

**NATIONAL INSTITUTE OF ECOLOGY**  
**Bio-data of the Person to be elected as a Fellow**

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**Name (in full, with initials expanded):**

MANCHIRAJU SRI RAMACHANDRA MURTHY

**Title:**

Doctor

**Date and Place of Birth Marital status:**

6<sup>th</sup> April 1960, Hyderabad, India

**Present Position:**

Theme Leader, Geospatial Solutions

**Official Address:**

Dr. M.S.R. Murthy, Theme Leader, Geospatial Solutions,  
International Centre for Integrated Mountain Development, Lalitpur, Kathmandu,  
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Balkumari, Kathmandu, Nepal Phone: +977-9818928997 , email: murthy.manchi@gmail.com

**Professional Qualifications:** (List degree, year, university, subjects, specialisation)

- **1981-83: M.Sc Botany**, Specialization in Environmental Science, Garhwal University, Uttaranchal, India.
- **1983-88: Ph.D. in Botany** specialisation in Environmental Science Osmania University, Andhra Pradesh, India.

**Professional Experience/Position Held** (Include address and dates):

**25 years of experience in Remote sensing Science and Forest Ecology Applications, Natural Resources Management**

- **August 2012 till now : Theme Leader – Geospatial Solutions Thematic Area**, International Centre for Integrated Mountain Development, ICIMOD (Regional Intergovernmental Organisation of Hindu Kush Himalayas), Lalitpur, Kathmandu, PO BOX 3226, Nepal
- **Dec 2011 - till now : Geospatial Applications Lead (NASA-SERVIR/HIMALAYA )** program funded by **USAID/NASA** at International Centre for Integrated Mountain Development(ICIMOD) ,Kathmandu, Nepal

- **Aug 2002 – Dec 2011 : Scientist SG and Head** , Forestry and Ecology Division, National Remote Sensing Centre, Indian Space Research Organisation ,Dept. of Space, Govt. of India, Hyderabad, India
- **Aug 1991 – Aug 2002 : Scientist**, Forestry and Ecology Division, National Remote Sensing Centre, Indian Space Research Organisation ,Dept. of Space, Govt. of India, Hyderabad, India

### **Field of Specialisation relevant to Ecology and Environmental Sciences**

***Remote Sensing Science and Forest Ecology Applications, Natural Resources Management in the following areas***

- Land Cover, Land use change and Forestry - Carbon Flux estimations, Forest cover mapping, monitoring, Forest Growing stock estimations and management plans, Forest Biodiversity Assessment and Characterization, Long term Ecosystem monitoring, Forest Fire Monitoring and Management, Ecosystem Services Assessment, Agent based models – Socio ecological coupling, Geospatial tools and models - Climate change adaptation and mitigation, Regional and micro level planning

### **Publications (Enclose a complete list of Publications): Annexure - I**

- Research papers/Scientific reviews in peer reviewed journals - 61
- Articles published in symposium and conference volumes - 17
- Chapters contributed to books - 4
- Books authored or edited - 5

### **Current Activities (Research/teaching/extension):**

- Lead and/or supervise as Theme Leader, the research and development of innovative geospatial applications at local, national and regional levels, focusing on different ICIMOD's strategic priority areas such as Natural resources management, environmental monitoring and integrated mountain development over Hindu Kush Himalayan region;
- Contribute to development of scientific frameworks, systematic design and development of spatial databases, tools, techniques and socio—ecological models especially to address climate change mitigation and adaptation, food security and disaster risk reduction adhering to international standardization; and
- Work with regional governments to facilitate adoption of state of art technologies and science in the areas of natural resources assessment and informed decision making

### **Memberships/Positions held in other scientific societies: Annexure – II**

Life Memberships (Scientific Societies): 4

Technical Committees (Memberships Held): 13

### **Major Scientific Contributions: Annexure – III**

**Awards/ Distinctions**

ESRI Humanitarian GIS Team Award for Nepal Earthquake Services (2015) (**International Award**)

ESRI International Group Achievement Team Award (2014) (**International Award**)

Astronautical Society of India **National Gold Medal Award** for Space and Society contributions (2005) (

ISCA Young Scientist Award of 1989 in Botany (**National Award**)

Lead Author: UNEP GEO-6 Global Environmental Assessment (2010-15)

IPCC Expert group member on Trace gas emission inventories methodologies and reporting

SAARC Forestry, Land Degradation Expert Group Member

ISPRS TCVII/WG V Secretary : Forests, Natural Ecosystems and Biodiversity

NASA – LULC Science Team Member

Visited 15 countries to chair/deliver key note addresses in several international fora

**Any other Communications:**

**References**

**1. Dr. David Molden**

Director General

ICIMOD, Lalitpur, Kathmandu, Nepal

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**2. Prof. J .S. Singh**

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## Annexure –I

### Details of Publications

#### List of Peer Reviewed Research Publications:

1. PS Roy, MD Behera, **M. S. R. Murthy**, Arijit Roy, Sarnam Singh, SPS Kushwaha, CS Jha, S Sudhakar, PK Joshi, and Ch Sudhakar Reddy, 'New Vegetation Type Map of India Prepared Using Satellite Remote Sensing: Comparison with Global Vegetation Maps and Utilities', *International Journal of Applied Earth Observation and Geoinformation*, 39 (2015), 142-59.
2. Kabir Uddin, Sunita Chaudhary, Nakul Chettri, Rajan Kotru, **M. S. R. Murthy**, Ram Prasad Chaudhary, Wu Ning, Sahas Man Shrestha, and Shree Krishna Gautam, 'The Changing Land Cover and Fragmenting Forest on the Roof of the World: A Case Study in Nepal's Kailash Sacred Landscape', *Landscape and Urban Planning*, 141 (2015), 1-10.
3. Karna, Yogendra K., Yousif Ali Hussin, Hammad Gilani, M. C. Bronsveld, **M. S. R. Murthy**, Faisal Mueen Qamer, Bhaskar Singh Karky, Thakur Bhattarai, Xu Aigong, and Chitra Bahadur Baniya. "Integration of WorldView-2 and airborne LiDAR data for tree species level carbon stock mapping in Kayar Khola watershed, Nepal." *International Journal of Applied Earth Observation and Geoinformation* 38 (2015): 280-291.
4. Sawaid Abbas, Faisal Qamer, **M. S. R. Murthy**, Nitin Tripathi, Wu Ning, Eklabya Sharma, and Ghaffar Ali, 'Grassland Growth in Response to Climate Variability in the Upper Indus Basin, Pakistan', *Climate*, 3 (2015), 697-714.
5. Kabir Uddin, Hammad Gilani, **M. S. R. Murthy**, Rajan Kotru, and Faisal Mueen Qamer, Forest Condition Monitoring Using Very-High Resolution Satellite Imagery in a Remote Mountain Watershed in Nepal, *Mountain Research and Development*, 3 (2015), 000-000.
6. Zhang, Jianqiang, Deo Raj Gurung, Rongkun Liu, **M. S. R. Murthy**, and Fenghuan Su. "Abe Berek landslide and landslide susceptibility assessment in Badakhshan Province, Afghanistan." *Landslides* (2015): 1-13.
7. Kabir Uddin, Him Lal Shrestha, **M. S. R. Murthy**, Birendra Bajracharya, Basanta Shrestha, Hammad Gilani, Sudip Pradhan, and Bikash Dangol. "Development of 2010 national land cover database for the Nepal." *Journal of environmental management* 148 (2015): 82-90.
8. Gilani, Hammad, Him Lal Shrestha, **M. S. R. Murthy**, Phuntso Phuntso, Sudip Pradhan, Birendra Bajracharya, and Basanta Shrestha. "Decadal land cover change dynamics in Bhutan." *Journal of environmental management* 148 (2015): 91–100
9. K. Sreenivas, N. Seshadri Sekhar, Manoj Saxena, R. Paliwal, S. Pathak, M.C. Porwal, M.A. Fyze, S.V.C. Kameswara Rao, M. Wadodkar, T. Anasuya, **M.S.R. Murthy**, T. Ravisankar, V.K. Dadhwal, Estimating inter-annual diversity of seasonal agricultural area using multi-temporal resourcesat data, *Journal of Environmental Management* (2014): In Press, Corrected Proof.
10. Shehzad, Khuram, Faisal M. Qamer, **M. S. R. Murthy**, Sawaid Abbas, and Laxmi D. Bhatta. "Deforestation trends and spatial modelling of its drivers in the dry temperate forests of northern Pakistan—A case study of Chitral." *Journal of Mountain Science* 11, no. 5 (2014): 1192-1207.
11. Hussin, Yousif Ali, Hammad Gilani, Louise van Leeuwen, **M. S. R. Murthy**, Rachna Shah, Srijana Baral, Nandin-Erdene Tsendbazar, Saurav Shrestha, Shyam Kumar Shah, and Faisal Mueen Qamer. "Evaluation of object-based image analysis techniques on very high-resolution satellite image for biomass estimation in a watershed of hilly forest of Nepal." *Applied Geomatics* 6, no. 1 (2014): 59-68.

