

## CURRICULAM VITAE

### **Prof. M. Sundararajan,**

Former Senior Principal Scientist (CSIR-CIMFR) &  
Professor (CIMFR-AcSIR), Dhanbad, Jharkhand  
Professor of Mathematics,  
Department of Mathematics & Computer Science,  
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#### **A. Personal Information:**

1. Name in full (in capital letters) : **DR. M. SUNDARARAJAN**
2. Date of Birth : **05/09/1963**
3. Designation : **Professor**
4. Joining in Mizoram University : **31 August 2021**
5. Area of Specialization : **Mathematics, Natural Resource & Environmental Modeling**
6. Permanent Address : **Prof. Dr. M. Sundararajan,  
Kamaraj Nadar Nagar, K.S.Puram-P.O.,  
Sirkali (Tk.), Mayiladuturai (Dt.),  
TAMIL NADU – 609 106.**

#### **B. Educational qualifications:**

DEGREE	YEAR OF PASSING	UNIVERSITY/ INSTT.	SUBJECT
M.Sc	1989	Bharathidasan University, Tamil nadu	Mathematics
M.Phil*	1990	Annamalai University, Tamil nadu	Mathematics
Ph.D**	2006	Indian Institute of Technology (ISM), Dhanbad	Applied Mathematics

\* **Thesis Topic in M.Phil:** Study on Laminar Thin Film Flow along a Vertical Wall  
(**Supervisor & Guide:** Prof: R. Sivalingam, Deptment of Mathematics, Annamalai University)

\*\* **Thesis Topic in Ph.D:** Mathematical Modeling of Fluid Component Transport for the Prediction of Environmental Parameters in and around Coal Washery Complexes.  
(**Supervisor & Guide:** Prof. A. Chattopathya, Dett. Of Applied Mathematics, Prof. R. Venugopal, Deptt. Of Mineral Engineering, IIT-ISM, Dhanbad & Dr. V.J. Loveson, Chief Scientist, Beach Placer Mining, CSIR-CIMFR, Dhanbad)

### C. Employment Details:

Grade / Post	Period		Estt. / Lab./Instt.
	From	To	
Scientist-B	17/03/1992	16/03/1997	CSIR-CIMFR, Dhanbad
Scientist-C	17/03/1997	16/03/2002	-do-
Scientist-EI	17/03/2002	16/03/2007	-do-
Principal Scientist (Scientist-EII) & Associate Professor	17/03/2007	16/03/2013	-do-
Sr. Principal Scientist (Scientist-F) & Professor	17/03/2013	27/08/2021	-do-
Professor	31/08/2021	Continued	Mizoram University

### D. Research Experience as a Guide

- (i) Supervision of **Ph.D Thesis (3 nos. awarded and 2 nos. in progress):**
- (ii) **Supervision of M.Tech / M.Phil Dissertation: M.Phil -1 no, M.Tech – 4 nos.**
- (iii) Supervision of Master Thesis: **Thesis 3 nos.**
- (iv) B.Tech / B.Arch: **Project Work 3 nos.**

### E. Sponsored S&T Projects

Sponsoring Agency	Title of project	Amount of grant	Period	Co-investigators (if any)
Coal India	Preparation of Wildlife Conservation Plan for Mugma Mines of Eastern Coalfield Limited.	17.5 lakhs	2015-2018	Project Leader
Ministry of Coal	Coal beneficiation through washing of coal by means of biodegradable materials	8.5 Crore	2017	Member
Ministry of Rural Development, New Delhi	Design & Development of Algal Pilot Plant for Electricity Generation in Mining Areas	1 crore	2013 - 15	Member
Ministry of Water Resource, New Delhi	Optimization study on Damodar river flow during lean period	26 lakhs	2012-2015	Member
Ministry of Environment and Forest, New Delhi	Groundwater modeling for Bnduhorang Opencast Uranium Mine and Proposed Tailing Pond Area of UCIL	20 lakhs	1996 - 98	Member
Planning Commission	CSIR Network Project on Capacity Building of beach placer miners	15.30 crore	2002-07	Member

