

No.BDID/01/23/2014-HSRS
Govt of India
Ministry of Science & Technology
Department of Science & Technology
(Big Data Initiatives Division)

Technology Bhavan,
Saheed Jagjit Singh Marg,
New Delhi-110016.
Date:18.03.2016

Sanction Order

Subject: Financial support for the networked project on “Big Data Analytics-Hyperspectral Data (BDA-HSRS)” Regarding.

PI: Prof D Ramakrishnan, IITBombay, Mumbai (National Co-ordinator, BDA-HSRS), Co-PI: Dr Rabi Narayan Sahoo, IARI, New Delhi (National Co-coordinator, BDA-HSRS)

Sanction of the President is hereby accorded for **“Big Data Analytics – HSRS Data (BDA-HSRS)”**, a cluster based multi-institutional networked project consisting of 37 R&D projects, 4 Region-wise Central Laboratory Facility, HSRS Group Trainings, Data Acquisition, Data Portal and Project Coordination Cell at a total cost of **Rs 2059.570 lakhs (Rupees Two Thousand Fifty Nine Lakh and Fifty Seven Thousands only)** to IITBombay, Mumbai for a duration of 3 years as per details given below:

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
I	Theme: Geology				
1.	PI: Prof D Ramakrishnan, IITBombay “Development of Spectral library for mineral exploration and geological mapping & Establishment of Central instrumentation facility on Spectral Acquisition and Characterisation”	14.630	14.630	13.464	42.724
2.	PI: Prof S Anbazhagan. Periyar University, Salem “Hyperspectral Remote Sensing Study in Lithological Mapping of Alkaline complex terrain & Reflectance spectral study of Platinum Group of Elements”	11.990	11.165	11.290	34.445
3.	PI: Dr K N Kusuma, Pondicherry University, Pondicherry “Methodology Development for Exploring Precious Metals (Gold) Using Imaging Spectroscopic Technique”	12.375	11.935	12.665	36.975
4.	PI: Dr S Aravindan, Annamalai University, Chidambaram “Methodology development for	11.660	11.110	11.431	34.201

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
	exploring bauxite ore using Hyperspectral Remote Sensing Technique”				
5.	PI: Dr P Udayaganesan, Alagappa Govt. Arts College, Karaikudi “Development of Methodology for Exploring Nuclear Minerals in the Coastal Placer Deposits using Hyperspectral and Radiometric Techniques”.	12.760	11.660	11.431	35.851
6.	PI : Dr Debashish Chakravarty, IIT Kharagpur “Hyperspectral image feature based characterization of coal and coal measured rocks occurring in BCCL and ECL areas for better management of the energy demand of India”	10.560	11.660	12.531	34.751
II	Theme: Agriculture				
7.	PI: Dr Rabi Narayan Sahoo, IARI, New Delhi “Hyperspectral Remote Sensing for Precision Agriculture”	14.630	14.630	13.464	42.724
8.	PI: Dr M Prabhakar, ICAR-CRIDA, Hyderabad “Hyperspectral remote sensing for crop condition assessment in dry land crops”	12.430	11.330	12.364	36.124
9.	PI: Dr Santanu Kumar Bal, NIASM, Baramati “Characterizing sugarcane stress responses to abiotic and biotic stresses through hyper-spectral remote sensing”	13.310	13.310	11.981	38.601
10	PI: Dr B U Choudhury, ICAR Research Complex for NEH Region “Characterization of Acid Soils under different land use pattern and its impact on Crop Growth: A Hyperspectral approach”.	11.110	11.660	13.081	35.851
11.	PI: Dr M Mohanty, IISc., Bhopal “Hyper-spectral remote sensing approaches to evaluate soil quality and crop productivity of central India”	13.695	12.485	10.795	36.975
12.	PI: Dr Rajeev Srivastava, NBSS&LUP, Nagpur “Hyperspectral Remote Sensing in Characterization and Mapping of Red and Associated Soils of Southern India”	12.595	12.595	12.445	37.635

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
III	Theme: Water				
13.	PI: Dr Bhabani Sankar Das, IITKharagpur "Assessment of Suspended Sediments Concentration and phytoplankton contents in the Chilika Lagoon using Hyperspectral Remote Sensing"	13.310	13.310	11.981	38.601
14.	PI: Dr R Sivakumar, SRM University, Chennai "Water quality studies of Rivers and Reservoirs/lakes using Hyperspectral remote sensing"	12.155	11.605	12.364	36.124
15.	PI: Dr T Thangaradjou, Annamalai University, Chidambaram "Collection of hyperspectral radiometric profile data in case I oceanic waters of the Bay of Bengal and Rebuilding the regional bio-optical algorithm for the retrieval of Suspended Sediment Concentration (SSC) in the North Indian Ocean region"	11.110	10.560	10.606	32.276
16.	PI: Prof P Shanmugam, IITMadras "Development of atmospheric correction algorithm and up-scaling of in-situ measurements to derive hyperspectral remote sensing products over River Ganga"	15.730	13.530	13.464	42.724
17.	PI: Dr M Thanikachalam, Prathyusha Institute of Technology, Chennai "Detection and Discrimination of Coral Reefs Using Hyper Spectral Data"	9.515	8.965	8.107	26.587
IV	THEME: FORESTRY				
18.	PI: Dr Amit Kumar, CSIR-Institute of Himalayan Bioresource Technology, Palampur "Preparation of spectral library of forest tree species of Himalayan region"	10.285	9.735	10.606	30.626
19.	PI: Dr P Rama Chandra Prasad, IIT, Hyderabad "Canopy spectral biochemical analysis of forest species using hyperspectral remote sensing – A case study from Eastern Ghats forest ecosystems"	13.530	12.430	13.189	39.149
20.	PI: Prof N S R Krishnayya, M.S. University, Baroda	11.495	11.770	11.345	34.610