12. Roy, P. S., **M. S. R. Murthy**, A. Roy, S. P. S. Kushwaha, S. Singh, C. S. Jha, M. D. Behera et al. "Forest fragmentation in India." *Current Science* 105, no. 6 (2013): 774-780.
13. Devi, Shanthala, **M. S. R. Murthy**, Bijan Debnath, and C. S. Jha. "Forest patch connectivity diagnostics and prioritization using graph theory." *Ecological Modelling* 251 (2013): 279-287.
14. Devagiri, G. M., Santosh Hubballi, Girish Pujar, **Murthy, M.S.R.**, Shivam Trivedi and Bijan Debnath. 2012. Mapping and Characterization of Bio-rich Areas Using Satellite Remote Sensing in Southern Karnataka, India. *International Journal of Environmental Sciences* Vol.1 No.2.. Pp. 105-117
15. Behera, M. D., V. S. Chitale, A. Shaw, P. S. Roy, and **M. S. R. Murthy**. "Wetland monitoring, serving as an index of land use change-a study in Samaspur Wetlands, Uttar Pradesh, India." *Journal of the Indian Society of Remote Sensing* 40, no. 2 (2012): 287-297.
16. Joseph, Shijo, K. Anitha, V. K. Srivastava, Ch Sudhakar Reddy, A. P. Thomas, and **M. S. R. Murthy**. "Rainfall and Elevation Influence the Local-Scale Distribution of Tree Community in the Southern Region of Western Ghats Biodiversity Hotspot (India)." *International Journal of Forestry Research* 2012 (2012).
17. Joseph, Shijo, **M. S. R. Murthy**, and A. P. Thomas. "The progress on remote sensing technology in identifying tropical forest degradation: a synthesis of the present knowledge and future perspectives." *Intl. journal Environ Earth Sci.* 64, no. 3 (2011): 731-741.
18. Sharma, Subodh K., Asim Choudhury, Pinaki Sarkar, Subhashis Biswas, Anil Singh, Pradeep K. Dadhich, **Murthy, M.S.R.**, Ajay K. Singh et al. "Greenhouse gas inventory estimates for India." *Current Science (Bangalore)* 101, no. 3 (2011): 405-415.
19. Devi, Shanthala, **M. S. R. Murthy**, G. S. Pujar, and Bijan Debnath. "Graph Theory and ANT Colony Optimization Approach for Forest Patch Connectivity Analysis." *Links* 602 (2011): 0-05.
20. Gadgil, Madhav, RJ Ranjit Daniels, K. N. Ganeshaiyah, S. Narendra Prasad, **M. S. R. Murthy**, C. S. Jha, B. R. Ramesh, and K. A. Subramanian. "Mapping ecologically sensitive, significant and salient areas of Western Ghats: proposed protocols and methodology." *Current Science* 100, no. 2 (2011): 175-182.
21. Singh, J. S., P. S. Roy, **M. S. R. Murthy**, and C. S. Jha. "Application of landscape ecology and remote sensing for assessment, monitoring and conservation of biodiversity." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 365-385.
22. Roy, A., B. S. S. Devi, Bijan Debnath, and **M. S. R. Murthy**. "Geospatial modelling for identification of potential ecological corridors in Orissa." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 387-399.
23. Pattanaik, C., C. S. Reddy, and **M. S. R. Murthy**. "Geospatial modeling of biological richness in Kuldiha Wildlife Sanctuary of Orissa, India." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 477-485.
24. Giriraj, Amarnath, Shilpa Babar, Anke Jentsch, Singuluri Sudhakar, and **Manchi Sri Ramachandra Murthy**. "Tracking fires in India using advanced along track scanning radiometer (A) ATSR data." *Remote Sensing* 2, no. 2 (2010): 591-610.
25. Giriraj, A., **M. S. R. Murthy**, and C. Beierkuhnlein. "Evaluating forest fragmentation and its tree community composition in the tropical rain forest of Southern Western Ghats (India) from 1973 to 2004." *Environmental monitoring and assessment* 161, no. 1-4 (2010): 29-44.
26. Swamy, S. L., C. B. S. Dutt, **M. S. R. Murthy**, A. L. K. A. Mishra, and S. S. Bargali. "Floristics and dry matter dynamics of tropical wet evergreen forests of Western Ghats, India." *Current science* 99, no. 3 (2010): 353-364.
27. Joseph, Shijo, George Alan Blackburn, Biswadip Gharai, S. Sudhakar, A. P. Thomas, and M. S. R. Murthy. "Monitoring conservation effectiveness in a global biodiversity hotspot: the contribution of land cover change assessment." *Environmental monitoring and assessment* 158, no. 1-4 (2009): 169-179.

