

### Consultancy Projects - Underway

| Sl. No. | Title of the project  | Principal Investigator   | Sponsoring Agency                            | Total Budget (INR) | Duration                            |
|---------|---|--|--|--------------------|-------------------------------------|
| 1       | Robust receive beamforming algorithm for underwater sonar imaging system for Mine Like Object Detection in the presence of reverberation                    | Dr. Mahesh R. Panicker   | DRDO NPOL                                    | 989218             | 16 May 2022 - 15 May 2023           |
| 2       | Fibre characterisation and flexural toughness testing of fibre reinforced concrete (FRC) with two types of fibres supplied by CHRYSO India Private Limited. | Dr. Sunitha K Nayar  | Chryso Indian Pvt. Ltd                       | 916634             | 01 December 2022 - 15 May 2023      |
| 3       | Soil Tests and Desing calculation - Pipeline crossing under railway track near Nellore Railway station  | Dr. Sudheesh T K   | Kerala Water Authority                       | 200600             | 24 April 2023 - 23 May 2023         |
| 4       | Robust operational space motion control of a waist assistive powered exoskeleton  | Dr. Santhakumar Mohan  | DRDO, CAIR                                   | 3176000            | 30 November 2021 - 31 May 2023      |
| 5       | Flexural toughness testing and certification of M30 concrete with Mark Chem steel fibres supplied by Markchem   | Dr. Sunitha K. Nayar   | Mr. Mark Overseas                            | 361080             | 15 January 2023 - 15 June 2023      |
| 6       | Compiler Optimizations and LLVM   | Dr. Unnikrishnan C   | Multicoreware Inc., CA                       | 180000             | 16 January 2023 - 16 June 2023      |
| 7       | Supply of additively manufactured inconel 718 plates, Mechanical Property Evaluation and Micro Structure Analysis   | Dr. D Kesavan  | ISRO Propulsion Complex (IPRC), Mahendragiri | 1493968.75         | 29 October 2022 - 30 January 2024   |
| 8       | Development of a River Basin Management Plan for the Bharathapuzha River Basin  | Team Leader: Prof. Balaji Narasimhan (IITM & Adjunct Faculty, IITPKD)<br>Dy. Team Leader: Prof. Sudheer K. P. (Executive Vice President, KSCSTE)<br><br><b>Hydro-climatological Expert: Dr. Sarmsitha Singh</b><br><b>Water Resource Engineer: Dr. Athira P.</b><br><b>Hydrological Modelling Expert: Dr. Subhasis Mitra</b> | Irrigation Design & Research Board (IDRB)    | 7300000            | 25 February 2022 - 24 February 2024 |
| 9       | Automatic Target Detection using Side Scan Sonar (SSS) and Multibeam Echosounder (MBE) Images   | Dr. Mahesh R. Panicker   | DRDO CAIR                                    | 1965000            | 08 July 2022 - 07 March 2024        |
| 10      | Experimental and Numerical Evaluation of Gaseous Fuel Combustibility under BF raceway conditions  | Dr. Krishna Sesha Giri   | IIT Madras                                   | 708000             | 13 May 2021 - 12 May 2024           |
| 11      | Crack Detection using Automated Magnetic Particle Inspection  | Dr. Mrinal Kanti Das   | Sansera Engineering Ltd.                     | 2565497            | 05 July 2022 - 04 July 2024         |
| 12      | Research Cluster for AI Acceleration  | Dr. Satyajit Das   | Multicoreware Inc., CA                       | 5485920            | 01 April 2022 - 31 March 2025       |
| 13      | Development of a numerical model for predicting flow noise in thin towed sonar arrays   | Dr. Ganesh Natarajan<br>Dr. Anoop Akkoorath Mana<br>Dr. Pramod Kuntikana   | DRDO NPOL                                    | 973698             | July 2022 - July 2023               |

**Consultancy Projects - Completed**

| Sl. No. | Title of the project  | Principal Investigator               | Sponsoring Agency                             | Total Budget (INR) | Duration                              |
|---------|---|--------------------------------------|---|--------------------|---------------------------------------|
