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Subjects: Geography | Remote Sensing

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Prof. Manjula Ranagalage is working as a Profesor, Department of Environmental Management, Faculty of Social Science and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

Prof. Ranagalage obtained his Bachelor of Arts degree with a Geography specialization and a First Class at the University of Colombo in 2006. Furthermore, he earned two master's degrees in Geo-informatics and Geography at the Postgraduate Institute of Agriculture, the University of Peradeniya in 2010, and the University of Sri Jayewardenepura in 2013, respectively. He has completed a **PhD in Science in Geo-Environmental Sciences** in the Graduate School of Life and Environmental Sciences of the University of Tsukuba, Japan, in 2019.

Prof. Ranagalage has published more than 45 journal articles published including some in SCI, SSCI, ESCI journals and other peer-reviewed journals, more than 50 conference publications, and more than ten books. Some of these SCI, SSCI, ESCI journals are Quintessential: Remote Sensing, Sustainability, PLOS ONE, Land Use Policy, Diversity, Forest, International Journal of Geo-information, Climate, Applied Ecology and Environmental Research, and Modeling Earth Systems and Environment. His research disciplines are included urban geography, urban climate change, urban green volume and built-up volume, urban heat island, application of GIS and remote sensing for water resources management, disaster management, environment management, tsunami vertical evacuation, forest cover changes, land change science, and soil erosions management. It is also noteworthy that the geographical area he has chosen for conducting research covers Sri Lanka and Japan, India, China, Indonesia, Iran, Nigeria, and some countries in the African continent and the Middle-east of the Asian continent.

To advocate and promote further scholarship and disseminate research-based new knowledge, he has provided more than 30 Master of Science (MSc) students with academic advice and guidance for completing their theses. His recent most scholarly engagement involves working as a reviewer for more than twenty international peer-reviewed indexed journals, namely Remote Sensing, Urban Forestry & Urban Greening, International Regional Science Review, Sustainable Cities and Society, Sustainability, and International Journal of Geo-information, Journal of Environmental Management, Sensor, Science of the Total Environment, Remote Sensing of Environment, Remote Sensing Applications: Society and Environment, Groundwater for Sustainable Development, Journal of Urban Management, The Egyptian Journal of Remote Sensing and Space Sciences, Groundwater for Sustainable Development, Climate, Land, to name a few.

Prof. Ranagalage is holding a Guest Editorship in special issues such as “ Machine Learning of Remote Sensing Data for Urban Growth Analysis and Modeling,” and “ Urban Developments and Its Impacts on Disasters in Developing Countries” in **Remote Sensing** journal, and “Geospatial Analysis and Modeling of Urban Greening for Sustainability in Developing Countries,” “Urban Heat Island Mitigation and Adaptation for Sustainability in Developing Countries,” and “Spatio-Temporal Analysis of Urbanization Using GIS and Remote Sensing in Developing Countries” in **Sustainability** journal. In addition to that, he is working as an **editorial board member** of **Geomatics, Natural Hazards and Risk** journal since 2021.

By considering his research works, he has been awarded several awards such as; **Most Outstanding Young Researcher of Sri Lanka in the field of Humanities/Aesthetics/Social science** conducted by the Committee of Vice-Chancellors and Directors, Sri Lanka in 2018, and **Research Excellency awards (Tsukuba University President Award)**, Graduation Ceremony / Degree Conferring Ceremony for Academic Year 2019.

After the PhD, he was selected as **JSPS Postdoc Fellowship for International Scholars**, Japanese Society for Promoting Sciences (JSPS), University of Tsukuba, Japan, in 2019. He worked as a **JSPS postdoctoral fellow** at the University of Tsukuba from September 2019 to December 2020.

