# Surajit Bera
### Technical Associate at Forest Survey of India

**C O N T A C T S**

*Siddha, Panskura,*
*East Medinipur,*
*West Bengal, India-721168*
**E-mail :** surajit45bera@gmail.com
**Mobile :** *(+91) 7872382142 / 9474933812*
**Skype:** *7872382142*
**Qualification:** *M.Sc in Remote Sensing & GIS.*
**Total Experience:** *Seven Years' Experience in Remote Sensing & GIS.*

## Objectives

*Geographic Information Systems professional with over seven year's experience applying geographic analysis and technologies for improved information management and decision support worldwide. Expertise includes advanced satellite image processing, land cover mapping and related accuracy assessment, 3D analysis, forest resource monitoring, sustainable urban development, natural resource monitoring, environmental risk assessment, groundwater modeling, monitoring and evaluation.*

## Details of Working Experience

**Organisation:** *Forest Geoinformatics Division, Forest Survey of India- Dehradun, India.*
**Designation:** *Technical Associate.*
**Duration:** *02-April-2018 to Continue*
**Role & Responsibilities:**

➢ *SAR (Sentinel-1) Data processed; Image correction, image enhancement, ortho rectify, image classification and DEM image generated using SAR Data on Erdas software (Radar analysis tool) for forest biomass estimation.*

➢ *3D analysis on Arc Scene software using DEM image for surface undulation extraction for prevention of forest loss area from natural hazard and sustainable development of forest loss area.*

➢ *Forest Type Mapping and Forest cover mapping of India using different satellite imagery & ancillary data; Landsat-8 (OLI), LISS-III, IV, Sentinel-2, topo sheets, geo-eye image, vegetation thematic maps and field data used to create vegetation types and vegetation cover thematic maps of India followed by advance digital image processing (spectral & object based classification) method.*

➢ *Crown Cover area estimated using Very High Resolution (Triplesat-0.8m) Data on E-Cognition software followed by Object Based Classification method for Biomass Estimation of Karnataka & Maharashtra state of India.*

➢ *Monitoring of Forest losses area of India using different satellite imagery and thematic maps in last five years provided by NRSC, Hyderabad.*

➢ *Collection of Forest Type, forest cover, Biodiversity & Forest Inventory data from field based on random sampling points according to forest types group of India.*

➢ *Collection of Drone data from field and analysis the collected data for forest resource monitoring & forest fire monitoring.*

➢ *Different Technical Paper presentation of Remote Sensing & GIS Application in Forestry.*

➢ *Attend different Training programme in Remote Sensing and GIS Application in Forest Resource Monitoring & Forest Fire Prevention.*

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**Organisation:** *Department of Natural Resource & Environment Management, CSIR- Central Institute of Mining & Fuel Research- Dhanbad, India.*
**Designation:** *Project Assistant, L-II (GIS Analyst).*
**Duration:** *03-Januany-2014 to 15-March-2018*

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*Role & Responsibilities:*

➢ *Different Maps & Geodatabase generated using satellite image, topo sheets, field data & Google image for EIA/EMP, Watershed Management, Groundwater modeling, geo-hydrological analysis, natural resources management & sustainable rural and urban development.*

➢ *Forest resource monitoring using different satellite images for Environmental Impact Assessment (EIA) & Environmental Monitoring Plan (EMP).*

➢ *Cadastral mapping using high resolution data, cadastral maps & DGPS survey data for Land and Property Resource Management, Mine plan generation & sustainable mining development.*

➢ *3D feature Analysis in Arc Scene using DEM Images for geo-hydrological analysis, flood hazard prevention on industrial area for sustainable mining development on rainy season.*

➢ *Geo-statistical Analysis on different hydrological, rainfall and ground water data & create different zonation (Isopleth) maps according to problematic solution purpose.*

➢ *Watershed Management & sustainable watershed development planning according to available rainfall runoff water on a particular river basin.*

➢ *Online GIS Mapping connecting with Arc GIS satellite images on Arc GIS software for updating LU/LC layers in mining area in India.*

➢ *Rural & Urban Development planning using spatial and non-spatial (satellite imagery, DGPS, GPS & Census) data on GIS platform for Database Generation, Survey map making & sustainable Rural and urban (community) development of mining area in India.*

➢ *Groundwater Modeling and calculate available groundwater of a particular region for industrial need and extend mining below the groundwater level using Modflow Software.*

