

Dr. SWARUP RANJAN DEBBARMA

B.Tech (Civil), M.E (Structures), Phd

ACADEMIC :

Phd Degree (RC & PSC Flexural Structures)

National Institute of Technology, Durgapur, Deem University, 2009 – 2013

Masters of Engineering (Structures)

Delhi College of Engineering; Delhi University, 1995 - 1997

B. Tech. (Civil Engineering)

North Eastern Regional Institute of Science and Technology;

North Eastern Hill University, 1989- 1995

EXPERTISE:

1. Condition Assessment of Industrial Structures of Coal & Iron mine processing Industries, Oil extracting Industries, Thermal Power Generation Companies, Steel Producing Industries, Cargo handling Industries etc.
2. R&D Project & Services Monitoring, Evaluation and Business Development Activities
3. Planning, Designing & Execution of Civil Infra-structures related to R&D Projects

INTERNATIONAL JOURNAL PUBLICATIONS:

1. “Reutilization of Ferro-arsenic waste sludge for the development of concrete blocks through solidification: conversion of natural aggregates with policy suggestion” J.Nayak, B.Ruj, P.K.Mondal, B.Bishayee, R.P.Chatterjee, **S.R.Debbarma** – *Biotechnology and Genetic Engineering Reviews*, 2 March 2023, Taylor & Francis, DOI.10.1080/02648725.2023.2182040
2. “Failure Investigation of a Multi-hopper Steel Silo” - **S. R. Debbarma**, D.Das, A.Kumar, D. Bouri, S. Banerjee, S. Chatterjee, R. Kumar – *Journal of Failure Analysis and Prevention*, Springer, 3 January 2022; Vol.22, Issue 1 pp.209-221 ASM International 2022, DOI.org/10.1007/s11668-022-01333-9

3. “Assessment of a cracked industrial converter structure through non destructive test and statistical approach- A case study”, D. Das, **S. R. Debbarma**, D. Bouri, S. Banerjee, S. Chatterjee, *Insight – Non Destructive Testing and Condition Monitoring*, U.K, 20 Nov 2020, Vol.62, Number 11, pp.633-641; DOI: 10.1784/insi.2020.62.11.633
4. “Environmental risks connected to the management of arsenic-rich waste generated from drinking water treatment”, Casentini B, **Debbarma S.R**, Fazi S, Gianico A, Lazzazzara M, Ruj B, REMTECH 20th. Sept., 2018, TECO Project Conference, Italy, EUROPE-INDIA research cooperation on soil and water remediation technologies
5. Paper entitled “Process to Solidify Arsenic-waste Generated from Arsenic Removal Plant and Converting it into a Useable Product” has been presented in *Recycle-2016, International Conference on Waste Management*, held at IIT- Guwahati, 01-2 April 2016. (P.Mandal, **S.R.Debbarma**, BiswajitRuj).
6. Paper entitled “Disposal problem of Arsenic Sludge generated during arsenic removal from drinking water” has been presented in *5th International Conference on Solid Waste Management* held at IISC, Bangalore on 24-27 Nov. 2015, pp.1098 – 1102. (P.Mandal, **S.R.Debbarma**, BiswajitRuj).
7. P. Mandal, **S.R.Debbarma**, B. Ruj “Disposal Problem of Arsenic Sludge Generated during Arsenic Removal from Drinking Water” *Procedia Environmental Science* 35 (2016) 943-949 **Elsevier**
8. P. Mandal, **S.R.Debbarma**, B. Ruj “Stabilization of Arsenic bearing sludge waste generated from Arsenic removal Plant” *International Journal of Environmental Science*, Vo.6, No.6, **May 2016** pp.1140-1152; DOI:10.6088/ijes.6109
9. Debbarma.S.R, Saha.S, “Behavior of Concrete Beams reinforced with SMA and steel bars under cyclic and monotonic load” *Magazine of Concrete Research*, ICE Publisher, Vol.66, No.6 **Jan 2014**, pp.305-314. DOI: 10.1680/mac.13.00203. **I.F: 0.563**
10. Debbarma S.R., Kundu S., Vineet V. “An Investigation of Daylight Performance and Energy Saving in Foundry Shed and Staircase Building”, *International Journal of Engineering and Innovative Technology*, ISSN 227-3754, Vol.3, No.3, **September 2013**, pp. 397-401. **I.F: 1.895**
11. Debbarma.S.R, Saha.S. “An experimental study on growth of Time-dependent strain in Shape Memory Alloy reinforced Pre-stressed concrete beams”, *Magazine of Concrete Research*, ICE Publication, ISSN 0024-9831, Vol.65, No.16, **August 2013**, pp.1003-1009. DOI: 10.1680/mac.13.00050, **I.F: 0.563**

