M. Tech	1998
10.	Sri Ranjeet Prasad	Development of a mathematical model for infusion of nitrogen to inertise the sealed off panels due to fire	M. Tech	2004
11.	Sri Devi Prasad Mishra	A study of energy consumption profile of main mine ventilation fans and development of a technique to reduce the energy requirement of such systems	M. Tech	2004

ANNEXURE – VI

Executive Development Programmes conducted : 384 Executives trained from 12 companies

- i) Conducted an Executive Development Programme on Underground Mine Environmental Engineering between 9-14 January, 1995. Executives from four different mining companies, viz. SCCL, BCCL, CCL and ECL participated in the programme. Eighteen executives were trained.
- ii) Conducted an Executive Development Programme on Underground Mine Ventilation and Environmental Engineering between 15-20 April, 1996. Executives from nine different mining companies, viz. UCIL, HZL, HCL, HGML, MCL, SECL, ECL, TISCO and IISCO participated in the programme. Twenty executives were trained.
- iii) A team member in the prestigious World Bank aided training programme on “Preparation of Training Modules and Training of Environmental Personnel”, and responsible for preparation of training module related to Mine Fires. Total funding for this training programme was Rs. 54 lakhs. Nearly 250 executives were trained in different batches.
- iv) Conducted an Executive Development Programme on “Mine Management, Legislation and Safety” for the executives of Mahanadi Coalfields Limited during 7-16 November, 2002. Twenty four executives were trained.
- v) Conducted an Executive Development Programme on “Mine Ventilation and Safety” for the executives of Tata Iron and Steel Company Limited during 5-10 March, 2003. Seventeen executives were trained.
- vi) Conducted an Executive Development Programme on “Mine Ventilation and Safety” for the executives of Uranium Corporation of India Limited during July and August, 2003. Thirty one executives were trained.
- vii) Conducted an Executive Development Programme on “Mine Management, Legislation and Safety” for the executives of Mahanadi Coalfields Limited during 17-28 November, 2003. Twenty four executives were trained.
- viii) Conducted an Executive Development Programme on “Mine Ventilation and Safety” for the executives of Mahanadi Coalfields Limited during 1-6 December, 2003. Six executives were trained.