	Spatial Modeling of Beach Placer Deposits Using GPR Application (One of the projects under the task of mineral exploration)	50.00 lakhs	2002-07	Project Leader
Ministry of Rural Development, New Delhi	Nawdiha micro-watershed development through sustainable natural resource management and socio-economic renovation in Dhanbad district	30.00 lakhs	2004-09	Project Leader
Ministry of Rural Development, New Delhi	Asanbani micro-watershed development through sustainable natural resource management and socio-economic renovation in Dhanbad district	30.00 lakhs	2004-09	Project Leader
Ministry of Rural Development, New Delhi	Tillabani micro-watershed development through sustainable natural resource management and socio-economic renovation in Dhanbad district	30.00 lakhs	2004-09	Member
TISCO Group of Collieries, Jamadoba, Dhanbad	Ecological and Socio-economic Study around Bhelatand Coal Washery	0.80 lakhs	1998	Member
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Keshka Micro-Watershed, Tundi block, Dhanbad,	11.70 lakhs	1997-02	Co-project Leader
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Chalkari Micro-watershed, Topchanchi block, Dhanbad,	7.45 lakhs	1997-02	Co-project Leader
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Gopinathpur Micro-Watershed, Nirsa block, Dhanbad,	10.25 lakhs	1997-02	Co-project Leader
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Chutiaryo Micro-Watershed, Govindpur block, Dhanbad	6.40 lakhs	1997-02	Co-project Leader
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Karmatand Micro-Watershed, Tundi block, Dhanbad	6.90 lakhs	1997-02	Co-project Leader
Ministry of Rural Development, New Delhi	Watershed Sustainable Development Programme in Kharni Micro-Watershed, Bhaghmara block, Dhanbad	7.30 lakhs	1997-02	Co-project Leader
Ministry of Environment & Forest, New Delhi	Studies for EIA and EMP of Sirmour Limestone Deposits	48.00 lakhs	1994-99	Member
Ministry of Environment & Forest, New Delhi	Carrying Capacity Study of Damodar River Basin	3.50 crore	1994-00	Member
Ganga Project Directorate, Govt. of India	Feasibility studies on the pollution abatement in Demodar River	23.00 lakhs	1993-04	Member

## F. Consultancy projects:

Organization	Title of project	Amount of grant	Period	Co-investigators (if any)
MCL, Orissa	Environmental Monitoring at Mahanadi Coalfield Ltd, Sponsored by MCL	5.00 lakhs	1997	Member
DRDA, Dhanbad	Delineation of Micro-watersheds in Dhanbad District,	60.00 lakhs	1997-02	Member
DRDA, Dhanbad	Development of Specification for Construction of Road Using Flyash	3.00 lakhs	1998	Project Leader
DRDA, Dhanbad	Geo-hydrological Investigation of Suitable Sites for Construction of Check Dams in Different Watershed of Dhanbad District, DRDA, Dhanbad	1.05 lakhs	1999	Project Leader
MCL, Orissa	Environmental Monitoring at Mahanadi Coalfields, Mahanadi Coal Field Ltd. Orisa.	5.00 lakhs	1996	Member
Esdee Cement Plant, Madhya Pradesh	Environmental Monitoring at Esdee Cement Plant, Esdee, Madhya Pradesh.	5.00 lakhs	1996	Member
Ministry of Environment and forests, New delhi	Environmental Management of Overburden Dumps, Sponsored by Ministry of Coal, Govt. of India.	6.00 lakhs	1995	Member
Bokaro Thermal Station, Bokaro, Govt of Bihar	Environmental Monitoring at Bokaro Thermal Power Station	3.50 lakhs	1995	Member
Sponsored by Environmental Planning and Coordination Organization (EPCO), Govt. of Madhya Pradesh	Assessment of Environmental Damage due to Mining in the state of Madhya Pradesh	6.00 lakhs	1995	Member
Neyvelli Lignite Corporation, Neyvelli, Tamilnadu	Optimization of Conventional Mining Equipment at Neyvelli Lignite Corporation	3.75 lakhs	1995	Member
M/s Grasim Cement, Raipur, Madhya Pradesh	Environmental Studies for a Limestone Mining Project	4.00 lakhs	1995	Member
Hindustan Zinc Ltd., Vedanda Group of Industries, Sonardih, Dhanbad.	Advise on Water Availability of water for Industrial Processing through Study on Khudo River Flow during Lean Period	2.96 Lakhs	2007	Project Leader