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
	"Precision monitoring of changes in the growth cycle of forest "				
21.	PI: Prof P K Joshi, JNU, New Delhi "Detection and quantification of forest structure and function in the Himalayan foothills using in situ and remotely sensed HSRS data"	14.080	13.530	13.464	41.074
V	THEME: SNOW & GLACIER				
22.	PI: Dr Snehmani, DRDO-SASE, Chandigarh "Generation of a spectral library of different types of snow and ice media"	12.320	12.320	12.720	37.360
23.	PI: Dr R A A J Ramsankaran, IITBombay "Characterization & Modelling of Physical Properties of Different Forms of Snow and Ice using Field and Remote Sensing Observations"	15.180	12.980	13.464	41.624
24	PI: Dr P K Garg, UTU, Derhadun "Development of methodologies to compensate effect of contamination and adjacency factors"	12.870	12.320	11.620	36.810
25	PI: Dr Mohd Anul Haq, NIIT University, Manesar, Haryana "Modeling the snow properties for their classification and identification"	11.110	11.110	11.981	34.201
26	Dr Onkar Dixit, IITKanpur Information fusion of Hyperspectral and other data sets for modeling of snow hydrological potential	11.770	11.220	12.170	35.160
VI.	THEME: MATERIAL & TERRAIN				
27	PI: Dr L K Sinha, DRDO-DTRL, DELHI "Creation of spectral library using reflective and emissive spectra for delineating terrain features and associated materials in hyper-spectral domain"	13.805	11.055	12.364	37.224
28	PI: Prof K C Tiwari, DTU, Delhi "Detection and Identification of Engineered Surfaces and Objects using HSRS Data"	12.155	11.055	11.814	35.024
29	PI: Dr S N Mohapatra, Jiwaji University, Gwalior "Hyperspectral Remote Sensing for off road Mobility"	11.495	10.395	11.070	32.960
30	PI: Dr Sulochana Shekhar, Central University of	11.495	10.395	11.070	32.960

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
	Karnataka, Gulbarga "Mitigating and Managing Urban Heat Islands Through Social Forestry -Using Hyper & Multi-Spectral Remote Sensing"				
31	PI: Dr Barun Roy Chaudhuri, Presidency University, Kolkata "Development of methodology for bathymetry of inland water using hyperspectral remote sensing technique"	13.255	11.055	11.814	36.124
VII	THEME: ALGORITHMS				
32	PI: Prof Ritesh Gautam, IITBombay "Quantification of Atmospheric Correction and Snow Contamination using Hyperspectral Remote Sensing data over India: Special Reference to the Complexity of Atmospheric Aerosols"	12.155	11.055	11.814	35.024
33	PI: Dr Rajiv Ranjan Sahay, IITKharagpur "Development of Evolutionary Algorithms for Hyperspectral Image Processing and Analysis"	10.835	9.735	10.331	30.901
34	PI: Dr Somdatta Chakravorty, Govt College of Eng & Ceramic Tech, Kolkata "Development of algorithms for spectral unmixing and sub pixel classification of hyperspectral image data"	12.155	11.055	11.814	35.024
35	PI: Dr K V Kale, Dr B A Marathwada University, Aurangabad "Design and Development of Hyperspectral data Analysis Tools and algorithms for end member identification"	11.495	10.395	11.070	32.960
36	PI: Prof Krishna Mohan Buddhiraju, IITBombay, Mumbai "Algorithms for Classification of Hyperspectral Images"	12.155	11.055	11.814	35.024
37	PI: Dr N Rama Rao, IIST, Thiruvananthapuram, Kerala "Development of a stand-alone atmospheric correction module for hyperspectral data for Indian context"	12.870	11.495	12.445	36.810
A	Subtotal of all R&D Projects	460.075	432.300	441.450	1333.830
B	Airborne Data Acquisition & Web Portal (Prof D	44.000	16.000	14.000	74.000

S No.	PI, Affiliation & Project Title	Budget (Rs. in Lakhs)			
		1 st Yr	2 nd Yr	3 rd Yr	Total
	Ramakrishnan, IITBombay)				
C	Central Laboratory Facility (CLF)				
	1. Western Region: IITBombay, Mumbai (Prof D Ramakrishnan)	142.560	5.560	4.560	152.680
	2. Northern Region: IARI, Delhi (Dr Rabi N Sahoo)	145.560	5.560	4.560	155.680
	3. Southern Region: IIST, Thiruvanthapuram (Dr N Rama Rao)	95.560	5.560	4.560	105.680
	4. Eastern Region: IITKharagpur (Prof B S Das)	170.560	5.560	4.560	180.680
	CLF Sub total	554.240	22.240	18.240	594.720
D	Training & Capacity building Program (Dr Rabi N Sahoo, IARI, New Delhi)	16.500	0.000	0.000	16.500
E	Project Management Unit (PMU) & Group Co-ordination (Prof D Ramakrishnan, IITBombay & Dr R N Sahoo, IARI, New Delhi)	12.840	14.840	12.840	40.520
	Grand Total (A to E)	1087.655	485.380	486.530	2059.570

2. Sanction of the president is also accorded to the release of **Rs 1087.655 lakh (Rupees One Thousand Eighty Seven lakh Sixty Five Thousand Five Hundred Only)** to IITBombay, Mumbai as first instalment of Grants-in-Aid for the financial year 2015-16. IIT Mumbai, in turn shall release the 1st Year amount to the component institutes as mentioned against each project and as per details given above within seven working days from the date of receipt of funds from DST.

3. The expenditure involved is debitable to **Demand No.86**, Department of Science and Technology:

3425 Other Scientific Research (Major Head)
60 Others (Sub Major Head)
60.200 Assistance to other Scientific Bodies (Minor Head)
63 Super Computing Facility & Capacity Building
63.01 Grant-in-aid for Super Computing Facility & Capacity Building
63.01.31 Grants-in-aid for the year 2015-2016 (Plan)
(Super Computing - BDI Division)

4. The Drawing and Disbursing Officer, Department of Science & Technology will draw the amount of **Rs 1087.655 lakhs (Rupees One Thousand Eighty Seven lakhs Sixty Five Thousand and Five Hundred Only)** and disburse to the “**Indian Institute of Technology, Mumbai**” through RTGS in **Account No 10725729173, State Bank of India, IIT Powai Branch, IFSC Code: SBIN0001109.**

5. IITBombay, Mumbai and the Host Institutes shall maintain separate audited accounts for the releases. It is found expedient to keep a part or whole of the grant in a bank account earning interest, the interest so accrued should be accounted and reported to DST while submitting UC/SE. The interest thus earned will be treated as a credit to IIT/Host Institutes to be adjusted towards further instalment of the grant. The project-wise, Year-wise and Head-wise detailed break-up is given in the Annexure-B
6. As per rule 211(1) of GFR, the accounts of the grantee institution shall be open to inspection by the sanctioning authority / Audit whenever the institution is called upon to do so.
7. This is certified that **no UC** is pending against the grantee organizations, as per details in the PFMS also.
8. IITBombay, Mumbai shall submit a consolidated UC & SE to DST immediately after closure of the every financial year i.e. 31st of March every year, till completion of the project. The sanction of the above amount is subject to terms and conditions as contained in the Annexure-A.
9. BDA-HSRS being a multi-institutional networked project, the start date of the project shall be six months from the date of receipt of funds from DST, i.e., after completion of project staff recruitment, procurement of equipment, group training etc. However, completion of above activities or 6 months whichever is earlier shall be construed as the start date of the project. All JRF's selected as part of the project shall be registered for Ph.D, either in the host institute or any UGC recognised University/ Institutions. The registration process be completed within 6 months of selection.
10. This sanction issues in exercise of the powers conferred on this Department and in consultation with the IFD vide their **Concurrence Dy. No.C/5930/IFD/2015-16** dated 17.03.2016.
11. It has been entered at **Sl. No.19** in the Register of Grants (2015-16).