➢ *Rainfall harvesting site suitability analysis & design rainfall harvesting pond size using different data overlay analysis and available surface runoff water on rainy season of particular region for industrial need.*

➢ *Clint Management & Technical Presentation at Client Locations for project implementation and project executing.*

➢ *Project Report Writing and different papers published in online journal and seminar.*

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**Organisation:** *BSF GIS Lab, RSI Softech India Pvt. Ltd & Border Security Force- Silchar, India.*
**Designation:** *Geospatial Application Engineer.*
**Duration:** *15-April-2013 to 17-December-2013*
*Role & Responsibilities:*

➢ *GIS Trainer in Indian Border Security Force (BSF); Trained Non-GIS peoples in BSF for creating different maps, understanding GIS technology and GIS application in real-world.*

➢ *2D Mapping of India-Bangladesg Border area of North-East India for better representation of Border area and base layer generated for national security purpose.*

➢ *Different 3D real world model created on GIS platform based on surface real world features for sustainable border area development.*

➢ *Database Management of India-Bangladesh border area using ORACLE 10g (Spatial).*

➢ *Implement the Defense Projects for BSF, Army, and Police; Support and maintenance of BSF GIS Project in North East region and provided maintenance for military intelligence units in imagery intelligence teams under DGMI/ MI-17.*

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**Organisation:** *Department of Zoology & Remote Sensing & GIS, Vidyasagar University-*
*Midnapore, West Bengal, India.*
**Designation:** *Project Assistant*
**Duration:** *05-June-2012 to 11-April-2013*
*Role & Responsibilities:*

➢ *Inland water body base map generation using different Satellite Images and topo sheets for inland fishery development in North-East India.*

➢ *Create geodatabase (spatial & non-spatial) of a particular surface features on earth for inland fishery development in govt. & private land.*
➢ *Spatial & non-spatial Database generation & data management for project implementation.*
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*Experimental Work:*

➢ *LiDAR (Point Cloud) data processing on Micro Station (Terra Solid) software for forest area mapping- A case Study of FRI Campus, Dehradun.*
➢ *LiDAR (Point Cloud) data processing on Micro Station (Terra Solid) software for urban area demarcation and building height measurements.*

## Technical Skills

**MS Technologies:** *MS Office Complete Package and Visual Basic 6.0.*
**Database:** *SQL, ORACLE 10g (Spatial).*
**Operating System:** *Windows XP, Vista, 7, 8, Server 2003, Server 2008 and Linux.*
**Web Technologies:** *Google Earth Engine*
**Programming:** *Python 3.3.*
**Remote Sensing – MS:** *Erdas Imagine 8.5 to 2013, LPS 2010, PCI-Geomatica 9.0,10.*
**Remote Sensing – HS:** *SARSCAPE, ENVI. E-Cognition.*
**GIS – 2D:** *ArcGIS 10.3, Arc Info 10.3, MapInfo 12, Q-GIS, Super GIS, Elsyal Smart GIS.*
**GIS – 3D:** *Arc Scene 10.3, Arc Globe 10.3, Terra Explorer Pro, Terra Plus, BSF GIS, Micro Station (Terra Solid).*
**GIS – Mobile:** *Arc PAD, Super Pad.*
**Photogrammetry:** *LPS*
**Microwave Data Processing:** *ERDAS (Radar Analyst).*
**Ground Water Modeling:** *Visual Modflow, Geostudio*
**Accounting:** *Tally ERP 9.*
**CAD:** *AutoCAD, Google Sketchup*
**Others:** *Arc FM, Google Earth Pro, PSP, Corel Draw, Surfer, Universal Map Downloader.*

## Instrumental Skills

*Geographical Positing System (GPS), DGPS, Drone Camera, Total station, Theodolite, Prismatic Compass, Stereoscope, Environtech High Volume Sampler (PM 2.5 & PM 10), Hygrometer, Water Level Meter, pH Indicator, Noise Level Meter, Spectrometer.*

## Projects / Awards

**Projects Completed:** *30 (Independent & Team).*
**Projects Ongoing:** *02*
**Awards Received:** *06*
**Area of Work:** *Cadastral Mapping, Ground Water Modeling, DGPS Surveying, Water & Land Resources Management, 2D Mapping, 3D Mapping, EIA, EMP, Geo-Hydrology. Forest Resource Mapping, Rural & Urban Development, Forest Types Mapping, Forest Biomass Estimation, SAR Data Processing & Very High Resolution Data Processing.*