28. Giriraj, A., **M. S. R. Murthy**, B. R. Ramesh, and C. B. S. Dutt. "A method for assessing evergreen habitats using phytodiversity and geospatial techniques in tropical rain forests of Southern Western Ghats (India)." *Ecological research* 24, no. 4 (2009): 749-760.
29. Prasad, P. Rama Chandra, A. N. Sringswara, Ch Sudhakar Reddy, Nidhi Nagabhatla, K. S. Rajan, A. Giriraj, **M. S. R. Murthy**, S. H. Raza, and C. B. S. Dutt. "Assessment of forest fragmentation and species diversity in North Andaman Islands (India): a geospatial approach." *International Journal of Ecology & Development™* 14, no. F09 (2009): 33-46.
30. Joseph, Shijo, K. Anitha, and **M. S. R. Murthy**. "Forest fire in India: a review of the knowledge base." *Journal of forest research* 14, no. 3 (2009): 127-134.
31. Pattanaik, Chiranjibi, C. Sudhakar Reddy, and **M. S. R. Murthy**. "An ethnobotanical survey of medicinal plants used by the Didayi tribe of Malkangiri district of Orissa, India." *Fitoterapia* 79, no. 1 (2008): 67-71.
32. Giriraj, A., **M. S. R. Murthy**, and B. R. Ramesh. "Vegetation composition, structure and patterns of diversity: a case study from the tropical wet evergreen forests of the Western Ghats, India." *Edinburgh Journal of Botany* 65, no. 03 (2008): 447-468.
33. Giriraj, Amarnath, Mohammed Irfan-Ullah, Manchi **Sri Ramachandra Murthy**, and Carl Beierkuhnlein. "Modelling spatial and temporal forest cover change patterns (1973-2020): A case study from South Western Ghats (India)." *Sensors* 8, no. 10 (2008): 6132-6153.
34. Reddy, C. Sudhakar, Girish S. Pujar, G. Rajasekhar, **M. S. R. Murthy**, and Vatsavaya S. Raju. "Identification of gap areas for biological exploration." *Current Science* 95, no. 5 (2008): 568-568.
35. Giriraj, A., M. Irfan-Ullah, B. R. Ramesh, P. V. Karunakaran, Anke Jentsch, and **M. S. R. Murthy**. "Mapping the potential distribution of *Rhododendron arboreum* Sm. ssp. *nilagiricum* (Zenker) Tagg (Ericaceae), an endemic plant using ecological niche modelling." *Current Science-Bangalore* 94, no. 12 (2008): 1605.
36. Reddy, C. Sudhakar, Prachi Ugle, **M. S. R. Murthy**, and S. Sudhakar. "Quantitative structure and composition of tropical forests of Mudumalai Wildlife Sanctuary, Western Ghats, India." *Taiwania* 53, no. 2 (2008): 150-156.
37. Pattanaik, Chiranjibi, Ch Sudhakar Reddy, **M. S. R. Murthy**, and D. Swain. "Assessment and Monitoring the Coastal Wetland Ecology Using RS and GIS with Reference to Bhitarkanika Mangroves of Orissa, India." In *Monitoring and Modelling Lakes and Coastal Environments*, pp. 226-236. Springer Netherlands, 2008.
38. Pattanaik, C., Sudhakar Reddy, **M. S. R. Murthy**, Binoj Kumar, and P. K. Gopalakrishnan. "Biodiversity rich areas of Orissa: a need for conservation." *Biodiversity conservation* (2008): 165-172.
39. Reddy, C. Sudhakar, Chiranjibi Pattanaik, **M. S. R. Murthy**, and P. S. Roy. "Spatial modeling for Biological Richness analysis in Similipal biosphere reserve, Orissa, India." *Journal of Bioresource Conservation and Management* (2008): 285-298.
40. Irfan-Ullah, M., Giriraj Amarnath, **M. S. R. Murthy**, and A. Townsend Peterson. "Mapping the geographic distribution of *Aglaia bourdillonii* Gamble (Meliaceae), an endemic and threatened plant, using ecological niche modeling." *Biodiversity and Conservation* 16, no. 6 (2007): 1917-1925.
41. Chand, TR Kiran, K. V. S. Badarinath, **M. S. R. Murthy**, G. Rajshekhar, C. D. Elvidge, and B. T. Tuttle. "Active forest fire monitoring in Uttaranchal State, India using multi-temporal DMSP-OLS and MODIS data." *International Journal of Remote Sensing* 28, no. 10 (2007): 2123-2132.
42. Sudhakar Reddy, C., Chiranjibi Pattanaik, and **M. S. R. Murthy**. "Assessment and monitoring of mangroves of Bhitarkanika Wildlife Sanctuary, Orissa, India using remote sensing and GIS." *Current science* 92, no. 10 (2007): 1409-1415.

43. **Murthy, M. S. R.**, G. S. Pujar, and A. Giriraj. "Geoinformatics-based management of biodiversity from landscape to species scale-An Indian perspective." *Current Science-Bangalore*- 91, no. 11 (2006): 1477.
44. Kiran Chand, T. R., K. V. S. Badarinath, V. Krishna Prasad, **M. S. R. Murthy**, Chris D. Elvidge, and Benjamin T. Tuttle. "Monitoring forest fires over the Indian region using Defense Meteorological Satellite Program-Operational Linescan System nighttime satellite data." *Remote Sensing of Environment* 103, no. 2 (2006): 165-178.
45. Pattanaik, Chiranjibi, C. S. Reddy, **M. S. R. Murthy**, and P. Manikya Reddy. "Ethnomedicinal observations among the tribal people of Koraput district, Orissa, India." *Research Journal of Botany* 1, no. 3 (2006): 125-128.
46. Chand, TR Kiran, K. Madhavi Latha, K. V. S. Badarinath, and **M. S. R. Murthy**. "Analysis of Terra Modis satellite data for Ecological Impact Assessment (EclA) studies." *Journal of the Indian Society of Remote Sensing* 33, no. 3 (2005): 457-463.
47. Badarinath, K. V. S., K. Madhavalatha, TR Kiran Chand, and **M. S. R. Murthy**. "Modeling potential forest fire danger using modis data." *Journal of the Indian Society of Remote Sensing* 32, no. 4 (2004): 343-350.
48. Sudhakar Reddy, C., P. R. C. Prasad, **M. S. R. Murthy**, and C. B. S. Dutt. "Census of endemic flowering plants of Andaman and Nicobar Islands." *J. Econ. Taxon. Bot* 28 (2004): 712-728.
49. Amarnath, G., **M. S. R. Murthy**, S. J. Britto, G. Rajashekar, and C. B. S. Dutt. "Diagnostic analysis of conservation zones using remote sensing and GIS techniques in wet evergreen forests of the Western Ghats—An ecological hotspot, Tamil Nadu, India." *Biodiversity & Conservation* 12, no. 12 (2003): 2331-2359.
50. **Murthy, M. S. R.**, A. Giriraj, and C. B. S. Dutt. "Geoinformatics for biodiversity assessment." *Biological letters* 40, no. 2 (2003): 75-100.
51. Amarnath, G., **M. S. R. Murthy**, S. J. Britto, G. Rajashekar, and C. B. S. Dutt. "Diagnostic analysis of conservation zones using remote sensing and GIS techniques in wet evergreen forests of the Western Ghats—An ecological hotspot, Tamil Nadu, India." *Biodiversity & Conservation* 12, no. 12 (2003): 2331-2359.
52. Roy, P. S., C. B. S. Dutt, R. N. Jadhav, B. K. Ranganath, **M. S. R. Murthy**, B. Gharai, V. Udaya Lakshmi, A. K. Kandya, and P. S. Thakker. "IRS-1C data utilization for forestry applications." *Current science* 70, no. 7 (1996): 606-613.
53. Raza, S. H., and **M. S. R. Murthy**. "Effect of Industrial Effluent on Soil and Natural Vegetation of Nacharam Industrial Complex." *Environmental Pollution and Protection* (1995): 134.
54. Raza, S. H., G. Shylaja, **M. S. R. Murthy**, and O. Bhagyalakshmi. "The contribution of plants for CO<sub>2</sub> removal from indoor air." *Environment International* 17, no. 4 (1991): 343-347.
55. Raza, S. H., **M. S. R. Murthy**, O. Bhagya Lakshmi, and G. Shylaja. "Effect of vegetation on urban climate and healthy urban colonies." *Energy and Buildings* 15, no. 3 (1991): 487-491.
56. **Murthy, M. S. R.**, O. Bhagya Lakshmi, S. H. Raza, and Adeel Ahmed. "A new method for evaluating sulfur dioxide tolerance of certain trees." *International journal of environmental studies* 39, no. 1-2 (1991): 85-94.
57. Raza, Sh, **Msr Murthy**, O. Bhagya Lakshmi, and Azeez Ahmed Khan. "Salicylic Acid-Protective Ability Against So<sub>2</sub> Toxicity in Certain Tropical Trees." *Botanical researches in India* (1991): 382.
58. Raza, S. H., B. Nirmala, and **M. S. R. Murthy**. "Indoor dust fall and its composition in two public areas of a city in India." *Environment international* 16, no. 1 (1990): 53-56.
59. Raza, S. H., Rana Kausar, and M. S. R. Murthy. "Indoor aerobiological pollution in certain indian domestic environments." *Environment International* 15, no. 1 (1989): 209-215.