12. Debbarma S.R, “Construction of low budget road using steel industries waste, like Blast Furnace Slag boulders and Fly ash”, *International Journal of Multidisciplinary Research and Advances in Engineering*, Ascent Journals, ISSN 0975-7074, Vol.6, No.1, **Feb.2013**, pp.141-150. **I.F: 0.1615 (2011)**
13. Debbarma.S.R, Saha.S. “Stiffness of concrete flexural members increases on use of Shape Memory Alloy bars as reinforcement”, *Recent Trend in Civil Engineering & Technology*,” STM Journals, ISSN 2249-8753, Vol.02, No.03, **Dec. 2012**, pp.24-38
14. Debbarma.S.R, Saha.S. “An experimental study on growth of time-dependent strain in Shape Memory Alloy reinforced concrete beams and slabs”, *International Journal of Civil Engineering & Technology*, IAEME, ISSN 0976 – 6308 **July 2012**; Vol. 3, No. 2, pp 108-122, **I.F: 3.1861 (2012)**
15. Debbarma.S.R, Saha.S.; “Growth of time-dependent strain in reinforced cement concrete and prestressed concrete flexural members”, *International Journal of Concrete Structures & Materials*, Springer, ISSN 1976-0485, **June 2012**; Vol.6, No.2, pp 79-85, DOI: 10.1007/s40069-012-0008-x, **I.F: 1.411**
16. Debbarma.S.R, Saha.S., “Review of Shape Memory Alloys applications in civil structures, and analysis for its potential as reinforcement in concrete flexural members”, *International Journal of Civil and Structural Engineering*, Integrated Publishing, ISSN 0976 – 4399, Vol.2, No.3, **May 2012**, pp. 915-933. DOI: 10.6088/ijcser.00202030020. **I.F: 0.2890 (2012)**
17. Debbarma. S.R., Saha. S., “In-situ investigation of thermal gradient and growth of strain in long-span PSC box Girder Bridges due to atmospheric temperature and its effects in profile of girders.” *International Journal of Earth Science and Engineering*, ISSN 0974-5904, Vol.04 No.06 **Oct.2011**. pp 709-715. **I.F: 0.042 (2011)**

LIST OF PATENTS:

1. “A Process for removal of fluoride from contaminated water using processed aluminium rich gro material (AL-GM) under ultrasonication condition” – *Biswajit Ruj, Aparajita MallickNath, Supriti Khan, Arup Saha, Swarup Ranjan Debbarma*. Published in merinet on dt. 21 July 2023
2. “Utilization of Legacy Waste as substitute of Natural Sand for making M20 to M25 Grade Cement Concrete.” - *Harish Hirani, Swarup Ranjan Debbarma, Biswajit Ruj*

Debashis Das, Dayamay Bouri. Patent Application Number 202111053721 dated 18/11/2021