| 1       | Mix design for grade M15 Dry Lean Concrete mix  | Dr. Madhu Karthik M.                 | Garrison Engineer (P) AF Sulur, MES, Sulur    | 46,550             | 30 October 2017 - 15 December 2017    |
| 2       | Soil Investigation for Permanent Campus of IIT Palakkad   | Dr. Sudheesh T. K. & Dr. Divya P. V. | Central PWD                                   | 525336             | August 2018 - September 2018          |
| 3       | Review of lateral capacity of pile  | Dr. Sudheesh T. K.                   | Furnace Fabrica India Ltd.                    | 28,320             | 21 August 2018 - 07 September 2018    |
| 4       | Vetting of Structural Design of Bus Terminal (AMRUT Urban Transport) for Palakkad Municipality  | Dr. Anil Kumar M. V.                 | Palakkad Municipality                         | 77,880             | 30 July 2018 - 28 September 2018      |
| 5       | Vetting of Design submitted by Durafloor Concrete Solutions for Fibre Reinforced Flooring   | Dr. Sunitha K. Nayar                 | Durafloor Concrete Solutions LLP              | 155760             | 14 January 2019 - 28 January 2019     |
| 6       | Review of Soil Report   | Dr. Sudheesh T. K.                   | Furnace Fabrica India Limited                 | 25,488             | 28 January 2019 - 11 February 2019    |
| 7       | Vetting of Structural Design (Improved Design of Eranholi Bridge)   | Dr. Anil Kumar                       | Ernad Engineering Enterprises                 | 113280             | 28 March 2019 - 28 May 2019           |
| 8       | Vetting of Structural Drawings (Flyover at Edappal Junction)  | Dr. Anil Kumar                       | Ernad Engineering Enterprises                 | 283200             | 08 April 2019 - 08 June 2019          |
| 9       | Proof Checking of 40m Girder and Deck Slab: Flyover at Vytilla  | Dr. Anil Kumar M. V.                 | PWD, Kerala Government                        | 106200             | June 2019 - July 2019                 |
| 10      | Vetting of Detailed Design of Viaduct from 1+786 to 2+013 along Thiruvalla Bypass   | Dr. Anil Kumar M. V.                 | E K K Infrastructure Limited                  | 141600             | 03 July 2019 - 03 September 2019      |
| 11      | Checking and Vetting of Design Solution of Reinforced Flooring, done by Flatworx Consulting LLP   | Dr. Sunitha K. Nayar                 | Flatworx Consulting LLP                       | 155760             | 03 September 2019 - 10 September 2019 |
| 12      | BPCL Cross Country Pipeline: Study on Ground Improvement for the Development of Cochin Seaport- Airport Road Phase-II   | Dr. Divya P. V.                      | BPCL  | 236000             | 22 November 2019 - 20 December 2019   |
| 13      | RWSS to Pudukkad, Parappurkkara and Adjoining Panchayaths - Implementation of pipe line near Railway bridge at Kurumali, Rapal by HDD Method  | Dr. Sudheesh T. K.                   | Kerala Water Authority                        | 30,090             | February 2020 - March 2020            |
| 14      | Optimization of Production & Transmission - WSS to Pavaratty & Mullassery Panchayaths in Chavakad Thaluk - Supplying, Laying & Commissioning of 300/250/200 mm DI K9 gravity main - Railway crossing at Brahmakulam - Soil exploration by taking 2 nos. trial bores | Dr. Sudheesh T. K.                   | Kerala Water Authority                        | 30,090             | February 2020 - March 2020            |
| 15      | STP Water Testing   | Dr.Praveena Gangadharan              | Builtech Avenue Apartment Owner's Association | 4,000              | 13 February 2020 - 04 March 2020      |
| 16      | Structural stability check of flag mast for Naval Academy, Ezhimala   | Dr. Anil Kumar M. V.                 | Garrison Engineer (Maint) Ezhimala            | 283200             | 04 January 2020 - 31 March 2020       |
| 17      | Consultancy for Design and Vetting of Fibre reinforced concrete (FRC) and Mesh reinforced concrete (RC) Flooring  | Dr. Sunitha K. Nayar                 | IIT Madras                                    | 240720             | 17 March 2020 - 17 April 2020         |