60. Raza, S. H., **M. S. R. Murthy**, O. Bhagya Lakshmi, and G. Shylaja. "Effect of vegetation on urban climate and healthy urban colonies." *Energy and Buildings* 15, no. 3 (1991): 487-491.
61. Raza, S. H., and **M. S. R. Murthy**. "Air pollution tolerance index of certain plants of Nacharam industrial area, Hyderabad." *Indian J. Bot* 11, no. 1 (1988): 91-95.

#### List of Books authored/edited

1. Biodiversity Characterisation at Landscape Level, National Assessment, 2012.IIRS/ISRO Publication. ISBN No.81-901418-8-0
2. Biodiversity Characterisation at Landscape Level in Eastern Ghats and East Coast using Satellite Remote Sensing and Geographic Information System, 2007. NRSA Publication: ISBN - 978-81-7525-877-8.
3. Biodiversity Characterisation at Landscape Level in Andaman and Nicobar Islands using Satellite Remote Sensing and Geographic Information System, 2003. NRSA Publication:ISBN-81-90141-4-8
4. Biodiversity Characterisation at Landscape Level in Western Ghats, India using Satellite Remote Sensing and Geographic Information System, 2002. NRSA Publication: ISBN - 81-901418-1-3.

#### Chapters Contributed to books:

1. Neupane, N., **Murthy, M.S.R.**, Rasul, G., Wahid, S., Shrestha, A.B., Uddin, K., Integrated Biophysical and Socioeconomic Model for Adaptation to Climate Change for Agriculture and Water in the Koshi Basin (2013).
2. Giriraj A. **Murthy MSR**, Basanta Shrestha. Evaluating Biodiversity and Spatial Simulation of Land-Cover Change in the Tropical Region of Western Ghats, India, 2010. Biodiversity / Book 5, In Tech Publisher, Europe. ISBN: 978-953-307-1428-0
3. Remote sensing applications for forest vegetation, In: Remote sensing applications, 2010. NRSC Publication, ISBN 978-81-909460-0-1
4. Roy, P.S. & **Murthy M. S. R.** 2009. Efficient Land use planning and policies using Geospatial inputs: An Indian Experience. Nova Science Publishers Inc. USA. pp. 1-43. ISBN 978-1-60741-435-3.

#### Article published in Conference Proceedings:

1. Kotru, R., R. S. Rawal, P. K. Mathur, N. Chettri, S. A. Chaudhari, K. Uddin, **M. S. R. Murthy**, and S. Singh. "Effective Management of Trans boundary Landscapes-Geospatial Applications." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1309-1317.
2. Wahid, S. M., A. B. Shrestha, **M. S. R. Murthy**, M. Matin, J. Zhang, and O. Siddiqui. "Regional water security in the Hindu Kush Himalayan region: role of geospatial science and tools." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1331-1340.
3. Bajracharya, B., **M. S. R. Murthy**, and B. Shrestha. "SERVIR HIMALYA: Enabling Improved Environmental Management and Livelihoods in the HKH." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1277-1281.
4. Gilania, H., Shree Krishna Gautamb, **M. S. R. Murthy**, U. A. Kojua, K. Uddina, and B. Karky. "Monitoring the performance of community forestry to achieve REDD+ goals through geospatial methods." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1295-1300.



5. Gilani, Hammad, **M. S. R. Murthy**, and Birendra Bajracharya. "Geospatial Perspective of the MRV Process: A Case Study in Kayer Khola, Chitwan District." *Learning on Reducing Emissions from Deforestation and Forest Degradation* 24 (2012): 73.
6. Debnath, Bijan, TR Kiran Chand, G. Rajashekar, and **M. S. R. Murthy**. "Analysis of Multi-Temporal Satellite Data for Forest Fire Characterisation Over Central Indian Region-a Climate Change Perspective." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 71-75.
7. V.K.Dadhwal.,S.P.S.Kushwaha, Sarnam Singh, N.R.Patel ,R.K. Nayak, P.Patil, C.B.S.Dutt, **M.S.R.Murthy**, C.S. Jha, G.Rajsekhar, G.S.Pujar, Shivam Trivedi, Neerja Sharma and M.M.Ali. Recent results from EO studies on Indian Carbon Cycle Assessment. **2011. ISPRS Archives XXXVIII- 8/W20**; Workshop Proceedings: Earth Observation for Terrestrial Ecosystems
8. V.K. Dadhwal, **M.S.R. Murthy**, S.P.S.Kushwaha, Sarnam Singh, Ravindra Naik.**2011**. Indian Forest Carbon Cycle Assessment. Proceedings of Indian Forestry Congress,Nov,2011
9. Dadhwal, V. K., S. P. S. Kushwaha, Sarnam Singh, N. R. Patel, R. K. Nayak, P. Patil, C. B. S. Dutt et al. "Recent Results from EO Studies on Indian Carbon Cycle Assessment." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 3-9.
10. Sudhakar Reddy, C., P. Hari Krishna, and **M. S. R. Murthy**. "Assessment of Plant Functional Types in Tropical Arid and Semi-Arid Ecosystems of India Using Remote Sensing Data and GIS." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 150-150.
11. Pujar, G. S., B. Harika, **M. S. R. Murthy**, and V. K. Dadhwal. "Vulnerability of Vegetation In Parts of Himalayas and Dynamic Global Vegetation Modelling (Dgvm)–Study Using Vnir and Thermal Responses of MODIS Time Series Data." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 140-144.
12. Reddy, C. SUDHAKAR, GIRISH S. Pujar, S. Sudhakar, B. Shilpa, K. Sudha, B. Gharai, and **M. S. R. Murthy**. "Mapping the vegetation types of Andhra Pradesh, India using Remote Sensing." *Proceedings of the Andhra Pradesh Akademi of Sciences* 12 (2008): 14-23.
13. Jha, C. S., M. Rangaswamy, N. Vyjayanthi, and **M. S. R. Murthy**. "Estimation of forest biomass using Envisat-ASAR data." In *Asia-Pacific Remote Sensing Symposium*, pp. 641002-641002. International Society for Optics and Photonics, 2006.
14. Rama Murthy, A., I. V. Murali Krishna, and **M. S. R. Murthy**. "Precision conservation of natural resources for sustainable development." In *Geoscience and Remote Sensing Symposium, 2004. IGARSS'04. Proceedings. 2004 IEEE International*, vol. 7, pp. 4605-4608. IEEE, 2004.
15. Reddy, Ch Sudhakar, **M. S. R. Murthy**, and C. B. S. Dutt. "Vegetation diversity and endemism in Eastern Ghats, India." In *Proceedings of the National Seminar on Conservation of Eastern Ghats*, pp. 109-134. 2002.
16. Raza, S. H., B. Nirmala, and **M. S. R. Murthy**. "Studies on the components of air borne dust particles in indoors of Secunderabad railway station and mess." *Indoor Air'87: Developing countries, Guaranteeing adequate indoor air quality, Control measures, Ventilation effectiveness, Thermal climate and comfort, Policy and strategies* 3 (1987): 105.
17. Raza, S. H., N. Vijaya Kumari, **M. S. R. Murthy**, and A. Adeel. "Air pollution tolerance index of certain plants of Hyderabad." In *Symp. Biomonitoring State Environ*, pp. 243-245. 1985.