Keywords: GIS ; Remote Sensing ; Geography ; Sustainability ; Geoinformatics ; Spatial Analysis

Recent Research Interest: Application of GIS & Remote Sensing for Sustainable Development in Developing Countries

Rapid urbanization can be seen in the developing regions, especially in Asia and Africa, near the future. This rapid urbanization will negatively impact land degradation, loss of ecosystem service, urban heat island, air pollution, and flooding, urban poverty, etc. Rapid urbanization has continuously caused to decrease environmental quality of the lowland cities and other mountain cities. These phenomena can be seen in Asian and African cities during the past few decades. Study about urban landscape becoming essential to enhance the knowledge and helps to introduce proper sustainable urban planning.

However, capturing the urbanization pattern and its impacts is becoming a challenging task due to the scarcity of spatial data. Primarily there are few spatial and temporal data available in the Asian and African developing countries. Thus, remote sensing and GIS techniques play a vital role in capturing the spatial-temporal variation of the urbanizations and their related issue. During the past few decades, GIS and Remote sensing have been used by many scholars to capture the urbanization patterns.

We have done several studies in several cities in Asia and Africa by using GIS and Remote sensing during the past few years. The landscape's rapid changes have been studied in several mountain cities and lowland coastal cities such as Nuwara Eliya ^[1] in Sri Lanka and Lusaka in Zambia ^[2]. It provides essential vital information to future urban planning to enhance urban sustainability—rapid changes of the urban landscape impacts to increasing urban heat island (UHI) in the world. During the past few decades, most cities had undergone rapid urban developments, affecting to decline of more natural lands. The UHI related studies had been done in several Asian cities such as Colombo ^{[3][4]}, Kandy ^{[5][6]}, and Kurunegala ^[7] in Sri Lanka, Seoul in South Korea ^[8], Greater Hefei in China ^[9], and some African cities such as Lagos (Nigeria), Nairobi (Kenya), Addis Ababa (Ethiopia), and Lusaka (Zambia) ^[10]. Besides, the variation of Land Surface Temperature (LST) of several cities such as Nuwara Eliya in Sri Lanka ^[11], Addis Ababa (Ethiopia) ^[12], Lagos (Nigeria) ^[13] had been investigated to introduce suitable remedial measures to overcome the negative impacts associated with increasing LST in the urban area.

We have done several other studies based on remote sensing data. The urban volume (built and green volume) is becoming popular among urban development due to the capabilities to understand vertical urban development rather than horizontal development ^{[14][15][16]}. On the other hand, other burning issues such as forest cover changes ^[17], landslide vulnerability assessment ^[18], social erosion ^[19], GIS application for water quality assessment ^{[20][21]}, life quality ^[22] related studies had been conducted in several study areas in Sri Lanka. We strongly believe that the studies' findings positively influence future planning and policy implementation in the study area. Same time, the adopted methodologies of the studies can use to conduct similar studies in developing countries.