| 18      | Soil investigation and structural stability for Sebastian indoor stadium, Edava, Thiruvananthapuram   | Dr. Madhu Karthik M.                 | Kerala Infrastructure Investment Fund Board   | 708000             | 01 April 2020 - 30 May 2020           |
| 19      | Brainwave- based Driver Drowsiness Detection System   | Prof. Vinod A. Prasad                | UVJ Technologies Pvt. Ltd.                    | 1200000            | 01 January 2019 - 30 June 2020        |
| 20      | Soil Investigation for existing soil at Runway Basic Strip - Calicut International Airport (Phase 1)  | Dr. Sudheesh T. K.                   | Airports Authority of India                   | 455126             | 18 August 2020 - 19 September 2020    |
| 21      | Soil Investigation for existing soil at Runway Basic Strip - Calicut International Airport (Phase 2)  | Dr. Sudheesh T. K.                   | Airports Authority of India                   | 195408             | 08 September 2020 - 07 October 2020   |
| 22      | Design and development of a multi-purpose ground based mobile manipulator   | Dr. Santhakumar Mohan                | Autodesk Inc.                                 | 88,500             | November 2020 - December 2020         |

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| 23 | Checking/ Vetting the Structural Design/ Drawings proof of the proposed 300 bedded hostel building of SAI - LNCPE, Trivandrum   | Dr. Madhu Karthik M.       | Biju P. Daniel & Co.                                       | 566400  | 16 November 2020 - 14 December 2020   |
| 24 | Upgradation of coastal roads - Construction of Retaining wall and Upgradation of Road at Vettikkunnuvila Road in Paravoor Municipality in Chathannoor Legislative Assembly Constituency)                      | Dr. Rakesh J. Pillai       | Harbour Engineering Department, Govt. of Kerala            | 300000  | 01 October 2020 - 31 December 2020    |
| 25 | Soil Investigation for Laying 500 mm MS pipe across railway line at Ponnuranni by Push-through method   | Dr. Sudheesh T. K.         | Kerala Water Authority                                     | 154580  | 18 December 2020 - 18 February 2021   |
| 26 | Soil Investigation Report - AMRUT-2017-18-WSS to Guruvayur Municipality in Thrissur District - Distribution network for Thaikkad Zone - Railway line crossing at Paluvai by push through method               | Dr. Sudheesh T. K.         | Tony P. Thekkiniyath (Contractor KWA)                      | 32,568  | 21 January 2021 - 21 February 2021    |
| 27 | Technical review of the counter claims by IOCL and CoPT for arbitration of the case in connection with Construction of Multi- User liquid Terminal at Puthuvypen, Cochin port                                 | Dr. Sunitha K. Nayar       | Indian Oil Corporation Limited                             | 632952  | 04 January 2021 - 28 February 2021    |
| 28 | Preparation of Counter Argument Report for IOCL's Arbitration case in connection with Construction of Multi- User Liquid Terminal at Puthuvypen, Cochin Port  | Dr. Senthilkumar V.        | Indian Oil Corporation Limited                             | 446040  | 09 January 2021 - 28 February 2021    |
| 29 | Preparation of Cross Examination Arguments and Analysis against the detailed delay and escalation report of the Contractor against IOCL's Arbitration case in connection with MULT at Puthuvypen, Cochin Port | Dr. Senthilkumar V         | Indian Oil Corporation Limited                             | 446040  | 05 February 2021 - 28 February 2021   |
| 30 | Four Laning of Thalassery - Mahe Bypass section of NH-17 from km 170+600 (Design Chainage 170+600) to km 188+000 (Design Chainage 189+200) in the State of Kerala under NHDP Phase-III on EPC Mode            | Dr. Anil Kumar M. V.       | EKK Infrastructure Ltd.                                    | 254880  | 08 March 2021 - 08 April 2021         |
| 31 | To establish the process methods for manufacturing MS1 alloy through powder bed fusion technique and its characterization   | Dr. D. Kesavan             | EOS GmbH India   | 443208  | 06 April 2021 - 05 May 2021           |