## **Annexure-II**

### **Memberships/Positions held in other scientific societies:**

#### **Life Memberships (Scientific Societies):**

- Indian Botanical Society
- Indian Society of Remote Sensing
- Indian Meteorological Society
- Indian Cartographic Society
- National Institute of Ecology(Fee paid/Applied)

#### **Technical Committees (Memberships Held):**

- Member Secretary, National task team on forest type mapping of India, MoEF, GOI
- Member, Western Ghats Eco-restoration Expert Panel, GOI
- Member, Technical Advisory Committee, Forest Survey of India
- Member, Expert Group on Western Ghats and Eastern Ghats, MoEF, GOI
- Member, Steering Committee of National Forest Type Mapping MoEF, GOI.
- Member, Board of Directors, AP Forest Academy, India
- Member, Standing Committee on Bio resources, NNRMS, MoEF, GOI
- Member, Advisory committee of Tamil Nadu, A.P., Haryana Forest Dept
- Member, Board of studies, Dept. of Environmental Sciences, Botany Osmania University
- Member, National task team on protected area mapping, MoEF, GOI
- Member, (Representing), AP Coastal Zone Authority, Government of AP.
- Member - World Bank Project on Sustainable Industrial Planning of APPCB.
- Young Scientist committee on VISION 2020, Dept of Space, India.

## **Annexure -III**

### **Major Scientific Contributions**

#### **Past Contributions (During the tenure at NRSC/ISRO, Hyderabad, India during 1991-2011)**

##### **Research Contributions:**

Developed optimal forest growing stock inventory systems to address cost and time effectiveness using remote sensing and GIS leading to operational assimilation by Indian forest working plan preparations. The coupling of different ecological states and processes using multiple scales of remote sensing information has resulted in integrating remote sensing with landscape ecology to monitor, assess and conservation of biodiversity. Through this, have contributed as deputy project leader in bringing out Indian biodiversity characterization towards helping conservation and bioprospecting. This has resulted in several research publications, four Ph.Ds. and noteworthy mention is 1197 downloads during 5 years for a research paper on coupling landscape ecology and remote sensing. Our research on forest fire damage assessment and understanding forest vulnerability has resulted in evolving national frame work for effective fire monitoring systems and biomass based trace gas emission in inventories. The rigorous research on application of remote sensing data resulted in developing annual land cover assessment. This has yielded in bringing scientific understanding on Agriculture, Forestry and Other Land Use based trace gas emission systems across India and national reporting to UNFCC. Our research methodology and feasibility assessment of EIAs using science based evidence has helped in adopting remote sensing as mandatory tool by Govt. of India for thermal power plants and mining based EIAs.

##### **Institutionalisation of Science based Operational Systems:**

As a Project Leader/Deputy Project Director of several national programs of ISRO, responsible in institutionalising following operational systems in the country:

- Indian Forest working plan preparations using remote sensing data
- Indian forest fire response and assessment system
- Rapid Indian Annual land cover Assessment
- Indian Bio-Resources Information Network
- AFOLU based National UNFCC Communications on trace gas emissions

##### **Capacity Building:**

- Developed self-reliance on adopting geospatial technologies by several state forest departments of India
- Teaching and training > 1000 of students, researchers on application of remote sensing and GIS in forest management
- Curriculum Development at Postgraduate and Ph.D. level at several Universities
- Guided 5 Ph.Ds. and 10 M.Techs.

#### **Present Contributions (Current tenure at ICIMOD, Kathmandu, Nepal since Dec 2011)**

Significant contributions made in bringing scientific understanding on the effect of socio-ecological parameters on forest and other land cover resource use patterns using long term processes and agent based modeling over Hindu Kush Himalayan (HKH) region. Species distribution models and Habitat

suitability models based research has provided significant scientific knowledge and support for trans boundary landscape conservation programs in the region. Multi scale forest biomass qualification monitoring and assessment methodologies have helped to evolve REDD MRV systems and national reference emission level estimations. Forest based climate change vulnerability and adaptation studies have produced scientific scenario on adaptation strategies and operational tools development across Nepal. Several geospatial tools are developed to build early warning systems and disaster risk reduction for drought, landslides earthquake and flood across Himalayas. Developed several international collaborations to develop scientific and research capacities over the HKH region. All the research work have resulted in peer reviewed publications in international journals and also being led to operational applications by line departments.

### Details of Publications

#### List of all Research Publications:

62. Sawaid Abbas, Faisal Qamer, **M. S. R Murthy**, Nitin Tripathi, Wu Ning, Eklabya Sharma, and Ghaffar Ali, 'Grassland Growth in Response to Climate Variability in the Upper Indus Basin, Pakistan', *Climate*, 3 (2015), 697-714.
63. Kabir Uddin, Hammad Gilani, **M. S. R. Murthy**, Rajan Kotru, and Faisal Mueen Qamer, Forest Condition Monitoring Using Very-High Resolution Satellite Imagery in a Remote Mountain Watershed in Nepal, *Mountain Research and Development*, 3 (2015), 000-000.
64. Kabir Uddin, Sunita Chaudhary, Nakul Chettri, Rajan Kotru, **M. S. R. Murthy**, Ram Prasad Chaudhary, Wu Ning, Sahas Man Shrestha, and Shree Krishna Gautam, 'The Changing Land Cover and Fragmenting Forest on the Roof of the World: A Case Study in Nepal's Kailash Sacred Landscape', *Landscape and Urban Planning*, 141 (2015), 1-10.
65. PS Roy, MD Behera, **M. S. R Murthy**, Arijit Roy, Sarnam Singh, SPS Kushwaha, CS Jha, S Sudhakar, PK Joshi, and Ch Sudhakar Reddy, 'New Vegetation Type Map of India Prepared Using Satellite Remote Sensing: Comparison with Global Vegetation Maps and Utilities', *International Journal of Applied Earth Observation and Geoinformation*, 39 (2015), 142-59.
66. Karna, Yogendra K., Yousif Ali Hussin, Hammad Gilani, M. C. Bronsveld, **M. S. R. Murthy**, Faisal Mueen Qamer, Bhaskar Singh Karky, Thakur Bhattarai, Xu Aigong, and Chitra Bahadur Baniya. "Integration of WorldView-2 and airborne LiDAR data for tree species level carbon stock mapping in Kayar Khola watershed, Nepal." *International Journal of Applied Earth Observation and Geoinformation* 38 (2015): 280-291.
67. Zhang, Jianqiang, Deo Raj Gurung, Rongkun Liu, **M. S. R. Murthy**, and Fenghuan Su. "Abe Berek landslide and landslide susceptibility assessment in Badakhshan Province, Afghanistan." *Landslides* (2015): 1-13.
68. Kabir Uddin, Him Lal Shrestha, **M. S. R. Murthy**, Birendra Bajracharya, Basanta Shrestha, Hammad Gilani, Sudip Pradhan, and Bikash Dangol. "Development of 2010 national land cover database for the Nepal." *Journal of environmental management* 148 (2015): 82-90.
69. Gilani, Hammad, Him Lal Shrestha, **M. S. R. Murthy**, Phuntso Phuntso, Sudip Pradhan, Birendra Bajracharya, and Basanta Shrestha. "Decadal land cover change dynamics in Bhutan." *Journal of environmental management* 148 (2015): 91–100
70. K. Sreenivas, N. Seshadri Sekhar, Manoj Saxena, R. Paliwal, S. Pathak, M.C. Porwal, M.A. Fyze, S.V.C. Kameswara Rao, M. Wadodkar, T. Anasuya, **M.S.R. Murthy**, T. Ravisankar, V.K. Dadhwal, Estimating inter-annual diversity of seasonal agricultural area using multi-temporal resourcesat data, *Journal of Environmental Management* (2014): In Press, Corrected Proof.
71. Shehzad, Khuram, Faisal M. Qamer, **M. S. R. Murthy**, Sawaid Abbas, and Laxmi D. Bhatta. "Deforestation trends and spatial modelling of its drivers in the dry temperate forests of northern Pakistan—A case study of Chitral." *Journal of Mountain Science* 11, no. 5 (2014): 1192-1207.
72. Hussin, Yousif Ali, Hammad Gilani, Louise van Leeuwen, **M. S. R. Murthy**, Rachna Shah, Srijana Baral, Nandin-Erdene Tsendbazar, Saurav Shrestha, Shyam Kumar Shah, and Faisal Mueen Qamer. "Evaluation of object-based image analysis techniques on very high-resolution satellite image for biomass estimation in a watershed of hilly forest of Nepal." *Applied Geomatics* 6, no. 1 (2014): 59-68.