(K R Murali Mohan)
Scientist-G & Head, BDI Division

To

The Pay and Accounts Officer, PAO, DST, New Delhi

Copy forwarded for information and necessary action to:

1. The Director of Audit (CW & M-II), Indraprastha Estate, AGCR Building, New Delhi.

2. The Drawing and Disbursing Officer, DST with one spare copy, for making necessary payment to Grantee.
3. IF Division, DST, New Delhi.
4. Sanction Folder.
5. Dr Rajiv Sharma, Head, TMD, DST with a request to forward the copy to Dr Milind Kulkarni, Scientist-G, DST, Co-ordinator, NSM.
6. The Registrar, Indian Institute of Technology (IIT), Mumbai.
7. Prof. D. Ramakrishnan, Coordinator, IITBombay, Mumbai.
8. The Registrar, Periyar University, Salem, Tamil Nadu.
9. Prof. S Anbazhagan, Periyar University, Salem, Tamil Nadu.
10. The Registrar, Pondicherry Central University, Pondicherry.
11. Dr. K. N. Kusuma, Pondicherry Central University, Pondicherry.
12. The Registrar, Annamalai University, Chidambaram, Tamil Nadu.
13. Dr. S. Aravindan, Annamalai University, Chidambaram, Tamil Nadu.
14. The Principal, Alagappa Govt. Arts College, Karaikudi, Tamil Nadu.
15. Dr. P. Udayaganesan, Alagappa Govt. Arts College, Karaikudi, Tamil Nadu.
16. The Registrar, , IIT Kharagpur, Kharagpur, West Bengal.
17. Dr. Debashish Chakravarty, IIT Kharagpur, Kharagpur, West Bengal.
18. The Director, IARI, New Delhi.
19. Dr. Rabi N Sahoo, IARI, New Delhi.
20. The Director, CRIDA-ICAR, Hyderabad.
21. Dr. Mathyam Prabhakar, CRIDA-ICAR, Hyderabad.
22. The Director, National Institute of Aboitic Stress Management (NIASM), Baramati.
23. Dr. Santanu Kumar Bal, National Institute of Aboitic Stress Management (NIASM), Baramati.
24. The Director, ICAR Research Complex for NEH Region.
25. Dr. B.U. Choudhury , ICAR Research Complex for NEH Region.
26. The Director, IISc., Bhopa.
27. Dr. M. Mohanty, IISc., Bhopal.
28. The Director, NBSS & LUP, Nagpur.
29. Dr. Rajeev Srivastava, NBSS & LUP, Nagpur.
30. The Registrar, IITKharagpur, Kharagpur, West Bengal.
31. Dr Bhabani Sankar Das, IITKharagpur, Kharagpur, West Bengal.
32. The Registrar, SRM University, Chennai.
33. Dr. R. Sivakumar, SRM University, Chennai.

34. The Registrar, Annamalai University, Chidambaram, Tamil Nadu.
35. Dr. T. Thangaradjou, Annamalai University, Chidambaram, Tamil Nadu.
36. The Registrar, IITMadras, Chennai.
37. Prof. P. Shanmugam, IITMadras, Chennai.
38. The Principal, Prathyusha Institute of Technology , Chennai.
39. Dr. M. Thanikachalam, Prathyusha Institute of Technology , Chennai.
40. The Director, , CSIR IHBT, Palampur, Himachal Pradesh.
41. Dr. Amit Kumar, CSIR IHBT, Palampur, Himachal Pradesh.
42. The Registrar, IIIT, Hyderabad, Telangana.
43. Dr. P. Rama Chandra Prasad, IIIT, Hyderabad, Telangana.
44. The Registrar , M S University, Baroda, Gujarat.
45. Prof. N. S. R. Krishnayya , M S University, Baroda, Gujarat.
46. The Registrar, J.N. University, New Delhi.
47. Prof. P. K. Joshi, J.N. University, New Delhi.
48. The Director, SASE-DRDO, Chandigarh.
49. Dr. Snehmani, SASE-DRDO, Chandigarh.
50. Dr. R. A. A. J. Ramsankaran, IITBombay, Mumbai .
51. Dr. L.N Sharma, PEC, Chandigarh.
52. The Registrar, UT University, Dehradun.
53. Dr. P. K. Garg, UTU, Derhadun.
54. The Registrar, NIIT University, Alwar, Rajasthan.
55. Dr. Mohd Anul Haq, NIIT University, Alwar, Rajasthan.
56. The Registrar, IITKanpur, Kanpur, UP.
57. Dr. Onkar Dixit, IITKanpur, Kanpur, UP.
58. The Director, DTRL-DRDO, New Delhi.
59. Dr. L. K. Sinha, DTRL-DRDO, New Delhi.
60. The Registrar, Delhi Technological University, Delhi.
61. Prof. K. C. Tiwari, Delhi Technological University, Delhi.
62. The Registrar, Jiwaji University, Gwaliorm M.P.
63. Dr. S. N. Mohapatra, Jiwaji University, Gwaliorm M.P.
64. The Registrar, Central University of Karnataka, Gulbarga.
65. Dr. Sulochana Shekhar, Central University of Karnataka, Gulbarga.
66. The Registrar, Presidency University, Kolkata.
67. Dr. Barun Roy Chaudhuri , Presidency University, Kolkata.

- 68. Prof. Ritesh Gautam, IITBombay, Mumbai.
- 69. Dr. Rajiv Ranjan Sahay, IITKharagpur, Kharagpur.
- 70. The Principal, Govt. College of Eng. & Ceramic Technology, Kolkata, West Bengal.
- 71. Dr. Somdatta Chakravorty, Govt. College of Eng. & Ceramic Technology, Kolkata, West Bengal.
- 72. The Registrar, Dr. B A Marathwada University, Aurangabad, Maharashtra.
- 73. Prof. K.V. Kale, Dr. B A Marathwada University, Aurangabad, Maharashtra.
- 74. Prof. Krishna Mohan Buddhiraju, IITBombay, Mumbai.
- 75. The Director, IIST-ISRO, Thiruvanthapuram.
- 76. Dr. Rama Rao Nidamanuri, IIST-ISRO, Thiruvanthapuram.
- 77. Dr. N. Rama Rao Affiliation : IIST, Thiruvanthapuram
- 78. Prof. B. S. Das, IITKharagpur, West Bengal.
- 79. Dr. R. N. Sahoo, IARI, New Delhi.
- 80. File