3. “Process for snap fitting of solar photovoltaic Panels over the roof purlins” - *Swarup Ranjan Debbarma*, Ajoy Kumar Gupta, Prasanta Adhikary, *Debashis Das*, *Harish Hirani*. CSIR-CMERI, IPMG notice published on 05 Oct. 2020; **CSIR-IPMG No. 0183NF2020, dated 17 May 2021**
4. “Portable UV Disinfection device to sanitize Public Transport” – *Swarup Ranjan Debbarma*, *Debashis Das*, *Sumanta Banerjee*, *Dayamay Bouri*, *Harish Hirani*, CSIR-CMERI, IPMG notice published on 11 June 2020; **CSIR-IPMG No. 0128NF2020, dated 31/07/2020**
5. “Pneumatic Variant disinfection walkway unit for human body”- *M. K. Karmakar*, *Swarup Ranjan Debbarma*, *Aman Arora*, *Chanchal Loha*, *Harish Hirani*, CSIR-CMERI, IPMG published notice on 05 May 2020; **CSIR-IPMG No. 0079NF2020, dated 05/06/2020**
6. “A process for the utilization of building demolition waste through its use in production of concrete for pavement”- *Debashis Das*, *S.R.Debbarma*, *D.P. Das*, *P.Adhikary*, *Harish Hirani* CSIR-CMERI, QIPMG published notice on 18 March. 2020; **CSIR-IPMG No. 0057NF2020**, dated 28 April 2020
7. “Thermal Treatment towards safe disposal of arsenic-rich sludge and its process thereof”- *Biswajit Ruj*, *S.R. Debbarma*, *Sankha Chakraborty*, *Pretam Kumar Mondal*, CSIR-CMERI, QIPMG published notice on 04 Sept. 2019, **CSIR Application No. 0153NF2019**; Date of Filing: 03/03/2020
8. “A composition for high strength concrete blocks utilizing Fluoride Rich Sludge and a process for the preparation thereof”.- *Biswajit Ruj*, *S.R. Debbarma*, *Sankha Chakraborty*, *Arup Saha*, CSIR-CMERI, QIPMG published notice on 29 Aug 2019; **CSIR No.0155NF2019; Application No. 201913053662**; Date of Filing: 24/12/2019
9. “A Composition for High Strength Concrete Blocks Utilizing Arsenic and Iron Rich Sludge and Process for the Preparation Thereof”. *Biswajit Ruj*, *S.R. Debbarma*, *Sankha Chakraborty*, *Pretam Kumar Mondal* - CSIR-CMERI, QIPMG published notice on 17 May 2019; **CSIR No.0100NF2019; Application No. 201911040875**; Date of Filing: 10/10/2019.

10. “Arsenic water filtration device, method and nano metal-oxides coated rice husk char as adsorbent medium therefor” –*Nripen Chandra, Nagahanamunia, P.Nath, V.K.Sharma, R.K.Arun, B.Ruj, S.R.Debbarma*, **Patent No 387699, Date of filling 23/02/2017.**
11. Safe Disposal of Arsenic Sludge through Microwave treatment and the process thereof, *BiswajitRuj, S.R. Debbarma, Prasanta Mandal*; **Application No. 201711043693**; Date of Filing: 06/12/2017.**Patent No. 433968 dated 07/06/2023**
12. Process for Safe Disposal of Arsenic-rich Sludge Generated from Arsenic Removal Plant. *BiswajitRuj, S.R. Debbarma, Prasanta Mandal*; **Application No. 201611014779**, Date of Filing: 28/04/2016.**Patent No. 435474 dated 26/06/2023**

LIST OF COPYRIGHT GRANTED:

1. “Personalized UV-C Sterilization Box” *Swarup Ranjan Debbarma, Sumanta Banerjee, Sumanta Chatterjee, Dayamay Bouri, Harish Hirani*; CSIR-CMERI, **Copyright Office Registration No.L-98654/2021**, dated **15/01/2021**
2. “A process for external sanitizing of human body by creation of disinfectant Mist over the Pathway utilizing hydraulic pump”-*S.R.Debbarma, Aman Arora, A.K.Gupta, Debashis Das, Harish Hirani* CSIR-CMERI, QIPMG published notice on 28 April 2020.**Copyright Office Registration No. L-92275/2020, dated 13/05/2020**
3. “A process for development of concrete of Grade M15 to M20 using construction debris as coarse aggregate for application in pavement”. *Debashis Das, Debi Prasad Das, Prasanta Adhikary, Swarup Ranjan Debbarma, Harish Hirani*– CMERI, IPMG Notice dated 20 March 2019; **Copyright Office Registration No. L-83854/2019, dated 22/05/2019**
4. “Process for Stabilization/Solidification of Arsenic Contaminated Water Treatment Residuals” – IPMG/Copyright/2015/03

SERVICES PROVIDED TO THE INDUSTRIES:

SL No	Industry	PO/Work Order No	Date	Title	Value (Rs)
1	SAIL-DSP	WO: 4515014268	28/06/2023	Structural Stability of Shop Building & Shop Structures, Sintering Plant	42,25,000.00
2	NTPC, Farakka	PO: 4000304039-050-1035	15/04/2023	Visual Inspection of Steel and Concrete structures of 3x 200MW and 3x 500MW Boiler, ESP, Bunker, CW Pump House	7,67,000.00
3	NTPC, Sipat	PO: 4000295573-026-1035	31/01/2023	Visual Inspection and Non Destructive Evaluation (NDE) over critical Structures (RCC & Steel) of Stage II, 2x500 units for condition assessment studies	17,48,170.00
4	M/s. Jai Balaji Industries Ltd	WO: JBIL/U-IV/21-22/CS/Ferro-480	27/12/2022	NDE and Assessment for Furnace Foundation 2 & 3 and Recommendation for up gradation of Furnace 2 Foundation.	3,11,225.00
5	M/s. IMFA	SO-JKR/MD/OT/22-23/219	20/10/2022	Proof Checking & Vetting of Designs (15nos) and Drawings (32nos) of different structural components of 100 TPH Crusher and Screening Plant	4,13,000.00
6	SAIL- Collieries	CD/CC/WO/2022-23/77	25/10/2022	Testing of FLC Winding Rope and NDT of Vital Components and CSG Unit of Winders	20,79,160.00
7	M/s. IMFA	SO-JKR/MD/OT/22-23/198	23/09/2023	Structural Assessment on Winder Tubular Head Gear Structures at Mahagiri Mines	6,63,160.00
8	NTPC, Bgr.	PO: 4000282453-026-1035	30/06/2022	Visual Inspection and Health Assessment of Selected Structures	18,89,475.00
9	M/s. Vedanta	PO: 4800020698	12/01/2022	Condition Assessment of Stacker and Reclaimer SR-1 and SR-2 bed	2,95,738.00
10	M/s. IMFA	SO-JKR/MD/OT/21-22/208	21/12/2021	Str. Assessment for Backfilling Plant-1 at Mahagiri Mines	2,31,575.00
11	M/s. AP&NR Ltd	SO: 3030005716	20/10/2021	Condition Assessment of Two number RC Ash Silos	2,25,380.00
12	NTPC, VSTPS	4000260517-026-1018	14/07/2021	Visual Inspection of Plant Structures as per LMI	37,76,000.00

13	SAIL-BSP	PO: 4270011292	10/07/2021	NDT of Selected Conveyor Gallery Structures.	10,11,429.00
14	NTPC, Farakka	4000277162- 186-1035	23/04/2022	Condition Assessment through NDT over Structures of CHP	834,260.00
16	Vedanta Pvt Ltd.	P2206090948 675	09/06/2022	Condition Assessment of conveyer 9	252,284.00
17	NTPC Tanda	P.O. No: 4000271032- 020-1007	27/01/2022	Exploratory visit to condition of RC OH tanks and other identified building structures.	214,875.00
18	M/s. Vedanta Pvt Ltd.	P.O. no : 4800020698	12/01/2022	Condition Assessment of Stacker and Reclaimer SR-1 and SR-2 bed	295,738.00
19	M/S IMFA	SO-JKR/MD/ OT/21- 22/208	21/12/2021	Structural assessment for Backfilling plant-1	231,575.00
20	M/s APNRL	3030005716	20/10/2021	Condition Assessment of Two number RC Ash Silos	225,380.00
21	M/S IMFA	SO-JKR/MD/ OT /21-22/89	05/08/2021	Structural Assessment of RCC foundation and steel Structures of Backfilling Plant	323,025.00
22	NTPC, VSTPS	4000260517- 026-1018	14/07/2021	Inspection of Chimneys, Structures, Buildings and Machine Foundations	3,200,000.00
23	SAIL-BSP	CC-W/PO- 4270011292	10/07/2021	NDT of Selected Conveyor Gallery	857,143.00
24	NTPC, Farakka	4000257163- 186-1028	23/04/2021	Visual inspection of Coal Handling Plant Structures	662,000.00
25	Vedanta Pvt Ltd.	4800018499	22/01/2021	NDT of Concrete Berth slab and with supporting columns	550,000.00
26	SAIL-Bhilai	CC-W/PO- 4270010614/ EBSI/Tech Services /ST/24178	13/01/2021	Exploratory visit to visualize existing condition of structures and recommendation for further detail NDT Studies of selected ones.	239,125.00
27	NTPC Kahalgaon	4000250374- 026-1028	29/11/2020	Visual inspection of Identified Structures.	1,950,000.00
28	NTPC, Farakka	400246271- 049-1024	29/09/2020	Visual Inspection of 06 Nos Turbine House Steel Structures at NTPC Farakka	360,000.00
29	NTPC Kahalgaon	LoI -1028- 186	18/09/2020	Detailed Condition assessment of structures of Coal handling Plant of NTPC Kahalgaon	2,653,999.00
30	SAIL-DSP	4515011105	11/06/2020	NDT over the RC wall of SGP Tank Structure at RC BF#4 and chemical & physical analysis of collected concrete	430,000.00