References

1. Manjula Ranagalage; Ruci Wang; M. H. J. P. Gunarathna; D. M. S. L. B. Dissanayake; Yuji Murayama; Matamyo Simwanda; Spatial Forecasting of the Landscape in Rapidly Urbanizing Hill Stations of South Asia: A Case Study of Nuwara Eliya, Sri Lanka (1996–2037). *Remote Sensing* **2019**, *11*, 1743, [10.3390/rs11151743](https://doi.org/10.3390/rs11151743).
2. Matamyo Simwanda; Yuji Murayama; Manjula Ranagalage; Modeling the drivers of urban land use changes in Lusaka, Zambia using multi-criteria evaluation: An analytic network process approach. *Land Use Policy* **2020**, *92*, 104441, [10.1016/j.landusepol.2019.104441](https://doi.org/10.1016/j.landusepol.2019.104441).
3. Manjula Ranagalage; Ronald C. Estoque; Yuji Murayama; An Urban Heat Island Study of the Colombo Metropolitan Area, Sri Lanka, Based on Landsat Data (1997–2017). *ISPRS International Journal of Geo-Information* **2017**, *6*, 189, [10.3390/ijgi6070189](https://doi.org/10.3390/ijgi6070189).
4. Manjula Ranagalage; Ronald C. Estoque; Xinmin Zhang; Yuji Murayama; Spatial Changes of Urban Heat Island Formation in the Colombo District, Sri Lanka: Implications for Sustainability Planning. *Sustainability* **2018**, *10*, 1367, [10.3390/su10051367](https://doi.org/10.3390/su10051367).
5. Manjula Ranagalage; Dmslb Dissanayake; Yuji Murayama; Xinmin Zhang; Ronald C. Estoque; E. N. C. Perera; Takehiro Morimoto; Quantifying Surface Urban Heat Island Formation in the World Heritage Tropical Mountain City of Sri Lanka. *ISPRS International Journal of Geo-Information* **2018**, *7*, 341, [10.3390/ijgi7090341](https://doi.org/10.3390/ijgi7090341).
6. Dmslb Dissanayake; Takehiro Morimoto; Manjula Ranagalage; Yuji Murayama; Land-Use/Land-Cover Changes and Their Impact on Surface Urban Heat Islands: Case Study of Kandy City, Sri Lanka. *Climate* **2019**, *7*, 99, [10.3390/cli7080099](https://doi.org/10.3390/cli7080099).
7. Manjula Ranagalage; Sujith S. Ratnayake; Dmslb Dissanayake; Lalit Kumar; Hasula Wickremasinghe; Jagathdeva Vidanagama; Hanna Cho; Susantha Udagedara; Keshav Kumar Jha; Matamyo Simwanda; et al. Spatiotemporal