73. Roy, P. S., **M. S. R. Murthy**, A. Roy, S. P. S. Kushwaha, S. Singh, C. S. Jha, M. D. Behera et al. "Forest fragmentation in India." *Current Science* 105, no. 6 (2013): 774-780.
74. Devi, Shanthala, **M. S. R. Murthy**, Bijan Debnath, and C. S. Jha. "Forest patch connectivity diagnostics and prioritization using graph theory." *Ecological Modelling* 251 (2013): 279-287.
75. Devagiri, G. M., Santosh Hubballi, Girish Pujar, **Murthy, M.S.R.**, Shivam Trivedi and Bijan Debnath. 2012. Mapping and Characterization of Bio-rich Areas Using Satellite Remote Sensing in Southern Karnataka, India. *International Journal of Environmental Sciences* Vol.1 No.2.. Pp. 105-117
76. Behera, M. D., V. S. Chitale, A. Shaw, P. S. Roy, and **M. S. R. Murthy**. "Wetland monitoring, serving as an index of land use change-a study in Samaspur Wetlands, Uttar Pradesh, India." *Journal of the Indian Society of Remote Sensing* 40, no. 2 (2012): 287-297.
77. Joseph, Shijo, K. Anitha, V. K. Srivastava, Ch Sudhakar Reddy, A. P. Thomas, and **M. S. R. Murthy**. "Rainfall and Elevation Influence the Local-Scale Distribution of Tree Community in the Southern Region of Western Ghats Biodiversity Hotspot (India)." *International Journal of Forestry Research* 2012 (2012).
78. Joseph, Shijo, **M. S. R. Murthy**, and A. P. Thomas. "The progress on remote sensing technology in identifying tropical forest degradation: a synthesis of the present knowledge and future perspectives." *Intl. journal Environ Earth Sci.* 64, no. 3 (2011): 731-741.
79. Sharma, Subodh K., Asim Choudhury, Pinaki Sarkar, Subhashis Biswas, Anil Singh, Pradeep K. Dadhich, **Murthy, M.S.R.**, Ajay K. Singh et al. "Greenhouse gas inventory estimates for India." *Current Science (Bangalore)* 101, no. 3 (2011): 405-415.
80. Devi, Shanthala, **M. S. R. Murthy**, G. S. Pujar, and Bijan Debnath. "Graph Theory and ANT Colony Optimization Approach for Forest Patch Connectivity Analysis." *Links* 602 (2011): 0-05.
81. Gadgil, Madhav, RJ Ranjit Daniels, K. N. Ganeshaiyah, S. Narendra Prasad, **M. S. R. Murthy**, C. S. Jha, B. R. Ramesh, and K. A. Subramanian. "Mapping ecologically sensitive, significant and salient areas of Western Ghats: proposed protocols and methodology." *Current Science* 100, no. 2 (2011): 175-182.
82. Singh, J. S., P. S. Roy, **M. S. R. Murthy**, and C. S. Jha. "Application of landscape ecology and remote sensing for assessment, monitoring and conservation of biodiversity." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 365-385.
83. Roy, A., B. S. S. Devi, Bijan Debnath, and **M. S. R. Murthy**. "Geospatial modelling for identification of potential ecological corridors in Orissa." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 387-399.
84. Pattanaik, C., C. S. Reddy, and **M. S. R. Murthy**. "Geospatial modeling of biological richness in Kuldiha Wildlife Sanctuary of Orissa, India." *Journal of the Indian Society of Remote Sensing* 38, no. 3 (2010): 477-485.
85. Giriraj, Amarnath, Shilpa Babar, Anke Jentsch, Singuluri Sudhakar, and **Manchi Sri Ramachandra Murthy**. "Tracking fires in India using advanced along track scanning radiometer (A) ATSR data." *Remote Sensing* 2, no. 2 (2010): 591-610.
86. Giriraj, A., **M. S. R. Murthy**, and C. Beierkuhnlein. "Evaluating forest fragmentation and its tree community composition in the tropical rain forest of Southern Western Ghats (India) from 1973 to 2004." *Environmental monitoring and assessment* 161, no. 1-4 (2010): 29-44.
87. Swamy, S. L., C. B. S. Dutt, **M. S. R. Murthy**, A. L. K. A. Mishra, and S. S. Bargali. "Floristics and dry matter dynamics of tropical wet evergreen forests of Western Ghats, India." *Current science* 99, no. 3 (2010): 353-364.
88. Joseph, Shijo, George Alan Blackburn, Biswadip Gharai, S. Sudhakar, A. P. Thomas, and M. S. R. Murthy. "Monitoring conservation effectiveness in a global biodiversity hotspot: the contribution of land cover change assessment." *Environmental monitoring and assessment* 158, no. 1-4 (2009): 169-179.