31	Vedanta VGCB Pvt Ltd. Vigaz	4800017257	06/02/2020	Structural stability audit of wagaon loading station along with one Silo at VGCB, Vedanta	758,474.00
32	NTPC, VSTPS	4000230536-026-1018	04/12/2019	Conducting Visual Inspection of Plant Structures	900,000.00
33	Bharat Cooking Coal Ltd	BCCL/CV/X II/E&M/WO/2019-20/F65/350	23/10/2019	NDT and Assessment of Feeder Breaker and Mobile Feeder Breaker installed at M/s BCCL, Barakar	3,50,000.00
34	Jai Balaji Industries	JBIL/UNIT-IV/19-20/CS/FERRO-41	19/10/2019	Health Assessment of selected structures and Stability Analysis of E-Row columns tie Beam.	3,00,000.00
35	DVC, Panchet	M/C&M/WO (Panchet) /515	26/08/2019	Inspection of cracks and subsequent assessment of existing strength of intake gallery	3,00,000.00
36	IOC Bgr.	26022046	09/07/2019	Integrity study/ health study of concrete structure at BGR	1,446,201.00
37	ISGEC, NSPCL	ISGEC//NSP CL/19	31/05/2019	Health assessment of selected RCC structures	177,000.00
38	DVC, Andal	DVC/Cont/D STPS/PH/CI V-1/00043	02/05/2019	Condition Assessment of RCC Foundation and Steel SS of Conveyor 3 A-B and 10A-B.	508,474.00
39	Odisha Govt	E-537/17 (Part) /2827/	03/12/2018	Tensile test, Chemical test, Bend Re-bend test	218,700.00
40	ISP Burnpur	contr/W.O. /616	14/11/2018	Health Assessment of RC supporting str. at converter-1	560,000.00
41	ONGC, Nazira	Tender no : R16DS18006	21/09/2018	Post Earthquake Health Survey of Selected Oil Storage Tanks and concrete foundations	2,000,000.00
42	NTPC , Faridabad	4000209115-051-1015	18/08/2018	Health assessment of process vessel, storage vessel, Naphtha Tank, Chimney	2,257,391.00
43	Odisha Govt	E-537/17 (Part)/1945	01/08/2018	Tensile test, Chemical test, Bend Re-bend test	234,900.00
44	SAIL, Bhilai	PO-4270007086 / PR No: 1130012435 /2345	27/06/2018	Structural stability test using scientific tools like NDT, Vibration study statistical analysis of Ore processing plant at DMM, RMM, Nandini mines	2,869,350.00
45	NTPC Faridabad	4000209115-051-1015	18/08/2018	Health Assessment of Process Vessel, Storage Vessels, Naptha Tank and Chimney	1,913,044.00

CIVIL R&D INFRASTRUCTURES PROJECTS:

- (i) Extension of Foundry Shed for accommodating Equipments required for AMT Project. (Cost, Rs.16.18 Lakhs)
- (ii) Construction of 1st floor of RMGD Building for creation of laboratory for AMT Project. (Cost, Rs.39.06 Lakhs)
- (iii) External & Internal painting after necessary repair of multistoried building-I, II & IV at CMERI colony, (Cost, Rs.38.4 Lakhs).
- (iv) Construction of boundary wall of Institute and Staff quarters. (Cost, Rs.69.75 lakhs).
- (v) Modification & Renovation of Ground & 1st floor (right wing) of MERADO building for MST lab at CMERI, Durgapur. (Cost, Rs.20.12 lakhs)
- (vi) Construction of underground water sump at CMERI new colony, (Cost, Rs.17.72 lakhs).
- (vii) Renovation of Administrative and Accounts Section of CMERI, (Cost, Rs.27.72lakhs).
- (viii) Renovation of rooms in HPE Shed for creation of Fuel Cell Lab. at CMERI, (Cost, Rs.2.68lakhs).
- (ix) Construction of front entrance Tower gate structure of CMERI with RCC and covered with granite stone. (Cost, Rs.7.37lakhs).
- (x) Construction of infrastructure for School of Mechatronics at CMERI, Durgapur, (Cost, Rs.36.26lakhs).