8. Prabath Priyankara; Manjula Ranagalage; Dmslb Dissanayake; Takehiro Morimoto; Yuji Murayama; Spatial Process of Surface Urban Heat Island in Rapidly Growing Seoul Metropolitan Area for Sustainable Urban Planning Using Landsat Data (1996–2017). *Climate* **2019**, *7*, 110, [10.3390/cli7090110](https://doi.org/10.3390/cli7090110).
9. Ying-Ying Li; Yu Liu; Manjula Ranagalage; Hao Zhang; Rui Zhou; Examining Land Use/Land Cover Change and the Summertime Surface Urban Heat Island Effect in Fast-Growing Greater Hefei, China: Implications for Sustainable Land Development. *ISPRS International Journal of Geo-Information* **2020**, *9*, 568, [10.3390/ijgi9100568](https://doi.org/10.3390/ijgi9100568).
10. Matamy Simwanda; Manjula Ranagalage; Ronald C. Estoque; Yuji Murayama; Spatial Analysis of Surface Urban Heat Islands in Four Rapidly Growing African Cities. *Remote Sensing* **2019**, *11*, 1645, [10.3390/rs11141645](https://doi.org/10.3390/rs11141645).
11. Manjula Ranagalage; Yuji Murayama; Dmslb Dissanayake; Matamy Simwanda; The Impacts of Landscape Changes on Annual Mean Land Surface Temperature in the Tropical Mountain City of Sri Lanka: A Case Study of Nuwara Eliya (1996–2017). *Sustainability* **2019**, *11*, 5517, [10.3390/su11195517](https://doi.org/10.3390/su11195517).
12. Dmslb Dissanayake; Takehiro Morimoto; Yuji Murayama; Manjula Ranagalage; Impact of Landscape Structure on the Variation of Land Surface Temperature in Sub-Saharan Region: A Case Study of Addis Ababa using Landsat Data (1986–2016). *Sustainability* **2019**, *11*, 2257, [10.3390/su11082257](https://doi.org/10.3390/su11082257).
13. Dmslb Dissanayake; Takehiro Morimoto; Yuji Murayama; Manjula Ranagalage; Hepi H. Handayani; Impact of Urban Surface Characteristics and Socio-Economic Variables on the Spatial Variation of Land Surface Temperature in Lagos City, Nigeria. *Sustainability* **2018**, *11*, 25, [10.3390/su11010025](https://doi.org/10.3390/su11010025).
14. Hepi H. Handayani; Yuji Murayama; Manjula Ranagalage; Fei Liu; Dmslb Dissanayake; Geospatial Analysis of Horizontal and Vertical Urban Expansion Using Multi-Spatial Resolution Data: A Case Study of Surabaya, Indonesia. *Remote Sensing* **2018**, *10*, 1599, [10.3390/rs10101599](https://doi.org/10.3390/rs10101599).
15. Manjula Ranagalage; Ronald C. Estoque; Hepi H. Handayani; Xinmin Zhang; Takehiro Morimoto; T. Tadono; Yuji Murayama; Relation between Urban Volume and Land Surface Temperature: A Comparative Study of Planned and Traditional Cities in Japan. *Sustainability* **2018**, *10*, 2366, [10.3390/su10072366](https://doi.org/10.3390/su10072366).
16. Estoque, R.C.; Murayama, Y.; Ranagalage, M.; Hou, H.; Subasinghe, S.; Validating ALOS PRISM DSM-derived surface feature height: Implications for urban volume estimation. *Tsukuba Geoenviromental Sci* **2017**, *13*, 13–22, .
17. Manjula Ranagalage; M. H. J. P. Gunarathna; Thilina Surasinghe; Dmslb Dissanayake; Matamy Simwanda; Yuji Murayama; Takehiro Morimoto; Darius Phiri; Vincent R. Nyirenda; K. T. Premakantha; et al. Multi-Decadal Forest-Cover Dynamics in the Tropical Realm: Past Trends and Policy Insights for Forest Conservation in Dry Zone of Sri Lanka. *Forests* **2020**, *11*, 836, [10.3390/f11080836](https://doi.org/10.3390/f11080836).
18. E. N. C. Perera; D. T. Jayawardana; P. Jayasinghe; Manjula Ranagalage; Landslide vulnerability assessment based on entropy method: a case study from Kegalle district, Sri Lanka. *Modeling Earth Systems and Environment* **2019**, *5*, 1635–1649, [10.1007/s40808-019-00615-w](https://doi.org/10.1007/s40808-019-00615-w).
19. Dmslb Dissanayake; Takehiro Morimoto; Manjula Ranagalage; Accessing the soil erosion rate based on RUSLE model for sustainable land use management: a case study of the Kotmale watershed, Sri Lanka. *Modeling Earth Systems and Environment* **2018**, *5*, 291–306, [10.1007/s40808-018-0534-x](https://doi.org/10.1007/s40808-018-0534-x).
20. M. K. N. Kumari; K. Sakai; S. Kimura; S. Nakamura; K. Yuge; M. H. J. P. Gunarathna; Manjula Ranagalage; D. M. S. Duminda; INTERPOLATION METHODS FOR GROUNDWATER QUALITY ASSESSMENT IN TANK CASCADE LANDSCAPE: A STUDY OF ULAGALLA CASCADE, SRI LANKA. *Applied Ecology and Environmental Research* **2018**, *16*, 5359–5380, [10.15666/aeer/1605_53595380](https://doi.org/10.15666/aeer/1605_53595380).
21. K. Gunaalan; Manjula Ranagalage; M. H. J. P. Gunarathna; M.K.N. Kumari; Meththika Vithanage; Tharmalingam Srivaratharasan; Suntharalingam Saravanan; T. W. S. Warnasuriya; Application of Geospatial Techniques for Groundwater Quality and Availability Assessment: A Case Study in Jaffna Peninsula, Sri Lanka. *ISPRS International Journal of Geo-Information* **2018**, *7*, 20, [10.3390/ijgi7010020](https://doi.org/10.3390/ijgi7010020).
22. Dmslb Dissanayake; Takehiro Morimoto; Yuji Murayama; Manjula Ranagalage; E. N. C. Perera; Analysis of Life Quality in a Tropical Mountain City Using a Multi-Criteria Geospatial Technique: A Case Study of Kandy City, Sri Lanka. *Sustainability* **2020**, *12*, 2918, [10.3390/su12072918](https://doi.org/10.3390/su12072918).