(K R MURALI MOHAN)
Scientist-G & Head, BDI Division

Annexure-B

1. PI : Prof D Ramakrishnan, Affiliation : IITBombay, Mumbai						
Project Title : Development of Spectral library for mineral exploration and geological mapping & Establishment of Central instrumentation facility on Spectral Acquisition and Characterization						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks / Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	Centre will use proposed central facility for requirement under this head
3	Travel	2.000	2.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	2.000	2.000	1.000	5.000	Stationary, Computer stationeries(CD, Storage devices, toner) Sample case, photographic material etc
5	Contingencies	1.000	1.000	1.000	3.000	Infrastructure support (, fixtures, and power for XRF, Microscope and spectrometers, Sample storage facility etc), Books, Journals, , local conveyances etc.,)
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	13.300	13.300	12.240	38.840	
7	Institutional Over heads	1.330	1.330	1.224	3.884	
8	Grand Total	14.630	14.630	13.464	42.724	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

2. PI : Prof S Anbazhagan Affiliation : Periyar University, Salem, TN						
Project Title : Hyperspectral Remote Sensing Study in Lithological Mapping of Alkaline complex terrain & Reflectance spectral study of Platinum Group of Elements (Project “HyperLiM”)						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	000	000	000	000	
3	Travel	1.000	0.750	0.500	2.250	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	2.000	1.500	1.000	4.500	Satellite data, computer Stationary, Data backup devices, chemical analysis
5	Contingencies	0.200	0.200	0.200	0.600	Meeting field work expenses like hiring labour, Local conveyances and other Misc. expenses
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.900	10.150	10.264	31.314	
7	Institutional Over heads	1.090	1.015	1.026	3.131	
8	Grand Total	11.990	11.165	11.290	34.445	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

3. PI : Dr K N Kusuma Affiliation : Pondicherry Central University, Pondicherry						
Project Title : Methodology Development for Exploring Precious Metals (Gold) using Imaging Spectroscopic Technique						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	000	000	000	000	
3	Travel	1.200	1.200	1.200	3.600	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	1.600	1.600	1.600	4.800	Satellite data, Stationary, Computer stationeries (CD, Storage devices, toner) Sample case, photographic material etc
5	Contingencies	1.000	0.600	0.400	2.000	Infrastructure support (Furniture & fixtures, power UPS) etc. Hiring field attendants, local conveyances etc.,, Books Journals and other Misc. expenses
6	Miscellaneous	0.250	0.250	0.250	0.750	
	Sub-Total	11.250	10.850	11.514	33.614	
7	Institutional Over heads	1.125	1.085	1.151	3.361	
8	Grand Total	12.375	11.935	12.665	36.975	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

4. PI : Dr S Aravindan Affiliation : Annamalai University, Chidambaram, TN						
Project Title : Methodology development for exploring bauxite ore using Hyperspectral Remote Sensing Technique						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	0.500	0.500	2.000	Meeting field survey of PI and JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	1.500	1.500	1.000	4.000	Major & trace elements analyses for rock samples. Lab stationary, Satellite data, computer stationeries (CD, Storage devices, toner), furnitures
5	Contingencies	1.000	1.000	1.000	3.000	Maintenance of equipment including repairing , books and journal purchase
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.600	10.100	10.392	31.092	
7	Over heads	1.060	1.010	1.039	3.109	
8	Grand Total	11.660	11.110	11.431	34.201	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

5. PI : Dr P Udayaganesan Affiliation : Alagappa Govt. Arts College, Karaikudi, TN						
Project Title : Development of Methodology for Exploring Nuclear Minerals in the Coastal Placer Deposits using Hyperspectral and Radiometric Techniques						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and JRF, participation in meetings, seminars/workshops etc.
4	Consumables	2.000	1.500	1.000	4.500	Procuring chemicals /glass wares, Stationary, Batteries, Data backup devices, Sample storage cases, postages, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Infrastructure support (Furniture and fixtures, Sieve sets, up gradation / maintenance of equipments in Sedimentology laboratory, including Microscope, Chemical analysis, Sample and instrument storage facility, etc. and hiring field attendants, local conveyances etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.600	10.600	10.392	32.592	
7	Institutional Over heads	1.160	1.060	1.039	3.259	
8	Grand Total	12.760	11.660	11.431	35.851	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

6. PI : Dr Debashish Chakravarty Affiliation : IITKharagpur, Kharagpur, WB						
Project Title : Hyperspectral image feature based characterization of coal and coal measured rocks occurring in BCCL and ECL areas for better management of the energy demand of India						
Theme : Geology						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	2.000	2.000	5.000	Meeting field survey of PI and JRF, participation in meetings, seminars/workshops etc.
4	Consumables	0.500	0.500	0.500	1.500	Procuring chemicals /glass wares, Stationary, Batteries, Data backup devices, Sample storage cases, postages, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Maintenance of laboratory and equipment including its repairing, furnitures, books and journal purchase hiring field assistant and other misc. expenses
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	9.600	10.600	11.392	31.592	
7	Institutional Over heads	0.960	1.060	1.139	3.159	
8	Grand Total	10.560	11.660	12.531	34.751	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

7. PI : Dr Rabi N Sahoo Affiliation : IARI, New Delhi						
Project Title : Hyperspectral Remote Sensing for Precision Agriculture						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	Centre will use proposed central facility for requirement under this head
3	Travel	2.000	2.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	2.000	2.000	1.000	5.000	Stationaries including computer stationeries, Storage devices, spectroradiometer batteries and NIST calibrated lamps, consumables, Laboratory chemicals and printing final reports, international postage, publications of research articles in International journals, registration fee for scientific presentations in Seminar, symposium etc.
5	Contingencies	1.000	1.000	1.000	3.000	Local conveyances
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	13.300	13.300	12.240	38.84	
7	Institutional Over heads	1.330	1.330	1.224	3.884	
8	Grand Total	14.630	14.630	13.464	42.724	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

8. PI : Dr. Mathyam Prabhakar Affiliation : CRIDA-ICAR, Hyderabad						
Project Title : Hyperspectral remote sensing for crop condition assessment in dry land crops						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	0.500	0.500	2.500	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	0.500	0.500	0.500	1.500	Stationary, Computer stationeries(CD, Storage devices, toner) Sample case, photographic material etc
5	Contingencies	1.000	1.000	1.000	3.000	Seeds, fertilizers, POL, field labor and skilled labor for crop raising and conducting field and laboratory experiments
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.300	10.300	11.240	32.840	
7	Over heads	1.130	1.030	1.124	3.284	
8	Grand Total	12.430	11.330	12.364	36.124	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