## Research Information (Conferences & Training Programme)

**Papers in Journals:** *14*
**Papers in Conferences:** *02*
**National Conferences Attend:** *02*
**International Conferences Attend:** *01*
**National Training Programme:** *08*
**National Competition:** *04*
**No. of B.Tech & M.Sc Project Guide:** *14*

## Teaching Profile

*No of National Training Program: 01*
*International Students: 05*
*National Students: 18*

## Conference & Training Highlights

1. *Training Programme on Drone mapping for forest resource monitoring, Forest Survey of India, Dehradun- Feb, 2019.*
2. *Training Programme on SAR Data Processing using ERDAS Radar Analyst Tool at Forest Survey of India, Dehradun- Oct, 2018.*
3. *Training Programme in Google Earth Engine, Forest Survey of India, Dehradun-May, 2018.*
4. *National Conference on Coal Mine Environment and Its Management, Katras College, Katrasgarh-July, 2017.*
5. *UGC-CPE Sponsored Short Term Course on Geoinformatics- Bankura, March, 2016.*
6. *National Short Term Training Progrmme on Advance in Geology and Geotechnical Engineering, IIT (ISM), Dhanbad - Feb, 2016.*
7. *International Seminar on Environmental Engineering, IIT, BHU (Dept. of Mining Engineering), Varanasi- Feb, 2014.*
8. *International Seminar on Indian Society of Remote Sensing- New Delhi- Dec, 2012.*
9. *Training Programme in Erdas Imagine, Forest Survey of India, Dehradun-April, 2018.*
10. *Training Programme in Field Botany and Preservation at Botanical Survey of India, Dehradun-May, 2018.*
11. *Training Programme on Field data Collection for Total Forest Inventory in India, Forest Survey of India, Dehradun- Oct, 2018.*

## Project Highlights

1. *Revisiting of Forest Type Mapping of India using Sentinel-II, LISS-III & Landsat-8 Data, Forest Geoinformatics Division, Dehradun, India.*
2. *Object Based Classification using Very High Resolution Data for Forest Biomass Estimation on E-Cognition Software (2017-2018).*
3. *Hydro-geological Study for Kasta East Coal Block of WBPDCL at Birbhum District, Raniganj Coalfield-India (2017-2018).*
4. *Hydro-Geological Study for Singsar Limestone Mine of M/S Ambuja Cement Limited, Gujarat, India, (2016-2017).*
5. *Forest Cover Change Analysis Based on Remote Sensing & GIS of West Singbhum District, Jharkhand, (2017).*
6. *Land Suitability Analysis for Agriculture Using Remote Sensing and GIS- A Case Study of Purulia District, (2017).*
7. *Drought Monitoring Using Remote Sensing and GIS Techniques of Purulia District-West Bengal, (2016-2017).*
8. *Land Use Land Cover Change Monitoring With the Help of GIS and Remote Sensing in Ranchi City, India, (2016-2017).*
9. *Multi Criteria Analysis For Flood Risk Assessment Using Remote Sensing & GIS Technique-A Case Study Of Damodar River Basin, (2016-2017).*
10. *Ground Water Prospect Mapping Using Remote Sensing and GIS Technique – A Case Study Of Kodarma District Of Jharkhand, (2016-2017).*
11. *Land Use / Land Cover & Forest cover mapping of Cluster-1 & Cluster-2, Eastern Coalfield Limited, Raniganj Coalfield Area, (2016-2017).*
12. *Suitable site selection for rain water harvesting at UCIL Copper mine, Turamdih, Jharkhand, (2016).*
13. *Rural Development & Regional planning using Remote Sensing & GIS in Dhanbad District, (2016).*