ASI(K) Ltd., Ramganjmandi, Kotah (Rajasthan)	Investigation On Environmental Impacts Due To Controlled Blasting In And Around The Limestone Mines Of Asi(K) Ltd., Ramganjmandi, Kotah (Rajasthan) With A Special Focus On The Receptors Including Civil Structures And Ambient Air Quality Using Modeling And Simulation	6.67 Lakhs	2015	Project Leader
ECL, Mugma	Preparation of Wildlife Conservation Plans for Cluster-1 & 2 for Mines of Mugma, ECL.	17.18 Lakhs	2016	Project Leader
CEMMIX Structural Pvt. Ltd., Kolkata	Advice on Feasibility of Deep Stone Mining of a Small Scall Dolerite Stone Deposits through Mathematical Modeling and Computer Simulation	2.51 Lakhs	2017	Project Leader

### G. Training programmes / courses undertaken:

- Training in application software package namely MATHEMATICA, MATLAB, SURFER, WATER QUAL AND OTHER GRAPHICAL PACKAGES at CSIR-CIMFR, Dhanbad
- Training on Internet and Networking , Organized by ASSET & IBM
- Modular course on LINUX and C++ Programming from NIIT
- Undergone through various environmental application training program at CIMFR
- Training Programme on “Environmental data Interpretation, Compilation, Analysis, Presentation and Reporting” at Indian Statistical Institute, Delhi
- Short Course on “Global Positioning System (GPS) at National Atlas & Thematic mapping Organisation (NATMO), Kolkata

### H. Awards / honors obtained, if any:

- \* Honored as resource person to deliver lectures at IIT, Kharagpur, West Bengal in 2020.
- \* Honored as resource person to deliver lectures at IIT-ISM, Dhanbad in 2020.
- \* **“Bharat Ratna Dr. Abdul Kalam Gold Medal Award”** (April, 2019)
- \* **“Doctor of Letters (D.Litt.)”** by Ascroft University, London (April 2018)
- \* **“Bharatiya Udyog Ratna Gold Medal Award”** (April, 2018)
- \* Honored as resource person to deliver lectures at NIT Rourkela, Orissa..
- \* **“The Best Citizen of India Gold Medal Award”** ( 2017)
- \* **"Man of the Year-2002"** awarded by American Biographical Research Institute, USA for achievement in Research & Developments in 2002.
- \* Nominated for **“International Peace Prize-2003”** by Cultural Convention of the United State of America.
- \* Elected as a **Contemporary Editor** by American Biographical Institute, USA.
- \* Elected to serve as Joint Secretary of Indian Institute of Mineral Engineers for the period of 2006-2009.
- \* Honored as a Resource Person in the field of Mathematical Modeling and Computer Simulation by HRD, CIMFR, Dhanbad.
- \* Identified as an Expert in Watershed Development Program and was honored as an Executive Member of **Watershed Management Association** in Dhanbad District.
- \* Hony. President of Trinity – A Foundation for Research in Science, religion & Archaeology, Dhanbad, Jharkhand.

### I. Membership of Professional Societies/Institutions:

II.

S.No.	NAME OF THE SOCIETY	Membership category
1.	Computer Society of India	Member (2007)
2.	TRINITY (A Foundation for Research in Science, Religion and Archaeology)	Fellow Member (2007)
3.	National Institute of Small Scale Mines	Member (1998)
4.	Indian Institute of Mineral Engineers	Life Member (1999)
5.	Vigyan Bharati	Life Member (2002)
6.	Global Economic Progress & Research Association (GEPR), New Delhi.	Life Member (2016)

### J. Seminar/symposium/Conference organized:

Sl. No.	Year	Details	Remarks
1.	2013	A national Seminar on "The Strategic Role of Mathematical and Statistical Models" was organized by ADM College for Women (Autonomous), Nagappattinam, Tamil Nadu in collaboration with CSIR-CIMFR, Dhanbad	Co-organising Secretary
2.	2015	A national conference on "Applied Mathematics & Computer Simulation: Recent Trends" organized by Tranquebar bhisop Manikam Lutheran College, Porayar, Tamil Nadu in collaboration with CSIR-CIMFR, Dhanbad	Co-organising Secretary

### K. Publications of Books:

- A book entitled "**System Analysis and Air Quality Modeling**" was published by Lakhmi Publications, Bhuwaneshwar. March 2018
- A book entitled "**Transforming World – A Focus on Ethos, Values and Ethics in Post COVID-19 Professions**", Lakhmi Publications, Bhuwaneshwar. July 2020.