9. PI : Dr Santanu Kumar Bal Affiliation : National Institute of Aboitic Stress Management (NIASM), Baramati						
Project Title : Characterizing sugarcane and citrus stress responses to abiotic and biotic stresses through hyper-spectral remote sensing						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	2.000	2.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	2.000	2.000	1.000	5.000	Glasswares, chemicals and agro inputs like sugarcane / citrus seed material, fertilizers and pesticides
5	Contingencies	1.000	1.000	1.000	3.000	To meet out the expenditure incurred on man days for crop cultivation practices and chemical analyses.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.100	12.100	10.892	35.092	
7	Over heads	1.210	1.210	1.089	3.509	
8	Grand Total	13.310	13.310	11.981	38.601	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

10. PI : Dr B U Choudhury Affiliation : ICAR Research Complex for NEH Region						
Project Title : Characterization of Acid Soils under different land use pattern and its impact on Crop Growth: A hyperspectral approach.						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks / Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	Computer & accessories, GPS, SPAD image processing software (ENVI) Canopy Analyzer
3	Travel	1.000	1.000	1.500	3.500	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.000	1.500	1.500	4.000	Glasswares, chemicals, stationery, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Transportation for survey, sample collection, spectral measurements, unskilled manpower etc
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.100	10.600	11.892	32.592	
7	Over heads	1.010	1.060	1.189	3.259	
8	Grand Total	11.110	11.660	13.081	35.851	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

11. PI : Dr M Mohanty Affiliation : IISc., Bhopal						
Project Title : Hyper-spectral remote sensing approaches to evaluate soil quality and crop productivity of central India						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	2.000	2.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	2.000	1.500	0.500	4.000	Glasswares, chemicals, stationery, etc.
5	Contingencies	1.000	0.400	0.000	1.400	Transportation for survey , sample collection, spectral measurements, unskilled manpower etc
6	Miscellaneous	0.250	0.250	0.250	0.750	
	Sub-Total	12.450	11.350	9.814	33.614	
7	Over heads	1.245	1.135	0.981	3.361	
8	Grand Total	13.695	12.485	10.795	36.975	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

12. PI : Dr Rajeev Srivastava Affiliation : NBSS & LUP, Nagpur						
Project Title : Hyperspectral Remote Sensing in Characterization and Mapping of Red and Associated Soils of Southern India						
Theme : Agriculture						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.500	1.000	4.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.500	1.500	1.000	4.000	Computer stationary, Glasswares, chemicals, stationery, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Transportation for survey, sample collection, spectral measurements, unskilled manpower etc
6	Miscellaneous	0.250	0.250	0.250	0.750	
	Sub-Total	11.450	11.450	11.314	34.214	
7	Over heads	1.145	1.145	1.131	3.421	
8	Grand Total	12.595	12.595	12.445	37.635	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

13. PI : Dr Bhabani Sankar Das, Affiliation : IITKharagpur, Kharagpur, WB						
Project Title : Assessment of Suspended Sediments Concentration and phytoplankton contents in the Chilika Lagoon using Hyperspectral Remote Sensing						
Theme : Water						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	Centre will use proposed central facility for requirement under this head
3	Travel	2.000	2.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	2.000	2.000	1.000	5.000	Chemicals, glasswares, data storage, postages, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Infrastructure support (Furniture, Sample storage facility etc), boat hiring, and hiring field attendants, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.100	12.100	10.892	35.092	
7	Over heads	1.210	1.210	1.089	3.509	
8	Grand Total	13.310	13.310	11.981	38.601	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

14. PI : Dr R Sivakumar Affiliation : SRM University, Chennai						
Project Title : Water quality studies of Rivers and Reservoirs/lakes using Hyperspectral remote sensing						
Theme : Water						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.750	0.750	1.000	2.500	Chemicals, data storage, postages, Stationaries publication etc.
5	Contingencies	0.500	0.500	0.500	1.500	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.050	10.550	11.240	32.840	
7	Over heads	1.105	1.055	1.124	3.284	
8	Grand Total	12.155	11.605	12.364	36.124	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

15. PI : Dr T Thangaradjou Affiliation : Annamalai University, Chidambaram, TN						
Project Title : Collection of hyperspectral profile of case I oceanic waters of the Bay of Bengal and Rebuilding the regional bio-optical algorithm for the retrieval of Suspended Sediment Concentration (SSC) in the North Indian Ocean region						
Theme : Water						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	2.000	1.500	1.000	4.500	Meeting field survey of PI and two JRFs, hiring of boats, participation in meetings, seminars/workshops etc
4	Consumables	0.500	0.500	0.250	1.250	Chemicals, glasswares for water quality tests, data storage, postages, Stationaries publication etc.
5	Contingencies	0.500	0.500	0.500	1.500	POL, satellite data purchase, labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.100	9.600	9.642	29.342	
7	Over heads	1.010	0.960	0.964	2.934	
8	Grand Total	11.110	10.560	10.606	32.276	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

16. Prof P Shanmugam, Affiliation : IITMadras, Chennai						
Project Title : Development of atmospheric correction algorithm and up-scaling of in-situ measurements to derive hyperspectral remote sensing products over River Ganga						
Theme : Water						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	3.000	1.000	1.000	5.000	Meeting field survey of PI and two JRFs, hiring of boats, participation in meetings, seminars/workshops etc
4	Consumables	2.000	2.000	1.000	5.000	Purchase of glasswares, chemicals field accessories etc
5	Contingencies	1.000	1.000	1.000	3.000	Operational expenditures such as calibration of the instrument, POL, and boat hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	14.300	12.300	12.240	38.840	
7	Over heads	1.430	1.230	1.224	3.884	
8	Grand Total	15.730	13.530	13.464	42.724	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

17. Dr M Thanikachalam Affiliation : Prathyusha Institute of Technology , Chennai						
Project Title : Detection and Discrimination of Coral Reefs Using Hyper Spectral Data						
Theme : Water						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 1 Nos)	3.900	3.900	4.370	12.170	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.500	1.000	4.000	Meeting field survey of PI and two JRFs, hiring of boats, participation in meetings, seminars/workshops etc
4	Consumables	1.500	1.000	1.000	3.500	Purchase of satellite data, survey of India Toposheets etc
5	Contingencies	1.250	1.250	0.500	3.000	POL, instrument and boat hiring for field/bathymetric survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	8.650	8.150	7.370	24.170	
7	Over heads	0.865	0.815	0.737	2.417	
8	Grand Total	9.515	8.965	8.107	26.587	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

18. PI: Dr Amit Kumar Affiliation : CSIR IHBT, Palampur, Himachal Pradesh.						
Project Title : To develop methodology for spectral discrimination and classification of tropical trees Canopy chemistry and forest stress assessment						
Theme : Forestry						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	1.000	1.000	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.000	0.500	0.250	1.750	Purchase of stationaries, field survey materials, data storage, postages, publication etc.
5	Contingencies	0.250	0.250	0.500	1.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	9.350	8.850	9.642	27.842	
7	Over heads	0.935	0.885	0.964	2.784	
8	Grand Total	10.285	9.735	10.606	30.626	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