14. *Delineation of ground water potential zones in Dhanbad district, Jharkhand, using Remote Sensing and GIS techniques, (2016).*
15. *Suitable Site Selection for Urban Solid Waste Management using GIS Technique in Dhanbad Block, Jharkhand, India, (2016).*
16. *Vegetation Cover Mapping Using NDVI, PVI, LAVI Model in Jharia Coalfield Region, (2015-2016).*
17. *Environmental Impact Assessment of BCCL Mining Area at Jharia Coalfield, Jharkhand, (2014-2016).*
18. *Feasibility Study for Installation of Sewage Treatment Plant for TATA Group of Collieries, Dhanbad, Jharkhand, (2014-2016).*
19. *Site Suitability Analysis For Solid Waste Dumping Using Remote Sensing & GIS Techniques – A Case Study Of Ranchi City, Jharkhand, (2015).*
20. *Urban Sprawl Mapping With the Help of Remote Sensing and GIS of Ranchi City, Jharkhand, (2015).*
21. *Ground Water Prospect Zonation Mapping using Remote Sensing & GIS Approach at Purulia District, West Bengal – India, (2015).*
22. *Land Use / Land Cover Change analysis in Jharia Coal Field, (2015).*
23. *Geological structure basis Ground water level mapping & control of salinity on ground water in NCR Region of India, (2014-2015).*
24. *Hydrology and Area Drainage Study of Integrated Cement Plant, Maihar, Near Village Bharauli, Tehsil Maihar, District, Satna, M. P. (2014-2015).*
25. *Hydrology and Area Drainage Study For Proposed Grinding & Ready Mix Concrete Unit, Butibori Industrial Areas, Midc, Nagpur, Maharashtra, (2014-2015).*
26. *Environmental Impact Assessment of Digwadih, Velatand & Kenduadih Mine, TATA Steel Limited, (2014).*
27. *Rain water harvesting in Surda, Kenadih copper mine region at Ghatshila, Jharkhand, (2014).*
28. *Land Use / Land Cover Mapping in Chitargarh Fort, Rajasthan, (2014).*
29. *Hydrological Study of Rakha Mine, Hindustan Copper Limited, East Singbhum, Jharkhand, (2014).*
30. *Indian-Bangladesh Border Security development & BSF GIS Trainer in four states of North-East India, (2013).*
31. *Germplasm Resource mapping & Ornamental Fishery development Seven State of North-East India, (2013).*
32. *Coal fire detection & Monitoring related to Land Use/ Land Cover change using Remote Sensing & GIS- A case study of Raniganj Coalfield, (2012).*

**Published Papers Highlights**

1. *Bera S, Ghosh A, Ahmad M, Singh K B, (2014). "Coal fire detection and monitoring related to land use change using remote sensing & GIS- A case study of Raniganj Coalfield", International Seminar, IIT, BHU, Feb-2014, ISBN:978-81-87760-20-7, Page No: 655-668.*
2. *Bera S, Ahmad M, Kumar A, (2016). "Suitable Site Selection for Urban Solid Waste Management using GIS Technique- a Case Study of Dhanbad Block", International Research Journal of Engineering and Technology (IRJET)- Volume-3, Issue-7, July-2016 (Page No: 1600-1605), e-ISSN:2395-0056, p-ISSN:2395-0072.*
3. *Bera S, Ahmad M, (2016). "Delineation of ground water potential zones in Dhanbad district, Jharkhand, using Remote Sensing and GIS Techniques" International Research Journal of Engineering and Technology (IRJET)- Volume-3, Issue-7, July-2016 (Page No: 1607-1615), e-ISSN:2395-0056, p-ISSN:2395-0072.*
4. *Bera S, Ahmad M, Raza R, (2016). "Suitable Site Selection for Sustainable Urban Development Planning with the Help of Remote Sensing and GIS", International Journal of Innovative Research and Advanced Studies (IJIRAS) Volume 3, Issue 9, August 2016 (Page No: 56-62), ISSN: 2394-4404.*

5. *Bera S, Ahmad M, (2016). "Site Suitability Analysis Using Remote Sensing & GIS for Rain Water Harvesting" International Journal of Geology, Earth & Environmental Science (JGEE), Vol. 6 (2) May-August, 2016, pp. 101-110, ISSN: 2277-2081.*

6. *Bera S, Bhandari A, (2016). "Assessment of Flood Hazard Zone Using Remote Sensing & GIS – A Case Study of Subarnarekha River Basin", International Journal of Science and Research (IJSR), Volume-5, Issue-9, September-2016. ISSN (Online): 2319-7064. Page No: 1607-1612.*

7. *Bera S, Ahmad M, Dey M, (2017). "Satellite Image Based Study for Land Use Land Cover Changed Due to Mining Activity during (1987 to 2011) at Dhanbad District of Jharkhand" International Journal for Scientific Research & Development (IJSRD), Vol. 4 (12) Feb-2017, pp. 962-965, ISSN: 2321-0613 (Online).*

8. *Singh R S, Singh R K, Bera S, (2017). "Impact of Mining on Herbaceous Ground Cover and Wild Fauna in Birsha- Damoh Forest Range Of Malanjkhand Copper Mines of India" Eurasian Journal of Forest Science, June-2017, 5(1): 1-7.*