### L. Papers Published in Referred Journals

Sl. No	Title of the Paper	Name of the Journal	Month and Year of Publication	Volume No: Pages From - To	Impact Factor
1.	Landuse Changes due to Mining Activity in the Hilly Terrain of Sirmour District, Himachal Pradesh (Loveson, V.J. and <b>Sundararajan, M.</b> )	Indian Jl. Of Geography and Environment	2000	Vol.3., p.1-12,	NA
2.	An approach towards the development of environmental quality index for evaluation and categorization of environmental impacts ( <b>Sundararajan, M.</b> and Loveson, V.J.)	Journal Scientific and Industrial Research	2002	Vol.61, 219-223	0.729
3.	An Approach Towards the Estimation of Emission Rates from Various Activities of Naomundih Iron Ore Mine – Case Study (G.K.Banerjee, K.K.Srivastava, M.K.Chakravarty and <b>M. Sundararajan</b> )	Journal Scientific and Industrial Research	2003	Vol.62, pp.339-343.	0.729

4.	Dispersion Modeling of Leachates from Thermal Power Plants (Singh, G. S., Gupta, S. K., Kumar, R. and <b>Sundararajan, M.</b> )	International journal of Environmental Engineering	2007	Vol. 133, Issue 12, pp. 1088 – 1097,	1.59
5.	Mathematical Modeling of Leachate from Ash Ponds of Thermal Power Plants, (Singh, G. S., Gupta, S. K., Kumar, R. and <b>Sundararajan, M.</b> )	Journal of Environmental Monitoring and Assessment	July 2007	Vol. 130, pp. 173-185.	2.100
6.	Algorithm Development for Water Quality Prediction System along Industrial Outfall River Stretch Using Modeling and Computer Simulation (Anand Mohan and <b>M. Sundararajan</b> )	International Journal of Engineering Science and Technology	2010	Vol. 2(11), 2010, 6204-6208	7.529
7.	Contribution towards the determination of Characteristics of some Indian Coal by Proximate Analysis (Sharma, Sadanand and Kumar, Ritesh and <b>Sundararajan, M.</b> )	Minetech	2011	Vol. 32 (4). pp. 40-47	NA
8.	A Study on the impact of Coalwashery Effluents along Damodar River Stretch in Dhanbad District, Jharkhand. ( <b>Sundararajan, M.</b> , & Anand Mohan,)	Int. J. Engineering and Management Sciences	2011	Vol.2(4), pp 233-245	0.729
9.	A Study of Physico- chemical Characteristics of Coal from Bastacolla underground Mines in Jharia Coalfield to Ascertain its Quality, (Sharma, S, Kumar R. and <b>Sundararajan, M.</b> )	Mining Engineers' Journal	2012	Vol.14, No.1	NA
10.	Economic importance of placer minerals in the context of world scenario. (Sneha Rai, Ghosh, .A.K. and <b>Sundararajan, M.</b> )	Journal of Mines, Metals & Fuels	2013	Vol. 61 (5&6). pp. 124-128	0.020
11.	Development of River Quality Management Information System for River Stretches Blending with Multi-industrial Effluents ( <b>Sundararajan, M.</b> , Ghakrabary, G., Mohan, A.)	Int. J. of Engineering Research	2014	Vol.3, no.12	5.490
12.	Medicinal Plant in Jharkhand State: An Overview of Current Scenario. (Sharma, S. and <b>Sundararajan, M.</b> and Kumar, R.)	Global Journal of Engineering Science and Researches	2016	Conf. Vol., p. 1-6	5.070