| 32 | Checking and Vetting of Design Solution for FRC Flooring of the proposed project at Chennai Submitted by ACS Technologies, Chennai.   | Dr. Sunitha K. Nayar       | K C Contech  | 177000  | 22 June 2021 - 01 July 2021           |
| 33 | Checking and Vetting of Design Solution for Warehousing Project at Aarush Logistics Park at Vallam, Oragadam submitted by Aarush (Phase II) Logistics Park Pvt. Limited                                       | Dr. Sunitha K. Nayar       | M/s Aarush (Phase II) Logistics Park Pvt. Limited, Chennai | 155760  | 30 June 2021 - 07 July 2021           |
| 34 | Checking and Vetting of Design Solution for flooring of Power of one logistics park at Chakan, Talegaon submitted by Power of One Logistics Park Pvt. Limited   | Dr. Sunitha K. Nayar       | Power of One Logistics Park Pvt. Limited, Mumbai           | 155760  | 30 June 2021 - 07 July 2021           |
| 35 | Vetting of Cold In-place Recycling on NH 66   | Dr. C. V. Veena Venudharan | PMR Construction Company                                   | 184080  | 08 October 2020 - 08 July 2021        |
| 36 | Site visit and RE wall inspection report- Mukkola project   | Dr. Divya P. V.            | Larsen & Toubro Limited (L&T)                              | 514008  | 01 July 2021 - 30 July 2021           |
| 37 | Payment design for roads in Kottoor Elephant Rehabilitation Centre  | Dr. C V Veena Venudharan   | Kerala Infrastructure Investment Fund Board (KIIFB)        | 212400  | 01 July 2021 - 15 August 2021         |
| 38 | Checking and vetting of design solutions for FRC flooring of the proposed project at T01 at Topline Logistics Park Pvt Ltd, Palwal Haryana, for Indusfloors.  | Dr. Sunitha K. Nayar       | Indus Floors India Pvt Ltd                                 | 177000  | 05 September 2021 - 15 September 2021 |
| 39 | Consultancy for Remedial Measures for Distressed Culvert, Runway and Embankment of Calicut International Airport  | Dr. Sudheesh T. K.         | Airports Authority of India                                | 3497520 | 25 March 2021 - 24 September 2021     |
| 40 | Recommendations on slope protection works for Mattanur-Irikkur road, Kannur   | Dr. Divya P. V.            | Kerala Infrastructure Investment Fund Board (KIIFB)        | 900576  | 10 August 2021 - 10 October 2021      |
| 41 | Site Visit report for visual assessment of dislodged panel of MSE wall at CH 28 +665  | Dr. Divya P. V.            | Larsen & Toubro Limited (L&T)                              | 594720  | 27 February 2022 - 10 March 2022      |
| 42 | Kochi Salem LPG Pipeline Project  | Dr. Senthilkumar V         | Kochi Salem Pipeline Pvt Ltd                               | 177000  | 01 March 2022 - 30 April 2022         |
| 43 | Recommendations on Ground Improvement Works for Perumbavoor Bypass Road   | Dr. Divya P. V.            | KIIFB  | 254880  | 23 March 2022 - 08 July 2022          |
| 44 | Conduct hydrological modelling for Jharkhand State covering all major river basins using the Soil and Water Assessment Tool (SWAT) model for CRISP-M  | Dr. Athira P.              | International Institute for Environment & Development      | 1951144 | 01 December 2021 - 31 July 2022       |
| 45 | Tensile testing of metallic parts   | Dr. D Kesavan              | Ultraviolette Automotive Pvt Ltd                           | 78386   | 18 July 2022 - 17 August 2022         |
| 46 | Site Inspection of cracks developed in Gramakala building - IRTC Jubilee Complex - Mundur   | Dr. Madhu Karthik M.       | Integrated Rural Technology Centre (IRTC)                  | 28320   | 13 August 2022 - 20 August 2022       |

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| 47 | Filter development for Radiographic Images   | Dr. Mahesh R. Panicker | Visi Consult Pvt. Ltd., Maharashtra                   | 54000   | 20 March 2022 - 20 September 2022    |
| 48 | World Skills International Competition - Mentoring For Digital Construction Skillset   | Dr. Senthilkumar V.    | Construction Skill Development Council of India       | 1346270 | 01 February 2022 - 30 September 2022 |