9. *Kumar A, Tiwary R. K, Mondal M. R, Bera S, Singh R. K, Sinha S. K,. (2017). "Need of Sewage Treatment Plant for Residential Colonies of Coal Mining Areas – A Case Study of Tata Group of Colonies, Jamadoba". National Conference on Coal Mine Environment and its Management, Katras College, Katrasgarh.*

10. *Bera S, Ahmad M, Suman S, (2017). "Land Suitability Analysis for Agricultural Crop using Remote Sensing and GIS - A Case Study of Purulia District". International Journal for Scientific Research & Development| Vol. 5, Issue 06, 2017 | ISSN (online): pp. 2321-0613.*

11. *Bera S, (2018). "Delineation of Ground Water Prospect Zone in hard rock terrine part of Purulia District of West Bengal-India using Remote Sensing & GIS Approach". International Journal of Scientific Research in Computer Science, Engineering and Information Technology, Volume 3 (1), pp. 1961-1970.*

12. *Bera S, Ahmad M, Kumari A, (2018). "Using Remote Sensing and GIS Techniques for Drought Monitoring of Purulia District, West Bengal-India", International Journal of Creative Research Thoughts (IJCRT), Volume 6 (1), pp.707-717.*

13. *Bera S, Ahmad M, Prakash A, (2018). "Forest Cover Change Analysis Based on Remote Sensing & GIS of West Singbhum District, Jharkhand", International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 6 (V), May 2018, pp.1039-1050.*

14. *Bera S, Ahmad M, Lal P, (2018). "Site Suitability Analysis for Solid Waste Dumping in Ranchi City, Jharkhand Using Remote Sensing and GIS Techniques", i-manager's Journal on Civil Engineering, Vol. 8(2), pp. 26-34.*

15. *Bera S, Ahmad M, Kumar A, (2018). "Urban Change Monitoring with the Help of Remote Sensing and GIS of Ranchi City, Jharkhand", Khoj: An International Peer Reviewed Journal of Geography, Vol. 5 (1), pp. 42-52.*

16. *Bera S, Ahmad M, Prasad A, (2018). "Multi Criteria Analysis for Flood Risk Assessment using Remote Sensing & GIS Technique- A Case Study of Damodar River Basin", i-manager's Journal on Future Engineering Technology, pp. 67-74.*

## Achievements

*M.Sc Silver Medal*

## Educational Details

| Institute | Course | Board | Year | % |
|---|---|---|---|---|
| *Vidyasagar University* | *M.Sc (Remote Sensing & GIS)* | *Vidyasagar University* | *2012* | *77.00* |
| *Panskura Banamali Collage* | *B.A. (Geography Hons.)* | *Vidyasagar University* | *2010* | *56.64* |
| | *Higher Secondary (12th)* | *W.B.C.H.S.E* | *2007* | *67.40* |
| *S.S.S.V* | *Secondary (10th)* | *W.B.B.S.E* | *2005* | *52.75* |

## Other Details

*Father Name:* Nimai Ch Bera
*Date of Birth:* 03-February-1989
*Gender:* Male
*Cast:* General
*Nationality:* Indian
*Marital Status:* Married
*PAN Card:* BGXPB6752N
*Passport:* Z3380635
*Aadhaar No:* 622930359462
*Linguistic Abilities:* English, Hindi, Bengali and Behari

## Hobbies

*Internet Surfing, Listening Music, Playing Football, Cricket & Badminton, Social Works Related to Environment & Education.*

## Life Moto

*Life is a short span of time, so learn all the good things and creativity work of the legends. Because, knowledge cannot be stolen by anyone. It is precious than anything in the world.*

## References

- *A. Kumar (IFS), Deputy Director, Forest Survey of India, Dehradun, India. Email: jubatus06@gmail.com.*
- *Dr. Anjanee Kumar, Principal Scientist-CSIR-Central Institute of Mining & Fuel Research, Dhanbad, India. Email: anjanee2003@yahoo.co.in*
- *T. Srinivas Rao, MD – RSI Softech India Pvt. Ltd, Hydrabad, India, Email: srinu2025@gmail.com*
- *Dr. Jatisankar Bandyopadhyay, Assistant Professor, Dept. of Remote Sensing& GIS-Vidyasagar University, Midnapore, India, Email: jatiban@gmail.com.*

## Declaration

*I hereby declare that the information furnished above is true to the best of my knowledge.*

*Thanking You*                                                          *Your Faithfully*

*Surajit Bera*

*Place: Dehradun*                                                          *Surajit Bera*