13.	Computer Simulation Modeling of Air Pollution Dispersion in and around Coal Mining Complexes of Multi-Sources, (Judith Kiruba and <b>M. Sundararajan</b> )	Int. Nat. Jl. Circuit Theory and Applications	2016	vol. 9(26), P.81-88	1.581
14.	Environmental Issues of Thermal Power Generation and its Control Measures (Sharma, S., Kumar, R., <b>Sundararajan, M</b> and Pandey, J.K.)	Int. Jl. of Engineering Sciences & Research Technology	2017	Conf. Vol., p.4-11	0.786
15.	Environmental Issues In Underground Coal Gasification: The Future Clean And Green Energy Resource (Kumar, R., Sharma, S., and <b>Sundararajan, M.</b> )	Int. Jl. of Engineering Sciences & Research,	2017	Conf. Vol., p. 104-110	0.786
16.	Study on Altered Depiction of Pond Water Quality during Post- Immersion of Idols (Ritesh Kumar, <b>Muniyan Sundararajan</b> , Sadanand Sharma, & Neha Kumari)	Indian Jl. of Environmental Protection Iqbal ansari	2018	Vol.38(4), p.:278-290	0.090
17.	Nutrient dispersion modeling of coal ob dumps for effective reclamation and sustainable management: an innovative modeling approach, ( <b>Muniyan Sundararajan</b> , Viola Vambol, Sergij Vambol, Neha Kumari and Iqbal Ansari ).	Scientific and Technical Journal – Technogenic and Ecological Safety	2018	Vol.4(2), p.	1.500
18.	Investigation on Growth of Oil Degrading Thermophilic Bacteria Isolated from Hot Spring (Iqbal Ansari, Ritesh Kumar, <b>Muniyan Sundararajan</b> , Deblina Maiti, Mohd Ashraf Rather and Meemshad Ali ).	Biosciences Biotechnology Research Asia	2018	Vol. 15(4), p. 805-815	0.230
19.	Geographical Locations of Banks as an Influencer for Green Banking Adoption (Kanak Tara, Saumya Singh, Ritesh Kumar, <b>Muniyan Sundararajan</b> )	Indian Journal of Management	2019	Vol.12, no.1. p.21-35	0.750
20.	Understanding coal combustion residues leaching chemistry under disposal environment (Ritesh Kumar, Archana Nath, Ajit Kumar, Sadanand Sharma and <b>Muniyan Sundararajan</b> )	Indian Jl. of Environmental Protection	2019	Vol. 39 (4), p.314-320	0.090



21.	Corporate social responsibility for sustainable development (Archana Nath, Ritesh Kumar, ,Ajit Kumar Behura, Kanak Tara and <b>Muniyan Sundararajan</b> )	Indian Jl. of Environmental Protection	2019	Vol. 39(6), p.545-550	0.090
22.	Impact of miners' QoL on productivity: a strategic study for optimizing coal mining operation through sustainable human resource management, (Archana Nath, Angad Kumar, <b>Muniyan Sundararajan</b> , Ritesh Kumar and Ajit Behura)	Journal of Mines, Metals & Fuels	2019	Vol. 7 no. 7, p.1-12	0.020
23.	Water Quality Prediction System Along Multi-Industrial-Wastewater-Outfall River Stretch Using Mathematical Modeling and Computer Simulation (Anand Mohan and M. Sundararajan)	CIT Journal of Research	2010	Vol.1, no.3, pp 60-69	0.211
24.	Effect Of Nozzle Velocity, Nozzle Angle and Standoff Distance on The Dredge Output During Placer Mining (Sen, P.K., Das, L.G., Halder, B., <b>Sundararajan, M.</b> , and Chatterjee, P.K.)	IOSR Journal of Applied Geology and Geophysics	2013	Vol.1, no.3, p.1-6	3.980
25.	Prediction of SPM Emission and Distribution of PM10, PM2.5 and PM1.0 in and around a Surface Coal Mine Using Statistical Models (R.K. Dubey, <b>M. Sundararajan</b> , J.K. Pandey and M.K. Jain ).	Our Heritage	2020	Vol. 68, no.4, P.251-262	NA
26.	Application of Wireless Sensor Network for River Pollution Management (Muniyan Sundararajan, Anand Mohan, Gaurav Chakrabarty, Vijeta Jha)	Anusandhan – Science Technology and Management Journal	2021	Vol. X, No. 20, p.2348-2362	NA
27.	Application of Mathematics in Research, Education and Medical Science (Chandnani, N., Verma, K., Joshi, S., Mangal, A., <b>Sundararajan, M.</b> , Mohan, A.)	Journal of Design Engineering	2021	Vol. 2021, no. 7, p.13026 – 13037	1.410