89. Giriraj, A., **M. S. R. Murthy**, B. R. Ramesh, and C. B. S. Dutt. "A method for assessing evergreen habitats using phytodiversity and geospatial techniques in tropical rain forests of Southern Western Ghats (India)." *Ecological research* 24, no. 4 (2009): 749-760.
90. Prasad, P. Rama Chandra, A. N. Sringswara, Ch Sudhakar Reddy, Nidhi Nagabhatla, K. S. Rajan, A. Giriraj, **M. S. R. Murthy**, S. H. Raza, and C. B. S. Dutt. "Assessment of forest fragmentation and species diversity in North Andaman Islands (India): a geospatial approach." *International Journal of Ecology & Development™* 14, no. F09 (2009): 33-46.
91. Joseph, Shijo, K. Anitha, and **M. S. R. Murthy**. "Forest fire in India: a review of the knowledge base." *Journal of forest research* 14, no. 3 (2009): 127-134.
92. Pattanaik, Chiranjibi, C. Sudhakar Reddy, and **M. S. R. Murthy**. "An ethnobotanical survey of medicinal plants used by the Didayi tribe of Malkangiri district of Orissa, India." *Fitoterapia* 79, no. 1 (2008): 67-71.
93. Giriraj, A., **M. S. R. Murthy**, and B. R. Ramesh. "Vegetation composition, structure and patterns of diversity: a case study from the tropical wet evergreen forests of the Western Ghats, India." *Edinburgh Journal of Botany* 65, no. 03 (2008): 447-468.
94. Giriraj, Amarnath, Mohammed Irfan-Ullah, Manchi **Sri Ramachandra Murthy**, and Carl Beierkuhnlein. "Modelling spatial and temporal forest cover change patterns (1973-2020): A case study from South Western Ghats (India)." *Sensors* 8, no. 10 (2008): 6132-6153.
95. Reddy, C. Sudhakar, Girish S. Pujar, G. Rajasekhar, **M. S. R. Murthy**, and Vatsavaya S. Raju. "Identification of gap areas for biological exploration." *Current Science* 95, no. 5 (2008): 568-568.
96. Giriraj, A., M. Irfan-Ullah, B. R. Ramesh, P. V. Karunakaran, Anke Jentsch, and **M. S. R. Murthy**. "Mapping the potential distribution of *Rhododendron arboreum* Sm. ssp. *nilagiricum* (Zenker) Tagg (Ericaceae), an endemic plant using ecological niche modelling." *Current Science-Bangalore* 94, no. 12 (2008): 1605.
97. Reddy, C. Sudhakar, Prachi Ugle, **M. S. R. Murthy**, and S. Sudhakar. "Quantitative structure and composition of tropical forests of Mudumalai Wildlife Sanctuary, Western Ghats, India." *Taiwania* 53, no. 2 (2008): 150-156.
98. Pattanaik, Chiranjibi, Ch Sudhakar Reddy, **M. S. R. Murthy**, and D. Swain. "Assessment and Monitoring the Coastal Wetland Ecology Using RS and GIS with Reference to Bhitarkanika Mangroves of Orissa, India." In *Monitoring and Modelling Lakes and Coastal Environments*, pp. 226-236. Springer Netherlands, 2008.
99. Pattanaik, C., Sudhakar Reddy, **M. S. R. Murthy**, Binoj Kumar, and P. K. Gopalakrishnan. "Biodiversity rich areas of Orissa: a need for conservation." *Biodiversity conservation* (2008): 165-172.
100. Reddy, C. Sudhakar, Chiranjibi Pattanaik, **M. S. R. Murthy**, and P. S. Roy. "Spatial modeling for Biological Richness analysis in Similipal biosphere reserve, Orissa, India." *Journal of Bioresource Conservation and Management* (2008): 285-298.
101. Irfan-Ullah, M., Giriraj Amarnath, **M. S. R. Murthy**, and A. Townsend Peterson. "Mapping the geographic distribution of *Aglaia bourdillonii* Gamble (Meliaceae), an endemic and threatened plant, using ecological niche modeling." *Biodiversity and Conservation* 16, no. 6 (2007): 1917-1925.
102. Chand, TR Kiran, K. V. S. Badarinath, **M. S. R. Murthy**, G. Rajshekhar, C. D. Elvidge, and B. T. Tuttle. "Active forest fire monitoring in Uttaranchal State, India using multi-temporal DMSP-OLS and MODIS data." *International Journal of Remote Sensing* 28, no. 10 (2007): 2123-2132.
103. Sudhakar Reddy, C., Chiranjibi Pattanaik, and **M. S. R. Murthy**. "Assessment and monitoring of mangroves of Bhitarkanika Wildlife Sanctuary, Orissa, India using remote sensing and GIS." *Current science* 92, no. 10 (2007): 1409-1415.

104. **Murthy, M. S. R.**, G. S. Pujar, and A. Giriraj. "Geoinformatics-based management of biodiversity from landscape to species scale-An Indian perspective." *Current Science-Bangalore*-91, no. 11 (2006): 1477.
105. Kiran Chand, T. R., K. V. S. Badarinath, V. Krishna Prasad, **M. S. R. Murthy**, Chris D. Elvidge, and Benjamin T. Tuttle. "Monitoring forest fires over the Indian region using Defense Meteorological Satellite Program-Operational Linescan System nighttime satellite data." *Remote Sensing of Environment* 103, no. 2 (2006): 165-178.
106. Pattanaik, Chiranjibi, C. S. Reddy, **M. S. R. Murthy**, and P. Manikya Reddy. "Ethnomedicinal observations among the tribal people of Koraput district, Orissa, India." *Research Journal of Botany* 1, no. 3 (2006): 125-128.
107. Chand, TR Kiran, K. Madhavi Latha, K. V. S. Badarinath, and **M. S. R. Murthy**. "Analysis of Terra Modis satellite data for Ecological Impact Assessment (EclA) studies." *Journal of the Indian Society of Remote Sensing* 33, no. 3 (2005): 457-463.
108. Badarinath, K. V. S., K. Madhavalatha, TR Kiran Chand, and **M. S. R. Murthy**. "Modeling potential forest fire danger using modis data." *Journal of the Indian Society of Remote Sensing* 32, no. 4 (2004): 343-350.
109. Sudhakar Reddy, C., P. R. C. Prasad, **M. S. R. Murthy**, and C. B. S. Dutt. "Census of endemic flowering plants of Andaman and Nicobar Islands." *J. Econ. Taxon. Bot* 28 (2004): 712-728.
110. Amarnath, G., **M. S. R. Murthy**, S. J. Britto, G. Rajashekar, and C. B. S. Dutt. "Diagnostic analysis of conservation zones using remote sensing and GIS techniques in wet evergreen forests of the Western Ghats—An ecological hotspot, Tamil Nadu, India." *Biodiversity & Conservation* 12, no. 12 (2003): 2331-2359.
111. **Murthy, M. S. R.**, A. Giriraj, and C. B. S. Dutt. "Geoinformatics for biodiversity assessment." *Biological letters* 40, no. 2 (2003): 75-100.
112. Amarnath, G., **M. S. R. Murthy**, S. J. Britto, G. Rajashekar, and C. B. S. Dutt. "Diagnostic analysis of conservation zones using remote sensing and GIS techniques in wet evergreen forests of the Western Ghats—An ecological hotspot, Tamil Nadu, India." *Biodiversity & Conservation* 12, no. 12 (2003): 2331-2359.
113. Roy, P. S., C. B. S. Dutt, R. N. Jadhav, B. K. Ranganath, **M. S. R. Murthy**, B. Gharai, V. Udaya Lakshmi, A. K. Kandya, and P. S. Thakker. "IRS-1C data utilization for forestry applications." *Current science* 70, no. 7 (1996): 606-613.
114. Raza, S. H., and **M. S. R. Murthy**. "Effect of Industrial Effluent on Soil and Natural Vegetation of Nacharam Industrial Complex." *Environmental Pollution and Protection* (1995): 134.
115. Raza, S. H., G. Shylaja, **M. S. R. Murthy**, and O. Bhagyalakshmi. "The contribution of plants for CO<sub>2</sub> removal from indoor air." *Environment International* 17, no. 4 (1991): 343-347.
116. Raza, S. H., **M. S. R. Murthy**, O. Bhagya Lakshmi, and G. Shylaja. "Effect of vegetation on urban climate and healthy urban colonies." *Energy and Buildings* 15, no. 3 (1991): 487-491.
117. **Murthy, M. S. R.**, O. Bhagya Lakshmi, S. H. Raza, and Adeel Ahmed. "A new method for evaluating sulfur dioxide tolerance of certain trees." *International journal of environmental studies* 39, no. 1-2 (1991): 85-94.
118. Raza, Sh, **Msr Murthy**, O. Bhagya Lakshmi, and Azeez Ahmed Khan. "Salicylic Acid-Protective Ability Against So, Toxicity in Certain Tropical Trees." *Botanical researches in India* (1991): 382.
119. Raza, S. H., B. Nirmala, and **M. S. R. Murthy**. "Indoor dust fall and its composition in two public areas of a city in India." *Environment international* 16, no. 1 (1990): 53-56.
120. Raza, S. H., Rana Kausar, and M. S. R. Murthy. "Indoor aerobiological pollution in certain indian domestic environments." *Environment International* 15, no. 1 (1989): 209-215.