19. PI: Dr P Rama Chandra Prasad Affiliation : IIITHyderabad, Telangana						
Project Title : Canopy spectral biochemical analysis of forest species using hyperspectral remote sensing – A case study from Eastern Ghats forest ecosystems						
Theme : Forestry						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	2.000	1.500	1.500	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.000	0.500	0.250	1.750	Purchase of stationeries, field survey materials, data storage, postages, publication etc.
5	Contingencies	1.000	1.000	1.000	3.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.300	11.300	11.990	35.590	
7	Over heads	1.230	1.130	1.199	3.559	
8	Grand Total	13.530	12.430	13.189	39.149	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

20. PI: Prof N S R Krishnayya Affiliation : M S University, Baroda, Gujarat						
Project Title : Precision monitoring of changes in the growth cycle of forest trees across a rainfall gradient: HSRS approach						
Theme : Forestry						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Accessories/ Equipments	0.000	0.000	0.000	0.000	
3	Travel	0.750	1.000	0.750	2.500	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.000	1.000	0.500	2.500	Purchase of stationeries, chemicals and glassware for the biochemical analysis, data storage, postages, publication etc.
5	Contingencies	1.000	1.000	0.500	2.500	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.450	10.700	10.314	31.464	
7	Institutional Over heads	1.045	1.070	1.031	3.146	
8	Grand Total	11.495	11.770	11.345	34.610	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

21. PI: Prof P K Joshi Affiliation : J N University, New Delhi						
Project Title : Detection and quantification of forest structure and function in the Himalayan foothills using in situ and remotely sensed hyperspectral data						
Theme : Forestry						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	1.500	1.500	4.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	2.000	1.500	1.000	4.500	Purchase of stationeries, chemicals and glassware for the biochemical analysis, data storage, postages, publication etc.
5	Contingencies	1.500	1.000	0.500	3.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.800	12.300	12.240	37.340	
7	Over heads	1.280	1.230	1.224	3.734	
8	Grand Total	14.080	13.530	13.464	41.074	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

22. PI: Dr Snehmani Affiliation: SASE-DRDO, Chandigarh						
Project Title : Generation of a spectral library of different types of snow and ice media						
Theme : Snow and Glacier						
S No	Budget Head	Budget (Rs. In Lakhs)				Remarks
		1 st Year	2 nd Year	3 rd Year	Total	
1	Project Staff (JRF: 2 Nos.)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	-
3	Travel	1.500	1.500	1.000	4.000	Field surveys, Hiring porters/ponies during field visits, travel to attend conferences/meetings/worksh ops, etc.
4	Consumables	1.000	1.000	1.000	3.000	Field items; Office & IT/computer accessories; Electronics/Electrical items; Charges for Postage, Publication in Journals & Communication, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Contract based Facilitator/Support Staff for field Field Clothing & camping items, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.200	11.200	11.564	33.964	
7	Overheads	1.120	1.120	1.156	3.396	10% of the total cost (as per DST norms Vide No. SR/S9/Z-11/2013, dt.24/02/2015)
8	Grand Total	12.320	12.320	12.720	37.360	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

23. P.I.: Dr R A A J Ramsankaran, IITBombay, Mumbai and Co-P.I.: Dr L.N Sharma, PEC, Chandigarh						
Project Title: Characterization & Modelling of Physical Properties of Different Forms of Snow and Ice using Field and Remote Sensing Observations						
Theme : Snow and Glacier						
S No	Budget Head	Budget (Rs in Lakhs)				Remarks
		1 st Year	2 nd Year	3 rd Year	Total	
1	Project Staff (JRF: 2 Nos.)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	2.500	1.500	1.000	5.000	Meeting field survey of PIs and two JRFs, participation in meetings, seminars/workshops etc.
4	Consumables	2.000	1.000	1.000	4.000	Satellite data, publishing charges, IT accessories, stationeries, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Hiring porters during field visits, book purchase, support for JRFs for higher studies, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	13.800	11.800	12.240	37.840	
7	Overheads	1.380	1.180	1.224	3.784	
8	Grand Total	15.180	12.980	13.464	41.624	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

24. P.I.: Dr P K Garg, Affiliation: UTU, Derhadun						
Project Title: Development of methodologies to compensate effect of contamination and adjacency factors						
Theme : Snow and Glacier						
S No	Budget Head	Budget (Rs in Lakhs)				Remarks
		1 st Year	2 nd Year	3 rd Year	Total	
1	Project Staff (JRF: 2 Nos.)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.500	1.000	4.000	Field surveys of PI and two JRFs, travel for participation in meetings, seminars/workshops, etc.
4	Consumables	1.000	1.000	0.500	2.500	Field items, IT accessories, Publishing charges, Stationeries, etc.
5	Contingencies	1.500	1.000	0.500	3.000	Hiring porters during field visits, books purchase, support for JRFs for PhD, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.700	11.200	10.564	33.464	
7	Overheads	1.170	1.120	1.056	3.346	
8	Grand Total	12.870	12.320	11.620	36.810	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

25. PI: Dr Mohd Anul Haq, Affiliation: NIIT University, Alwar, Rajasthan						
Project Title : Modelling the snow properties for their classification and identification						
Theme : Snow and Glacier						
S No	Budget Head	Budget (Rs in Lakhs)				Remarks
		1st Year	2nd Year	3rd Year	Total	
1	Project Staff (JRFs: 2 Nos.)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	1.000	1.000	3.000	Field visits, participation in meetings, seminars/workshops, etc.
4	Consumable	1.000	1.000	1.000	3.000	Office stationary, IT/computer accessories, Charges for Postal/research paper publication/communication, etc.
5	Contingencies	1.000	1.000	1.000	3.000	Fixtures of resources and books, Hiring porters during field visits, books purchase, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.100	10.100	10.892	31.092	
7	Overheads	1.010	1.010	1.089	3.109	
8	Grand Total	11.110	11.110	11.981	34.201	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

26. PI: Dr Onkar Dixit; Affiliation: IITKanpur, Kanpur, UP						
Project Title : Information fusion of Hyperspectral and other data sets for modelling of snow hydrological potential						
Theme : Snow and Glacier						
S. No	Budget Head	Budget (Rs in Lakhs)				Remarks
		1 st Year	2 nd Year	3 rd Year	Total	
1	Project Staff (JRFs: 2 Nos.)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.000	1.000	1.000	3.000	Field visits, participation in meetings, seminars/workshops, etc.
4	Consumable	1.000	1.000	1.000	3.000	Office stationary, IT/computer accessories, Charges for Postal/research paper publication/communication, etc.
5	Contingencies	1.000	0.500	0.500	2.000	Hiring porters/ponies during field visits, books purchase, support for JRFs for higher studies, etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.700	10.200	11.064	31.964	
7	Overheads	1.070	1.020	1.106	3.196	
8	Grand Total	11.770	11.220	12.170	35.160	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