## M. Papers Presented in National/International Conferences/Seminars

Year	Details
1994	Mathematical Model for Water Quality Impact assessment and Its Application in Coal Mine Water, Proceeding of International Symposium on Impact of Mining on the Environment–Problems and Solutions, Organized by VRCE., Nagpur, Maharashtra State, Oxford and IBM Publication, New Delhi, pp. 91–98. ( <b>Sundararajan, M.</b> , Chakraborty, M. K., Saxena, N. C., J. P. Gupta and Dhar, B.B)
1994	An Appropriate Mathematical Model to Forecast the Environmental Time Series and Its Application in Himachal Pradesh Rainfall Region with aid of Computer, Proceedings of International conference on Environmental issues in Minerals and Energy Industry, IBM Publication, New Delhi, pp. 346 – 351. ( <b>Sundararajan, M.</b> , Chakraborty, M. K. and Loveson, V. J.)
1996	Computerized Mathematical Models for water Quality Impact Assessment in the Mining Industrial Complex, Proceedings of Seminar on computer Application in Industrial Pollution Control and Management, Organized by Central Mining Research Institute, Dhanbad, pp. 54 – 62. ( <b>Sundararajan, M</b> )
1996	Computer Application For Air Quality Prediction and Climate Study, Seminar on Computer Application in Industrial Pollution Control and Management, Organized by Central Mining Research Institute, Dhanbad, pp. 96 – 102. ( <b>Sundararajan, M</b> )
1997	Development of Environmental Quality Matrix for Evaluation and Categorization of Environmental Impacts – An innovative Approach, <i>National Seminar on Environment, Feb. 4-7, ISM., Dhanbad</i> ( <b>M. Sundararajan</b> and V.J.Loveson)
1998	An Information System for Optimized Decision Making on Complex Problems Built-up by Multiple Parameters through Mathematical Approach, <i>Proceeding of National. Seminar on Recent Trend &amp; Advance in Information Technology</i> ( <b>M. Sundararajan</b> and V.J.Loveson)
1998	Application of Mathematical Modeling in Mine Environment Studies, Seminar on Computer Application on Environmental Pollution Control in the Industrial Sectors, sponsored by World Bank and organized at CMRI, Dhanbad ( <b>M. Sundararajan</b> )
1999	3D-Mathematical Modeling for Water Quality Prediction in Damodar River Stretch Between Pathardih and Bhojudih Coal Preparation Plants, <i>International Conference on Clean Coal Technology, Oxford &amp; IBH Publishing Co. Pvt. Ltd., New Delhi, ISBN 81-204-1314-6</i> ( <b>M. Sundararajan</b> and V.J.Loveson)
2001	Mathematical Modeling and Computer Simulation for the Assessment of River Water Quality around Lime stone Mines of Sirmour Region, <i>Development Aspects of Mining &amp; Environment held at HRD. Executive Development Center, C.M.R.I, Dhanbad</i> ( <b>M. Sundararajan</b> )
2002	Air Quality Dispersion Scenario at Noamundi Iron Ore Mine through Mathematical Modelling and Computer Simulation — A Case Study, <i>Nat. Sym. On Sustainable Mining Technology: Present and Future, Organized by Anna University at Chennai 14-15<sup>th</sup> March 2002</i> ( <b>M. Sundararajan, G.K.Banerjee, Kumar Nikhil and D.D.Misra</b> )