121. Raza, S. H., **M. S. R. Murthy**, O. Bhagya Lakshmi, and G. Shylaja. "Effect of vegetation on urban climate and healthy urban colonies." *Energy and Buildings* 15, no. 3 (1991): 487-491.
122. Raza, S. H., and **M. S. R. Murthy**. "Air pollution tolerance index of certain plants of Nacharam industrial area, Hyderabad." *Indian J. Bot* 11, no. 1 (1988): 91-95.

#### List of Books authored/edited

5. Biodiversity Characterisation at Landscape Level, National Assessment, 2012.IIRS/ISRO Publication. ISBN No.81-901418-8-0
6. Biodiversity Characterisation at Landscape Level in Eastern Ghats and East Coast using Satellite Remote Sensing and Geographic Information System, 2007. NRSA Publication: ISBN - 978-81-7525-877-8.
7. Biodiversity Characterisation at Landscape Level in Andaman and Nicobar Islands using Satellite Remote Sensing and Geographic Information System, 2003. NRSA Publication:ISBN-81-90141-4-8
8. Biodiversity Characterisation at Landscape Level in Western Ghats, India using Satellite Remote Sensing and Geographic Information System, 2002. NRSA Publication: ISBN - 81-901418-1-3.

#### Chapters Contributed to books:

5. Neupane, N., **Murthy, M.S.R.**, Rasul, G., Wahid, S., Shrestha, A.B., Uddin, K., Integrated Biophysical and Socioeconomic Model for Adaptation to Climate Change for Agriculture and Water in the Koshi Basin (2013).
6. Giriraj A. **Murthy MSR**, Basanta Shrestha. Evaluating Biodiversity and Spatial Simulation of Land-Cover Change in the Tropical Region of Western Ghats, India, 2010. Biodiversity / Book 5, In Tech Publisher, Europe. ISBN: 978-953-307-1428-0
7. Remote sensing applications for forest vegetation, In: Remote sensing applications, 2010. NRSC Publication, ISBN 978-81-909460-0-1
8. Roy, P.S. & **Murthy M. S. R.** 2009. Efficient Land use planning and policies using Geospatial inputs: An Indian Experience. Nova Science Publishers Inc. USA. pp. 1-43. ISBN 978-1-60741-435-3.

#### Article published in Conference Proceedings:

18. Kotru, R., R. S. Rawal, P. K. Mathur, N. Chettri, S. A. Chaudhari, K. Uddin, **M. S. R. Murthy**, and S. Singh. "Effective Management of Trans boundary Landscapes-Geospatial Applications." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1309-1317.
19. Wahid, S. M., A. B. Shrestha, **M. S. R. Murthy**, M. Matin, J. Zhang, and O. Siddiqui. "Regional water security in the Hindu Kush Himalayan region: role of geospatial science and tools." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1331-1340.
20. Bajracharya, B., **M. S. R. Murthy**, and B. Shrestha. "SERVIR HIMALYA: Enabling Improved Environmental Management and Livelihoods in the HKH." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1277-1281.
21. Gilania, H., Shree Krishna Gautamb, **M. S. R. Murthy**, U. A. Kojua, K. Uddina, and B. Karky. "Monitoring the performance of community forestry to achieve REDD+ goals through geospatial methods." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 1 (2014): 1295-1300.

22. Gilani, Hammad, **M. S. R. Murthy**, and Birendra Bajracharya. "Geospatial Perspective of the MRV Process: A Case Study in Kayer Khola, Chitwan District." *Learning on Reducing Emissions from Deforestation and Forest Degradation* 24 (2012): 73.
23. Debnath, Bijan, TR Kiran Chand, G. Rajashekar, and **M. S. R. Murthy**. "Analysis of Multi-Temporal Satellite Data for Forest Fire Characterisation Over Central Indian Region-a Climate Change Perspective." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 71-75.
24. V.K.Dadhwal.,S.P.S.Kushwaha, Sarnam Singh, N.R.Patel ,R.K. Nayak, P.Patil, C.B.S.Dutt, **M.S.R.Murthy**, C.S. Jha, G.Rajsekhar, G.S.Pujar, Shivam Trivedi, Neerja Sharma and M.M.Ali. Recent results from EO studies on Indian Carbon Cycle Assessment. **2011. ISPRS Archives XXXVIII- 8/W20**; Workshop Proceedings: Earth Observation for Terrestrial Ecosystems
25. V.K. Dadhwal, **M.S.R. Murthy**, S.P.S.Kushwaha, Sarnam Singh, Ravindra Naik.**2011**. Indian Forest Carbon Cycle Assessment. Proceedings of Indian Forestry Congress,Nov,2011
26. Dadhwal, V. K., S. P. S. Kushwaha, Sarnam Singh, N. R. Patel, R. K. Nayak, P. Patil, C. B. S. Dutt et al. "Recent Results from EO Studies on Indian Carbon Cycle Assessment." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 3-9.
27. Sudhakar Reddy, C., P. Hari Krishna, and **M. S. R. Murthy**. "Assessment of Plant Functional Types in Tropical Arid and Semi-Arid Ecosystems of India Using Remote Sensing Data and GIS." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 150-150.
28. Pujar, G. S., B. Harika, **M. S. R. Murthy**, and V. K. Dadhwal. "Vulnerability of Vegetation In Parts of Himalayas and Dynamic Global Vegetation Modelling (Dgvm)–Study Using Vnir and Thermal Responses of MODIS Time Series Data." *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* 3820 (2011): 140-144.
29. Reddy, C. SUDHAKAR, GIRISH S. Pujar, S. Sudhakar, B. Shilpa, K. Sudha, B. Gharai, and **M. S. R. Murthy**. "Mapping the vegetation types of Andhra Pradesh, India using Remote Sensing." *Proceedings of the Andhra Pradesh Akademi of Sciences* 12 (2008): 14-23.
30. Jha, C. S., M. Rangaswamy, N. Vyjayanthi, and **M. S. R. Murthy**. "Estimation of forest biomass using Envisat-ASAR data." In *Asia-Pacific Remote Sensing Symposium*, pp. 641002-641002. International Society for Optics and Photonics, 2006.
31. Rama Murthy, A., I. V. Murali Krishna, and **M. S. R. Murthy**. "Precision conservation of natural resources for sustainable development." In *Geoscience and Remote Sensing Symposium, 2004. IGARSS'04. Proceedings. 2004 IEEE International*, vol. 7, pp. 4605-4608. IEEE, 2004.
32. Reddy, Ch Sudhakar, **M. S. R. Murthy**, and C. B. S. Dutt. "Vegetation diversity and endemism in Eastern Ghats, India." In *Proceedings of the National Seminar on Conservation of Eastern Ghats*, pp. 109-134. 2002.
33. Raza, S. H., B. Nirmala, and **M. S. R. Murthy**. "Studies on the components of air borne dust particles in indoors of Secunderabad railway station and mess." *Indoor Air'87: Developing countries, Guaranteeing adequate indoor air quality, Control measures, Ventilation effectiveness, Thermal climate and comfort, Policy and strategies* 3 (1987): 105.
34. Raza, S. H., N. Vijaya Kumari, **M. S. R. Murthy**, and A. Adeel. "Air pollution tolerance index of certain plants of Hyderabad." In *Symp. Biomonitoring State Environ*, pp. 243-245. 1985.