| 49 | Amrut -WSS to Guruvayur Municipality in Thrissur - District Distribution network for Thaikkad zone- Railway iine crossing at Paluvai by IJDD method  | Dr. Sudheesh T.K.      | Kerala Water Authority                                | 42480   | September 20 2022 - October 20 2022  |
| 50 | Rolling contact fatigue testing under - pure rolling and rolling with 30% slip conditions  | Dr. D. Kesavan         | GE India Industrial Private Limited                   | 354000  | 25 August 2022 - 24 November 2022    |
| 51 | Flexural toughness testing and certification of M30 concrete with Tufstrand SF (Macro Fibres) supplied by Tremco CPG (India) Private Limited (Formerly known as 'Flowcrete India Private Limited')                   | Dr. Sunitha K Nayar    | TREMCO CPG India limited                              | 518114  | 15 July 2022 - 12 December 2022      |
| 52 | Experimental investigation for determining drying shrinkage potential using area specific concrete compositions for flooring applications  | Dr. Sunitha K. Nayar   | Floormart Global, Maharashtra                         | 368160  | 25 March 2022 - 31 December 2022     |
| 53 | Checking and Vetting of Design submitted by Bekaert - DRAMIX for SFRC Flooring of the Power of One logistics park project at Talegaon by Ascendas, Firstspace Development Management Pvt. Ltd.                       | Dr. Sunitha K Nayar    | Firstspace Development Management Pvt. Ltd            | 127440  | 05 January 2023 - 15 January 2023    |
| 54 | Checking and Vetting of Design submitted by Bekaert – DRAMIX for warehouse project at Palwal, Haryana by Ascendas, Firstspace Development Management Pvt. Ltd.   | Dr. Sunitha K. Nayar   | Firstspace Development Management Pvt. Ltd            | 127440  | 05 January 2023 - 15 January 2023    |
| 55 | Checking and Vetting of Design submitted by Bekaert – DRAMIX for SFRC saw cut flooring to be laid for AARUSH LOGISTICS PVT LTD - Project VINPLEX INDIA PVT.LTD Proposed warehouse- V4,V5 by Civitech India Pvt. Ltd. | Dr. Sunitha K. Nayar   | M/s. Civitech India Pvt. Ltd.                         | 127440  | 05 January 2023 - 15 January 2023    |
| 56 | Conduct hydrological modelling of Chhattisgarh covering all major river basins using the Soil and Water Assessment Tool (SWAT) model for CRISP-M   | Dr. Athira P.          | International Institute for Environment & Development | 3348905 | 15 August 2022 - 31 January 2023     |
| 57 | IOCL Mangalore Terminal Expansion  | Dr. Sudheesh T. K.     | Keller Ground Engineering India Private Limited       | 177000  | 06 January 2023 - 05 March 2023      |
| 58 | Checking and Vetting of Design submitted by Bekaert - DRAMIX for SFRC Flooring of the Power of the Topline Logistics Park Pvt. Ltd. T2-T3: Warehouse Saw-Cut Floor, Firstspace Development Management Pvt. Ltd.      | Dr. Sunitha K. Nayar   | Topline Logistics Park Pvt. Ltd.                      | 127440  | 28 February 2023 - 10 March 2023     |
| 59 | Recommendations for bridge adutment on rock  | Dr. Sudheesh T. K.     | Southern Railway                                      | 368160  | 20 February 2023 - 20 March 2023     |
| 60 | Indoor Detection of Person using Phased array radar & FMCW 60 GHz Radar for Detecting a Person and Monitoring Vital Sign   | Dr. Swaroop Sahoo      | Multicoreware Inc., CA                                | 180000  | 01 October 2022 - 31 March 2023      |
| 61 | Checking and Vetting of Design submitted by Durafloor Concrete of the RCC grade slab used for two location in the IOCL project, Chennai  | Dr. Sunitha K. Nayar   | Durafloor Concrete Solutions LLP                      | 141600  | 10 April 2023 - 20 April 2023        |
| 62 | Recommendations on the construction of a multi - storey building with pile foundations near a KWA pipeline at Re - survey No. 93 & 97 of Thycaud village, Tiruvanathapuram.  | Dr. Rakesh J. Pillai   | Kerala Water Authority                                | 472000  | 10 April 2023 - 10 May 2023          |
| 63 | Appointment of Consultant for the review of Kochi Metro Pillar Nos. P 343 to P 351   | Dr. Madhu Karthik M    | Kochi Metro Rail Limited (KMRL)                       | 1571760 | November 2022 - April 2023           |