27. PI: Dr L K Sinha Affiliation : DTRL-DRDO, New Delhi						
Project Title : Creation of spectral library using reflective and emissive spectra for delineating terrain features and associated materials in hyper-spectral domain						
Theme : Material and Terrain						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	3.000	1.000	1.000	5.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.550	10.050	11.240	33.840	
7	Over heads	1.255	1.005	1.124	3.384	
8	Grand Total	13.805	11.055	12.364	37.224	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

28. PI: Prof K C Tiwari Affiliation : Delhi Technological University, Delhi						
Project Title: Detection and Identification of Engineered Surfaces and Objects using Hyperspectral Data						
Theme : Material and Terrain						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.050	10.050	10.740	31.840	
7	Over heads	1.105	1.005	1.074	3.184	
8	Grand Total	12.155	11.055	11.814	35.024	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

29. PI: Dr S N Mohapatra Affiliation : Jiwaji University, Gwalior M.P.						
Project Title : Hyperspectral Remote Sensing for off road Mobility						
Theme : Material and Terrain						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.450	9.450	10.064	29.964	
7	Over heads	1.045	0.945	1.006	2.996	
8	Grand Total	11.495	10.395	11.070	32.960	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

30. PI: Dr Sulochana Shekhar Affiliation : Central University of Karnataka, Gulbarga						
Project Title : Mitigating and Managing Urban Heat Islands through Social Forestry -Using Hyper & Multi-Spectral Remote Sensing						
Theme : Material and Terrain						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.450	9.450	10.064	29.964	
7	Over heads	1.045	0.945	1.006	2.996	
8	Grand Total	11.495	10.395	11.070	32.960	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

31. PI: Dr Barun Roy Chaudhuri Affiliation : Presidency University, Kolkata						
Project Title : Development of methodology for bathymetry of inland water using hyperspectral remote sensing technique						
Theme : Material and Terrain						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	1.000	0.000	0.000	1.000	optical filters and electronic components
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	12.050	10.050	10.740	32.840	
7	Over heads	1.205	1.005	1.074	3.284	
8	Grand Total	13.255	11.055	11.814	36.124	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

32. PI: Prof Ritesh Gautam Affiliation : IITBombay, Mumbai						
Project Title : Quantification of Atmospheric Correction and Snow Contamination using Hyperspectral Remote Sensing data over India: Special Reference to the Complexity of Atmospheric Aerosols						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.050	10.050	10.740	31.840	
7	Over heads	1.105	1.005	1.074	3.184	
8	Grand Total	12.155	11.055	11.814	35.024	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

33. PI: Dr Rajiv Ranjan Sahay Affiliation : IITKharagpur, Kharagpur						
Project Title : Development of Evolutionary Algorithms for Hyperspectral Image processing and Analysis						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	6.600	6.600	7.392	20.592	
2	Equipment	0.000	0.000	0.000	0.000	Tesla GPU workstation
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	9.850	8.850	9.392	28.092	
7	Over heads	0.985	0.885	0.939	2.809	
8	Grand Total	10.835	9.735	10.331	30.901	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

34. PI: Dr Somdatta Chakravorty Affiliation : Govt. College of Eng. & Ceramic Technology, Kolkata, WB						
Project Title : Development of algorithms for spectral unmixing and sub pixel classification of hyperspectral image data						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.050	10.050	10.740	31.840	
7	Over heads	1.105	1.005	1.074	3.184	
8	Grand Total	12.155	11.055	11.814	35.024	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

35. PI: Prof K V Kale Affiliation : Dr B A Marathwada University, Aurangabad, Maharashtra						
Project Title: Design and Development of Hyperspectral data Analysis Tools and algorithms for end member identification						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	Workstation computer and image processing software
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	10.450	9.450	10.064	29.964	
7	Over heads	1.045	0.945	1.006	2.996	
8	Grand Total	11.495	10.395	11.070	32.960	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

36. PI: Prof Krishna Mohan Buddhiraju Affiliation : IITBombay, Mumbai						
Project Title : Algorithms for Classification of Hyperspectral Images						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff (JRFs : 2 Nos)	7.800	7.800	8.740	24.340	
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	1.500	1.000	0.500	3.000	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	0.250	0.250	0.500	1.000	Purchase of stationeries, data storage, postages, publication etc, remote sensing data.
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.050	10.050	10.740	31.840	
7	Over heads	1.105	1.005	1.074	3.184	
8	Grand Total	12.155	11.055	11.814	35.024	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

37. PI: Dr Rama Rao Nidamanuri Affiliation : IIST-ISRO, Thiruvanthapuram						
Project Title : Development of a stand-alone atmospheric correction module for hyperspectral data for Indian context						
Theme : Algorithm						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff (JRFs : 2 Nos)	7.200	7.200	8.064	22.464	
2	Equipment	0.000	0.000	0.000	0.000	Centre will use proposed central facility for requirement under this head
3	Travel	1.500	1.500	1.500	4.500	Meeting field survey of PI and two JRFs, participation in meetings, seminars/workshops etc
4	Consumables	1.500	0.750	0.750	3.000	Purchase of stationeries, data storage, postages, publication etc.,
5	Contingencies	1.000	0.500	0.500	2.000	POL, Labour hiring for field survey etc.
6	Miscellaneous	0.500	0.500	0.500	1.500	
	Sub-Total	11.700	10.450	11.314	33.464	
7	Over heads	1.170	1.0450	1.131	3.346	
8	Grand Total	12.870	11.495	12.445	36.810	

Project Staff Salaries: Rs.25,000 + HRA for 1 & 2nd yrs & 28,000 + HRA for 3rd yr as per DST new guidelines. Applicable HRA is 30% for Category 'X' Cities, 20% for Category 'Y' Cities and 10% for Category 'Z' Cities as per GOI norms.