2002(*)	Certain Observation on Placer Mining, <i>Minetech</i> , p.25-29 (M. Sundararajan, V.J.Loveson and D.D.Misra)
2002	Role of IT In River Quality Management and Application of RQM Infosys for Water Quality Prediction Studies, <i>National Seminar on Mine ventilation, Safety and Environment, Organized by CMRI, Dhanbad, Pp.623-634</i> (M. Sundararajan, V.J.Loveson, A.Chattopadhyay and R.Venugopal)
2002	Impact of Coal Preparation Plants On Nearby Fluvial Systems and Assessment Through Mathematical Modeling And Computer Simulation, <i>International Conference on challanges in Coal &amp; Mineral Benefeciation, Organized at I.S.M, Dhanbad, Pp.303-310</i> (M. Sundararajan, A.Chattopadhyay, R.Venugopal and V.J.Loveson)
2002	Environmental Scenario for Small & Medium Scale Mining Industries in India — changes and challenges Ahead, <i>National Seminar on Policies, Statutes and Legislation in Small and Medium Mines, Organized at C.M.R.I, Dhanbad, Pp.111-116</i> (Kumar Nikhil, M. Sundararajan, T.B.Singh and A.K.Singh)
2002	Water Hyacinth — Boon or Ban for Jharia Coalfield, <i>National Symposium on Sustainable Mining Technology: Present and Future, Organized by Anna University, Chennai, Pp.347-356</i> (Kumar Nikhil, M. Sundararajan, T.B.Singh and N.C.Saxena)
2002	Transport Modeling on Ground Water Contamination in and around Mining and Allied Industrial Zones – A Case Study, Intl. sem. <i>Water and Wastewater: Perspectives of Developing Countries, organized by IIT Delhi, p.85-90</i> , (M. Sundararajan, Kumar Nikhil, A.Khalkho and T.K.Mondal)
2003	Establishing Indian Calendar and Cronology Using Radiometric Dating Methods- Is Reliable?, <i>National Seminar on Indian Calendar &amp; Chronology</i> , Vigyan Bharati, Dhanbad, 9-10 <sup>th</sup> Aug, 2003. (J.Mariyosh, S.Rufus David, M. Sundararajan and Kumar Nikhil)
2003	A View on the Calendar and Cronology of Ancient India in the Light of Scientific, Religious and Archaeological Discoveries, <i>National Seminar on Indian Calendar &amp; Chronology</i> , Vigyan Bharati, Dhanbad, 9-10 <sup>th</sup> Aug, 2003.( M. Sundararajan, B.R.Panduranga, Kumar Nikhil, S.Rufus David and J.Mariyosh)
2003	Heavy Metal Status in the Species Grown on Coal Overburden Dump- A Case Study, <i>National Seminar on Status of Environmental Management in Mining Industry(SEMMI-2003)</i> , Banaras Hindu University, Varanasi- 221005 (UP) 17 <sup>th</sup> -18 <sup>th</sup> , January, 2003.( Kumar Nikhil, M. Sundararajan, N.C.Saxena and D.D.Misra)
2003	Natural Resource Management for the Sustainable Development in Jharkhand State – A Technological Approach, <i>All India Seminar on Resource Management through Technology for Development of Jharkhand</i> , MECON, Ranchi-834002, Jharkhand, 22 <sup>nd</sup> June, 2003. (Kumar Nikhil and M. Sundararajan)
2003	Optimized Rain Water Harvesting and Utilization Techniques in Elevated Terrain Regions of Micro-watershed Area through Topographical Water Resource Modeling, <i>All India Seminar on Resource Management through Technology for Development of Jharkhand</i> , MECON, Ranchi-834002, Jharkhand, 22 <sup>nd</sup> June, 2003.( M. Sundararajan and Kumar Nikhil)

2004	An Economical Bio-Reclamation Approach for the Coal Overburden Dump Using Vetiver, <i>National Seminar on Environmental Engineering with special emphasis on Mining Environment</i> , ISM, Dhanbad, Jharkhand, 19-20 <sup>th</sup> March, 2004.(Kumar Nikhil, <b>M. Sundararajan</b> , Kumar Birendra and Asha Gupta)
2004	Impact of Pesticides and Agricultural Wastes on the Environment of Mining Areas, <i>National Seminar on Pollution in Urban Industrial Environment (NSPUIE-2004)</i> , RRL, Bhubaneswar-751013, 2 <sup>nd</sup> -3 <sup>rd</sup> December, 2004. (Kumar Nikhil, <b>M. Sundararajan</b> , M.Ahmad, M.S.Alam and Asha Gupta)
2004	Optimization of Bio-remedial Measures for Coal Mining Contaminated Soil with Agronomical Practices- A Conceptional Approach, <i>International Conference on Soil and Groundwater contamination: Risk Assessment and Remedial Measuers</i> , NGRI, Hyderabad-500007, 8 <sup>th</sup> -11 <sup>th</sup> December, 2004.( Kumar Nikhil, <b>M. Sundararajan</b> , Mobin Ahmad, M.K.Chakraborty and Asha Gupta)
2005	Prediction of Air Quality in and around Coal Processing Plants through Modeling and Simulation, <i>Intl. Conf. Clean Coal Technology, Orgd. By ISM &amp; IIME, January 6-8, 2005</i> , .( <b>M. Sundararajan</b> , A.Chattopadhyay, V.J.Loveson and R.Venugopal)
2005	Socio-economic Development through optimum utilization of mineral processing wastes”, <i>Intl. Seminar on Mineral Processing Technology (MPT-2005)</i> , ISM, Dhanbad-826004, 6-8 <sup>th</sup> January, 2005.( M.S.Alam, Kumar Nikhil, <b>M. Sundararajan</b> , Mobin Ahmad and Asha Gupta)
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