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

B. HSRS data Acquisition and Web portal Development						
1. PI : Prof D Ramakrishnan, Affiliation : IITBombay, Mumbai						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Data Acquisition	30.000	10.000	10.000	50.000	UAV borne data acquisition using imaging spectrometer
2	Portal Development	8.000	3.000	2.000	13.000	Web portal development for spectral depository, all related data of the network program and developed algorithms, reports publications etc
3	Hosting Charges	2.000	0.000	0.000	2.000	Cost involves hosting of the website
4	IT Infrastructure	1.000	0.000	0.000	1.000	Computer and other accessories for uploading data on the HSRS portal
5	Contingencies	1.000	1.000	1.000	3.000	Expenditure related to networking, internet connectivity, data storage etc
	Sub-Total	42.000	14.000	13.000	69.000	
6	Over heads	2.000	2.000	1.000	5.000	
7	Grand Total	44.000	16.000	14.000	74.000	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

A. Central Lab. Facility						
1. PI : Prof D Ramakrishnan, Affiliation : IITBombay, Mumbai						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff	1.560	1.560	1.560	4.680	2 Project Staff (1 @8000 +1@5000)
2	Equipment	137.000	0.000	0.000	137.000	Field imaging spectroradiometer (350-2500nm) with irradiance measurement, contact probe and large calibration panel, Portable XRF and Petrological microscope with grain counting facilities and Ball mill and sieve setup
3	Travel	0.000	0.000	0.000	0.000	
4	Consumables	0.500	0.500	0.500	1.500	Setting the laboratory, purchase of stationeries, furnitures, fixers, computer and stationaries etc.,
5	Contingencies	0.500	0.500	0.500	1.500	POL, transportation cost, etc.
6	Miscellaneous	1.000	1.000	1.000	3.000	
	Sub-Total	140.56	3.56	3.56	147.68	
7	Over heads	2.000	2.000	1.000	5.000	
8	Grand Total	142.560	5.560	4.560	152.680	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

A. Central Lab. Facility						
2. PI : Dr Rabi N Sahoo Affiliation : IARI, New Delhi						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1 st Yr	2 nd Yr	3 rd Yr	Total	
1	Project Staff	1.560	1.560	1.560	4.680	2 Project Staff (1 @8000 +1@5000)
2	Equipment	140.000	0.000	0.000	140.000	Field spectroradiometer (350-2500nm) with its accessories (transmission probes, spectralon, muglight etc), FTIR, Imaging spectrometer (400-1000nm), CHNS Analyzer, IR thermometer, IR Camera, High performance computing system, Mac Book, data processing softwares
3	Travel	0.000	0.000	0.000	0.000	
4	Consumables	0.500	0.500	0.500	1.500	Setting the laboratory, purchase of stationeries, furnitures, fixers, computer and stationaries etc.,
5	Contingencies	0.500	0.500	0.500	1.500	POL, transportation cost, etc.
6	Miscellaneous	1.000	1.000	1.000	3.000	
	Sub-Total	143.560	3.560	3.560	150.680	
7	Over heads	2.000	2.000	1.000	5.000	
8	Grand Total	145.560	5.560	4.560	155.680	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

A. Central Lab. Facility						
3. Dr N Rama Rao Affiliation : IIST, Thiruvanthapuram						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff	1.560	1.560	1.560	4.680	2 Project Staff (1 @8000 +1@5000)
2	Equipment	90.000	0.000	0.000	90.000	Imaging spectrometer both VNIR and SWIR ranges (400-2500nm)
3	Travel	0.000	0.000	0.000	0.000	
4	Consumables	0.500	0.500	0.500	1.500	Setting the laboratory, purchase of stationeries, furnitures, fixers, computer and stationaries etc.,
5	Contingencies	0.500	0.500	0.500	1.500	POL, transportation cost, etc.
6	Miscellaneous	1.000	1.000	1.000	3.000	
	Sub-Total	93.560	3.560	3.560	100.680	
7	Over heads	2.000	2.000	1.000	5.000	
8	Grand Total	95.560	5.560	4.560	105.680	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

A. Central Lab. Facility						
4. Prof B S Das Affiliation : IITKharagpur, WB						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff	1.560	1.560	1.560	4.680	2 Project Staff (1 @8000 +1@5000)
2	Equipment	165.000	0.000	0.000	165.000	Satlantic Radiometric Profiler (HYPERPRO II with HYPEROCR profiler system), IOP Profiler, (AC-s, BB9, BB FL2, PAR sensor, Turbidity sensor), High pressure liquid chromatography (HPLC, Laser Diffraction-based LISST particle size analyzer
3	Travel	0.000	0.000	0.000	0.000	
4	Consumables	0.500	0.500	0.500	1.500	Setting the laboratory, purchase of stationeries, furnitures, fixers, computer and stationaries etc.,
5	Contingencies	0.500	0.500	0.500	1.500	POL, transportation cost, etc.
6	Miscellaneous	1.000	1.000	1.000	3.000	
	Sub-Total	168.560	3.560	3.560	175.680	
7	Over heads	2.000	2.000	1.000	5.000	
8	Grand Total	170.560	5.560	4.560	180.680	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

D. HSRS Training & Capacity building programmes						
PI : Dr R N Sahoo, Affiliation : IARI, New Delhi						
S No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	TA/DA and Boarding /Lodging	5.000	0.000	0.000	5.000	Participants :Ind AC fare, Guest house and boarding Resource person :Apex air fare, Guest house and boarding
2	Working Expenses	5.000	0.000	0.000	5.000	Includes bags, stationaries, compact discs, pen drives etc., hiring of event place, if outside institute, local transport & misc. contingent expenditures
3	Consumables	3.000	0.000	0.000	3.000	Includes upgradation, repairing of computers, softwares and computer peripherals, hiring computers
4	Printing study material & Contingencies	2.000	0.000	0.000	2.000	Printing study materials and meeting contingent expenses,
	Sub-Total	15.000	0.000	0.000	15.000	
5	Over heads	1.500	0.000	0.000	1.500	
6	Grand Total	16.500	0.000	0.000	16.500	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects

B. HSRS Group Co-ordination						
1. PI : Prof D Ramakrishnan, Affiliation : IITBombay, Mumbai						
S. No	Budget Head	Budget in Rs Lakhs				Remarks/ Details
		1stYr	2ndYr	3rdYr	Total	
1	Project Staff*	3.840	3.840	3.840	11.520	* 5 Project Staff (4 @8000 +1@5000) Three with IIT, Mumbai and Two with IARI, Delhi
2	Equipment	0.000	0.000	0.000	0.000	
3	Travel	3.000	4.000	3.000	10.000	Regural meetings of theme co-ordinators and PIs
4	Local arrangements	3.000	4.000	3.000	10.000	Logistic and hospitality requirement to organize the meetings
5	Contingencies	1.000	1.000	1.000	3.000	
6	Miscellaneous	1.000	1.000	1.000	3.000	
	Sub-Total	11.840	13.840	11.840	37.520	
7	Over heads	1.000	1.000	1.000	3.000	
8	Grand Total	12.840	14.840	12.840	40.520	

Institutional Overheads: 10 % of the total project cost for R&D projects, 10% or Rs 5.00 lakhs whichever is minimum for non-R&D projects